TWINBROOK ELEMENTARY SCHOOL FEASIBILITY STUDY

PREPARED FOR
MONTGOMERY COUNTY PUBLIC SCHOOLS

OCTOBER 3, 2025

BY

COOPER CARRY

REDACTED

MCPS

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Twinbrook Elementary School
5911 Ridgway Avenue
Rockville, MD 20851

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Adrian Saunders	Project Manager, Department of Planning and Construction

Maryland State Department of Education

Jillian Storms	Executive Director
Jo-Anne Murray	Architect Capital Projects

I. INTRODUCTION

The feasibility study was conducted for Montgomery County Public Schools (MCPS) by the architectural firm of Cooper Carry, Inc. Twinbrook Elementary School is located at 5911 Ridgway Avenue, Rockville, MD 20851. The work was performed under the direction of the MCPS Division of Facilities Management's Department of Planning and Construction.

FEASIBILITY STUDY PARTICIPANTS

The Feasibility Study Participants reviewed, revised, and approved the design concepts for the Twinbrook Elementary School Major Capital Project. The meetings occurred on May 20, 2025, May 22, 2025, and June 2, 2025. A meeting with the city of Rockville was held on June 12, 2025. A final presentation to the community and PTA will be held on September 16, 2025. The proposed design is a result of the participants' recommendations, suggestions, and guidance during the feasibility study process.

Feasibility Study Participants
Julie Morris, MCPS
Robin O'Hara, MCPS
Adrian Saunders, MCPS
Shiho Shibasaki, MCPS
Jillian Storms, MSDE
Jo-Anne Murray, MSDE
Anthony Mazza, City of Rockville CPDS
Chris Davis, City of Rockville CPDS
Jim Wasilak, Chief of Zoning CPDS
John Foreman, Dev. Svcs Mgr. CPDS
Andrew Luetkemeier, DPW Traffic & Public Transportation Principal Engineer
Anne O'Dell, City of Rockville Arts and Culture Program Mgr. City Mgr. Office
Charles Biggus, City of Rockville Fire Code Plans Examiner
Christine Henry, City of Rockville Recreation and Parks
Holly Simmons, City of Rockville Dept. Planning
Katie Gerbes, City of Rockville Comp. Planning Mgr.
Megan Frene, City of Rockville Recreation and Parks
Shannon Patrick, City of Rockville Fire Protection Engineer and Acting Fire Marshall
Shaun Ryan, City of Rockville
Shawn Benjaminson, ADTEK
Tanya Agular, Community School Liaison
Angle Reuto, Interpreter
Aura Rauto, Interpreter
Luis Mejia, Interpreter
Maria Lucia Lopez, Interpreter
Monica Kellner, Acting Principal
Aeseun Yoon, Staff
Ellen Miller, Staff, Community Member
Kristin Walsh, Staff
Natalie Shelton, Staff
Rebecca Lane, Staff
Roxanna Lopez, Staff
Sarah White, Staff
Shawna Cottage, Staff
Jim Lapping, DPW Eng. Supervisor
Jenny, PTA, RM Cluster Coordinator
Garrett Fitzgerald, PTA, Parent
Jim Turner, PTA, Parent
Katherine Lopez, Parent & PTA Board Member
Nicole Sikorski, PTA Board, Parent

I. INTRODUCTION (CONTINUED)

Feasibility Study Participants (Continued)

Sally McCarthy, Community Member, MCCPTA
Kevin Sorrentio, Parent & Past PTA Member
Amy Ackerberg-Hastings, Parent
Ana Maria Coper, Parent
Iris Zavalo, Parent
Reina Flores, Parent
Zuha, Parent
Diana Guablado, Alum.
Rita Escobar, Alum.
Patty Timm, Alum. & Grandparent
Andrea Asztalos, Community Member
David Solnick, Community Member
Ingrid, Community Member
Jianjun Wang, Community Member
Joe C., Community Member
Nelson Hastings, Community Member
Rodney Peele, Community Member
Sherry Lanuza, Community Member
Vincent Russo, Former Parent
Wendy, Community Member
Yaneth Alvardo, Community Member
Carol Hanniford, Grandparent
Bricelia Enoa, Parent
Emily Earle, Teacher & Parent
Nicole Kammogne, PTA & Parent
Natali Shelter, Staff
Felipe Sesnich, PTA & Parent
Marissa Valeri, Rockville City Council Member
Kevin Sorrentio, Community Member
Joe Timm, Grandparent
Erin Feng, PTA

II. EXECUTIVE SUMMARY

Purpose
The purpose of this feasibility study is to explore options that will accommodate the educational specification requirements for Twinbrook Elementary School. Furthermore, this study provides specific recommendations to Montgomery County Public Schools (MCPS) for implementation. When completed, the facility will have a capacity of 614 students, with core spaces designed for 640 students.

History
Twinbrook Elementary School is located at 5911 Ridgway Avenue Rockville, MD 20851 within the City of Rockville. The original structure was built in 1951. Additions were constructed in 1952, 1955, 1959, 1960, 1971 and 1985. Presently, the school capacity is 614 students, and the enrollment is approximately 459 students in grades Pre-K thru 5. The existing structure is 79,750 gross square feet. The existing site is 10.45 acres. Twinbrook Elementary School is part of the Richard Montgomery Cluster

Project Goal
The overall project goal is to provide a design for Twinbrook Elementary School that meets the MCPS educational specifications while accounting for future planned growth, meets building and accessibility codes, and addresses community concerns regarding age and relevancy of the building as an asset to the school, neighborhood, and City.

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

The methodology employed included a review of all available data and drawings related to the existing school and site, visits to the site, and meetings with the Feasibility Study participants and MCPS staff.

The design team developed multiple options illustrating expansion options and narrowed the choices based on the objectives of the MCPS Educational Specifications, impacts on school operation, and the physical limitations of the school.

II. EXECUTIVE SUMMARY (CONTINUED)

Overview

Four Options were developed with input from the feasibility study participants. Options 2, 3, & 4 meet the site and programmatic requirements. All options share common site and building elements.

Options 1, 2 and 3 considered the re-use or partial re-use of the existing Twinbrook Elementary School. Option 4 considers a complete replacement of the existing Twinbrook Elementary School

Option 1 (Renewal) fully renovates the existing building with electrical and plumbing system replacement, addition of a fire suppression systems, accessibility and toilet facility upgrades, and new interior finishes. This option is the more economical and provides accessibility upgrades but does not meet a majority of the project goals such as alignment with MCPS educational specifications.

Option 2 (Less than 50% Demolition) demolishes less than half of the existing building and proposes new additions to meet program requirements. Scope within the existing to remain structure includes electrical and plumbing system replacement, addition of a fire suppression systems, accessibility and toilet facility upgrades, and new interior finishes. This option meets the MCPS educational specifications and provides accessibility upgrades but maintains some existing challenging conditions such as lack of visibility to outdoor play areas and lack of direct daylight to existing internal spaces.

Option 3 (More than 50% Demolition) demolishes more than half of the existing building and proposes new additions to meet program requirements. Scope within the existing to remain structure includes electrical and plumbing system replacement, addition of a fire suppression systems, accessibility and toilet facility upgrades, and new interior finishes. This option meets the MCPS educational specifications and provides accessibility upgrade but the centralized entry disperses parking around the site. Reuse of the existing building also maintains some existing challenging conditions such as lack of visibility to outdoor play areas and lack of direct daylight to existing internal spaces.

Option 4 (Replacement) demolishes the entire existing building and proposes a new building on the site. This option meets the project goals but at a higher cost than the other options.

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

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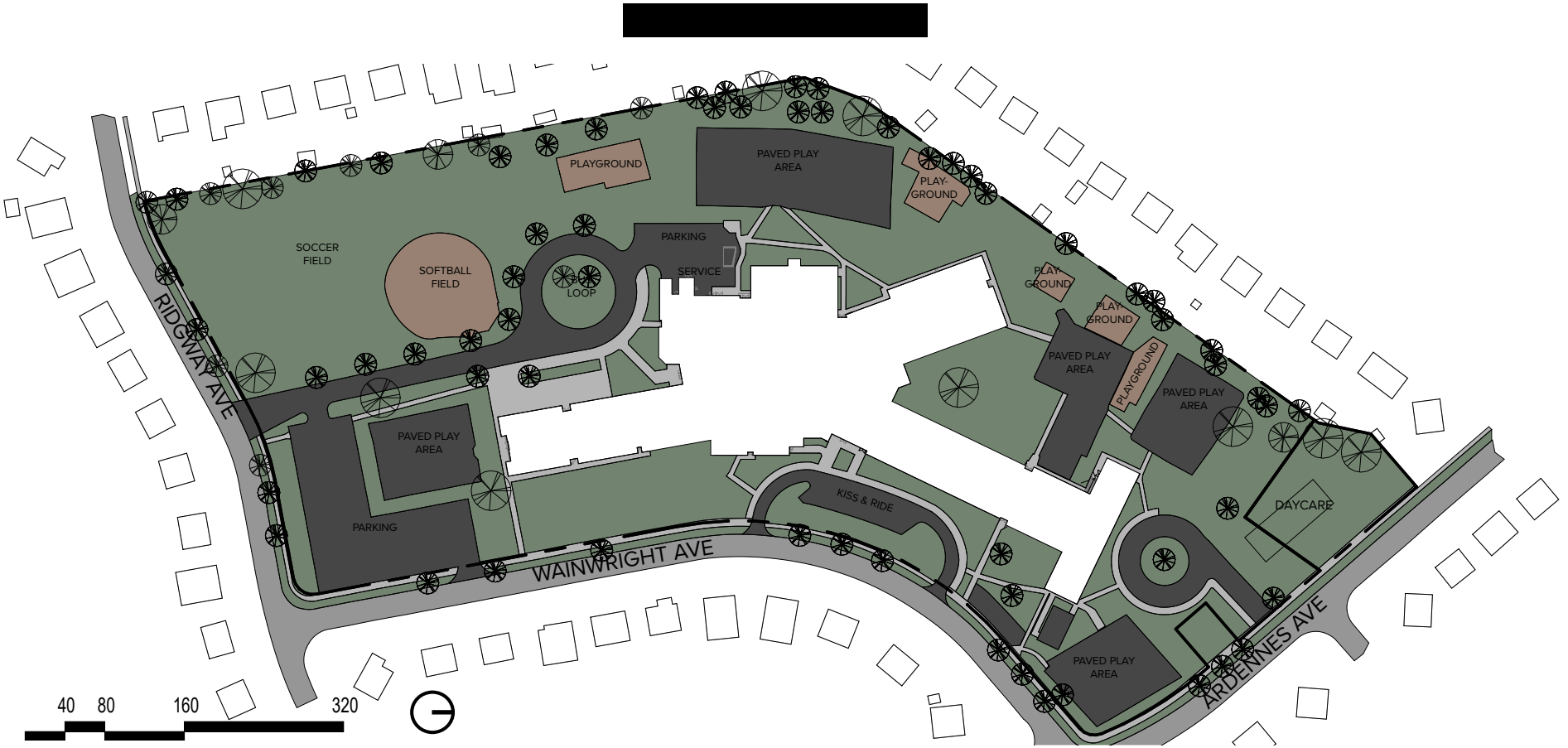
II. EXECUTIVE SUMMARY (CONTINUED)

RENEWAL/RENOVATION
NEW CONSTRUCTION

OPTION ONE - RENEWAL

Option One renews the existing building. The existing site program remains except where accessibility upgrades are required. All new infrastructure and systems will be designed to meet MCPS standards. These include life safety, fire protection, electrical, lighting, data and communication systems. Select portions of the building and site will be upgraded to comply with accessibility standards including replacement of non-complying toilet facilities, ramps, signage, and door hardware.



II. EXECUTIVE SUMMARY (CONTINUED)

RENEWAL/RENOVATION
NEW CONSTRUCTION

OPTION TWO - LESS THAN 50% DEMOLITION

Option Two demolishes portions of the existing building and renews the remaining building. A new addition is constructed. 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 life safety, fire protection, electrical, lighting, data and communication systems. The building and site will comply with accessibility standards.

II. EXECUTIVE SUMMARY (CONTINUED)

RENEWAL/RENOVATION

NEW CONSTRUCTION

OPTION THREE - MORE THAN 50% DEMOLITION

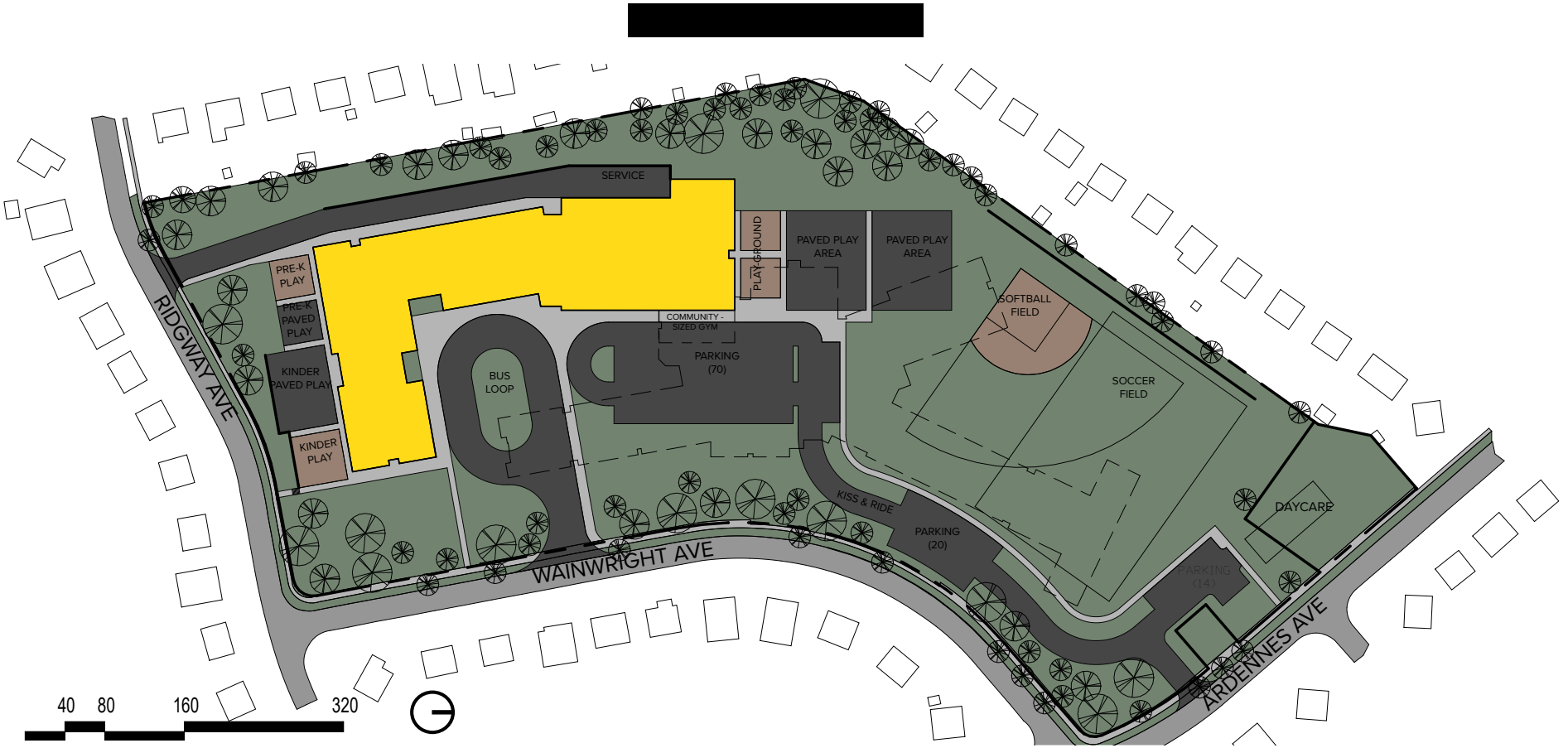
Option Three demolishes portions of the existing building and renews the remaining building. A new addition is constructed. All of the site and building elements from the educational specifications are included in this option. All new infrastructure and systems will be designed to meet MCPS standards. These include life safety, fire protection, electrical, lighting, data and communication systems. The remaining building and site will be upgraded to comply with accessibility standards including replacement of non-complying toilet facilities, ramps, signage, and door hardware.

II. EXECUTIVE SUMMARY (CONTINUED)

RENEWAL/RENOVATION
NEW CONSTRUCTION

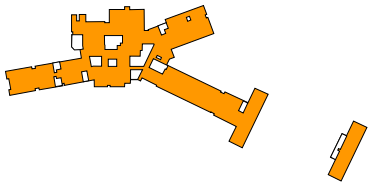
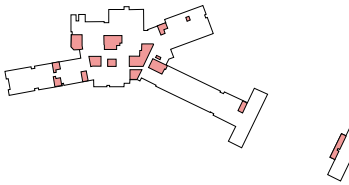
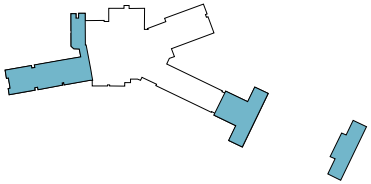
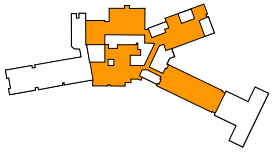
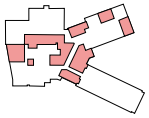
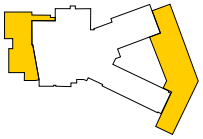
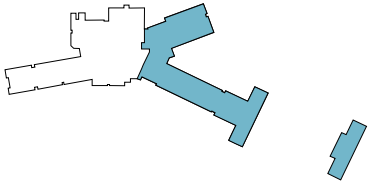
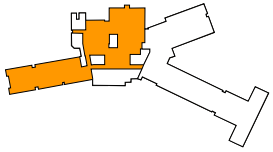
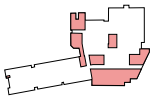
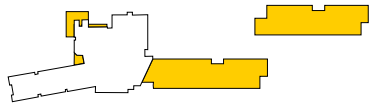
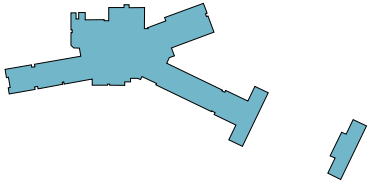
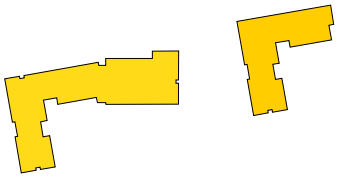
OPTION FOUR - REPLACEMENT

Option Four demolishes the existing building and site elements. A new building and site elements are constructed on the 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 life safety, fire protection, electrical, lighting, data and communication systems. The new building and site will comply with accessibility standards.



II. EXECUTIVE SUMMARY (CONTINUED)

** Add Alternates not included.*

OPTION		DEMOLITION	RENEWAL	RENOVATION	NEW CONSTRUCTION
1	Total Building after Renewal = 79,750 GSF Net assignable SF = 54,191 NSF Efficiency = 69%	**Total = 0 GSF**	 Main Level Lower Level **Total = 71,802 GSF**	 Main Level Lower Level **Total = 7,948 GSF**	**Total = 0 GSF**
2	Total Building after Renewal = 78,609 GSF Net assignable SF = 56,842 NSF Efficiency = 72% *	 Main Level Lower Level **Total = 30,913 GSF**	 **Total = 36,645 GSF**	 **Total = 12,192 GSF**	 **Total = 29,772 GSF**
3	Total Building after Renewal = 80,505 GSF Net assignable SF = 56,879 NSF Efficiency = 71% *	 Main Level Lower Level **Total = 40,813 GSF**	 **Total = 28,971 GSF**	 **Total = 9,966 GSF**	 Main Level Upper Level **Total = 41,568 SF**
4	Total Building after Renewal = 79,668 GSF Net assignable SF = 54,012 NSF Efficiency = 68% *	 Main Level Lower Level **Total = 79,750 GSF**	**Total = 0 GSF**	**Total = 0 GSF**	 Main Level Upper Level **Total = 79,668 GSF**

II. EXECUTIVE SUMMARY (CONTINUED)

Gross Square Footage

	Option 1	Option 2	Option 3	Option 4
Existing	79,750	79,750	79,750	79,750
New Construction	0	29,772	41,568	79,668
Renewal	71,802	36,645	28,971	0
Renovation	7,948	12,192	9,966	0
Demolition	0	30,913	40,813	79,750
Existing to Remain	79,750	48,837	38,937	0
Total Gross Square Feet	79,750	78,609	80,505	79,668
Total Cost in FY 2028 Dollars	[redacted]	[redacted]	[redacted]	[redacted]
Linkages to Learning Add Alt	*included*	[redacted]	[redacted]	[redacted]
Community Sized Gym Add Alt	*included*	*included*	*included*	[redacted]
Courtyard Outdoor Classroom Add Alt	*n/a*	[redacted]	*n/a*	*n/a*

Feasibility Study Cost Outline - Option 4

Estimated Construction Cost	[redacted]
Additional Owner Cost	[redacted]
TOTAL	[redacted]

Renewal scope includes replacement / addition of infrastructure and systems including life safety, fire protection, electrical, lighting, data and communication systems and replacement of interior finishes.

Renovation scope includes Renewal as well as reconfiguration of interior spaces to meet accessibility requirements, revise toilet room layout, and meet program space needs.

II. EXECUTIVE SUMMARY (CONTINUED)

COMMUNITY ENGAGEMENT

Community engagement was an important aspect of the feasibility study process. Multiple engagement opportunities were provided by Montgomery County Public Schools and the design team throughout the process. The discussion and feedback were vital to establishing priorities and informing decision making.

Three community engagement sessions were conducted throughout May and June of 2025. The initial session was focused on listening and gathering feedback to establish goals and priorities. Proposed concepts were presented at the following two sessions. The forum allowed participants to provide feedback as well as to express concerns and aspirations relative to the project and the proposed concepts. Key issues raised included concerns with use of Wainwright Avenue for school bus and vehicular circulation, visibility of play areas from the property boundaries, accessibility within the building and on the site, and space to support the wrap-around services as a Community School.

To broaden outreach, an online survey was distributed to collect additional input. The responses to the online survey provided additional insight and further reinforced previous feedback. A final community meeting is planned for September 2025 to present the final concepts, communicate the next steps in the process, and gather additional feedback. In addition, there is a planned presentation to the Rockville City Council in October.

As the project moves into design and construction, community outreach will continue to play a vital role in ensuring the design for Twinbrook Elementary School becomes a source of pride and inspiration for the school and community of the City of Rockville.

I. Stakeholder Involvement:

Input was gathered from a wide range of community members including parents, PTA members, students, teachers, staff, neighbors, and City of Rockville planning staff. A series of in-person and virtual community meetings, site visits, and surveys provided various opportunities for stakeholder feedback.

III. City of Rockville Input:

The design options were presented to and discussed with City staff representing the various departments. The following feedback was provided:

- There is interest from the City on collaborating on a community-sized gymnasium.
- Roads and sidewalks surrounding the school property would be required to be brought into compliance with City standards if significant impact is made to the site.
- Request was made to provide adequate queuing on site to reduce impact to congestion on surrounding streets.
- The City encourages incorporating public art per City guidelines.

II. EXECUTIVE SUMMARY (CONTINUED)

COMMUNITY ENGAGEMENT

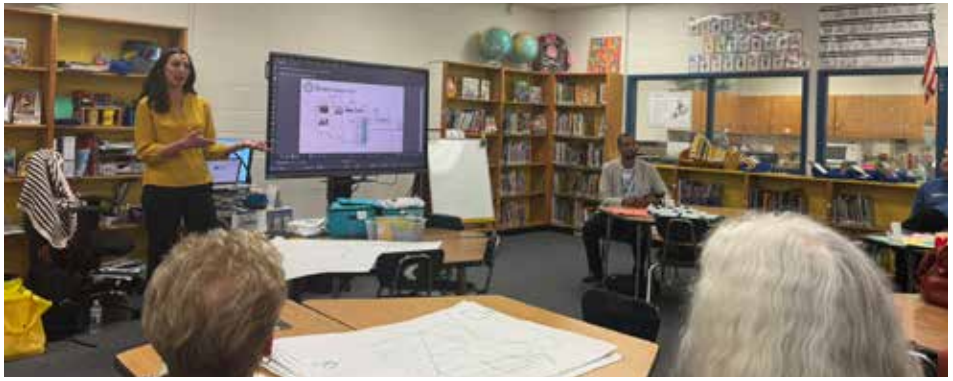
III. Priorities Identified by the Community:

Through discussions and feedback, recurring priorities were identified:

- Improved ADA accessibility in the building and around the site.
- Age, condition, and layout of the existing building were of concern.
- Improved access and identification of the main entrance.
- Expanded views to all areas of the site in alignment with CPTED principals.
- Consideration of traffic flow on boundary streets, particularly Wainwright Avenue, a narrow one-way street.
- Preferred adjacency of gym and cafeteria to support the Community School programs.
- Importance of a strong childcare offering continuing to be included on the site.

IV. Community Feedback and Online Survey Results:

- Respondents strongly favored Option 4.
- Options 1 and 2 were universally criticized as inadequate.
- While all options presented included renewal of the existing building, there was a general concern that options 1-3 might feel “outdated”.
- There is some willingness to consider Option 3 as a compromise.



In-person Community Engagement Meeting

V. Responsive Planning:

The design team integrated community feedback into the site and building concepts. Concepts integrated priorities such as accessibility upgrades, vehicular circulation patterns, and CPTED principals. Options were evaluated for alignment with MCPS educational requirements as well as responsiveness to community concerns.

VI. Ongoing Communication:

Montgomery County Public Schools and the design team will continue engaging with the community throughout the planning, design, and construction phases to ensure transparency, build trust, and keep stakeholders informed and involved as the project progresses. The success of this project depends on not only its design and functionality, but how well it reflects the values, identity, and aspirations of the people it serves. Community engagement will remain a guiding principal for Twinbrook Elementary School through completion and beyond.

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III. SCOPE, METHODOLOGY, AND GOALS

SCOPE AND INTENT

Montgomery County Public Schools (MCPS) plans to upgrade Twinbrook 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 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 facility will have a capacity of 614 students, with core spaces designed for 640 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 four (4) site and building concepts addressing the major capital project 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 renovate, renew and/or rebuild the school to comply with the Educational Specification Requirements, and the Summary of Space Requirements, dated February 25, 2025.

This Feasibility Study was developed using the following methodology:

- Review of the existing drawings provided by MCPS
- Analysis of the existing physical plant
- Review of the Educational Specifications and Summary of Space Requirements provided by MCPS
- Research conducted by the design team
- Consensus Workshops with the feasibility participants including MCPS-DDC Staff, community members, PTA, and school staff
- Modification of design options as a response to feedback

III. SCOPE, METHODOLOGY, AND GOALS (CONTINUED)

GENERAL GOALS

The following are the general goals and objectives established by the Feasibility Study participants:

A. SITE GOALS AND OBJECTIVES

- Site is efficiently laid out to promote student safety.
- The site is fully accessible.
- Open space is preserved to the extent feasible.
- Main entrance is clearly identified.
- Student drop-off and bus loop are co-located near the main entrance but provide separate circulation paths.
- Provide site amenities to meet the educational program and support after-school activities.
- The site and play areas are open and visible from public right-of-way to promote safety.
- Safe walking paths are provided.
- Conditions within existing daycare agreement are upheld.

B. BUILDING GOALS AND OBJECTIVES

- Building systems are upgraded.
- Fire suppression system is added.
- The building is fully accessible.
- Circulation within existing building is improved.
- The Library Media Center and Gymnasium are co-located to support after-school activities and community use.
- A community-sized gymnasium is considered as an Add Alternate.
- Toilet facilities are upgraded to be accessible and provide inclusive group restrooms.
- A Linkages to Learning program is provided as an Add Alternate.
- The status of Community School is accounted for by providing community access to shared spaces.

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IV. EXISTING CONDITIONS

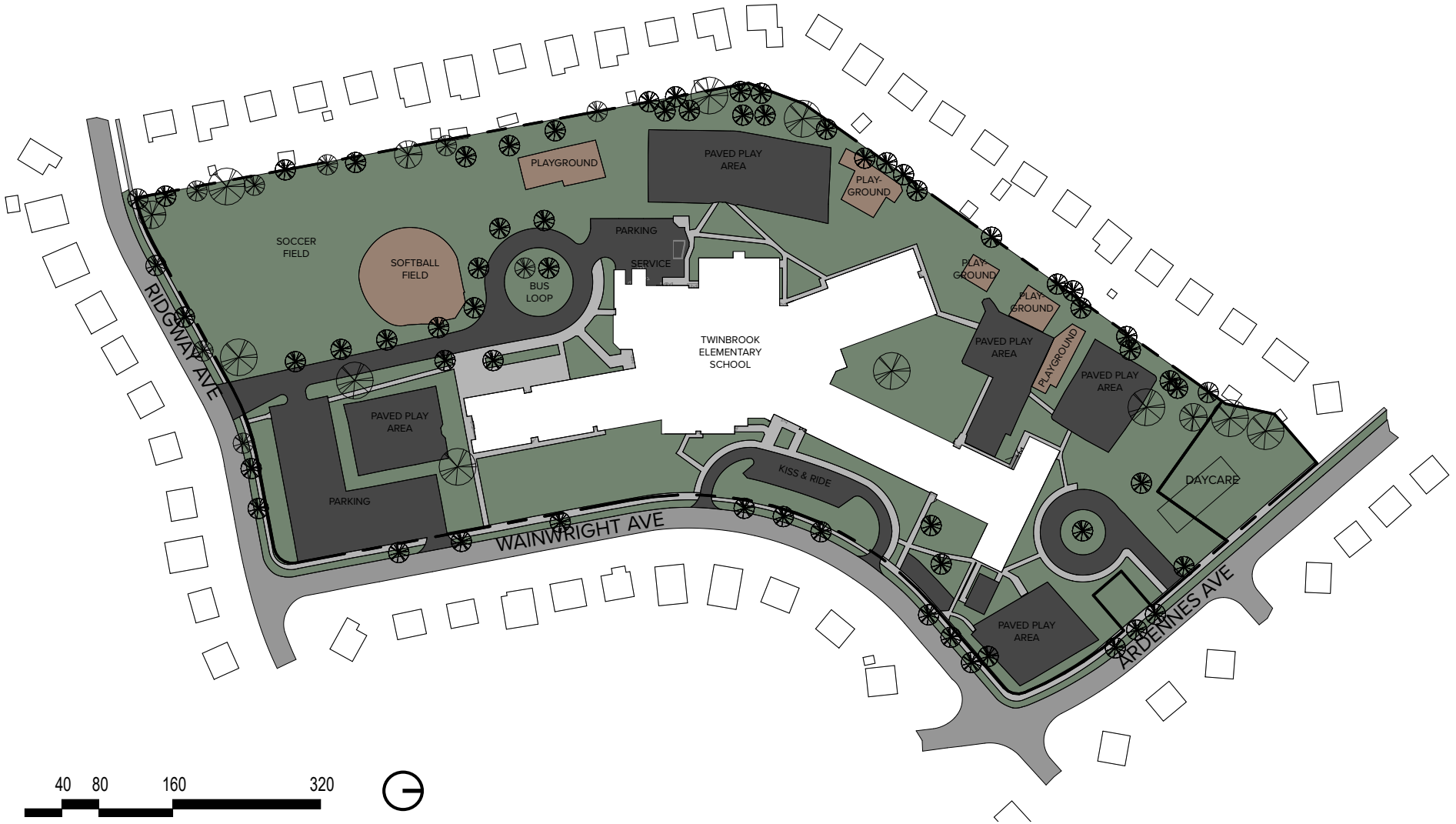
VICINITY MAP

IV. EXISTING CONDITIONS (CONTINUED)

SITE PLAN

Problematic site features that have limited solutions

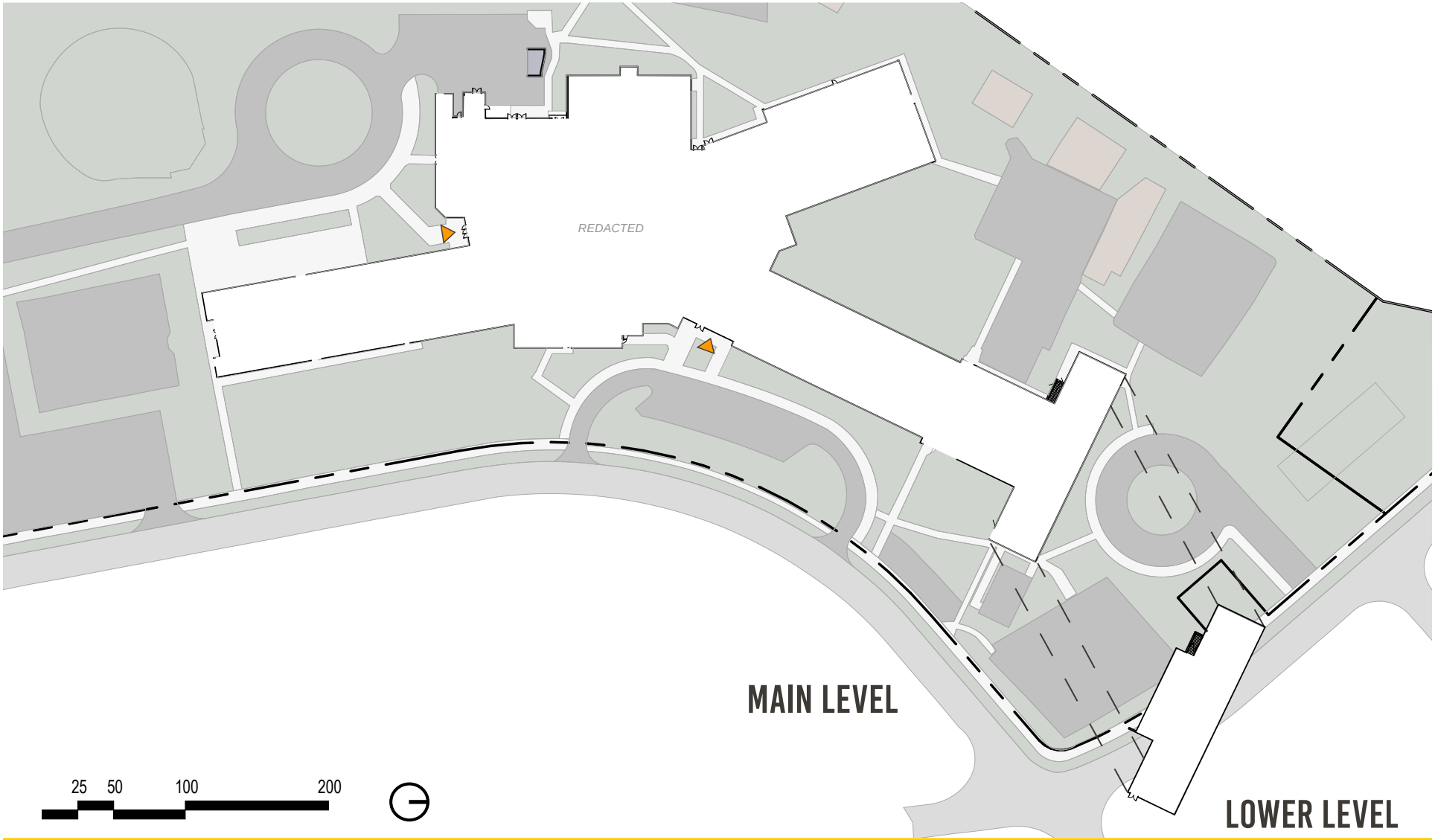
- Challenging grades & steep slopes
- Shape and configuration of property
- Location of existing building on site
- Existing daycare and related parking
- Narrow one-way road bordering the site on the south



IV. EXISTING CONDITIONS (CONTINUED)

FLOOR PLAN

ADMINISTRATION
BUILDING SUPPORT
CIRCULATION
CLASSROOMS
MUSIC AND ARTS
MEDIA CENTER, PHYS. ED., MULTIPURPOSE & KITCHEN
INSTRUCTIONAL SUPPORT



ABBREVIATIONS LEGEND

CR - CLASSROOM
TLT - TOILET
ST - STORAGE
E - ELEVATOR
CNSL - COUNSELING SUITE
MECH - MECHANICAL
ELEC - ELECTRICAL
ADMIN - ADMINISTRATION
CONF - CONFERENCE
KINDER - KINDERGARTEN
WR - WORKROOM
INSTR - INSTRUMENTAL MUSIC
DEVELOP - STAFF DEVELOPMENT
BLDG - BUILDING SERVICE

IV. EXISTING CONDITIONS (CONTINUED)

BUILDING HISTORY DIAGRAM

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V. DESCRIPTION OF OPTIONS

GENERAL

Four conceptual options have been developed in response to the MCPS Educational Specifications and goals of the Feasibility Study participants. Each option addresses the physical and instructional goals in a different manner.

SITE AND BUILDING ELEMENTS FOR OPTION 1

- Existing site program remains.
- All site features will be ADA accessible.
- All MCPS education specifications programmed size and adjacency requirements are not met.
- The facility will be ADA accessible, and an elevator will be added to access the lower level.
- Any hazardous materials will be abated from the existing building during the demolition process.
- Replace existing windows.

V. DESCRIPTION OF OPTIONS (CONTINUED)

COMMON SITE DESIGN ELEMENTS FOR OPTIONS 2, 3, & 4

- All programmed site requirements are included.
- A parent drop off lane and separate bus loop have been provided in each option.
- Parking for 100 automobiles and a bus loop that can accommodate up to 11 buses are included.
- Student drop off and bus circulation are adjacent to each other (options 3 & 4 only).
- The Gymnasium and Multi-Purpose Rooms are located adjacent to the play fields, paved play areas, and playgrounds.
- Site retaining walls are required to address existing topography.
- 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.

COMMON BUILDING ELEMENTS FOR OPTIONS 2, 3, & 4

- All programmed requirements are included in all options.
- The Gymnasium and Multi-Purpose rooms can be easily isolated from the rest of the building for after-hours use.
- The Administration Suite is at the main entrance which is centrally located. 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.
- Existing windows will be replaced.

V. DESCRIPTION OF OPTIONS (CONTINUED)

SUSTAINABILITY

In order to determine the best approach for Twinbrook Elementary, it is critical to consider the impacts of the Rockville Commercial Green code on each Option presented. The Green Code applies to the following:

- New buildings or additions >7,500 GSF
- Alterations >50% of the GSF (altered area must be >7,500)

The City of Rockville requires projects that meet the criteria above to comply with the 2015 International Green Construction Code (IgCC) as amended through Chapter 5, as well as the 2021 International Energy Conservation Code (IECC). Based on these stipulations, Options 1-3 will need to follow both City of Rockville IECC 2021 and IgCC 2015, while Option 4 will need to comply with Maryland High Performance Green Building Program (MD HPGBP) and IECC requirements. Please reference the below narrative which identifies compliance paths for MD HPGBP. To establish an accurate estimate of budget, schedule, and overall project goals, key code requirements should be identified and considered:

IgCC -2015/MD HPGBP

- For Option 4, Twinbrook will comply with the following in lieu of IgCC-2015 as an alternative compliance path (ACP):
  - Green Globes Certification – Two Globes. Note that achieving Two Globes is the prioritized compliance pathway.
  - LEED Silver Certification Alignment – Official review and certification is not required, but all prerequisites and a path to Silver must be met.
  - 2021 IgCC or better
- Commissioning (Cx) Requirements – A certified third-party Commissioning Agent (CxA) must provide the completed commissioning report and letter certifying owner receipt of building operations and maintenance documents.
- Project Electives – Not less than 10 project electives should be pursued. Project electives are additional sustainable design opportunities that go beyond the scope of basic code. They are considered more stringent than code. Some examples of electives for additional context include increased percentage of Construction & Demolition Waste diversion from 50% to 75%, limiting outdoor water use, access to daylighting, and improved zEPI (Zero Energy Performance Index).

V. DESCRIPTION OF OPTIONS (CONTINUED)

SUSTAINABILITY CONT.

IECC-2021

- Energy Modeling – An approved energy modeler must complete an energy model report identifying a zEPI <50 (unless otherwise stated by the jurisdiction.

- EV Charging Stations and Infrastructure – the following percentages of parking spaces must meet the EV criteria identified:
  - EV-Chargers Provided – 2%
  - EV Ready – 8%: Providing all required infrastructure, including the wires and circuit breakers, but EV-chargers not installed
  - EV Capable – 10%: Requires the minimum infrastructure (conduit, breaker space, junction box, etc.) for the future installation of an EV charging station.
- Solar-Ready Zones – Establish a solar-ready zone that is oriented between 110-270 degrees of true north or have low-slope roofs and is equal to >40% of the roof area. Skylights, occupied roof decks, vegetated roof areas, and mandatory access or set back areas are exempt from total roof area.

NZE

MCPS may also consider achieving Net Zero Energy for Twinbrook Elementary School Option 4. The proposed design for option 4 includes the necessary infrastructure to pursue this option.

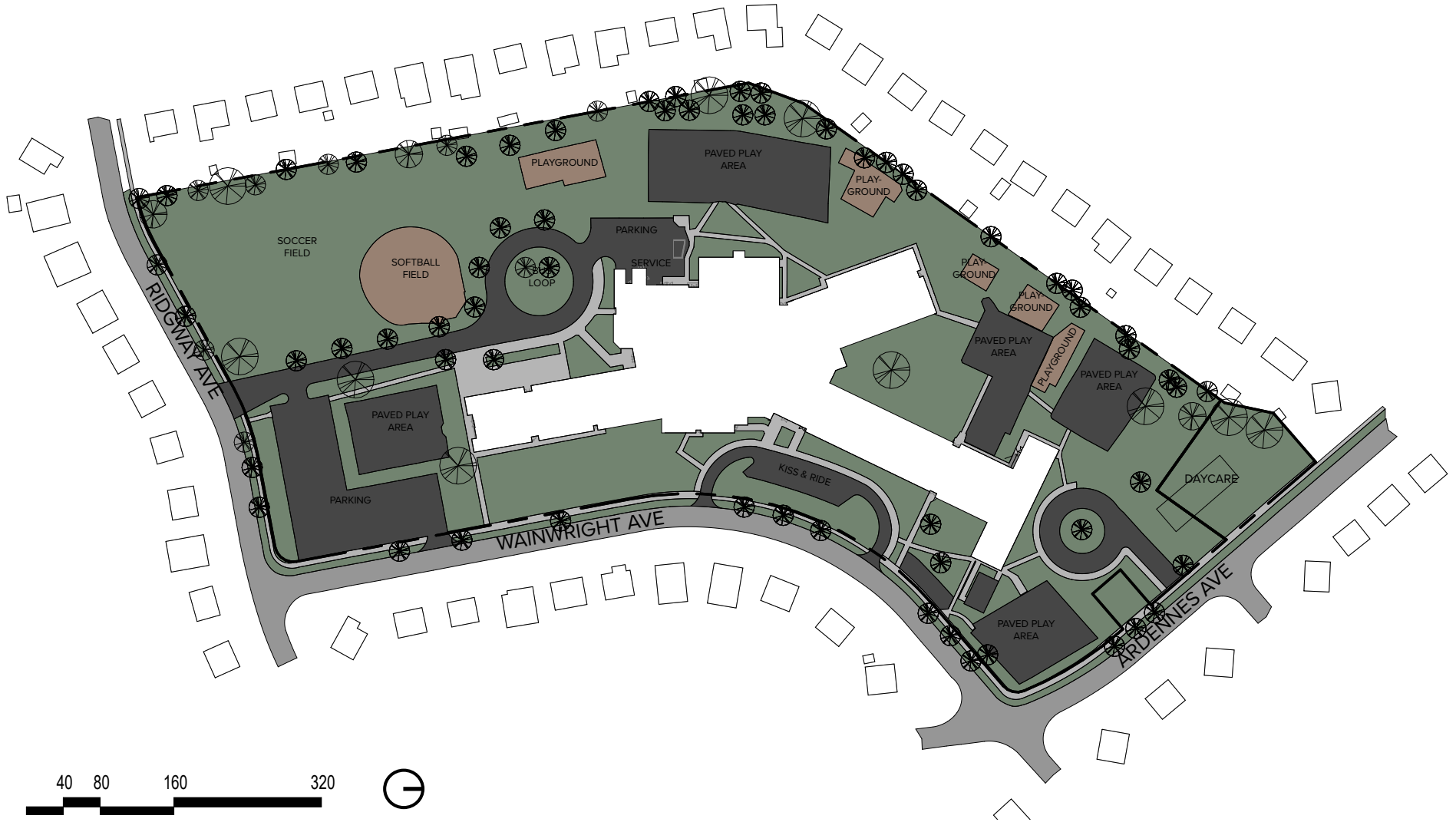
V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - DESCRIPTION

Option 1 does not include any building additions. Interior renovation is limited to replacement of building systems, and upgrades to finishes, toilet facilities, and accessibility. Program area is reduced in this option due to renovation of existing spaces to accommodate accessibility upgrades, toilet room modifications, and the Add Alternate program: Linkages to Learning. Site accessibility upgrades include replacement of non-compliant sidewalks and handrails, loading and parking lot areas exceeding allowable slope, and addition of accessible pathway to softball field and to the building from the parking lot.

V. DESCRIPTION OF OPTIONS (CONTINUED)

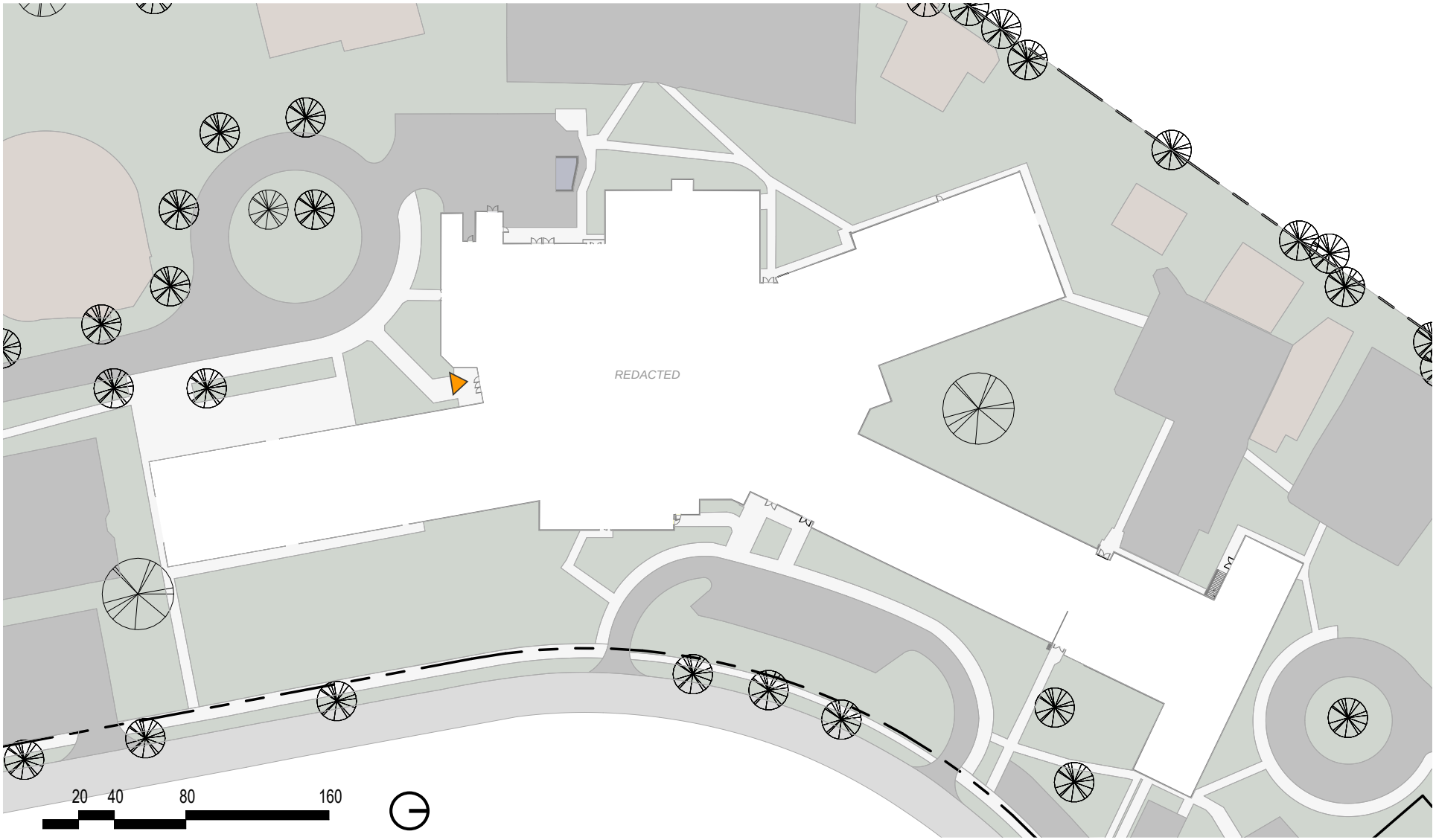
OPTION ONE - SITE PLAN



V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - FLOOR PLAN GROUND LEVEL

ADMINISTRATION
BUILDING SUPPORT
CIRCULATION
CLASSROOMS
MUSIC AND ARTS
MEDIA CENTER, PHYS. ED., MULTIPURPOSE & KITCHEN
INSTRUCTIONAL SUPPORT
LINKAGES TO LEARNING (ADD ALTERNATE)

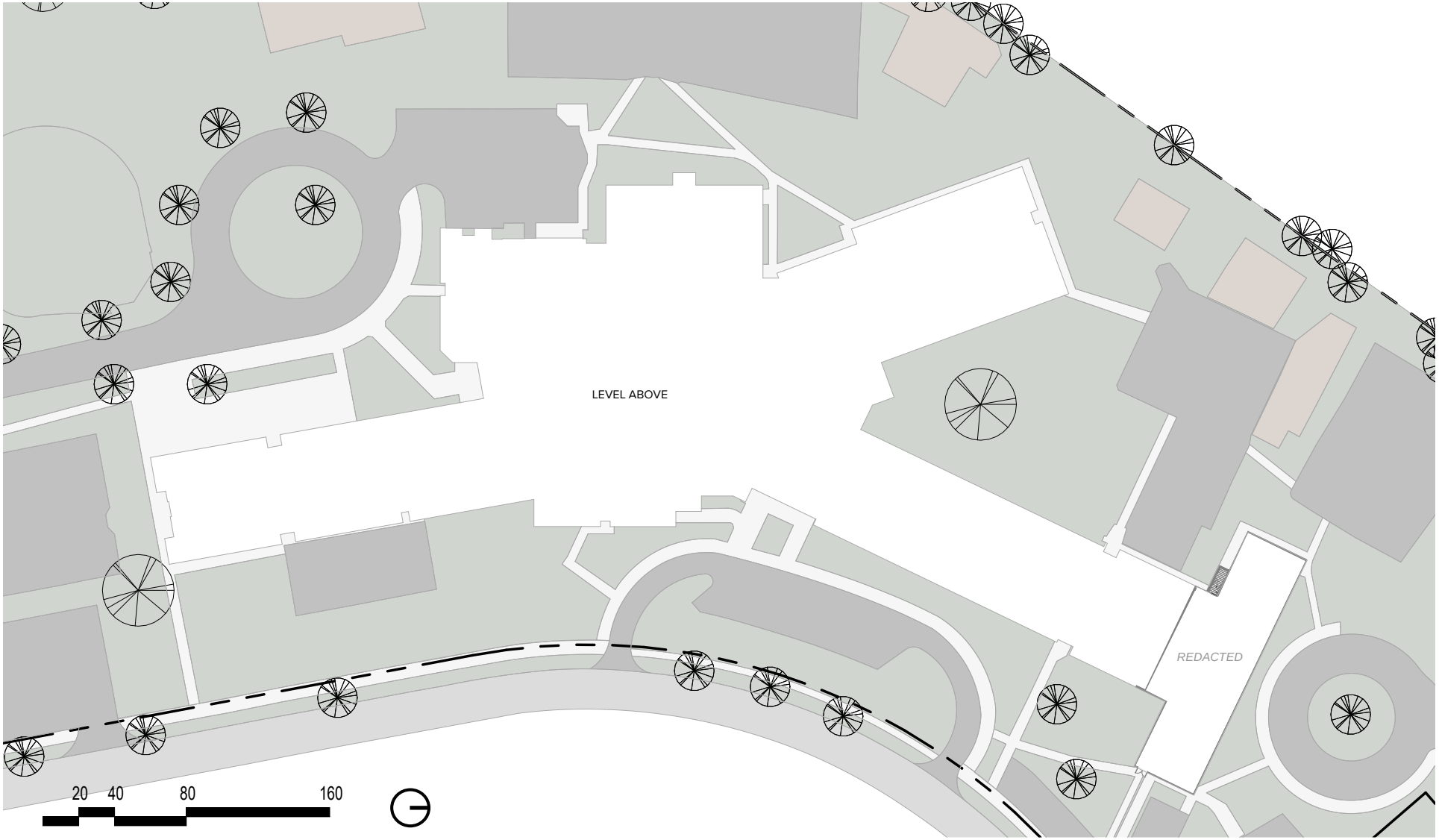


ABBREVIATIONS LEGEND

CR - CLASSROOM
TLT - TOILET
ST - STORAGE
E - ELEVATOR
CNSL - COUNSELING SUITE
MECH - MECHANICAL
ELEC - ELECTRICAL
ADMIN - ADMINISTRATION
CONF - CONFERENCE
KINDER - KINDERGARTEN
WR - WORKROOM
INSTR - INSTRUMENTAL MUSIC
DEVELOP - STAFF DEVELOPMENT
BLDG - BUILDING SERVICE

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - FLOOR PLAN LOWER LEVEL



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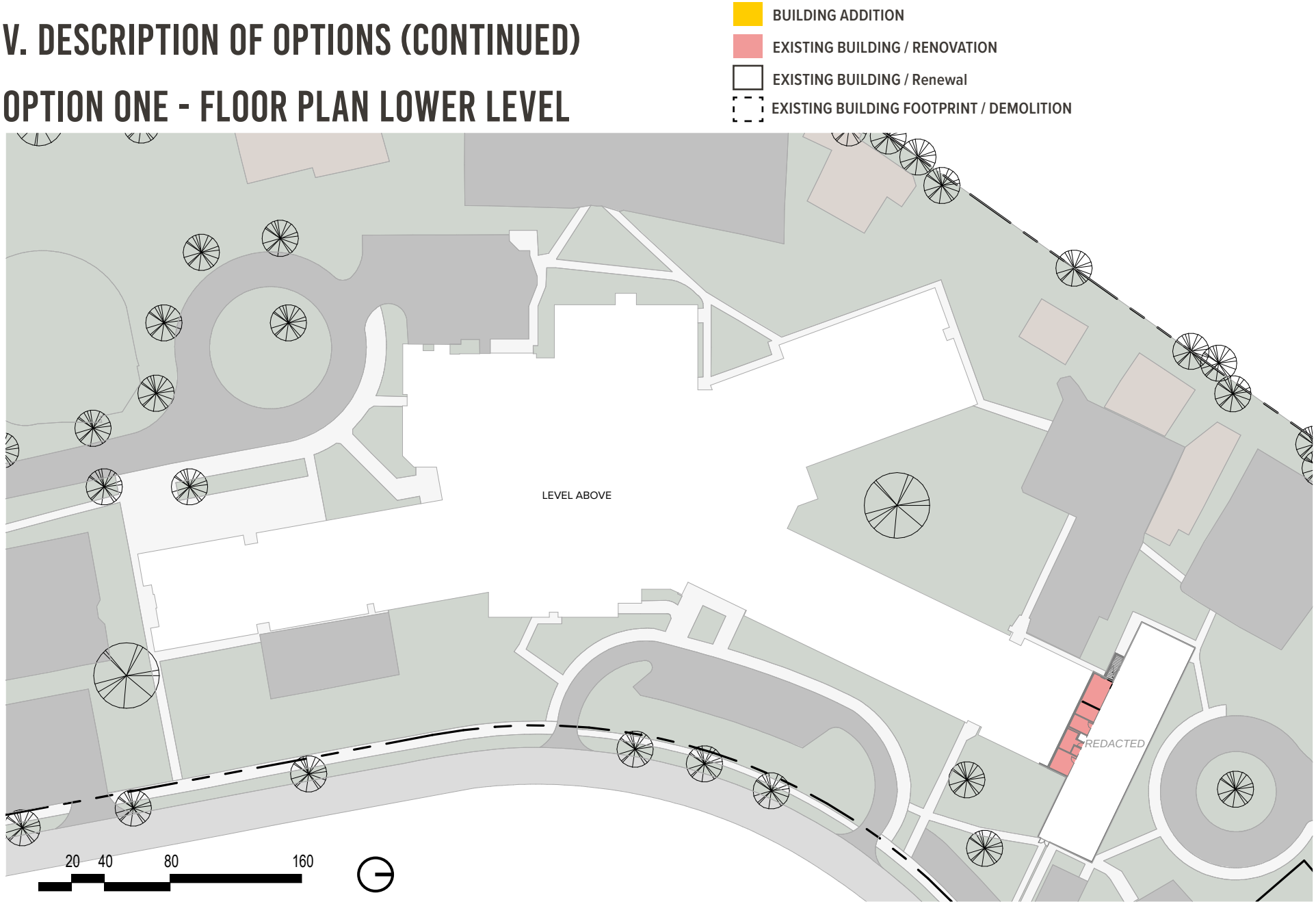
V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - FLOOR PLAN GROUND LEVEL

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - FLOOR PLAN LOWER LEVEL



V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - PROGRAM COMPARISON

	MCPS ED SPEC			OPTION 1			DELTA	
CLASSROOMS	ED-SPEC			OPTION 1			SQUARE FEET	PERCENTAGE
PREKINDERGARTEN (NET)	2	TOTAL	2400	2	TOTAL	2759	359	15%
Prekindergarten	1		1200	1		1283	83	7%
Prekindergarten	1		1200	1		1476	276	23%
KINDERGARTEN (NET)	4	TOTAL	4800	4	TOTAL	5279	479	10%
Kindergarten	1		1200	1		1231	31	3%
Kindergarten	1		1200	1		1304	104	9%
Kindergarten	1		1200	1		1353	153	13%
Kindergarten	1		1200	1		1391	191	16%
STANDARD (NET)	24	TOTAL	20400	24	TOTAL	20667	267	1%
Standard	1		850	1		775	-75	-9%
Standard	1		850	1		962	112	13%
Standard	1		850	1		956	106	12%
Standard	1		850	1		953	103	12%
Standard	1		850	1		929	79	9%
Standard	1		850	1		917	67	8%
Standard	1		850	1		889	39	5%
Standard	1		850	1		887	37	4%
Standard	1		850	1		882	32	4%
Standard	1		850	1		882	32	4%
Standard	1		850	1		880	30	4%
Standard	1		850	1		867	17	2%
Standard	1		850	1		860	10	1%
Standard	1		850	1		858	8	1%
Standard	1		850	1		855	5	1%
Standard	1		850	1		852	2	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		821	-29	-3%
Standard	1		850	1		819	-31	-4%
Standard	1		850	1		814	-36	-4%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 1		DELTA	
Standard	1	850	1	811	-39	-5%
Standard	1	850	1	809	-41	-5%
Standard	1	850	1	808	-42	-5%
Standard	1	850	1	731	-119	-14%
MUSIC & ART (NET)	**4 TOTAL**	**3850**	**2 TOTAL**	**2957**	**-893**	**-23%**
Art	1	1200	1	1231	31	3%
Music	1	1200	1	1281	81	7%
Instrumental Music	1	450	1	445	-5	-1%
Dual Purpose Room	1	1000	0	0	-1000	-100%
	AREA SUBTOTAL	**31,450**	**AREA SUBTOTAL**	**31,162**	**-288**	**-1%**
SUPPORT ROOMS	**ED SPEC**		**OPTION 1**			
Large Instructional Support	1	550	1	603	53	10%
Small Instructional Support Room	2	425	2	375	-100	-12%
Speech Lanuage Therapy	1	250	1	234	-16	-6%
Therapy Support Room	1	250	1	274	24	10%
Personal Care Room	1	100	1	111	11	11%
Testing / Conference Room	1	140	1	200	60	43%
Support Staff Offices	2	140	2	158	36	13%
Parent Resource Room	1	500	1	530	30	6%
	AREA SUBTOTAL	**2,920**	**AREA SUBTOTAL**	**3,018**	**98**	**3%**
LIBRARY / MEDIA CENTER	**ED-SPEC**		**OPTION 1**			
Learning Environment	1	2100	1	2348	248	12%
Work and Production Area	1	475	1	553	78	16%
LMC Storage Room	1	300	1	186	-114	-38%
	AREA SUBTOTAL	**2,875**	**AREA SUBTOTAL**	**3,087**	**212**	**7%**

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 1		DELTA	
PHYSICAL EDUCATION	**ED-SPEC**		**OPTION 1**			
Gymnasium	1	3700	1	5415	1715	46%
Office	1	140	1	140	0	0%
Storage	1	250	1	250	0	0%
Storage	2	100	2	359	518	259%
Outside Storage	1	140	1	264	124	89%
	AREA SUBTOTAL	**4,430**	**AREA SUBTOTAL**	**6,787**	**2,357**	**53%**
MULTI-PURPOSE	**ED-SPEC**		**OPTION 1**			
Multi-purpose Room	1	3200	1	2845	-355	-11%
Chair Storage	1	180	1	112	-68	-38%
Table Storage	1	180	0	0	-180	-100%
Platform	1	450	1	382	-68	-15%
Before / After Care Prep Area	1	25	0	0	-25	-100%
Before / After Care Storage	1	100	0	0	-100	-100%
	AREA SUBTOTAL	**4,135**	**AREA SUBTOTAL**	**3,339**	**-796**	**-19%**
KITCHEN	**ED-SPEC**		**OPTION 1**			
Serving Area	1	300	1	732	432	144%
Walk-In Cooler/Freezer	1	155	1	224	69	45%
Dry Storage	1	192	0	0	-192	-100%
Office	1	100	0	0	-100	-100%
Toilet Room	1	70	1	30	-40	-57%
Preparation Area	1	555	0	0	-555	-100%
	AREA SUBTOTAL	**1,372**	**AREA SUBTOTAL**	**986**	**-386**	**-28%**
ADMINISTRATION	**ED-SPEC**		**OPTION 1**			
General Office	1	500	1	534	34	7%
Workroom	1	300	1	102	-198	-66%
Principal's Office	1	250	1	309	59	24%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 1		DELTA	
Assistant Principal's Office	1	140	1	148	8	6%
Conference Room	1	275	0	0	-275	-100%
Storage	1	100	0	0	-100	-100%
Record Room	1	75	1	52	-23	-31%
Toilet Room	1	50	1	32	-18	-36%
Workroom (2nd level)	1	75	1	101	26	35%
	AREA SUBTOTAL	**1,765**	**AREA SUBTOTAL**	**1,278**	**-487**	**-28%**
COUNSELING SUITE	**ED-SPEC**		**OPTION 1**			
Counselor's Office	1	160	1	339	179	112%
Itinerant Staff Office	1	160	1	128	-32	-20%
	AREA SUBTOTAL	**320**	**AREA SUBTOTAL**	**467**	**147**	**46%**
STAFF DEVELOPMENT AREA	**ED-SPEC**		**OPTION 1**			
Staff Development Office	1	100	1	111	11	11%
Reading Specialist Office	1	100	1	111	11	11%
Training / Conference Room	1	400	1	400	0	0%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**622**	**22**	**4%**
HEALTH SERVICES SUITE	**ED-SPEC**		**OPTION 1**			
Waiting Area	1	100	0	0	-100	-100%
Treatment / Medication Area	1	120	1	212	92	77%
Office / Health Assessment Room	1	100	0	0	-100	-100%
Health Assessment / Isolation Room	1	100	0	0	-100	-100%
Rest Area	1	200	0	0	-200	-100%
Storage Room	1	40	0	0	-40	-100%
Toilet Room	1	50	1	30	-20	-40%
	AREA SUBTOTAL	**710**	**AREA SUBTOTAL**	**242**	**-468**	**-66%**

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 1		DELTA	
STAFF AREAS	**ED-SPEC**		**OPTION 1**			
Staff Lounge	1	650	1	654	4	1%
Privacy Room	2	50	2	50	0	0%
	AREA SUBTOTAL	**750**	**AREA SUBTOTAL**	**754**	**4**	**1%**
BUILDING SERVICES FACILITIES	**ED-SPEC**		**OPTION 1**			
Building Services Office	1	140	1	161	21	15%
Locker / Shower Area	1	150	1	150	0	0%
Compactor / Trash Room	1	150	1	188	38	25%
General Storage & Receiving	1	550	1	749	199	36%
General Storage	3	240	1	408	-312	-43%
Building Services Outdoor Storage	1	175	1	103	-72	-41%
	AREA SUBTOTAL	**1,885**	**AREA SUBTOTAL**	**1,759**	**-126**	**-7%**
BUILDING SUPPORT AREAS	**ED-SPEC**		**OPTION 1**			
Book Storage	1	200	1	292	92	46%
PTA Storage	1	100	1	120	20	20%
Emergency Command Center**	1	0	0	0	0	0%
Telecommunications Closet (MDF)	1	150	1	150	0	0%
Telecommunications Closet (IDF)	3	50	1	128	-22	-15%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**690**	**90**	**15%**
ADD ALTERNATE 1: LINKAGES TO LEARNING	**ED-SPEC**		**OPTION 1**			
Administrative Area						
General Office / Reception Area	1	225	1	225	0	0%
Conference Room	1	275	1	275	0	0%
Linkages to Learning Suite						
Child / Family Therapy Room	1	175	1	175	0	0%
Family Care Manager Office	1	140	1	140	0	0%
Family Resource Closet	1	50	1	55	5	10%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 1		DELTA	
Other						
Toilet Room	1	50	1	0	-50	-100%
	AREA SUBTOTAL	**915**	AREA SUBTOTAL	**870**	**-45**	**-5%**
ADD ALTERNATE 2: COMMUNITY GYMNASIUM	ED-SPEC		OPTION 1	INCLUDED		
Additional area for gymnasium	1	2,600	0	0	0	0%
	AREA SUBTOTAL	**2,600**	AREA SUBTOTAL	**0**	**-2,600**	
NET AREA TOTAL (WITHOUT ADD ALT)		**53,812**		**54,191**	**379**	**1%**
NET AREA TOTAL (WITH ADD ALTS)		**57,327**		**55,061**	**-2,266**	**-4%**

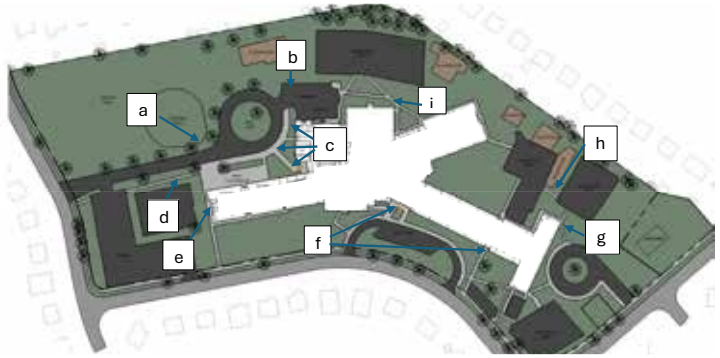
** Emergency Command Center is not required for any school under 100,000 SF

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

SITE

1. Bus Loop: No changes to the bus loop are proposed by this option.
2. Student Drop-off / Pick-up Loop: No changes to the student loop are proposed by this option.
3. On-Site Parking: No changes to the parking is proposed by this option.
4. On-Site Loading: No changes to the loading are proposed by this option.
5. Sidewalks and Accessibility: Improvements to sidewalks are limited to areas that are not ADA compliant. The below image outlines the following items that need to be corrected as part of this option.



a. Provide sidewalk to the player benches at the softball field.
b. Remove and regrade two existing parking spaces that are not sloped per ADA.
c. Sidewalk from street to the front door does not meet slope requirements per ADA and needs to be regraded.
d. Remove and replace non-complaint sidewalk. This will include replacement of the handrail.
e. Remove and replace non-complaint sidewalk to door of building.
f. Provide compliant ramp to door.
g. Remove and replace non-complaint sidewalk to playground.
h. Remove and replace non-complaint sidewalk. This will include replacement of the handrail.
i. Remove and replace non-complaint sidewalk to playground.

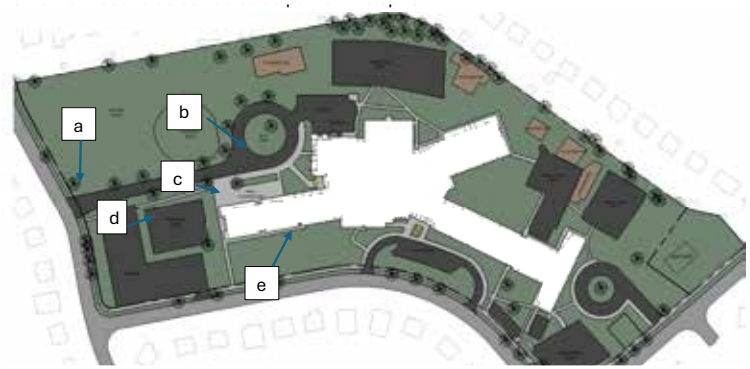
6. Fire Access: No changes to the fire access are proposed by this option.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

SITE CONT.

7. Site Topography and Drainage: Improvements to this scheme should include correcting low points that are ponding water. The below image outlines the following items that need to be corrected as part of this option.



   a. Lower grade at pole to limit ponding water.
   b. Add a storm drain inlet and associated storm drain to eliminate existing ponding on asphalt.
   c. Add a storm drain inlet and associated storm drain to eliminate existing ponding in play area.
   d. Lower grade to eliminate ponding on playground.
   e. Extend existing downspouts that are spilling on sidewalk away from sidewalk to eliminate freezing water on the walking surface.

8. Stormwater Management: No stormwater management is required by this scheme. If disturbance exceeds 5,000 s.f. the City would accept a fee in lieu of providing stormwater management.
9. Utilities: The fire/domestic water system will need to be replaced to provide for required increased sprinkler demands in the building. This will require replacement of the existing outdoor water meter vault, and upgrading all of the waterline to the building to at least an 8” pipe.

No changes to sanitary or storm are anticipated with this scheme.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

ARCHITECTURAL

Option one includes renewal of the interior of the existing school. The finishes within the entire school will be replaced. New finishes will be comprised of ACT ceilings, VCT flooring in classrooms and instructional support rooms, carpet in office and administrative areas, quarry floor tile and ceramic wall tile in the kitchen, sealed concrete in services areas, and ceramic floor and wall tile in bathrooms. All walls, door frames, and gyp bd ceilings will be painted. Door hardware and signage will be replaced. The existing windows will be replaced. The roof will not be replaced since it was recently replaced and still under warranty. Additional requirements are listed within the educational specifications in Appendix B.

The existing building will be reconfigured in select areas to address accessibility upgrades. All single-user bathroom will be upgraded to provide ADA compliant grab bars, toilet accessories, and plumbing fixtures. All multi-occupant bathrooms will be reconfigured to the current MCPS layout providing single-user toilet rooms with full height partitions and wood doors with hollow metal frames. ADA required toilet rooms with necessary grab bars and clearances will be included. Sinks will be located adjacent and open to the corridor situated directly across from the toilet rooms. New walls will be constructed of CMU. Floor and ceiling materials will align with the interior finish selection. A new elevator will be provided within the 2-story portion of the building. This includes the addition of an elevator shaft and associated elevator machine room. Non-compliant ramps will be reconfigured. The existing slab on grade will be removed and replaced to provide required slopes and landings. Ramp handrails will be replaced with the required extensions.

New CMU partitions will be provided in select locations to subdivide or reconfigure existing spaces to meet MCPS educational specification areas, such as the Instructional Music Room, Staff Development, and Pre-K rooms.

The structure will remain a type VB building due to existing wood structure. The allowable area for a type VB, 2-story, sprinklered building is 28,500 SF. Therefore, a minimum of two fire walls will be required with this option. The fire walls will consist of one 2-hour fire rated CMU structurally independent portal frame extending from exterior wall to exterior wall and 30” above the roof. The exterior wall on either side of the fire wall will need to be 2-hour rated. This can typically rely on equivalent rating from exterior masonry per the IBC. Fire rated doors will be provided within the fire wall.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

ARCHITECTURAL

Linkages to Learning is provided a space within the existing building in this option. If the Linkages to Learning add alternate is not accepted, the existing space will be reconfigured for an educational specification program not currently accounted for such as the dual-purpose room.

The site work is limited to accessibility upgrades as described in the site narrative. All other exterior program and circulation will remain as is.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

STRUCTURAL

The existing school will be re-used with required system fixed or updated. The following structural items will need to be addressed.

1. No renovation of the mechanical systems will be done since the system was replaced in 2020. The only modification will be to the kitchen exhaust system. This modification will require a new kitchen hood to be hung from the existing structure. The hood would also require a new rooftop fan. The existing steel joists in this area will require some minor reinforcement of the top and bottom chords as well as the joist web members to support the new kitchen hood and exhaust fan. New miscellaneous steel framing will be required to support the exhaust fan and new roof opening.
2. For a new fire sprinkler system, the existing structure will be able to support the individual sprinkler lines in classrooms that have point loads of less than 200 pounds. The sprinkler mains should be in the corridors and some reinforcing of the existing structure will be required. Areas that would require reinforcing would be long span members supporting the sprinkler mains. For wood framing this would require sistering new members. For steel joists, the reinforcing would be achieved by welding rods to top and bottom chords along with some of the webs
3. For new plumbing lines below the existing slab on grade, the existing slab would need to be trenched, and concrete patch cover the trench. For any new lines in elevated floor areas no existing concrete joists could be core drilled for new horizontal or vertical lines
4. For any modifications to the existing electrical systems of the school, all new electrical conduits should be hung below the existing roof structure. It is assumed that there will be no heavy concentrated loads that would require reinforcing of the existing structure.
5. All existing steel brick lintels are in good condition that are under the roof overhangs, since the lintels are not exposed to weather. If the mechanical through wall openings are being abandoned in any section of the school the existing brick steel lintels should be removed when the opening is filled.
6. Around the exterior of the school there are areas that require some re-pointing and, in a few areas some of the bricks will need to be replaced.
7. At the exterior walls of the gymnasium there are existing rods with nuts and plates protruding from the exterior wall. If these rods and plates are not being used to support the wall mounted basketball goals, the rods should be removed and holes filled. If these rods and plates still supporting interior gym equipment they should be cleaned and painted.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

STRUCTURAL

8. A new elevator will be added to the two story section of the school; therefore, some structural modifications will be required. The concrete slab on grade would need to be removed and a new concrete elevator pit constructed. New full height Concrete Masonry Unit (CMU) elevator shaft walls would need to be constructed. The walls would be bearing walls at the main level floor to support the existing concrete joist construction. Due to low roof height, the elevator shaft is required to extend up above the existing roof resulting in some new steel framing to create the shaft opening. The new elevator roof would be supported off the elevator shaft walls. The roof structure would be galvanized metal roof deck supported by steel beams and the shaft walls. As required by the elevator manufacturer there also would be an elevator hoist beam located near the top of the shaft.
9. Due to the building's classification of a type VB building, a fire wall will need to be added so the square footage does not exceed the allowable. The fire wall will be a CMU wall added to split the building into two parts. The wall will extend 2'-6" above the existing roof and will have a new concrete footing. The wall will cantilever off the footing and will have an expansion joint on each side of the wall. The expansion joint will allow a section of building on either side to collapse due to fire without affecting the remaining half of the building.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

MECHANICAL

General

Option 1 - Renewal includes selective improvements to maintain ongoing operation of Twinbrook Elementary School. This approach also provides limited modifications to the school's current floor plan to update restrooms to ADA standards and provide inclusive restroom layouts. Mechanical, electrical, plumbing, fire-protection, communications, and electronic safety and security improvements included within the scope of this renewal are summarized within this section.

HVAC Systems

HVAC systems throughout the school will remain as currently installed under Option 1, excluding the kitchen exhaust system, modifications to miscellaneous heating equipment controls, and roof-mounted refrigerant piping insulation. These HVAC systems and components will be replaced under Option 1 and are described in more detail below. Rebalancing (both air and water) and retro-commissioning of all existing HVAC equipment is included under Option 1.

- Kitchen Area: Modifications to the existing kitchen area exhaust fan system are included to accommodate the new kitchen equipment. The use of a Type II kitchen exhaust hood is expected. While this hood will require a new rooftop exhaust fan, the use of a dedicated make-up air unit is not included. New transfer ductwork and transfer grilles extending between the kitchen and adjacent multi-purpose room are included.
- Miscellaneous Heating Equipment Controls: Replacement of all existing line voltage thermostats on miscellaneous heating equipment with direct digital controls is included under Option 1.
- Roof Mounted Refrigerant Pipe Insulation: Replacement of all existing roof-mounted refrigerant piping insulation is included under Option 1. This is due to the damage to pipe insulation noted within the Existing Mechanical Systems Assessment portion of this document.

Building Automation Control System

The school's existing Reliable Controls DDC system with BACnet IP protocol will be maintained under Option 1, with the existing DDC system and associated system graphics modified and/or expanded to accommodate the new kitchen exhaust system described previously.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

PLUMBING

Domestic Water Piping Systems (Including Water Service Entrance)

The existing water service will be removed, and a new combination fire/water service will be provided for the school under Option 1 to support both the fire and water service demands of the school. The new domestic water service, complete with a basket strainer and a backflow preventer, will separate the domestic water and fire services prior to distributing water throughout the school. A flow test has been performed a domestic water booster pump is not included to support the domestic water system. Domestic water piping systems located throughout the school will be replaced, including all above-ceiling and in-wall cold water piping, hot water piping, and hot water return piping. New piping systems will be similar in size to those that currently exist and will be provided with new piping supports, piping insulation, and shut-off valves throughout. Hot water circulation piping will be expanded throughout the school to meet current energy code requirements. All domestic water piping systems will be constructed of Type L copper, with soldered joints provided for piping 2-inches in diameter and smaller and brazed joints provided on piping 2.5-inches in diameter and larger.

Domestic Hot Water Heater System

Domestic hot water for Option 1 will be generated by a pair of electric resistance tank-type domestic water heaters. The new water heaters, a hot water circulation pump, a master thermostatic mixing valve, and an expansion tank will be located within the existing Boiler Room 201. Domestic hot water will be generated at 140-degrees F, with 120-degrees F domestic hot water distributed from this new mechanical room throughout the school. Local thermostatic mixing valves will reduce the water temperature to 110-degrees F at hand washing fixtures.

Natural Gas Piping Systems

Modifications to the school's existing outdoor natural gas service, associated gas meter, and building gas piping will be provided under Option 1. The gas piping serving the existing air handling units, rooftop units, and DOAS units will remain, with new gas piping provided to serve the school's new emergency generator. Natural gas piping will be constructed of schedule 40 black steel.

Sanitary and Vent Piping Systems

In-kind replacement of the existing above-grade sanitary waste and vent piping is included under Option 1. Due to on-going drainage issues noted by staff for select portions of the building's first-floor and basement sanitary piping system, replacement of the school's existing under-slab sanitary waster and vent piping is also included. New sanitary waste and vent piping systems will be constructed of solid core polyvinyl chloride (PVC).

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

PLUMBING CONT.
Storm Water Piping Systems
Replacement of the existing above-grade storm water piping is included under Option 1. Reuse of the existing under-slab piping is expected. Under-slab piping should be scoped during design to ensure that no blockages or other deficiencies exist that would prevent proper flow through this piping. Any deficiencies identified during scoping should be remediated through pipe snaking or selective piping replacement. New storm water piping systems will be constructed of solid core PVC.

Condensate Drain Piping
Condensate drainage piping from HVAC systems shall discharge to the buildings below grade storm water system through an indirect connection.

Plumbing Fixtures
Replacement of the existing plumbing fixtures throughout the school are included under Option 1, given the amount of domestic water and sanitary waste and vent piping work being performed. Replacement of plumbing fixtures is required to accommodate ADA improvements and provide inclusive restroom layouts. Institutional grade replacement plumbing fixtures will be provided and include floor-mounted water closets utilizing 1.28 gallon per flush valves, pint flush (0.125 gallon per flush) wall-hung urinals, and wall-hung lavatories with hot and cold water faucets with low flow aerators. The water consumption figures noted are equal to or less than what is required by the current plumbing code and for promoting good water conservation practices. All new plumbing fixtures will be ADA compliant. All wall- mounted fixtures will be supported from fixture carriers

FIRE PROTECTION SYSTEMS
Sprinkler System
The addition of sprinkler coverage throughout the entire existing school will be provided under Option 1. Sprinkler coverage will extend from the new combination fire/water service described previously, with a dedicated backflow preventer provided for this new fire service. A fire flow test has been performed and a fire pump is not necessary to support the sprinkler system. All work will be specified to conform to standards of the National Fire Protection Association (NFPA) and will include requirements for performance verification through hydraulic calculations.

Fire Detection and Alarm System
The school's existing fire detection and alarm system, including initiating and notification devices, will remain as currently installed under Option 1. Selective modifications is required in relation to the HVAC scope of work described previously.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

ELECTRICAL

Power Distribution and Generator Power

Electrical improvements within the scope of Option 1 - Renewal include one-for-one replacement of existing obsolete electrical switchboard, distribution panels, and panelboards installed, which include Switchboard MDP-1, Distribution Panel M and Branch Panels A, B, D, S, & T. The replacement of obsolete panelboards will be conducted outside of the normal school-year and during the summer timeframe.

Existing power feeders between existing electrical equipment will remain and be reused. Electrical equipment, feeders, and branch circuits installed during the 2020 HVAC system upgrades will also remain and be reused.

Generator Power

The existing 35-kW outdoor generator will be replaced with a new natural-gas outdoor generator with weatherproof sound-attenuated enclosure. The new generator will be rated at 150kW 120/208 volts, with location to be coordinated. New associated electrical equipment (automatic transfer switch, and panelboards) will be provided. The new generator will serve the fire pump and existing emergency and exit lighting, lighting in main electrical and mechanical rooms, lighting in group and individual toilet rooms, kitchen walk-in freezer, kitchen walk-in cooler, health suite refrigerator, security (access control, intrusion detection, video surveillance) head-end, fire detection and alarm equipment, main console intercom cabinet, and MDF and IDF data racks.

Lighting and Lighting Controls System

Under Option 1, lighting controls in offices, classrooms, and multi-occupant spaces will be upgraded to meet MCPS standards. This includes replacing existing line voltage controls with lighting relay controllers to control low-voltage lighting control stations, occupancy sensors, and dimming capability. Emergency lighting will be automatically switched ON during a power outage.

In addition to the updated lighting controls, replacement of the fluorescent lighting fixtures located throughout the school with flat panel recessed LEDs, 1'x4' surface mounted LEDs, & LED strip lighting fixtures. The existing metal halide lamps located in the existing gymnasium will be replaced with LED high bay luminaires. Replacement of the existing building exterior lighting fixtures will be included under Option 1, given the amount of lighting and lighting controls work being performed to the lighting system. Existing LED luminaires in the building will remain and be reused.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - NARRATIVE

COMMUNICATION SYSTEMS

Data, Voice, and Video
Selective modifications to the existing data, voice, and video communications systems are included under Project Option 1. New outdoor wireless access points (WAPs) will be provided. Additional IDF rooms will not be necessary to ensure data wiring is limited to 250 feet, and the existing MDF and IDF racks are sufficient for scope of work expected under Project Option 1.

Intercommunications (Public Address)
Selective modifications to the existing intercommunications system are included under Option 1.

ELECTRONIC SAFETY AND SECURITY SYSTEMS

Access Control
Selective modifications to the existing door access control and entry control systems are included under Option 1.

Intrusion Detection
Selective modifications to the existing intrusion detection system are included under Option 1.

Video Surveillance
Selective modifications to the existing video surveillance system are included under Option 1.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE - ADVANTAGES AND DISADVANTAGES

Advantages:

- Sprinkler system added.
- Replaces outdated building systems.
- Addresses accessibility issues.
- Existing community-sized gym remains.
- Cost effective design option.
- Sustainable building materials in new finish materials.
- Addition of Linkages to Learning (Add Alt)
- Compartmentalization added as a result of new firewalls.

Disadvantages:

- Lockers in corridors cannot be accommodated, however students will have new cubbies in the classrooms.
- Does not provide the following program spaces: Dual-Purpose Room, Kitchen support spaces
- Administration, Health Services, Classrooms, Multi-Purpose Room, & Kitchen do not meet Educational Specifications size requirements.
- Does not allow for visibility to open space and play areas at rear of site.
- Does not increase number of parking spaces on site.
- Does not address lack of visibility of main entrance.
- Does not address safety concerns at daycare drop off.
- The existing building is type V-B construction due to existing wood framing at the roof structure. The current building code has many restrictions on this construction type in terms of allowable number of stories and building area. Firewalls will be required in order to meet the current building code.

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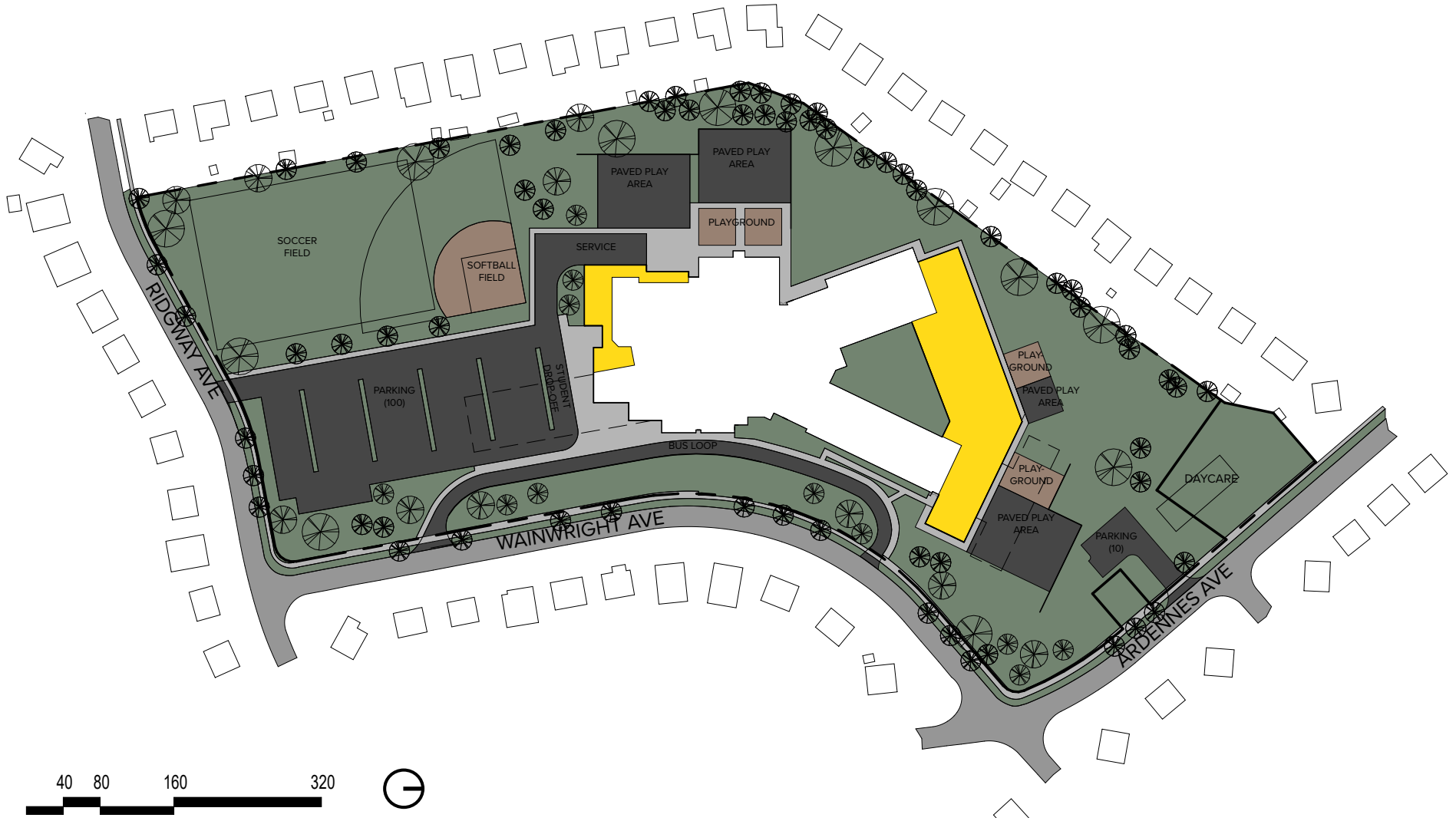
V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - DESCRIPTION

Option 2 demolishes the existing Kindergarten/Pre-K wing and the existing 2-story addition toward the north. A new one-story classroom wing is provided on the north side of the building creating a central courtyard. Pre-K and Kindergarten play areas are located along the north side of the addition, adjacent to the associated classroom spaces. Remaining play areas will be located central to the site, adjacent to the gym and multi-purpose room. The multi-purpose room and kitchen are enlarged toward the west. Building services and mechanical/plumbing/electrical spaces are provided in an addition adjacent to the enlarged kitchen. The main entry and administration suite is relocated to the Southeast corner of the building overlooking the student drop off and bus loop. The bus loop parallels Wainwright Ave. Parking and student drop off are accessed from Ridgway Ave. The soccer and softball field remain at the Southwest corner of the site. Interior renovations to the existing building address accessibility, toilet room reconfiguration, and finish upgrades.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - SITE PLAN



V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - FLOOR PLAN

ABBREVIATIONS LEGEND

CR - CLASSROOM
TLT - TOILET
ST - STORAGE
E - ELEVATOR
CNSL - COUNSELING SUITE
MECH - MECHANICAL
ELEC - ELECTRICAL
ADMIN - ADMINISTRATION
CONF - CONFERENCE
KINDER - KINDERGARTEN
WR - WORKROOM
INSTR - INSTRUMENTAL MUSIC
DEVELOP - STAFF DEVELOPMENT
BLDG - BUILDING SERVICE

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - FLOOR PLAN

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - PROGRAM COMPARISON

	MCPS ED SPEC			OPTION 2			DELTA	
CLASSROOMS	ED-SPEC			OPTION 2			SQUARE FEET	PERCENTAGE
PREKINDERGARTEN (NET)	2	TOTAL	2400	2	TOTAL	2400	0	0%
Prekindergarten	1		1200	1		1200	0	0%
Prekindergarten	1		1200	1		1200	0	0%
KINDERGARTEN (NET)	4	TOTAL	4800	4	TOTAL	4800	0	0%
Kindergarten	1		1200	1		1200	0	0%
Kindergarten	1		1200	1		1200	0	0%
Kindergarten	1		1200	1		1200	0	0%
Kindergarten	1		1200	1		1200	0	0%
STANDARD (NET)	24	TOTAL	20400	24	TOTAL	20251	-149	-1%
Standard	1		850	1		929	79	9%
Standard	1		850	1		847	-3	0%
Standard	1		850	1		847	-3	0%
Standard	1		850	1		829	-21	-2%
Standard	1		850	1		852	2	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		793	-57	-7%
Standard	1		850	1		817	-33	-4%
Standard	1		850	1		817	-33	-4%
Standard	1		850	1		870	20	2%
Standard	1		850	1		886	36	4%
Standard	1		850	1		818	-32	-4%
Standard	1		850	1		821	-29	-3%
Standard	1		850	1		764	-86	-10%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		854	4	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - PROGRAM COMPARISON

	MCPS ED SPEC			OPTION 2			DELTA	
Standard	1		850	1		850	0	0%
Standard	1		850	1		857	7	1%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
MUSIC & ART (NET)	**4**	**TOTAL**	**3850**	**4**	**TOTAL**	**4351**	**501**	**13%**
Art	1		1200	1		1590	390	33%
Storage	1 each	250 sf	incl.	1 each	250 sf	incl.		
Music	1		1200	1		1306	106	9%
Storage	1 each	250 sf	incl.	1 each	250 sf	incl.		
Instrumental Music	1		450	1		450	0	0%
Dual Purpose Room	1		1000	1		1005	5	1%
	AREA SUBTOTAL		**31,450**	**AREA SUBTOTAL**		**31,802**	**352**	**1%**
SUPPORT ROOMS	**ED SPEC**			**OPTION 2**				
Large Instructional Support	1		550	1		550	0	0%
Small Instructional Support Room	1		425	1		428	3	1%
	1		425	1		425	0	0%
Speech Lanuage Therapy	1		250	1		468	218	87%
Therapy Support Room	1		250	1		332	82	33%
Personal Care Room	1		100	1		100	0	0%
Testing / Conference Room	1		140	1		150	10	7%
Support Staff Offices	2		140	2		128	-24	-9%
Parent Resource Room	1		500	1		492	-8	-2%
	AREA SUBTOTAL		**2,920**	**AREA SUBTOTAL**		**3,201**	**281**	**10%**
LIBRARY / MEDIA CENTER	**ED-SPEC**			**OPTION 2**				
Learning Environment	1		2100	1		2100	0	0%
Work and Production Area	1		475	1		528	53	11%
LMC Storage Room	1		300	1		300	0	0%
	AREA SUBTOTAL		**2,875**	**AREA SUBTOTAL**		**2,928**	**53**	**2%**

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 2		DELTA	
PHYSICAL EDUCATION	**ED-SPEC**		**OPTION 2**			
Gymnasium	1	3700	1	5486	1786	48%
Office	1	140	1	159	19	14%
Storage	1	250	1	250	0	0%
Storage	2	100	2	240	280	140%
Outside Storage	1	140	1	150	10	7%
	AREA SUBTOTAL	**4,430**	**AREA SUBTOTAL**	**6,525**	**2,095**	**47%**
MULTI-PURPOSE	**ED-SPEC**		**OPTION 2**			
Multi-purpose Room	1	3200	1	3200	0	0%
Chair Storage	1	180	1	180	0	0%
Table Storage	1	180	1	180	0	0%
Platform	1	450	1	455	5	1%
Before / After Care Prep Area	1	25	1	30	5	20%
Before / After Care Storage	1	100	1	100	0	0%
	AREA SUBTOTAL	**4,135**	**AREA SUBTOTAL**	**4,145**	**10**	**0%**
KITCHEN	**ED-SPEC**		**OPTION 2**			
Serving Area	1	300	1	300	0	0%
Walk-In Cooler/Freezer	1	155	1	155	0	0%
Dry Storage	1	192	1	192	0	0%
Office	1	100	1	100	0	0%
Toilet Room	1	70	1	70	0	0%
Preparation Area	1	555	1	555	0	0%
	AREA SUBTOTAL	**1,372**	**AREA SUBTOTAL**	**1,372**	**0**	**0%**
ADMINISTRATION	**ED-SPEC**		**OPTION 2**			
General Office	1	500	1	500	0	0%
Workroom	1	300	1	300	0	0%
Principal's Office	1	250	1	250	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 2		DELTA	
Assistant Principal's Office	1	140	1	140	0	0%
Conference Room	1	275	1	275	0	0%
Storage	1	100	1	100	0	0%
Record Room	1	75	1	75	0	0%
Toilet Room	1	50	1	50	0	0%
Workroom (2nd level)	1	75	1	75	0	0%
	AREA SUBTOTAL	**1,765**	**AREA SUBTOTAL**	**1,765**	**0**	**0%**
COUNSELING SUITE	**ED-SPEC**		**OPTION 2**			
Counselor's Office	1	160	1	160	0	0%
Itinerant Staff Office	1	160	1	160	0	0%
	AREA SUBTOTAL	**320**	**AREA SUBTOTAL**	**320**	**0**	**0%**
STAFF DEVELOPMENT AREA	**ED-SPEC**		**OPTION 2**			
Staff Development Office	1	100	1	113	13	13%
Reading Specialist Office	1	100	1	113	13	13%
Training / Conference Room	1	400	1	403	3	1%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**629**	**29**	**5%**
HEALTH SERVICES SUITE	**ED-SPEC**		**OPTION 2**			
Waiting Area	1	100	1	100	0	0%
Treatment / Medication Area	1	120	1	120	0	0%
Office / Health Assessment Room	1	100	1	100	0	0%
Health Assessment / Isolation Room	1	100	1	100	0	0%
Rest Area	1	200	1	200	0	0%
Storage Room	1	40	1	40	0	0%
Toilet Room	1	50	1	50	0	0%
	AREA SUBTOTAL	**710**	**AREA SUBTOTAL**	**710**	**0**	**0%**

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 2		DELTA	
STAFF AREAS	**ED-SPEC**		**OPTION 2**			
Staff Lounge	1	650	1	583	-67	-10%
Privacy Room	2	50	1	50	-50	-50%
	AREA SUBTOTAL	**750**	**AREA SUBTOTAL**	**633**	**-117**	**-16%**
BUILDING SERVICES FACILITIES	**ED-SPEC**		**OPTION 2**			
Building Services Office	1	140	1	140	0	0%
Locker / Shower Area	1	150	1	150	0	0%
Compactor / Trash Room	1	150	1	150	0	0%
General Storage & Receiving	1	550	1	550	0	0%
General Storage	3	240	3	240	0	0%
Building Services Outdoor Storage	1	175	1	175	0	0%
	AREA SUBTOTAL	**1,885**	**AREA SUBTOTAL**	**1,885**	**0**	**0%**
BUILDING SUPPORT AREAS	**ED-SPEC**		**OPTION 2**			
Book Storage	1	200	1	226	26	13%
PTA Storage	1	100	1	120	20	20%
Emergency Command Center**	1	0	1	0	0	0%
Telecommunications Closet (MDF)	1	150	1	142	-8	-5%
Telecommunications Closet (IDF)	3	50	3	50	0	0%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**638**	**38**	**6%**
ADD ALTERNATE 1: LINKAGES TO LEARNING	**ED-SPEC**		**OPTION 2**			
Administrative Area						
General Office / Reception Area	1	225	1	225	0	0%
Conference Room	1	275	1	275	0	0%
Linkages to Learning Suite						
Child / Family Therapy Room	1	175	1	175	0	0%
Family Care Manager Office	1	140	1	140	0	0%
Family Resource Closet	1	50	1	50	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 2		DELTA	
Other						
Toilet Room	1	50	1	55	5	10%
	AREA SUBTOTAL	**915**	AREA SUBTOTAL	**920**	**5**	**1%**
ADD ALTERNATE 2: COMMUNITY GYMNASIUM	ED-SPEC		OPTION 2	INCLUDED		
Additional area for gymnasium	1	2,600	0	2,600		
	AREA SUBTOTAL	**2,600**	AREA SUBTOTAL	**0**	**-2,600**	
NET AREA TOTAL (WITHOUT ADD ALT)		**53,812**		**56,553**	**2,741**	**5%**
NET AREA TOTAL (WITH ADD ALTS)		**57,327**		**57,473**	**146**	**0%**

** Emergency Command Center is not required for any school under 100,000 SF

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

SITE

1. Bus Loop: The bus loop will be relocated to the front of the building in this option. The pavement in front of the building will be raised approximately 4’ to provide direct drop-off for students to the building vs. having to install ADA ramps. This may result in a 4’ retaining wall along the street.
2. Student Drop-off / Pick-up Loop: The student drop-off loop is expanded in this option. The northern edge of the parking lot will need to be raised to be level with the new administration portion of the building. This would require raising the grade approximately 6’ and adding a 6’ retaining wall to allow for an accessible connection from the north side of the building to this loop.
3. On-Site Parking: The parking will be expanded as part of this option. The changes to the grade outlined with the student drop-off would also need to be accounted for with the parking lot.
4. On-Site Loading: The loading area would be expanded as part of this option and will be screened from the playgrounds.
5. Sidewalks and Accessibility: Improvements to sidewalks include the items outlined in option 1 and sidewalk improvements noted on the concept plan.
6. Fire Access: The paved play areas on the west side of the gym will serve as fire truck turn around and will be connected to the loading area to provide adequate fire coverage for the building.
7. Site Topography and Drainage: Improvements to this scheme will include correcting low points that are ponding water as outlined in option 1.
8. Stormwater Management: Stormwater management quality control will be required as part of this scheme. At least 10 micro-bioretention facilities will be required. Furthermore, the City has indicated that the downstream system is not adequate and the installation of an underground detention facility will be required.
9. Utilities: The fire/domestic water system will be replaced to provide for required increased sprinkler demands in the building. This will require replacement of the existing outdoor water meter vault, and upgrading all of the waterline to the building to at least an 8” pipe.

No changes to sanitary or storm are anticipated with this scheme.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

ARCHITECTURAL

Option two includes demolition of a portion of the existing school and renewal of the interior of the existing to remain building. New additions are provided connecting to the east and west side of the remaining structure. The finishes within the entire school will be replaced. New finishes in both new and existing construction will be comprised of ACT ceilings, VCT flooring in classrooms and instructional support rooms, carpet in office and administrative areas, quarry floor tile and ceramic wall tile in the kitchen, sealed concrete in services areas, and ceramic floor and wall tile in bathrooms. All walls, door frames, and gyp bd ceilings will be painted. Existing door hardware and signage will be replaced. The existing windows will be replaced. The roof will not be replaced on the existing portion of the building since it was recently replaced and still under warranty. Additional requirements are listed within the educational specifications in Appendix B.

The new additions are one-story structures. The floor level of all additions are aligned with the existing entry level at approx. 327.8'. The addition to the south provides a new entry and accommodates the administration suite, health services, and Linkages to Learning add alternate. The main entry and administration suite are relocated to the corner of the building overlooking the student drop off and bus loop. The addition also enlarges the multi-purpose room and kitchen toward the west. Building services and mechanical/plumbing/electrical spaces are provided in the addition adjacent to the kitchen. The addition to the north consists of a double loaded corridor with additional classrooms. This addition connects the two existing classroom wings and forms and internal courtyard. Paved space within this courtyard is provided as an add alternate. Lockers will be provided in the new construction corridors. Kindergarten and Pre-K are co-located at the SE corner with direct access to associated exterior play areas.

The existing to remain building will be reconfigured in select areas to address accessibility upgrades. All single-user bathroom will be upgraded to provide ADA compliant grab bars, toilet accessories, and plumbing fixtures. All multi-occupant bathrooms will be reconfigured to the current MCPS layout providing single-user toilet rooms with full height partitions and wood doors with hollow metal frames. ADA required toilet rooms with necessary grab bars and clearances will be included. Sinks will be located adjacent and open to the corridor situated directly across from the toilet rooms. New construction bathroom facilities will also match this layout. New interior walls within new and existing construction will be CMU. Floor and ceiling materials will align with the interior finish selection. Non-compliant ramps in existing construction will be reconfigured. The existing slab on grade will be removed and replaced to provide required slopes and landings. Ramp handrails will be replaced with the required extensions.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

ARCHITECTURAL CONT

New CMU partitions will be provided in select locations to subdivide or reconfigure existing spaces in the existing to remain structure to meet MCPS educational specification areas, such as the platform and storage areas related to the multi-purpose room, parent resource, care room, book storage, office, staff lounge and adjacent classrooms, staff development, and instructional support rooms.

The structure will remain a type VB building due to existing wood structure. The allowable area for a type VB, 1-story, sprinklered building is 38,000 SF. Therefore, a minimum of two fire walls will be required with this option. The fire walls will consist of one 2-hour fire rated CMU structurally independent portal frame extending from exterior wall to exterior wall and 30” above the roof. The exterior wall on either side of the fire wall will need to be 2-hour rated. This can typically rely on equivalent rating from exterior masonry per the IBC. Fire rated doors will be provided within the fire wall.

Linkages to Learning is provided in new construction addition at the west side of the building in this option. If the Linkages to Learning add alternate is not accepted, the size of the south addition will be reduced in size.

Exterior play areas will be provided per MCPS Educational Specifications. Pre-K paved play and playground, Kindergarten paved play and playground are provided adjacent to the Pre-K and Kindergarten classrooms. Two paved play areas and two playgrounds are provided adjacent to multi-purpose room and gym. The softball field and soccer field will remain in their current location on site. The drop off and parking for the on-site day care will be reconfigured. The student drop-off, parking, and bus loop will be reconfigured as described in the site narrative.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

STRUCTURAL

For Option Two, the section of the school remaining will have all the items from Option One completed including the new CMU firewall. In option two, a new one story classroom addition will be added to the north side of the original section and will connect to the north side of the 1955 addition forming a new courtyard. In this option, the 1959 kindergarten addition will be removed along with the south end of the south end of the 1952 section of building. The addition will have a new Pre-K, Kindergarten, and standard classrooms.

The structure of the addition will be an 8-inch reinforced CMU bearing walls on continuous concrete wall footings. The floor will be a 5 inch thick slab on grade reinforced with welded wire fabric. The roof will be steel joists spaced at five feet on center with 1-1/2" deep wide rib galvanized metal deck. The masonry lintels will be CMU bond beam masonry lintels. The exterior brick veneer will be supported by galvanized steel angle lintels. Any long span openings will have a galvanized steel lintel beam with galvanized steel hangers and continuous plate.

Also, in this option the multipurpose room and kitchen area will be demolished and re-built with masonry bearing walls and steel joists spaced at 5 feet on center supporting galvanized metal roof deck. The walls for multi-purpose room will be reinforced 12 inch CMU and for the rest of addition would be reinforced 8" CMU walls. The masonry lintels would be either CMU bond beams or precast masonry lintels. The exterior brick veneer would be supported by galvanized steel angle lintels. Any long span openings will have a galvanized steel lintel beam with galvanized steel hangers and continuous plate.

The last addition will include an expansion of the administrative area. This would require removing an existing exterior bearing wall and replacing the wall with new steel beams and columns. The existing structure may require temporary shoring in this option. The new walls will be 8" reinforced CMU walls supporting new steel joists spanning from new steel beams to new exterior CMU wall. The joists will support 1-1/2" deep galvanized metal roof deck. The masonry lintels will be CMU bond beam masonry lintels. The exterior brick veneer will be supported by galvanized steel angle lintels. Any long span openings will have a galvanized steel lintel beam with galvanized steel hangers and continuous plate.

The roofs for the new additions will be designed to support a ballasted solar panel system. This would add an additional 7 pounds per square foot to the design load of the steel joists.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

MECHANICAL

General

Option 2 - Renovation and Addition (Less Than 50% Demolition) - demolishes a small portion of the existing school located at the southern classroom wing (kindergarten and pre-k), while providing multiple larger one-story building additions and comprehensive renovations throughout the existing school. The existing mechanical, plumbing, and fire protection systems will be replaced throughout the school under this option. Construction will be accomplished by temporarily relocating teachers and students to another school during construction.

While select portions of existing VRF systems 4, 5, and 6 could be salvaged and reused under Option 2, consideration should be made towards replacing these existing systems. Option 2 requires modifications to and/or relocation of select indoor VRF terminal units, their associated refrigerant piping, and wall-mounted controllers to accommodate the architectural floor plan revisions. Any damage incurred as part of these system modifications would not be warranted, as these existing systems are expected to be approximately halfway through their recommended service life at the completion of construction. Additionally, the existing VRF systems only utilize a single ceiling cassette per classroom, with two ceiling cassettes recommended from an occupant thermal comfort standpoint. Replacement of the existing ceiling cassettes would also allow for an increased level of filtration. Finally, the existing VRF systems utilize the previous generation of refrigerants (A1), that would vary from A2L refrigerants that would be provided with any new HVAC systems. For these reasons, comprehensive replacement of the existing VRF systems noted is included under Option 2.

Additionally, replacement of the existing DOAS systems is included. This equipment currently utilizes natural gas for heating and would require replacement of existing gas-fired burners with electric-resistance heating coils, as natural gas would not be provided for the HVAC systems installed under Option 2. Replacing this DOAS equipment with water-source heat pump units will be beneficial both from an energy cost and energy consumption standpoint, while aligning with Montgomery County's Climate Initiative and overall electrification goals.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

MECHANICAL CONT.

Heating and Cooling Infrastructure Systems

A ground-coupled geothermal heat pump unit system is included to support Option 2. This type of mechanical system provides the ability to have independent heating or cooling year-round, while delivering an extremely high level of overall building energy efficiency.

A ground-coupled geothermal borehole field will be located south of the existing school and positioned below the existing play field area. This location allows for continued operation of the existing school during the installation of the geothermal wellfield with limited disruption. Geothermal boreholes will be approximately 500 feet in depth, with approximately 105 to 115 geothermal boreholes included for Option 2. The final quantity and depth of geothermal boreholes will be determined during design and will depend on the thermal properties and ground temperature of the project site. Vertical geothermal borehole loop piping will be encased in a thermally enhanced grout, promoting good heat transfer between the loop piping and earth. Circuit mains from the geothermal boreholes will be routed to a new mechanical room located within the addition near the gymnasium.

Two base-mounted pumps (one active and one stand-by) will circulate an all-water fluid between the school and geothermal borehole field. Geothermal pumping systems will be located within a new mechanical room located within the addition near the kitchen and provided with N+1 redundancy such that the operation of the building can be maintained in the event of a single pump failure. In addition, these pumping systems will be equipped with variable frequency drives for reduced energy consumption during periods of reduced system demand. Major mechanical infrastructure components, including distribution pumps, incoming geothermal piping, associated geothermal piping headers, an air separator, and an expansion tank will also be located within this new mechanical room.

Classroom HVAC Systems

Extended range vertical heat pump units will be provided for space conditioning within the school's classroom areas, with these heat pump units located within mechanical closets positioned near the area served. Doors for all mechanical closets will be accessed from the corridor for routine maintenance. Heat pump units will be equipped with two-stage type compressors, helping to extend compressor life and improve the overall energy efficiency of these systems under part load operation.

A series of VAV rooftop DOAS units with supply and exhaust fans, enthalpy wheels for pre-conditioning outdoor air, DX heat pump coils with water-cooled compressors, and hot gas reheat coils for tempering supply air will be provided to deliver conditioned ventilation airflow

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

MECHANICAL CONT.

to the classroom areas. Airflow supplied from these DOAS units will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from classrooms, restrooms, and storage room areas will be routed through each DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

The use of demand control ventilation within the classroom areas will be provided to assist with reducing the school's overall energy consumption. To accomplish this control strategy, a series of VAV retrofit-type air terminal units will be installed within the conditioned outdoor air ductwork systems. Each classroom will be provided with a dedicated VAV air terminal unit, regulating the quantity of conditioned outdoor air delivered to each space based on the actual room carbon dioxide levels.

Music and Art Classroom HVAC Systems

The music and art classroom areas will be provided with a similar HVAC system approach as the other classroom areas. This HVAC system approach includes extended range vertical heat pump units for space conditioning, DOAS units for ventilation, and demand control ventilation via VAV retrofit-type air terminal units. Heat pump units will continue to be positioned within mechanical closets, with supply and return air ductwork extending from these units to the area served. A stainless steel capture hood and dedicated exhaust fan will be provided for the art room's kiln equipment.

Administration, Counseling, and Health Suite HVAC Systems

The school's administration, counseling, and administrative support areas will be provided with space conditioning through a dedicated VRF system. This system will be complete with heat recovery type water-cooled condensing units connected to the geothermal heat pump loop. Condensing units will be located within mechanical rooms near the spaces served. Doors to mechanical rooms will be accessible from the corridor for routine maintenance.

The use of ceiling cassette type VRF terminal units is included, promoting sufficient clearance access for filter replacement. Multi-occupant spaces will be provided with 3'x3' cassettes with high efficiency (MERV 10 or higher) disposable filters. Single occupant spaces will be provided with 2'x2' cassettes with the VRF manufacturer's standard washable filter.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

MECHANICAL CONT.

The administration area will also be provided with a rooftop DOAS unit with supply and exhaust fans, an enthalpy wheel for pre-conditioning outdoor air, a DX heat pump coil with water-cooled compressors, and a hot gas reheat coil for tempering supply air will be provided to deliver conditioned ventilation airflow to the areas served. Airflow supplied from this DOAS unit will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from offices, restrooms, and storage room areas will be routed through the DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

Linkages to Learning HVAC Systems (Add Alternate)

The Linkages to Learning areas will be provided with space conditioning through a dedicated VRF system. This system will be complete with heat recovery type water-cooled condensing units connected to the geothermal heat pump loop. Condensing units will be located within mechanical rooms near the spaces served. Doors to mechanical rooms will be accessible from the corridor for routine maintenance.

The use of ceiling cassette type VRF terminal units is included, promoting sufficient clearance access for filter replacement. Multi-occupant spaces will be provided with 3'x3' cassettes with high efficiency (MERV 10 or higher) disposable filters. Single occupant spaces will be provided with 2'x2' cassettes with the VRF manufacturer's standard washable filter.

A dedicated DOAS unit with supply and exhaust fans, an enthalpy wheel for pre-conditioning outdoor air, a hot gas reheat coil for tempering supply air, and a DX heat pump coil with water-cooled compressors will be provided to deliver conditioned ventilation airflow to the Linkages to Learning areas. Airflow supplied from this DOAS unit will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from the offices, restrooms, and storage room areas will be routed through the DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

Multi-Purpose Room, Media Center, and Gymnasium HVAC Systems

A series of single-zone rooftop water-source heat pump units with heat pump type water-cooled compressors and hot gas reheat coils will provide space conditioning and ventilation for the multi-purpose room, media center and gymnasium areas. Full airside economizer, demand control ventilation, and enthalpy wheel energy recovery devices will be provided for these rooftop heat pump units.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

MECHANICAL CONT.

Kitchen HVAC Systems

Space conditioning and ventilation for the kitchen area will be provided by a single-zone rooftop heat pump unit, similar to those serving the adjacent multi-purpose room area. General exhaust from the kitchen restroom, storage rooms, and the kitchen space itself will be routed to a rooftop exhaust fan. A separate rooftop exhaust fan will also be provided for serving the kitchen's associated exhaust hood.

Miscellaneous Heating-Only Equipment

The existing heating-only HVAC equipment located throughout existing to remain portions of the school are expected to remain under Option 2. Existing line voltage thermostats on miscellaneous heating equipment will be replaced with direct digital controls. New heating-only spaces such as mechanical rooms, electrical rooms, stairs, storage rooms, and entry vestibules will be provided with new electric-resistance type cabinet and propeller unit heaters.

Miscellaneous Cooling and Exhaust Fan Systems

Data, Telecomm, and the Elevator Machine Room will be served by ductless split systems.

Building Automation Control System

The existing Reliable Controls energy management system will be expanded to include DDC controls for new HVAC systems and components, with the associated system graphics updated once complete. HVAC equipment refrigeration system controls and refrigeration safety devices will utilize the equipment manufacturer's packaged controller and interfaced with the DDC system. Controls for the remaining mechanical equipment will be non-manufacturer based DDC controls provided by the ATC contractor. Actuation will be electric / electronic for all systems. All system components will be installed in accordance with Montgomery County Public Schools (MCPS) standards and networked to the existing front-end server located at the MCPS Energy Management Office.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

PLUMBING

Domestic Water Piping Systems (Including Water Service Entrance)

A new combination fire/water service will enter the school within the new mechanical room located within the addition near the kitchen. The new combination fire/water service will be capable of supporting both the fire and water service demands of the new school. A new domestic water service, complete with basket strainer and backflow preventer will separate the domestic water and fire services prior to distributing water throughout the school. A flow test has been performed and a domestic water booster pump is not required to support the domestic water system. Domestic water piping will be distributed from the new mechanical room area to plumbing fixtures and equipment located throughout the school. The existing domestic water piping (cold water, hot water, and hot water recirculation) will be replaced throughout the entire school. All domestic water piping systems will be constructed of Type L copper, with soldered joints provided for piping 2-inches in diameter and smaller and brazed joints provided on piping 2.5-inches in diameter and larger.

Domestic Hot Water Heater System

Domestic hot water for Option 2 will be generated by a pair of electric resistance tank type domestic water heaters. The new water heaters, a hot water circulation pump, a master thermostatic mixing valve, and an expansion tank will be located within the new mechanical room located within the addition near the kitchen. Domestic hot water will be generated at 140-degrees F, with 120-degrees F domestic hot water distributed from this new mechanical room throughout the school. Local thermostatic mixing valves will reduce the water temperature to 110-degrees F at hand washing fixtures.

Natural Gas Piping Systems

The school's existing outdoor natural gas service, associated gas meter, and building interior gas piping will be replaced under Option 2. A new natural gas service will be provided by Washington Gas for the school. The gas service meter and pressure reducing station will be positioned outdoors and located near the new mechanical room located within the addition near the kitchen. Gas piping will serve the school's new emergency generator. Natural gas piping will be constructed of schedule 40 black steel.

Storm Water Piping Systems

Storm water drainage, including roof drains and storm water piping systems will be replaced to the greatest extent possible under Option 2. Above- and below-grade storm water piping will be constructed from solid core PVC material. All storm water piping systems will exit the school at various locations and coordinate with available site piping connections provided by civil.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

PLUMBING

Condensate Drain Piping

Condensate drainage piping from HVAC systems shall discharge to the buildings below grade storm water system through an inderect connection.

Sanitary and Vent Piping Systems

Above- and below-grade sanitary waste and vent piping systems will be replaced under Option 2. Above- and below-grade sanitary waste and vent piping will be constructed from solid core PVC material. Vent piping will terminate at the roof level, with a minimum 25-foot separation provided between vent piping terminations and any outdoor air intake locations. Sanitary piping systems will exit the building at various locations and will coordinate with the available site piping connections provided by civil. The following special sanitary and vent piping systems are included:

- Equipment and sinks that may discharge grease into the sanitary system from the kitchen will be piped to a new underground concrete grease interceptor. The discharge from this interceptor will be connected to site sanitary piping system.
- Sinks within the art classrooms will be provided with solids interceptors, collecting debris and preventing it from entering the site sanitary piping system.

Plumbing Fixtures

The school's existing plumbing fixtures will be replaced under Option 2. Institutional grade replacement plumbing fixtures will be provided that include floor-mounted water closets utilizing 1.28 gallon per flush valves, pint flush (0.125 gallon per flush) wall-hung urinals, and wall-hung lavatories with hot and cold water faucets with low flow aerators. The water consumption figures noted are equal to or less than what is required by the current plumbing code and for promoting good water conservation practices. All new plumbing fixtures will be ADA compliant. All wall-mounted fixtures will be supported from fixture carriers.

FIRE PROTECTION SYSTEMS

Sprinkler System

Sprinkler coverage will be provided throughout the entire school under Option 2. Sprinkler coverage will extend from the new combination fire/water service described previously, with a dedicated backflow preventer provided for this new fire service. A fire flow test has been

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

FIRE PROTECTION SYSTEMS CONT.

performed and a fire pump is not needed to support the sprinkler system. All work will be specified to conform to standards of the National Fire Protection Association (NFPA) and will include requirements for performance verification through hydraulic calculations.

Fire Detection and Alarm System

A new fire detection and alarm system with new fire alarm control panel with voice evacuation will be provided under Option 2. New initiating and notification devices will be provided in building additions and renovated areas. Existing initiating and notification devices will remain in existing spaces not being renovated.

ELECTRICAL

Power Distribution

Electrical improvements within the scope of Option 2 - Renovation and Addition (Less Than 50% Demolition) include replacement of the power distribution system, including removal of existing main switchboard, electrical panelboards, and associated feeders.

Under Option 2, a new main electrical room will be located in the building addition next to the kitchen. A new Pepco electrical service will be provided to serve a new 277/480-volt 2000-ampere main switchboard in the main electrical room.

The new main electrical room will also have a 277/480V mechanical panelboard, a 277/480V lighting panel, an energy-efficient step-down transformer, and a 120/208V receptacle branch circuit panelboard. Electrical provisions will be made for future solar photovoltaic (PV) system for the school to be solar PV ready on the roof.

Generator Power

The existing 35-kW outdoor generator will be replaced with a new natural-gas outdoor generator with weatherproof sound-attenuated enclosure. The new generator will be rated at 150-kW 277/480 volts, and located near the new main electrical room. New associated electrical equipment (automatic transfer switches, panelboards, transformers) will be in a separate auxiliary electrical room within the main electrical room. The new generator will serve the fire pump, emergency and exit lighting, lighting in main electrical and mechanical rooms, lighting in group and individual toilet rooms, kitchen walk-in freezer, kitchen walk-in cooler, health suite refrigerator, security (access control, intrusion detection, video surveillance) head-end equipment, fire detection and alarm equipment, main console intercom cabinet, and MDF and IDF data racks.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

ELECTRICAL CONT.

Lighting and Lighting Controls
In the building addition and renovated spaces under Option 2, MCPS standard classroom lighting and lighting controls will be provided in the classrooms. This will consist of recessed LED lighting fixtures and lighting controls utilizing lighting relay controllers, low-voltage lighting control stations (switches), and occupancy sensors, and having dimming capability. Emergency lighting will be automatically switched ON during a power outage.

In the building addition and renovated spaces, lensed type recessed LED luminaires will be provided in the offices, classrooms, corridors, toilet rooms, storage rooms, and support spaces. The renovated gymnasium will have LED high-bay UFO-style lighting fixtures and wall-mounted lighting fixtures with wire-guards over egress doors. LED downlights will be provided where smaller fixtures are appropriate. Lighting controls will include occupancy sensors to automatically turn OFF lighting in a room or space when unoccupied.

Exterior building-mounted perimeter security lighting will be full cut-off utilizing LED light sources.

Lighting levels will be designed in accordance with the recommendations of the Illuminating Engineering Society of North America (IESNA). Lighting controls will meet the requirements of ASHRAE Standard 90.1-2022. The lighting power density will not exceed 0.70 watts per square foot per Table 9.5.1 of ASHRAE Standard 90.1-2022.

COMMUNICATION SYSTEMS

Data, Voice, and Video
The existing Dell file server, MDF data racks, and IDF data racks will be upgraded to the latest MCPS communications standards to serve the building renovation and addition under Option 2. New MDF room and IDF closets will be provided under Project Option 2 to ensure cable runs are limited to 250 feet or less. New data and voice communications systems will be provided. New Outdoor wireless access points (WAPs) will be provided. The communications infrastructure will include outlet boxes, conduits and raceways, and conduit sleeves through walls and floors for the installation of the data and voice communications cabling.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - NARRATIVE

COMMUNICATION SYSTEMS CONT.

Intercommunications (Public Address) and Sound

A new intercommunications system will be provided to serve the building renovation and additions under Option 2. This will include call switches and speakers in the classrooms, and speakers in the corridors and multi-occupant toilet rooms. The existing Rauland Telecenter intercom head-end console in the main office will be salvaged and replaced with a new head-end console. Exterior building-mounted speakers will be provided where required.

New sound reinforcement systems will be provided in the gymnasium, multipurpose room (cafeteria), and music rooms per MCPS requirements.

Instructional/Classroom Technology

In the building renovation and additions under Option 2, classrooms will be equipped with convenience receptacles throughout. Teacher's desk receptacles will be connected to a generator standby panelboard. A receptacle will be located at the front of the classroom teaching wall for Boxlight interactive flat panels on carts.

ELECTRONIC SAFETY AND SECURITY SYSTEMS

Access Control

A new door access control system will be provided for the building renovation and additions. Door access control system card readers will be provided where required by MCPS.

Intrusion Detection

A new intrusion detection system will be provided for the building renovation and additions. Intrusion detection devices will include motion detectors/sensors and door contacts on exterior doors.

Video Surveillance

Video surveillance system equipment will include dome cameras in the corridors and building exterior where required. Existing exterior dome cameras on existing to remain building walls may remain and be reused, but new cabling will be provided to be served from new MDF and IDF racks.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO - ADVANTAGES AND DISADVANTAGES

Advantages:

- Sprinkler system added.
- Replaces outdated building systems.
- Addresses accessibility issues.
- Design meets Educational Specifications.
- Existing community-sized gym remains.
- Sustainable building materials in new finish materials.
- Hazardous materials will be abated.
- Addition of Linkages to Learning (provided as an add alternate).
- Outdoor classroom in courtyard (provided as an add alternate).
- Alternate design for daycare drop off to address safety concerns.

Disadvantages:

- Inefficiencies in existing building to address accessibility and new restroom layout.
- The required number of lockers in corridors cannot be accommodated. Approximately 50% of required lockers can be accommodated.
- Does not allow for visibility to open space and play areas at rear of site.
- Buses circulates on/off Wainwright Avenue.
- Library/Media Center and Resource Rooms in center of building footprint do not get direct daylight.
- Portions of the existing building are construction type V-B, with the use of wood framing and decking at the existing roof structure. The current building code has many restrictions on this construction type in terms of allowable number of stories and building area. In order to meet the intent of the current building code, the addition of a firewall needs to be considered.

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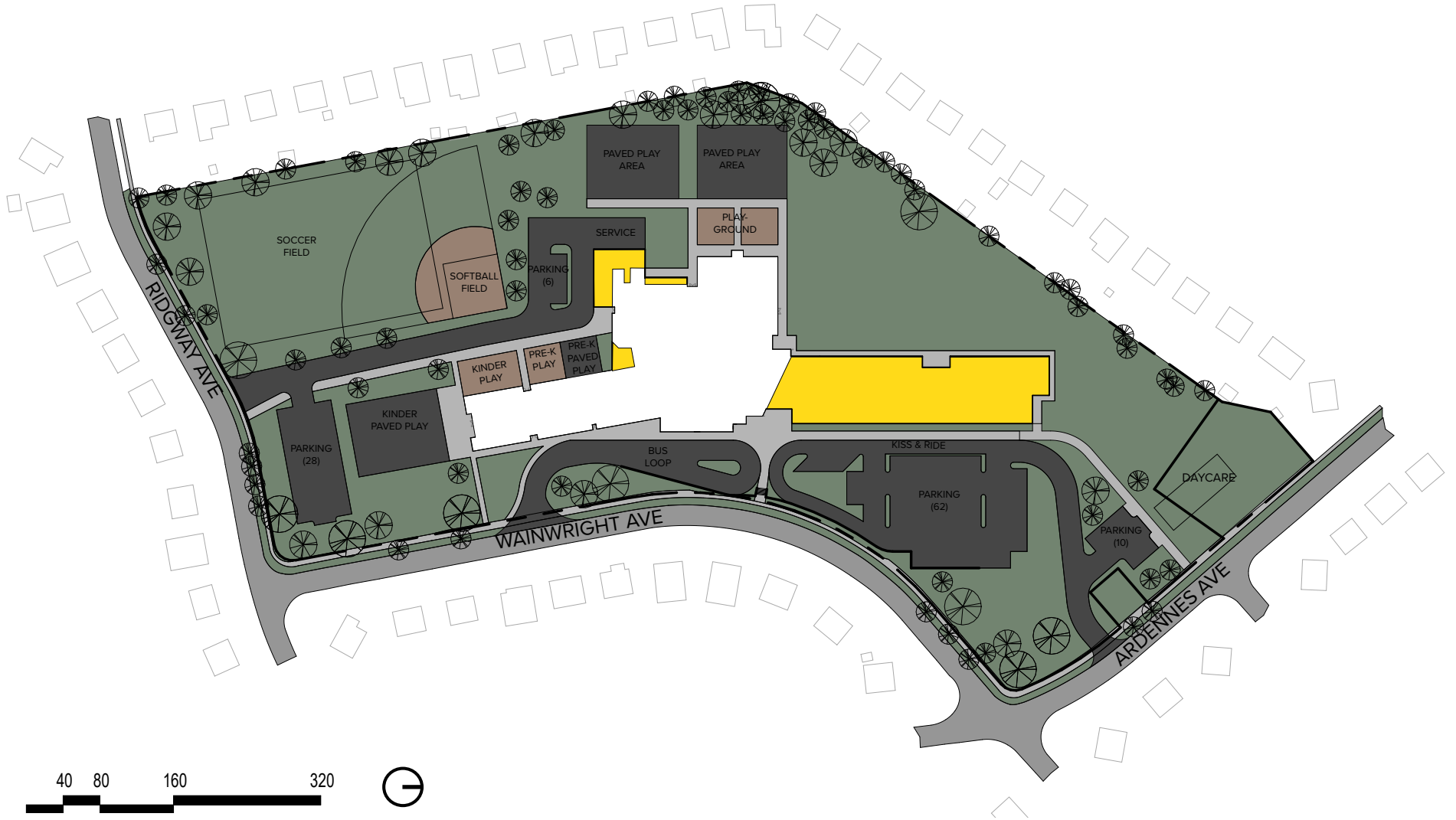
V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - DESCRIPTION

Option 3 demolished the existing classroom wings towards the north. A new 2-story classroom addition is proposed in a similar location to the previous structure. The new addition is aligned with the existing internal circulation creating a direct connection between existing and new. The main entry is relocated to the east side of the building, central to the building and overlooking the bus loop and student drop off, adjacent to Wainwright Ave. The multi-purpose room, kitchen and building services are added on to towards the west. The bus loop parallels Wainwright Ave. Parking and student drop off are accessed from both Ridgway Ave and Ardennes Ave. Kindergarten and Pre-K play areas are located adjacent to the existing southern classroom wing. The remaining play areas are reconfigured in their current location, west of the building and adjacent to the multi-purpose room and gym. The soccer and softball field remain at the Southwest corner of the site. Interior renovations to the existing building address accessibility, toilet room reconfiguration, and finish upgrades.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - SITE PLAN



V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - GROUND LEVEL FLOOR PLAN

ABBREVIATIONS LEGEND

CR - CLASSROOM
TLT - TOILET
ST - STORAGE
E - ELEVATOR
CNSL - COUNSELING SUITE
MECH - MECHANICAL
ELEC - ELECTRICAL
ADMIN - ADMINISTRATION
CONF - CONFERENCE
KINDER - KINDERGARTEN
WR - WORKROOM
INSTR - INSTRUMENTAL MUSIC
DEVELOP - STAFF DEVELOPMENT
BLDG - BUILDING SERVICE

V. DESCRIPTION OF OPTIONS (CONTINUED)

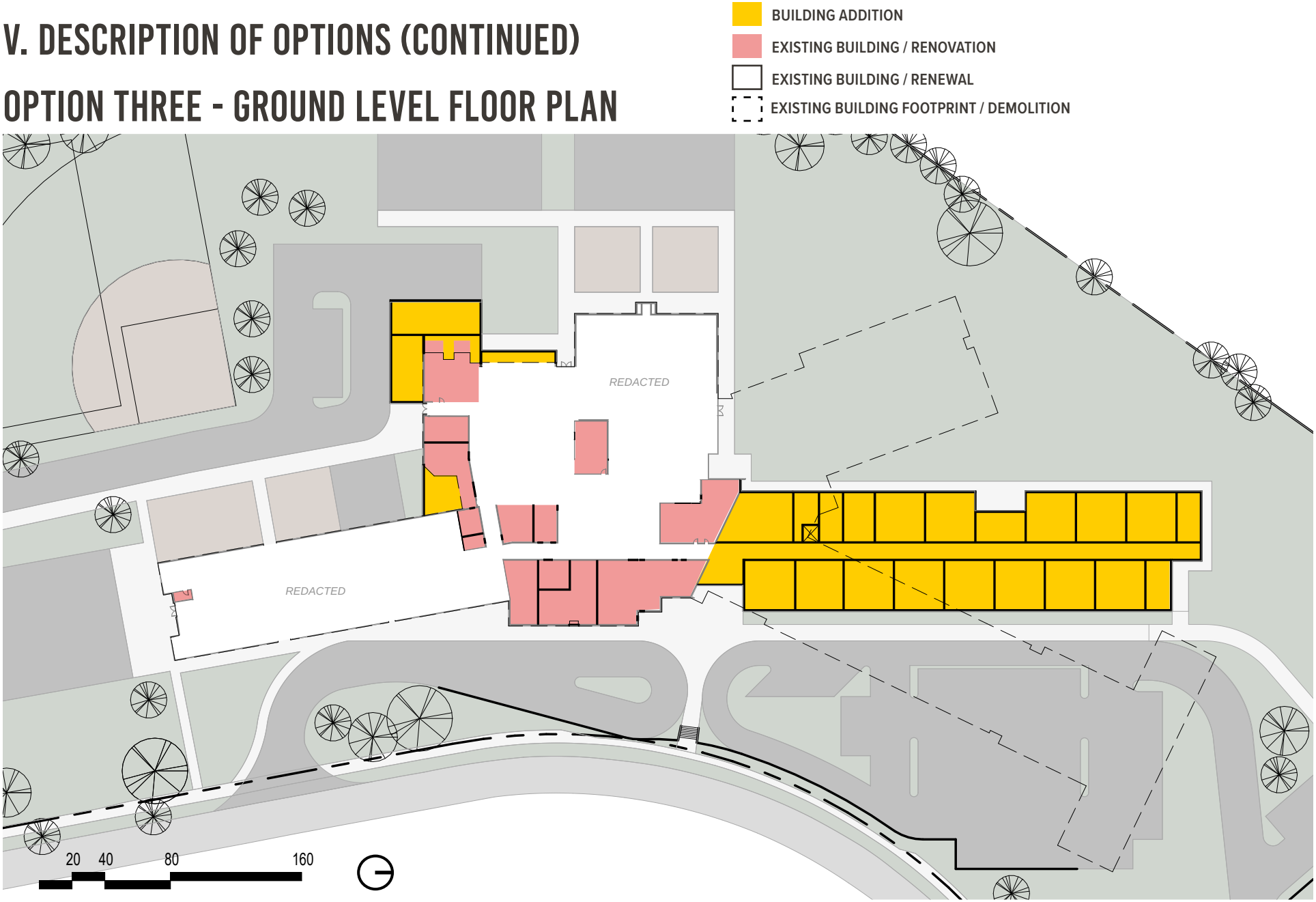
OPTION THREE - UPPER LEVEL FLOOR PLAN

ABBREVIATIONS LEGEND

CR - CLASSROOM
TLT - TOILET
ST - STORAGE
E - ELEVATOR
CNSL - COUNSELING SUITE
MECH - MECHANICAL
ELEC - ELECTRICAL
ADMIN - ADMINISTRATION
CONF - CONFERENCE
KINDER - KINDERGARTEN
WR - WORKROOM
INSTR - INSTRUMENTAL MUSIC
DEVELOP - STAFF DEVELOPMENT
BLDG - BUILDING SERVICE

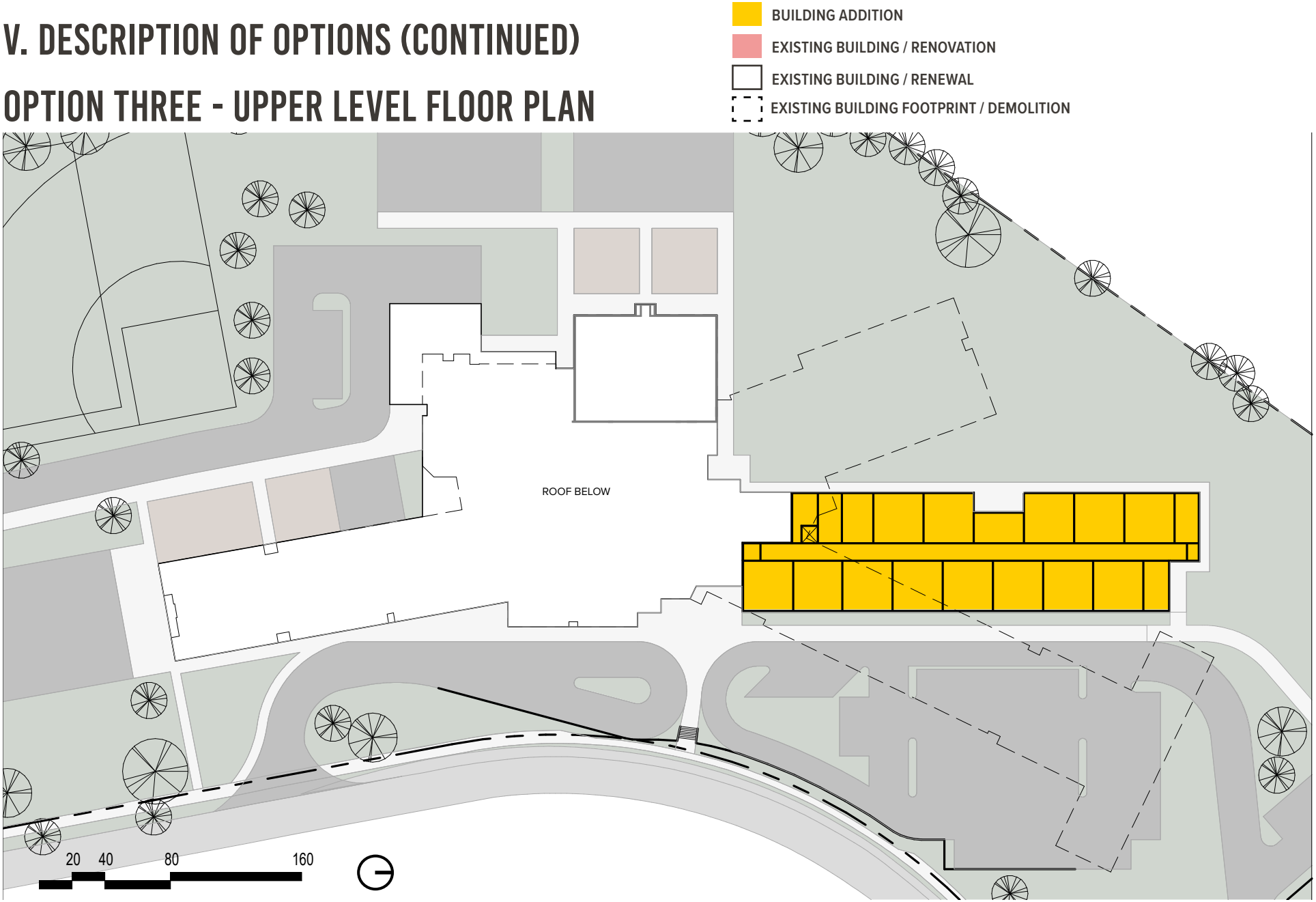
V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - GROUND LEVEL FLOOR PLAN



V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - UPPER LEVEL FLOOR PLAN



V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - PROGRAM COMPARISON

	MCPS ED SPEC			OPTION 3			DELTA	
CLASSROOMS	ED-SPEC			OPTION 3			SQUARE FEET	PERCENTAGE
PREKINDERGARTEN (NET)	2	TOTAL	2400	2	TOTAL	2753	353	15%
Prekindergarten	1		1200	1		1380	180	15%
Prekindergarten	1		1200	1		1373	173	14%
KINDERGARTEN (NET)	4	TOTAL	4800	4	TOTAL	5009	209	4%
Kindergarten	1		1200	1		1212	12	1%
Kindergarten	1		1200	1		1286	86	7%
Kindergarten	1		1200	1		1278	78	7%
Kindergarten	1		1200	1		1233	33	3%
STANDARD (NET)	24	TOTAL	20400	24	TOTAL	20400	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 3		DELTA	
Standard	1	850	1	850	0	0%
Standard	1	850	1	850	0	0%
Standard	1	850	1	850	0	0%
Standard	1	850	1	850	0	0%
MUSIC & ART (NET)	**4 TOTAL**	**3850**	**4 TOTAL**	**4120**	**270**	**7%**
Art	1	1200	1	1200	0	0%
Music	1	1200	1	1197	-3	0%
Instrumental Music	1	450	1	459	9	2%
Dual Purpose Room	1	1000	1	1264	264	26%
	AREA SUBTOTAL	**31,450**	**AREA SUBTOTAL**	**32,282**	**1,311**	**4%**
SUPPORT ROOMS	**ED SPEC**		**OPTION 3**			
Large Instructional Support	1	550	1	550	0	0%
Small Instructional Support Room	2	425	2	425	0	0%
Speech Lanuage Therapy	1	250	1	250	0	0%
Therapy Support Room	1	250	1	250	0	0%
Personal Care Room	1	100	1	100	0	0%
Testing / Conference Room	1	140	1	135	-5	-4%
Support Staff Offices	2	140	2	130	-10	-4%
Parent Resource Room	1	500	1	445	-55	-11%
	AREA SUBTOTAL	**2,920**	**AREA SUBTOTAL**	**2,840**	**-70**	**-2%**
LIBRARY / MEDIA CENTER	**ED-SPEC**		**OPTION 3**			
Learning Environment	1	2100	1	2100	0	0%
Work and Production Area	1	475	1	528	53	11%
LMC Storage Room	1	300	1	300	0	0%
	AREA SUBTOTAL	**2,875**	**AREA SUBTOTAL**	**2,928**	**53**	**2%**

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 3		DELTA	
PHYSICAL EDUCATION	**ED-SPEC**		**OPTION 3**			
Gymnasium	1	3700	1	5486	1786	48%
Office	1	140	1	186	46	33%
Storage	1	250	1	250	0	0%
Storage	2	100	2	227	27	14%
Outside Storage	1	140	1	150	10	7%
	AREA SUBTOTAL	**4,430**	**AREA SUBTOTAL**	**6,526**	**1,869**	**42%**
MULTI-PURPOSE	**ED-SPEC**		**OPTION 3**			
Multi-purpose Room	1	3200	1	3200	0	0%
Chair Storage	1	180	1	160	-20	-11%
Table Storage	1	180	1	160	-20	-11%
Platform	1	450	1	425	-25	-6%
Before / After Care Prep Area	1	25	1	20	-5	-20%
Before / After Care Storage	1	100	1	100	0	0%
	AREA SUBTOTAL	**4,135**	**AREA SUBTOTAL**	**4,065**	**-70**	**-2%**
KITCHEN	**ED-SPEC**		**OPTION 3**			
Serving Area	1	300	1	300	0	0%
Walk-In Cooler/Freezer	1	155	1	155	0	0%
Dry Storage	1	192	1	192	0	0%
Office	1	100	1	100	0	0%
Toilet Room	1	70	1	70	0	0%
Preparation Area	1	555	1	555	0	0%
	AREA SUBTOTAL	**1,372**	**AREA SUBTOTAL**	**1,372**	**0**	**0%**
ADMINISTRATION	**ED-SPEC**		**OPTION 3**			
General Office	1	500	1	500	0	0%
Workroom	1	300	1	300	0	0%
Principal's Office	1	250	1	250	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 3		DELTA	
Assistant Principal's Office	1	140	1	135	-5	-4%
Conference Room	1	275	1	265	-10	-4%
Storage	1	100	1	100	0	0%
Record Room	1	75	1	75	0	0%
Toilet Room	1	50	1	50	0	0%
Workroom (2nd level)	1	75	1	75	0	0%
	AREA SUBTOTAL	**1,765**	**AREA SUBTOTAL**	**1,750**	**-15**	**-1%**
COUNSELING SUITE	**ED-SPEC**		**OPTION 3**			
Counselor's Office	1	160	1	152	-8	-5%
Itinerant Staff Office	1	160	1	152	-8	-5%
	AREA SUBTOTAL	**320**	**AREA SUBTOTAL**	**304**	**-16**	**-5%**
STAFF DEVELOPMENT AREA	**ED-SPEC**		**OPTION 3**			
Staff Development Office	1	100	1	100	0	0%
Reading Specialist Office	1	100	1	100	0	0%
Training / Conference Room	1	400	1	400	0	0%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**600**	**0**	**0%**
HEALTH SERVICES SUITE	**ED-SPEC**		**OPTION 3**			
Waiting Area	1	100	1	95	-5	-5%
Treatment / Medication Area	1	120	1	115	-5	-4%
Office / Health Assessment Room	1	100	1	95	-5	-5%
Health Assessment / Isolation Room	1	100	1	95	-5	-5%
Rest Area	1	200	1	190	-10	-5%
Storage Room	1	40	1	40	0	0%
Toilet Room	1	50	1	50	0	0%
	AREA SUBTOTAL	**710**	**AREA SUBTOTAL**	**680**	**-30**	**-4%**

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 3		DELTA	
STAFF AREAS	**ED-SPEC**		**OPTION 3**			
Staff Lounge	1	650	1	600	-50	-8%
Privacy Room	2	50	2	50	0	0%
	AREA SUBTOTAL	**750**	**AREA SUBTOTAL**	**700**	**-50**	**-7%**
BUILDING SERVICES FACILITIES	**ED-SPEC**		**OPTION 3**			
Building Services Office	1	140	1	140	0	0%
Locker / Shower Area	1	150	1	150	0	0%
Compactor / Trash Room	1	150	1	150	0	0%
General Storage & Receiving	1	550	1	550	0	0%
General Storage	3	240	3	240	0	0%
Building Services Outdoor Storage	1	175	1	381	206	118%
	AREA SUBTOTAL	**1,885**	**AREA SUBTOTAL**	**2,091**	**206**	**11%**
BUILDING SUPPORT AREAS	**ED-SPEC**		**OPTION 3**			
Book Storage	1	200	1	203	3	2%
PTA Storage	1	100	1	104	4	4%
Emergency Command Center**	1	0	1	0	0	0%
Telecommunications Closet (MDF)	1	150	1	159	9	6%
Telecommunications Closet (IDF)	3	50	3	50	0	0%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**616**	**16**	**3%**
ADD ALTERNATE 1: LINKAGES TO LEARNING	**ED-SPEC**		**OPTION 3**			
Administrative Area						
General Office / Reception Area	1	225	1	225	0	0%
Conference Room	1	275	1	275	0	0%
Linkages to Learning Suite						
Child / Family Therapy Room	1	175	1	175	0	0%
Family Care Manager Office	1	140	1	140	0	0%
Family Resource Closet	1	50	1	50	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 3		DELTA	
Other						
Toilet Room	1	50	1	50	0	0%
	AREA SUBTOTAL	**915**	AREA SUBTOTAL	**915**	**0**	**0%**
ADD ALTERNATE 2: COMMUNITY GYMNASIUM	ED-SPEC		OPTION 3	INCLUDED		
Additional area for gymnasium	1	2,600	0	0	-2,600	
	AREA SUBTOTAL	**2,600**	AREA SUBTOTAL	**0**	**-2,600**	**-100%**
NET AREA TOTAL (WITHOUT ADD ALT)		**53,812**		**56,754**	**3,204**	**6%**
NET AREA TOTAL (WITH ADD ALTS)		**57,327**		**57,669**	**604**	**1%**

** Emergency Command Center is not required for any school under 100,000 SF

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

SITE

1. Bus Loop: The bus loop will be relocated to the front of the building in this option. It should be anticipated that the pavement in front of the building will be raised approximately 4’ to provide direct drop-off for students to the building vs. having to install ADA ramps. This may result in a 4’ retaining wall along the street.
2. Student Drop-off / Pick-up Loop: The student loop is connected to Ardennes Ave in this option. The 4’ retaining wall along the bus loop will extend along the edge of the parking lot in this option.
3. On-Site Parking: The parking will be expanded as part of this option to provide 106 total spaces.
4. On-Site Loading: The loading area would be expanded as part of this option and will need to be screened from the playgrounds.
5. Sidewalks and Accessibility: Improvements to sidewalks include the items outlined in option 1 and sidewalk improvements noted on the concept plan.
6. Fire Access: The paved play areas on the west side of the gym will need to be used for fire truck turn around and connected to the loading area to provide adequate fire coverage for the building.
7. Site Topography and Drainage: Improvements to this scheme should include correcting low points that are ponding water as outlined in option 1.
8. Stormwater Management: Stormwater management quality control will be required as part of this scheme. It should be anticipated that at least 12 micro-bioretention facilities will be required. Furthermore, the City has indicated that the downstream system is not adequate and the installation of an underground detention facility will be required.
9. Utilities: The fire/domestic water system will need to be replaced to provide for required increased sprinkler demands in the building. This will require replacement of the existing outdoor water meter vault, and upgrading all of the waterline to the building to at least an 8” pipe.

No changes to sanitary or storm are anticipated with this scheme.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

ARCHITECTURAL

Option three includes demolition of a portion of the existing school and renewal of the interior of the existing to remain building. New additions include an accessible entrance, kindergarten wing and classroom with gymnasium wing. The finishes within the entire school will be replaced. New finishes in both new and existing construction will be comprised of ACT ceilings, VCT flooring in classrooms and instructional support rooms, carpet in office and administrative areas, quarry floor tile and ceramic wall tile in the kitchen, sealed concrete in services areas, and ceramic floor and wall tile in bathrooms. All walls, door frames, and gyp bd ceilings will be painted. Existing door hardware and signage will be replaced. The existing windows will be replaced. The roof will not be replaced on the existing portion of the building since it was recently replaced and still under warranty. Additional requirements are listed within the educational specifications in Appendix B.

The new additions are both one-story and two-story structures. The floor level of all additions are aligned with the existing ground level elevation at approx. 372.8'. The entry will be relocated to the center of the building footprint facing Wainwright Ave and providing a single accessible entrance. The two-story addition to the north consists of a double loaded corridor with classrooms, offices, and instructional support spaces on both floors. The second floor elevation will be at 384.8'. An elevator will be provided for access to the upper level. The one-story addition to the southwest expands the kitchen, multi-purpose room, and provides necessary utility spaces. A small one-story addition at the south will infill the original entry and provide expanded space for the music room. Lockers will be provided in the new construction corridors.

The existing to remain building will be reconfigured in select areas to address accessibility upgrades. All single-user bathroom will be upgraded to provide ADA compliant grab bars, toilet accessories, and plumbing fixtures. All multi-occupant bathrooms will be reconfigured to the current MCPS layout providing single-user toilet rooms with full height partitions and wood doors with hollow metal frames. ADA required toilet rooms with necessary grab bars and clearances will be included. Sinks will be located adjacent and open to the corridor situated directly across from the toilet rooms. New construction bathroom facilities will also match this layout. New interior walls within new and existing construction will be CMU. Floor and ceiling materials will align with the interior finish selection. Non-compliant ramps in existing construction will be reconfigured. The existing slab on grade will be removed and replaced to provide required slopes and landings. Ramp handrails will be replaced with the required extensions.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

ARCHITECTURAL

New CMU partitions will be provided in select locations to subdivide or reconfigure existing spaces in the existing to remain structure to meet MCPS educational specification areas, such as the platform and storage areas related to the multi-purpose room, music room, offices, staff lounge, staff development, and instructional support rooms.

The structure will remain a type VB building due to existing wood structure. The allowable area for a type VB, 2-story, sprinklered building is 28,500 SF. Therefore, a minimum of two fire walls will be required with this option for separation of the existing building from the new additions. The fire walls will consist of one 2-hour fire rated CMU structurally independent portal frame extending from exterior wall to exterior wall and 30” above the roof. The exterior wall on either side of the fire wall will need to be 2-hour rated. This can typically rely on equivalent rating from exterior masonry per the IBC. Fire rated doors will be provided within the fire wall.

Exterior play areas will be provided per MCPS Educational Specifications. Pre-K paved play and playground, Kindergarten paved play and playground are provided adjacent to the Pre-K and Kindergarten classrooms. Two paved play areas and two playgrounds are provided adjacent to multi-purpose room and gym. The softball field and soccer field will remain in their current location on site.

If the Linkages to Learning Add Alternate is not accepted the overall size of the new construction would be reduced in size.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

STRUCTURAL

For Option Three, the remaining section of the school should have all the items from Option One completed including the CMU fire wall. In option three, the following areas will be demolished: the original section of the school along with the 1955 and the 1959 addition. There will be a new two story addition to the north of the remaining school. This addition will consist of standard classrooms on each side of a central corridor. The classrooms and corridor walls will stack from floor to floor. The construction of this addition will be steel framed floor and roof structure.

The steel structure will consist of steel columns on spread column footings supporting composite steel framing and a concrete slab on composite metal deck at the floor. At the roof, the columns will support steel beams supporting steel joists spaced at 5 feet on center with galvanized metal roof deck. The exterior walls will be bypassing 8” thick CMU walls with architectural finish. The interior walls would be 6” thick non-load bearing masonry corridor walls and cold formed metal walls between classrooms.

The lintels in the masonry will be CMU bond beam lintels. The exterior brick veneer would be supported by galvanized steel angle lintels. Any long span openings will have a galvanized steel lintel beam with galvanized steel hangers and continuous plate.

The ground floor will be 5 inch thick concrete slab on grade reinforced with welded wire fabric.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

MECHANICAL

General

Option 3 - Renovation and Addition (More Than 50% Demolition) - demolishes the one and two-story (first floor and basement) classroom wings located on the north side of the existing school, while providing a two-story building addition and comprehensive renovations throughout the existing school. The existing mechanical, plumbing, and fire protection systems will be replaced throughout the school under this option. Construction will be accomplished by temporarily relocating teachers and students to another school during construction.

While select portions of existing VRF systems 1, 2, 3, and 4 could be salvaged and reused under Option 3, consideration should be made towards replacing these existing systems. Option 3 requires modifications to and/or relocation of select indoor VRF terminal units, their associated refrigerant piping, and wall-mounted controllers to accommodate the architectural floor plan revisions. Any damage incurred as part of these system modifications would not be warranted, as these existing systems are expected to be approximately halfway through their recommended service life at the completion of construction. Additionally, the existing VRF systems only utilize a single ceiling cassette per classroom, with two ceiling cassettes recommended from an occupant thermal comfort standpoint. Replacement of the existing ceiling cassettes would also allow for an increased level of filtration. Finally, the existing VRF systems utilize the previous generation of refrigerants (A1), that would vary from A2L refrigerants that would be provided with any new HVAC systems. For these reasons, comprehensive replacement of the existing VRF systems noted is included under Option 3.

Additionally, replacement of the existing DOAS systems is included. This equipment currently utilizes natural gas for heating and would require replacement of existing gas-fired burners with electric-resistance heating coils, as natural gas would not be provided for the HVAC systems installed under Option 2. Replacing this DOAS equipment with water-source heat pump units will be beneficial both from an energy cost and energy consumption standpoint, while aligning with Montgomery County's Climate Initiative and overall electrification goals.

Heating and Cooling Infrastructure Systems

A ground-coupled geothermal heat pump unit system is included to support Option 3. This type of mechanical system provides the ability to have independent heating or cooling year-round, while delivering an extremely high level of overall building energy efficiency. A ground-coupled geothermal borehole field will be located south of the existing school and positioned below the existing play field area. Geothermal boreholes will be approximately 500 feet in depth, with approximately 95 to 105 geothermal boreholes included for Option 3. The final quantity and depth of geothermal boreholes will be determined during design and will depend on the thermal properties and

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

MECHANICAL

ground temperature of the project site. Vertical geothermal borehole loop piping will be encased in a thermally enhanced grout, promoting good heat transfer between the loop piping and earth. Circuit mains from the geothermal boreholes will be routed to a new mechanical room located near the kitchen addition.

Two base-mounted pumps (one active and one stand-by) will circulate an all-water fluid between the school and geothermal borehole field. Geothermal pumping systems will be located within a new mechanical room within the addition adjacent to the kitchen and provided with N+1 redundancy such that the operation of the building can be maintained in the event of a single pump failure. In addition, these pumping systems will be equipped with variable frequency drives for reduced energy consumption during periods of reduced system demand. Major mechanical infrastructure components, including distribution pumps, incoming geothermal piping, associated geothermal piping headers, an air separator, and an expansion tank will also be located within this new mechanical room.

Classroom HVAC Systems

Extended range vertical heat pump units will be provided for space conditioning within the school's classroom areas, with these heat pump units located within mechanical closets positioned near the area served. Doors for all mechanical closets will be accessed from the corridor for routine maintenance. Heat pump units will be equipped with two-stage type compressors, helping to extend compressor life and improve the overall energy efficiency of these systems under part load operation.

A series of VAV rooftop DOAS units with supply and exhaust fans, enthalpy wheels for pre-conditioning outdoor air, DX heat pump coils with water-cooled compressors, and hot gas reheat coils for tempering supply air will be provided to deliver conditioned ventilation airflow to the classroom areas. Airflow supplied from these DOAS units will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from classrooms, restrooms, and storage room areas will be routed through each DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

The use of demand control ventilation within the classroom areas will be provided to assist with reducing the school's overall energy consumption. To accomplish this control strategy, a series of VAV retrofit-type air terminal units will be installed within the conditioned outdoor air ductwork systems. Each classroom will be provided with a dedicated VAV air terminal unit, regulating the quantity of conditioned outdoor air delivered to each space based on the actual room carbon dioxide levels.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

MECHANICAL CONT.

Music and Art Classroom HVAC Systems

The music and art classroom areas will be provided with a similar HVAC system approach as the other classroom areas. This HVAC system approach includes extended range vertical heat pump units for space conditioning, DOAS units for ventilation, and demand control ventilation via VAV retrofit-type air terminal units. Heat pump units will continue to be positioned within mechanical closets, with supply and return air ductwork extending from these units to the area served. A stainless steel capture hood and dedicated exhaust fan will be provided for the art room's kiln equipment.

Administration, Counseling, and Health Suite HVAC Systems

Each of the school's administration, counseling, and administrative support areas will be provided with space conditioning through a dedicated VRF system. This system will be complete with heat recovery type water-cooled condensing units connected to the geothermal heat pump loop. Condensing units will be located within mechanical rooms near the spaces served. Doors to mechanical rooms will be accessible from the corridor for routine maintenance.

The use of ceiling cassette type VRF terminal units is included, promoting sufficient clearance access for filter replacement. Multi-occupant spaces will be provided with 3'x3' cassettes with high efficiency (MERV 10 or higher) disposable filters. Single occupant spaces will be provided with 2'x2' cassettes with the VRF manufacturer's standard washable filter.

The administration area will also be provided with a rooftop DOAS unit with supply and exhaust fans, an enthalpy wheel for pre-conditioning outdoor air, a DX heat pump coil with water-cooled compressors, and a hot gas reheat coil for tempering supply air will be provided to deliver conditioned ventilation airflow to the areas served. Airflow supplied from this DOAS unit will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from offices, restrooms, and storage room areas will be routed through the DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

Linkages to Learning HVAC Systems (Add Alternate)

The Linkages to Learning areas will be provided with space conditioning through a dedicated VRF system. This system will be complete with heat recovery type water-cooled condensing units connected to the geothermal heat pump loop. Condensing units will be located within mechanical rooms near the spaces served. Doors to mechanical rooms will be accessible from the corridor for routine maintenance.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

MECHANICAL CONT.

The use of ceiling cassette type VRF terminal units is included, promoting sufficient clearance access for filter replacement. Multi-occupant spaces will be provided with 3'x3' cassettes with high efficiency (MERV 10 or higher) disposable filters. Single occupant spaces will be provided with 2'x2' cassettes with the VRF manufacturer's standard washable filter.

A dedicated DOAS unit with supply and exhaust fans, an enthalpy wheel for pre-conditioning outdoor air, a hot gas reheat coil for tempering supply air, and a DX heat pump coil with water-cooled compressors will be provided to deliver conditioned ventilation airflow to the Linkages to Learning areas. Airflow supplied from this DOAS unit will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from the offices, restrooms, and storage room areas will be routed through the DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

Multi-Purpose Room, Media Center, and Gymnasium HVAC Systems

A series of single-zone rooftop water-source heat pump units with heat pump type water-cooled compressors and hot gas reheat coils will provide space conditioning and ventilation for the multi-purpose room, media center and gymnasium areas. Full airside economizer, demand control ventilation, and enthalpy wheel energy recovery devices will be provided for these rooftop heat pump units.

Kitchen HVAC Systems

Space conditioning and ventilation for the kitchen area will be provided by a single-zone rooftop heat pump unit, similar to those serving the adjacent multi-purpose room area. General exhaust from the kitchen restroom, storage rooms, and the kitchen space itself will be routed to a rooftop exhaust fan. A separate rooftop exhaust fan will also be provided for serving the kitchen's associated exhaust hood.

Miscellaneous Heating-Only Equipment

The existing heating-only HVAC equipment located throughout existing to remain portions of the school are expected to remain under Option 3. Existing line voltage thermostats on miscellaneous heating equipment will be replaced with direct digital controls. New heating-only spaces such as mechanical rooms, electrical rooms, stairs, storage rooms, and entry vestibules will be provided with new electric-resistance type cabinet and propeller unit heaters.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

MECHANICAL CONT.

Miscellaneous Cooling and Exhaust Fan Systems
Data, Telecomm, and the Elevator Machine Room will be served by ductless split systems.

Building Automation Control System
Like Options 1 and 2, the existing Reliable Controls energy management system will be expanded to include DDC controls for new HVAC systems and components, with the associated system graphics updated once complete. HVAC equipment refrigeration system controls and refrigeration safety devices will utilize the equipment manufacturer's packaged controller and interfaced with the DDC system. Controls for the remaining mechanical equipment will be non-manufacturer based DDC controls provided by the ATC contractor. Actuation will be electric / electronic for all systems. All system components will be installed in accordance with Montgomery County Public Schools (MCPS) standards and networked to the existing front-end server located at the MCPS Energy Management Office.

PLUMBING
Domestic Water Piping Systems (Including Water Service Entrance)
A new combination fire/water service will enter the school within the new mechanical room located within the addition near the kitchen. The new combination fire/water service will be capable of supporting both the fire and water service demands of the new school. A new domestic water service, complete with basket strainer and backflow preventer will separate the domestic water and fire services prior to distributing water throughout the school. A flow test has been performed and a domestic water booster pump is not needed to support the domestic water system. Domestic water piping will be distributed from the new mechanical room area to plumbing fixtures and equipment located throughout the school. The existing domestic water piping (cold water, hot water, and hot water recirculation) will be replaced throughout the entire school with new piping incrementally replaced in phases to accommodate a phased-while-occupied construction approach. All domestic water piping systems will be constructed of Type L copper, with soldered joints provided for piping 2-inches in diameter and smaller and brazed joints provided on piping 2.5-inches in diameter and larger.

Domestic Hot Water Heater System
Domestic hot water for Option 3 will be generated by a pair of electric resistance tank type domestic water heaters. The new water heaters, a hot water circulation pump, a master thermostatic mixing valve, and an expansion tank will be located within the mechanical room located in the addition near the kitchen. Domestic hot water will be generated at 140-degrees F, with 120-degrees F domestic hot water

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

PLUMBING CONT.

distributed from this new mechanical room throughout the school. Local thermostatic mixing valves will reduce the water temperature to 110-degrees F at hand washing fixtures.

Natural Gas Piping Systems

The school's existing outdoor natural gas service, associated gas meter, and building interior gas piping will be replaced under Option 3. A new natural gas service will be provided by Washington Gas for the school. The gas service meter and pressure reducing station will be positioned outdoors and located near the new mechanical room located adjacent to the kitchen. Gas piping will serve the school's new emergency generator. Natural gas piping will be constructed of schedule 40 black steel.

Storm Water Piping Systems

Storm water drainage, including roof drains and storm water piping systems will be replaced to the greatest extent possible under Option 3. Above- and below-grade storm water piping will be constructed from PVC material. All storm water piping systems will exit the school at various locations and coordinate with available site piping connections provided by civil.

Condensate Drain Piping

Condensate drainage piping from HVAC systems shall discharge to the building's below grade storm water system through an indirect connection.

Sanitary and Vent Piping Systems

Above- and below-grade sanitary waste and vent piping systems will be replaced under Option 3. Above- and below-grade sanitary waste and vent piping will be constructed from solid core PVC material. Vent piping will terminate at the roof level, with a minimum 25-foot separation provided between vent piping terminations and any outdoor air intake locations. Sanitary piping systems will exit the building at various locations and will coordinate with the available site piping connections provided by civil. The following special sanitary and vent piping systems are included:

- Equipment and sinks that may discharge grease into the sanitary system from the kitchen will be piped to a new underground concrete grease interceptor. The discharge from this interceptor will be connected to site sanitary piping system.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

PLUMBING CONT.

- Sinks within the art classrooms will be provided with solids interceptors, collecting debris and preventing it from entering the site sanitary piping system.

Plumbing Fixtures

The school's existing plumbing fixtures will be replaced under Option 3. Institutional grade replacement plumbing fixtures will be provided that include floor-mounted water closets utilizing 1.28 gallon per flush valves, pint flush (0.125 gallon per flush) wall-hung urinals, and wall-hung lavatories with hot and cold water faucets with low flow aerators. The water consumption figures noted are equal to or less than what is required by the current plumbing code and for promoting good water conservation practices. All new plumbing fixtures will be ADA compliant. All wall-mounted fixtures will be supported from fixture carriers.

FIRE PROTECTION SYSTEMS

Sprinkler System

Sprinkler coverage will be provided throughout the entire school under Option 3. Sprinkler coverage will extend from the new combination fire/water service described previously, with a dedicated backflow preventer provided for this new fire service. A fire flow test has been performed and a fire pump is not needed to support the sprinkler system. All work will be specified to conform to standards of the National Fire Protection Association (NFPA) and will include requirements for performance verification through hydraulic calculations.

Fire Detection and Alarm System

A new fire detection and alarm system with new fire alarm control panel with voice evacuation will be provided under Option 3. New initiating and notification devices will be provided in building additions and renovated areas. Existing initiating and notification devices will remain in existing spaces not being renovated.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

ELECTRICAL

Power Distribution

Electrical improvements within the scope of Option 3 - Renovation and Addition (More Than 50% Demolition) include replacement of the power distribution system, including removal of existing main switchboard, electrical panelboards, and associated feeders.

Under Option 3, a new main electrical room is will be located in the building next to the kitchen. A new Pepco electrical service will be provided to serve a new 277/480-volt 2000-ampere main switchboard in the main electrical room.

The new main electrical room will also have a 277/480V mechanical panelboard, a 277/480V lighting panel, an energy-efficient step-down transformer, and a 120/208V receptacle branch circuit panelboard.

Electrical provisions will be made for future solar photovoltaic (PV) system for the school to be solar PV ready on the roof.

Generator Power

The existing 35-kW outdoor generator will be replaced with a new natural-gas outdoor generator with weatherproof sound-attenuated enclosure. The new generator will be rated at 150-kW 277/480 volts, and located near the new main electrical room. New associated electrical equipment (automatic transfer switches, panelboards, transformers) will be in a separate auxiliary electrical room within the main electrical room. The new generator will serve the fire pump, emergency and exit lighting, lighting in main electrical and mechanical rooms, lighting in group and individual toilet rooms, kitchen walk-in freezer, kitchen walk-in cooler, health suite refrigerator, security (access control, intrusion detection, video surveillance) head-end equipment, fire detection and alarm equipment, main console intercom cabinet, and MDF and IDF data racks.

Lighting and Lighting Controls

In the building addition and renovated spaces under Option 3, MCPS standard classroom lighting and lighting controls will be provided in the classrooms. This will consist of recessed LED lighting fixtures and lighting controls utilizing lighting relay controllers, low-voltage lighting control stations (switches), and occupancy sensors, and having dimming capability. Emergency lighting will be automatically switched ON during a power outage.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

ELECTRICAL CONT.

In the building addition and renovated spaces, lensed type recessed LED luminaires will be provided in the offices, classrooms, corridors, toilet rooms, storage rooms, and support spaces. The renovated gymnasium will have LED high-bay UFO-style lighting fixtures and wall-mounted lighting fixtures with wire-guards over egress doors. LED downlights will be provided where smaller fixtures are appropriate. Lighting controls will include occupancy sensors to automatically turn OFF lighting in a room or space when unoccupied.

Exterior building-mounted perimeter security lighting will be full cut-off utilizing LED light sources.
Lighting levels will be designed in accordance with the recommendations of the Illuminating Engineering Society of North America (IESNA). Lighting controls will meet the requirements of ASHRAE Standard 90.1-2022. The lighting power density will not exceed 0.70 watts per square foot per Table 9.5.1 of ASHRAE Standard 90.1-2022.

COMMUNICATION SYSTEMS

Data, Voice, and Video

The existing Dell file server, MDF data racks, and IDF data racks will be upgraded to the latest MCPS communications standards to serve the building renovation and addition under Option 3. A new MDF room and IDF closets will be provided under Project Option 3 to ensure cable runs are limited to 250 feet or less. New data and voice communications systems will be provided. New outdoor wireless access points (WAPs) will be provided. The communications infrastructure will include outlet boxes, conduits and raceways, and conduit sleeves through walls and floors for the installation of the data and voice communications cabling.

Intercommunications (Public Address) and Sound

A new intercommunications system will be provided to serve the building renovation and addition under Project Option 3. This will include call switches and speakers in the classrooms, and speakers in the corridors and multi-occupant toilet rooms. The existing Rauland Telecenter intercom head-end console in the main office will be salvaged and replaced with a new head-end console. Exterior building-mounted speakers will be provided where required.

New sound reinforcement systems will be provided in the gymnasium, multipurpose room (cafeteria), and music rooms per MCPS requirements.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - NARRATIVE

ELECTRONIC SAFETY AND SECURITY SYSTEMS

Access Control
A new door access control system will be provided for the building renovation and additions. Door access control system card readers will be provided where required by MCPS.

Intrusion Detection
A new intrusion detection system will be provided for the building renovation and additions. Intrusion detection devices will include motion detectors/sensors and door contacts on exterior doors.

Video Surveillance
Video surveillance system equipment will include dome cameras in the corridors and building exterior where required. Existing exterior dome cameras on existing to remain building walls may remain and be reused, but new cabling will be provided to be served from new MDF and IDF racks.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE - ADVANTAGES AND DISADVANTAGES

Advantages:

- Sprinkler system added.
- Replaces outdated building systems.
- Addresses accessibility issues.
- Design meets Educational Specifications.
- Existing community-sized gym remains.
- Sustainable building materials in new finish materials.
- Hazardous materials will be abated.
- Addition of Linkages to Learning (provided as an add alternate).
- Internal circulation is more efficient.
- Smaller building footprint than existing structure.
- Alternate design for daycare drop off to address safety concerns.

Disadvantages:

- Inefficiencies in existing building to address accessibility and new restroom layout.
- The required number of lockers in corridors cannot be accommodated.
- Does not allow for visibility to open space and play areas at rear of site.
- Bus traffic is accessed from Wainwright Avenue.
- Multiple parking lots.
- Library media center and resource rooms in center of the existing building footprint do not get direct daylight.
- The existing building is type V-B construction due to existing wood framing at the roof structure. The current building code has many restrictions on this construction type in terms of allowable number of stories and building area. Firewalls will be required in order to meet the current building code.

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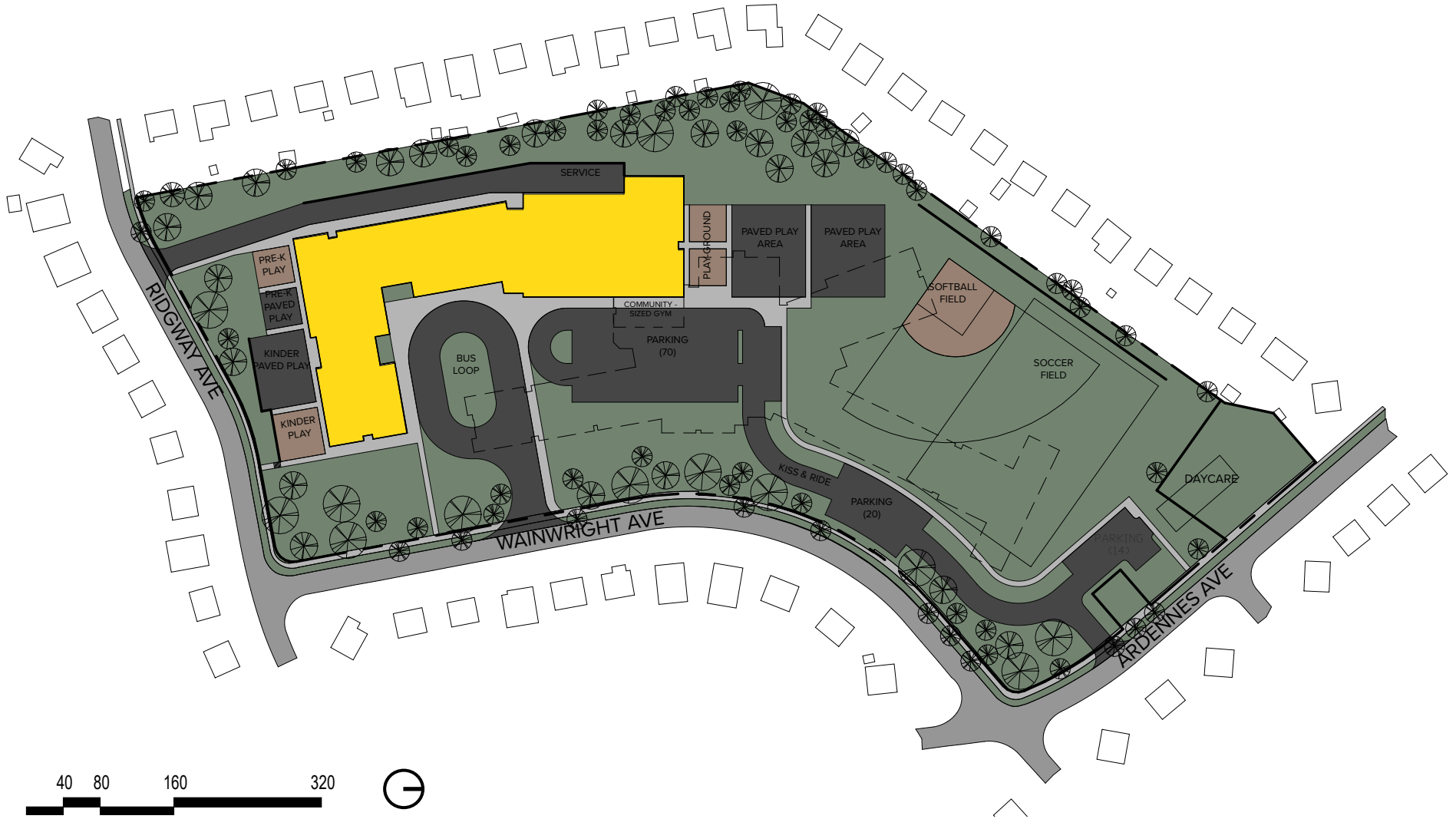
V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - DESCRIPTION

Option 4 demolishes the existing building and replaces the building and site amenities with new construction. A two-story building is proposed fronting Ridgway Ave. Pre-K and Kindergarten play areas will be located along Ridgway Ave., adjacent to the associated classroom spaces. Remaining play areas will be located central to the site, adjacent to the gym and multi-purpose room. A softball and soccer field are located towards the north end of the site, close to Ardennes Ave. The bus loop will be accessed from Wainwright Ave. Parking and student drop off will be accessed from Ardennes to limit traffic on Wainwright Ave. which is a one-way road. Parking is dispersed along the driveway to reduce visual impact. A service drive is located off of Ridgway at the Southwest corner of the site to access the kitchen and building services.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - SITE PLAN



V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - GROUND LEVEL FLOOR PLAN

ABBREVIATIONS LEGEND

CR - CLASSROOM
TLT - TOILET
ST - STORAGE
E - ELEVATOR
CNSL - COUNSELING SUITE
MECH - MECHANICAL
ELEC - ELECTRICAL
ADMIN - ADMINISTRATION
CONF - CONFERENCE
KINDER - KINDERGARTEN
WR - WORKROOM
INSTR - INSTRUMENTAL MUSIC
DEVELOP - STAFF DEVELOPMENT
BLDG - BUILDING SERVICE

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - UPPER LEVEL FLOOR PLAN

ABBREVIATIONS LEGEND

CR - CLASSROOM
TLT - TOILET
ST - STORAGE
E - ELEVATOR
CNSL - COUNSELING SUITE
MECH - MECHANICAL
ELEC - ELECTRICAL
ADMIN - ADMINISTRATION
CONF - CONFERENCE
KINDER - KINDERGARTEN
WR - WORKROOM
INSTR - INSTRUMENTAL MUSIC
DEVELOP - STAFF DEVELOPMENT
BLDG - BUILDING SERVICE

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - PROGRAM COMPARISON

	MCPS ED SPEC			OPTION 4			DELTA	
CLASSROOMS	ED-SPEC			OPTION 4			SQUARE FEET	PERCENTAGE
PREKINDERGARTEN (NET)	2	TOTAL	2400	2	TOTAL	2400	0	0%
Prekindergarten	1		1200	1		1200	0	0%
Prekindergarten	1		1200	1		1200	0	0%
KINDERGARTEN (NET)	4	TOTAL	4800	4	TOTAL	4800	0	0%
Kindergarten	1		1200	1		1200	0	0%
Kindergarten	1		1200	1		1200	0	0%
Kindergarten	1		1200	1		1200	0	0%
Kindergarten	1		1200	1		1200	0	0%
STANDARD (NET)	24	TOTAL	20400	24	TOTAL	20400	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - PROGRAM COMPARISON

	MCPS ED SPEC			OPTION 4			DELTA	
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
Standard	1		850	1		850	0	0%
MUSIC & ART (NET)	**4**	**TOTAL**	**3850**	**4**	**TOTAL**	**3850**	**0**	**0%**
Art	1		1200	1		1200	0	0%
Music	1		1200	1		1200	0	0%
Instrumental Music	1		450	1		450	0	0%
Dual Purpose Room	1		1000	1		1000	0	0%
	AREA SUBTOTAL		31,450	AREA SUBTOTAL		31,450	0	0%
SUPPORT ROOMS	**ED SPEC**			**OPTION 4**				
Large Instructional Support	1		550	1		550	0	0%
Small Instructional Support Room	2		425	2		425	0	0%
Speech Lanuage Therapy	1		250	1		250	0	0%
Therapy Support Room	1		250	1		250	0	0%
Personal Care Room	1		100	1		100	0	0%
Testing / Conference Room	1		140	1		140	0	0%
Support Staff Offices	2		140	2		140	0	0%
Parent Resource Room	1		500	1		500	0	0%
	AREA SUBTOTAL		2,920	AREA SUBTOTAL		2,920	0	0%
LIBRARY / MEDIA CENTER	**ED-SPEC**			**OPTION 4**				
Learning Environment	1		2100	1		2100	0	0%
Work and Production Area	1		475	1		475	0	0%
LMC Storage Room	1		300	1		300	0	0%
	AREA SUBTOTAL		2,875	AREA SUBTOTAL		2,875	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 4		DELTA	
PHYSICAL EDUCATION	**ED-SPEC**		**OPTION 4**			
Gymnasium	1	3700	1	3700	0	0%
Office	1	140	1	140	0	0%
Storage	1	250	1	250	0	0%
Storage	2	100	2	100	0	0%
Outside Storage	1	140	1	140	0	0%
	AREA SUBTOTAL	**4,430**	**AREA SUBTOTAL**	**4,430**	**0**	**0%**
MULTI-PURPOSE	**ED-SPEC**		**OPTION 4**			
Multi-purpose Room	1	3200	1	3200	0	0%
Chair Storage	1	180	1	180	0	0%
Table Storage	1	180	1	180	0	0%
Platform	1	450	1	450	0	0%
Before / After Care Prep Area	1	25	1	25	0	0%
Before / After Care Storage	1	100	1	100	0	0%
	AREA SUBTOTAL	**4,135**	**AREA SUBTOTAL**	**4,135**	**0**	**0%**
KITCHEN	**ED-SPEC**		**OPTION 4**			
Serving Area	1	300	1	300	0	0%
Walk-In Cooler/Freezer	1	155	1	155	0	0%
Dry Storage	1	192	1	192	0	0%
Office	1	100	1	100	0	0%
Toilet Room	1	70	1	70	0	0%
Preparation Area	1	555	1	555	0	0%
	AREA SUBTOTAL	**1,372**	**AREA SUBTOTAL**	**1,372**	**0**	**0%**
ADMINISTRATION	**ED-SPEC**		**OPTION 4**			
General Office	1	500	1	500	0	0%
Workroom	1	300	1	300	0	0%
Principal's Office	1	250	1	250	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 4		DELTA	
Assistant Principal's Office	1	140	1	140	0	0%
Conference Room	1	275	1	275	0	0%
Storage	1	100	1	100	0	0%
Record Room	1	75	1	75	0	0%
Toilet Room	1	50	1	50	0	0%
Workroom (2nd level)	1	75	1	75	0	0%
	AREA SUBTOTAL	**1,765**	**AREA SUBTOTAL**	**1,765**	**0**	**0%**
COUNSELING SUITE	**ED-SPEC**		**OPTION 4**			
Counselor's Office	1	160	1	160	0	0%
Itinerant Staff Office	1	160	1	160	0	0%
	AREA SUBTOTAL	**320**	**AREA SUBTOTAL**	**320**	**0**	**0%**
STAFF DEVELOPMENT AREA	**ED-SPEC**		**OPTION 4**			
Staff Development Office	1	100	1	100	0	0%
Reading Specialist Office	1	100	1	100	0	0%
Training / Conference Room	1	400	1	400	0	0%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**600**	**0**	**0%**
HEALTH SERVICES SUITE	**ED-SPEC**		**OPTION 4**			
Waiting Area	1	100	1	100	0	0%
Treatment / Medication Area	1	120	1	120	0	0%
Office / Health Assessment Room	1	100	1	100	0	0%
Health Assessment / Isolation Room	1	100	1	100	0	0%
Rest Area	1	200	1	200	0	0%
Storage Room	1	40	1	40	0	0%
Toilet Room	1	50	1	50	0	0%
	AREA SUBTOTAL	**710**	**AREA SUBTOTAL**	**710**	**0**	**0%**

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 4		DELTA	
STAFF AREAS	**ED-SPEC**		**OPTION 4**			
Staff Lounge	1	650	1	650	0	0%
Privacy Room	2	50	2	50	0	0%
	AREA SUBTOTAL	**750**	**AREA SUBTOTAL**	**750**	**0**	**0%**
BUILDING SERVICES FACILITIES	**ED-SPEC**		**OPTION 4**			
Building Services Office	1	140	1	140	0	0%
Locker / Shower Area	1	150	1	150	0	0%
Compactor / Trash Room	1	150	1	150	0	0%
General Storage & Receiving	1	550	1	550	0	0%
General Storage	3	240	3	240	0	0%
Building Services Outdoor Storage	1	175	1	175	0	0%
	AREA SUBTOTAL	**1,885**	**AREA SUBTOTAL**	**1,885**	**0**	**0%**
BUILDING SUPPORT AREAS	**ED-SPEC**		**OPTION 4**			
Book Storage	1	200	1	200	0	0%
PTA Storage	1	100	1	100	0	0%
Emergency Command Center**	1	0	1	0	0	0%
Telecommunications Closet (MDF)	1	150	1	150	0	0%
Telecommunications Closet (IDF)	3	50	3	50	0	0%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**600**	**0**	**0%**
ADD ALTERNATE 1: LINKAGES TO LEARNING	**ED-SPEC**		**OPTION 4**			
Administrative Area						
General Office / Reception Area	1	225	1	225	0	0%
Conference Room	1	275	1	275	0	0%
Linkages to Learning Suite						
Child / Family Therapy Room	1	175	1	175	0	0%

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - PROGRAM COMPARISON

	MCPS ED SPEC		OPTION 4		DELTA	
Family Care Manager Office	1	140	1	140	0	0%
Family Resource Closet	1	50	1	50	0	0%
Other						
Toilet Room	1	50	1	50	0	0%
	AREA SUBTOTAL	**915**	AREA SUBTOTAL	**915**	**0**	**0%**
ADD ALTERNATE 2: COMMUNITY GYMNASIUM	ED-SPEC		OPTION 4			
Additional area for gymnasium	1	2,600	1	2,600	0	0%
	AREA SUBTOTAL	**2,600**	AREA SUBTOTAL	**2,600**	**0**	**0%**
NET AREA TOTAL (WITHOUT ADD ALT)		**53,812**		**53,812**	**0**	**0%**
NET AREA TOTAL (WITH ADD ALTS)		**57,327**		**57,327**	**0**	**0%**

** Emergency Command Center is not required for any school under 100,000 SF

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

SITE

1. Bus Loop: The bus loop will be located to the front of the building in this option. It should be anticipated that the driveway will slope up from Wainwright Ave at approximately 5% to allow for the finish floor of the building to be as high as possible to limit walls at the west side of the property.
2. Student Drop-off / Pick-up Loop: The student loop is connected to Ardennes Ave in this option. A 4' retaining wall along the edge of the drive aisle will be required.
3. On-Site Parking: The parking will be expanded as part of this option.
4. On-Site Loading: The loading area will be routed from Ridgway Ave in this option. It should be anticipated that there be a 5' retaining wall on the western edge of the loading area.
5. Sidewalks and Accessibility: All existing sidewalks within and around the site will be removed as part of this scheme. New sidewalks will be sloped to provide accessible access and limit stairs.
6. Fire Access: The loading area will need to double as a turn around for a fire truck. This will include a 100' diameter cul-de-sac to allow fire trucks to turn around without backing out onto the street. This will require a 6'-8' retaining wall along the western edge.
7. Site Topography and Drainage: Site grading is structured to limit the number of retaining walls, while still providing an accessible site. Generally, there will be a high point in the middle of the site (running east/west) that will attempt to mimic the existing drainage patterns at the site. The finish floor of the building will be set at roughly the same elevation as the loading area of the existing building. This will require fill to be placed on the extreme south of the site to bring the building to grade. Similarly, the central portion of the site will need to be cut down to attempt to bring the site to balance. Retaining walls (roughly 4' tall) will be required on the southern portion of the site (around the playgrounds), and on the western portion of the site along the property line (roughly 4' tall) Lastly, walls will needed on the southwestern portion of the site along the property line to support the fire truck turning movements (approximately 6'-8' tall).
8. Stormwater Management: Stormwater management quality control will be required as part of this scheme. It should be anticipated that at least 16 micro-bioretention facilities will be required. Furthermore, the City has indicated that the downstream system is not adequate and the installation of an underground detention facility will be required.
9. Utilities: The fire/domestic water system will need to be replaced to provide for required increased sprinkler demands in the building. This will require replacement of the existing outdoor water meter vault, and upgrading all of the waterline to the building to at least an 8" pipe.

New sanitary and storm are anticipated with this scheme.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

ARCHITECTURAL

Option four includes demolition of the existing school and new construction replacement. New finishes will be comprised of ACT ceilings, VCT flooring in classrooms and instructional support rooms, carpet in office and administrative areas, quarry floor tile and ceramic wall tile in the kitchen, sealed concrete in services areas, and ceramic floor and wall tile in bathrooms. All walls, door frames, and gyp bd ceilings will be painted. New doors and windows will be used throughout the school. The roof will meet the current sustainability and facility requirements. Additional requirements are listed within the educational specifications in Appendix B.

The new construction is a two-story structure. The building is sited at the SW corner of the site providing civic presence on Ridgway Ave. The L-shaped structure opens to the east providing visibility across the site and exterior play areas. The main entrance is along the north wing, facing Wainwright Ave. The entry will provide a single accessible entrance with the administration and health services center to one side and access to the gym and multi-purpose room to the other side of the entrance. The library media center is a double height space, directly across from the administration suite and close to the main entry. The gym and multi-purpose rooms are adjacent to each other. The gym is located at the front of the building for direct access from parking area. Classrooms are primarily located along the south side of the double loaded corridor on the upper and lower levels of the school. An elevator will be provided for access to the upper level. Lockers will be provided in the corridors. The upper level of the school contains additional classrooms, staff spaces, and instructional support spaces. Kindergarten and pre-k classrooms are co-located along in the south wing with direct access to associated exterior play areas.

All single-user bathroom will be ADA compliant. All multi-occupant bathrooms will align with the current MCPS layout providing single-user toilet rooms with full height partitions and wood doors with hollow metal frames. ADA required toilet rooms with necessary grab bars and clearances will be included. Sinks will be located adjacent and open to the corridor situated directly across from the toilet rooms. Floor and ceiling materials will align with the interior finish selection.

The new structure will be a type IIB building. The allowable area for a two-story, sprinklered type IIB is 43,500 SF. With the additional area from frontage, the allowable area increases to 54,375 SF. Allowable area, per building code, is the “footprint” of the building. Since the first floor of this option is 52,935 GSF, no fire walls will be required in this option.

Exterior play areas will be provided per MCPS Educational Specifications. Pre-K paved play and playground, Kindergarten paved play and playground are provided adjacent to the Pre-K and Kindergarten classrooms. Two paved play areas and two playgrounds are provided

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

ARCHITECTURAL CONT.

adjacent to the gym and multi-purpose room. The softball field and soccer field are being relocated to the north side of the site. Student drop-off, parking, and bus loop will be to provided at the east side of the site, with direct access to the main entrance and adjacent to the administration suite.

The the Linkages to Learning add alternate is not accepted, the overall size of the new construction would be reduced in size.

STRUCTURAL

The new school structure will be a combination of steel framed structure and masonry bearing walls. The masonry bearing walls will be supported on continuous wall footings and will occur at the gymnasium and multi-purpose/dual-purpose rooms and kitchen area. These walls will be 12 inch thick reinforced masonry walls supporting long span steel joist and acoustic metal deck at gymnasium and multi-purpose and dual purpose room. The kitchen area will have a 1-1/2 inch galvanized metal deck. The floor will be a 5 inch thick concrete slab on grade reinforced with welded wire fabric.

The rest of the school will be a steel framed structure consisting of steel columns on spread column footings supporting composite steel framing and concrete slab on composite metal deck at the floor. At the roof, the columns would support steel beams supporting steel joists spaced at 5 feet on center with galvanized metal roof deck. The exterior walls will bypass 8 inch thick CMU walls with architectural finish. The interior walls will be 6” thick non-load bearing masonry corridor walls and cold formed metal walls between classrooms. The lintels in the masonry walls will be CMU bond beam lintels. The exterior brick veneer will be supported by galvanized steel angle lintels. Any long span openings will have a galvanized steel lintel beam with galvanized steel hangers and continuous plate. The main floor will be a 5 inch thick concrete slab on grade reinforced with welded wire fabric.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

MECHANICAL CONT.

General

Option 4 - Replacement – constructs a new two-story elementary school atop the existing play field area, while maintaining the operation of the existing school throughout construction. The existing Twinbrook Elementary School building will be demolished prior to construction of the new replacement school. Teachers and students will be temporarily relocated to another school during construction.

Heating and Cooling Infrastructure Systems

A ground-coupled geothermal heat pump unit system is included to support the replacement school. This type of mechanical system provides the ability to have independent heating or cooling year-round, while delivering an extremely high level of overall building energy efficiency.

A ground-coupled geothermal borehole field will be located below the play field areas positioned northeast of the replacement school. Geothermal boreholes will be approximately 500 feet in depth, with approximately 95 to 105 geothermal boreholes included for Option 4. The final quantity and depth of geothermal boreholes will be determined during design and will depend on the thermal properties and ground temperature of the project site. Vertical geothermal borehole loop piping will be encased in a thermally enhanced grout, promoting good heat transfer between the loop piping and earth. Circuit mains from the geothermal boreholes will be routed to the lower level mechanical room.

Two base-mounted pumps (one active and one stand-by) will circulate an all-water fluid between the school and geothermal borehole field. Geothermal pumping systems will be located within the lower level mechanical room and provided with N+1 redundancy such that the operation of the building can be maintained in the event of a single pump failure. In addition, these pumping systems will be equipped with variable frequency drives for reduced energy consumption during periods of reduced system demand. Major mechanical infrastructure components, including distribution pumps, incoming geothermal piping, associated geothermal piping headers, an air separator, and an expansion tank will also be located within this mechanical room.

Classroom HVAC Systems

Extended range vertical heat pump units will be provided for space conditioning within the school's classroom areas, with these heat pump units located within mechanical closets positioned near the area served. Doors for all mechanical closets will be accessed from the

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

MECHANICAL CONT.

corridor for routine maintenance. Heat pump units will be equipped with two-stage type compressors, helping to extend compressor life and improve the overall energy efficiency of these systems under part load operation.

A series of VAV rooftop DOAS units with supply and exhaust fans, enthalpy wheels for pre-conditioning outdoor air, DX heat pump coils with water-cooled compressors, and hot gas reheat coils for tempering supply air will be provided to deliver conditioned ventilation airflow to the classroom areas. Airflow supplied from these DOAS units will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from classrooms, restrooms, and storage room areas will be routed through each DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

The use of demand control ventilation within the classroom areas will be provided to assist with reducing the school's overall energy consumption. To accomplish this control strategy, a series of VAV retrofit-type air terminal units will be installed within the conditioned outdoor air ductwork systems. Each classroom will be provided with a dedicated VAV air terminal unit, regulating the quantity of conditioned outdoor air delivered to each space based on the actual room carbon dioxide levels.

Music and Art Classroom HVAC Systems

The music and art classroom areas will be provided with a similar HVAC system approach as the other classroom areas. This HVAC system approach includes extended range vertical heat pump units for space conditioning, DOAS units for ventilation, and demand control ventilation via VAV retrofit-type air terminal units. Heat pump units will continue to be positioned within mechanical closets, with supply and return air ductwork extending from these units to the area served. A stainless steel capture hood and dedicated exhaust fan will be provided for the art room's kiln equipment.

Administration, Counseling, and Health Suite HVAC Systems

The school's administration, counseling, and administrative support areas will be provided with space conditioning through a dedicated VRF system. This system will be complete with heat recovery type water-cooled condensing units connected to the geothermal heat pump loop. Condensing units will be located within mechanical rooms near the spaces served. Doors to mechanical rooms will be accessible from the corridor for routine maintenance.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

MECHANICAL CONT.

The use of ceiling cassette type VRF terminal units is included, promoting sufficient clearance access for filter replacement. Multi-occupant spaces will be provided with 3'x3' cassettes with high efficiency (MERV 10 or higher) disposable filters. Single occupant spaces will be provided with 2'x2' cassettes with the VRF manufacturer's standard washable filter.

The administration area will be provided with a rooftop DOAS unit with supply and exhaust fans, an enthalpy wheel for pre-conditioning outdoor air, a DX heat pump coil with water-cooled compressors, and a hot gas reheat coil for tempering supply air will be provided to deliver conditioned ventilation airflow to the areas served. Airflow supplied from this DOAS unit will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from offices, restrooms, and storage room areas will be routed through the DOAS unit's enthalpy wheel for pre-conditioning of outdoor air. A pair of dedicated switch-operated exhaust fans will also be provided for the health suite area, with one fan serving the rest area and the other fan serving the isolation room area.

Linkages to Learning HVAC Systems (Add Alternate)

The Linkages to Learning areas will be provided with space conditioning through a dedicated VRF system. This system will be complete with heat recovery type water-cooled condensing units connected to the geothermal heat pump loop. Condensing units will be located within mechanical rooms near the spaces served. Doors to mechanical rooms will be accessible from the corridor for routine maintenance.

The use of ceiling cassette type VRF terminal units is included, promoting sufficient clearance access for filter replacement. Multi-occupant spaces will be provided with 3'x3' cassettes with high efficiency (MERV 10 or higher) disposable filters. Single occupant spaces will be provided with 2'x2' cassettes with the VRF manufacturer's standard washable filter.

A dedicated DOAS unit with supply and exhaust fans, an enthalpy wheel for pre-conditioning outdoor air, a hot gas reheat coil for tempering supply air, and a DX heat pump coil with water-cooled compressors will be provided to deliver conditioned ventilation airflow to the Linkages to Learning areas. Airflow supplied from this DOAS unit will be dehumidified, conditioned, and delivered directly to each space. Exhaust airflow from the offices, restrooms, and storage room areas will be routed through the DOAS unit's enthalpy wheel for pre-conditioning of outdoor air.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

MECHANICAL CONT.

Multi-Purpose Room, Media Center, and Gymnasium HVAC Systems
A series of single-zone rooftop water-source heat pump units with heat pump type water-cooled compressors and hot gas reheat coils will provide space conditioning and ventilation for the multi-purpose room, media center and gymnasium areas. Full airside economizer, demand control ventilation, and enthalpy wheel energy recovery devices will be provided for these rooftop heat pump units.

Kitchen HVAC Systems
Space conditioning and ventilation for the kitchen area will be provided by a single-zone rooftop heat pump unit, similar to those serving the adjacent multi-purpose room area. General exhaust from the kitchen restroom, storage rooms, and the kitchen space itself will be routed to a rooftop exhaust fan. A separate rooftop exhaust fan will also be provided for serving the kitchen's associated exhaust hood.

Miscellaneous Heating-Only Equipment
Heating-only spaces such as mechanical rooms, electrical rooms, stairs, storage rooms, and entry vestibules will be provided with new electric-resistance type cabinet and propeller unit heaters.

Miscellaneous Cooling and Exhaust Fan Systems
Data, Telecomm, and the Elevator Machine Room will be served by ductless split systems.

Building Automation Control System
A new energy management system will be provided for the replacement school, with DDC controls provided for the school's HVAC systems and components. HVAC equipment refrigeration system controls and refrigeration safety devices will utilize the equipment manufacturer's packaged controller and interfaced with the DDC system. Controls for the remaining mechanical equipment will be non-manufacturer based DDC controls provided by the ATC contractor. Actuation will be electric / electronic for all systems. All system components will be installed in accordance with Montgomery County Public Schools (MCPS) standards and networked to the existing front-end server located at the MCPS Energy Management Office.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

PLUMBING

Domestic Water Piping Systems (Including Water Service Entrance)

A new combination fire/water service will enter the replacement school within the lower level mechanical room. This combination fire/water service will be capable of supporting both the fire and water service demands of the replacement school. A new domestic water service, complete with basket strainer and backflow preventer will separate the domestic water and fire services prior to distributing water throughout the school. A flow test has been performed and a domestic water booster pump is not needed to support the domestic water system. Domestic water piping will be distributed from the new mechanical room area to plumbing fixtures and equipment located throughout the school. All domestic water piping systems will be constructed of Type L copper, with soldered joints provided for piping 2-inches in diameter and smaller and brazed joints provided on piping 2.5-inches in diameter and larger.

Domestic Hot Water Heater System

Domestic hot water for Option 4 will be generated by a pair of electric resistance tank type domestic water heaters. The new water heaters, a hot water circulation pump, a master thermostatic mixing valve, and an expansion tank will be located within the lower level mechanical room. Domestic hot water will be generated at 140-degrees F, with 120-degrees F domestic hot water distributed from this new mechanical room throughout the school. Local thermostatic mixing valves will reduce the water temperature to 110-degrees F at hand washing fixtures.

Natural Gas Piping Systems

A new natural gas service will be provided by Washington Gas for the replacement school. The gas service meter and pressure reducing station will be positioned outdoors and located near the lower level mechanical room. Gas piping will serve the school's new emergency generator. Natural gas piping will be constructed of schedule 40 black steel.

Storm Water Piping Systems

New storm water drainage, including roof drains, overflow drains, and storm water piping systems will be provided throughout the replacement school. Above- and below-grade storm water piping will be constructed from solid core PVC material. All storm water piping systems will exit the school at various locations and coordinate with available site piping connections provided for the replacement school.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

PLUMBING CONT.

Condensate Drain Piping
Condensate drainage piping from HVAC systems shall discharge to the buildings below grade storm water system through an indirect connection,

Sanitary and Vent Piping Systems
New sanitary waste and vent piping systems will be provided throughout the replacement school. Above- and below-grade sanitary waste and vent piping will be constructed from solid core PVC material. Vent piping will terminate at the roof level, with a minimum 25-foot separation provided between vent piping terminations and any outdoor air intake locations. Sanitary piping systems will exit the building at various locations and will coordinate with the available site piping connections provided for the replacement school.

The following special sanitary and vent piping systems are included:

- Equipment and sinks that may discharge grease into the sanitary system from the kitchen will be piped to a new underground concrete grease interceptor. The discharge from this interceptor will be connected to site sanitary piping system.
- Sinks within the art classrooms will be provided with solids interceptors, collecting debris and preventing it from entering the site sanitary piping system.

Plumbing Fixtures
New plumbing fixtures will meet ADA and utilize water conservation features. Floor-mounted water closets will utilize 1.28 gallon per flush valves. Urinals will be wall-hung and provided with pint flush valves (0.125 gallon per flush). Wall-hung cast-iron lavatories will utilize self-closing faucets that supply 0.35 gallons per minute. Showers will utilize 1.5 GPM type heads. The water consumption figures noted are equal to or less than what is required by the current plumbing code and for promoting good water conservation practices. All wall-mounted fixtures will be supported from fixture carriers.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

FIRE PROTECTION SYSTEMS

Sprinkler System

Sprinkler coverage will be provided throughout the replacement school. Sprinkler coverage will extend from the new combination fire/water service described previously, with a dedicated backflow preventer provided for this new fire service. A fire flow test has been performed and a fire pump is not needed to support the sprinkler system. All work will be specified to conform to standards of the National Fire Protection Association (NFPA) and will include requirements for performance verification through hydraulic calculations.

Fire Detection and Alarm System

A new fire detection and alarm system will comply with the State of Maryland Fire Code, local authorities having jurisdiction, International Building Code, and NFPA for the replacement school under Option 4. The fire detection and alarm system will be stand-alone, addressable, and will have voice evacuation capability. The main fire alarm control panel (FACP) will be in the main telecom room. The FACP will be equipped with battery backup. The fire alarm annunciator with graphic display and adjacent keypad will be located at the main building entrance vestibule or lobby. Initiation devices include manual pull stations, smoke detectors, duct smoke detectors, heat detectors, and carbon monoxide detectors (where gas-fired equipment is used, if any). Notification devices include fire alarm combination speaker/strobe devices, strobes, and fire alarm speakers. The fire detection and alarm system will be connected to the lighting control system to facilitate the automatic illumination of the path of egress upon initiation of the building fire alarm system.

ELECTRICAL

Power Distribution

A new Pepco electrical service will be provided for the replacement school under Option 4. A new outdoor pad-mounted Pepco utility transformer will be provided near the main electrical room. (The front of the utility transformer will be within 20 feet from a vehicular paved road.) A secondary service concrete-encased ductbank (with minimum 10 ducts) will be run from the utility transformer to the CT section of a new main switchboard in the main electrical room. The Pepco electric meter will be in the main electrical room.

Power will be distributed at 277/480 volts and 120/208 volts. The power distribution system will consist of the following electrical equipment: Main switchboard, distribution panelboards, lighting panelboards, branch circuit panelboards, dry-type transformers, enclosed switches (safety switches / disconnects) and/or enclosed circuit breakers, and combination starters and/or variable frequency drives for motor loads.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

ELECTRICAL CONT.

The main electrical room will have the main switchboard, transformer(s), and panelboards. A separate "auxiliary" electrical room will be provided within the main electrical room for generator-connected equipment. Generator-connected equipment will consist of enclosed switches, automatic transfer switches, transformers, and panelboards.

The main switchboard will be connected to Pepco utility power, will be rated at 277/480 volts, 3 phase, 4 wire, will incorporate ground fault protection and surge protection, and will have a CT section, main section with main circuit breaker, and distribution section(s) with molded-case feeder circuit breakers. The main switchboard will serve mechanical loads and panelboards, lighting panelboards, and general receptacle branch circuit panelboards (via step-down transformers) in the main electrical room and electrical closets throughout the school. The main switchboard for the replacement school will be sized at 2000 amperes. The main switchboard will be sized with spare capacity and space for future circuit breakers to accommodate any future renovations to the school.

Panelboards will be rated at 277/480 volts and 120/208 volts and serve as distribution, lighting, or branch circuit panels. There will be dedicated panelboards for lighting, mechanical loads, and receptacle plug loads. Panelboards will have a copper bus structure. Panelboards will be sized with approximately 25 percent spare capacity and 25 percent spare breaker space. A three-phase surge protective device (SPD) will be mounted adjacent to each respective emergency (life-safety) panel, lighting panel, and receptacle / plug load branch circuit panel.

Electrical provisions will be made for future solar photovoltaic (PV) system for the school to be solar PV ready on the roof.

Generator Power

There will be an onsite outdoor natural-gas generator with weatherproof, sound-attenuated enclosure, sized to accommodate emergency / life-safety and standby loads via automatic transfer switches. The generator will be rated at 277/480 volts, 3 phase, 4-wire. The estimated size for the generator is 150 kW. Enclosed circuit breakers mounted at the generator will serve automatic transfer switches located in the "auxiliary" electrical room within the main electrical room serving emergency / life safety and standby loads. In addition to the on-site generator a generator docking station will be provided to allow for connecting to a temporary portable generator.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

ELECTRICAL CONT.

The new generator will serve the fire pump, emergency and exit lighting, lighting in main electrical and mechanical rooms, lighting in group and individual toilet rooms, kitchen walk-in freezer, kitchen walk-in cooler, health suite refrigerator, security (access control, intrusion detection, video surveillance) head-end equipment, fire detection and alarm equipment, main console intercom cabinet, and MDF and IDF data racks.

Lighting and Lighting Controls

In the replacement school under Option 4, MCPS standard LED luminaires (lighting fixtures) in corridors, classrooms, instructional spaces, offices, workrooms, seminar rooms, storage rooms, group toilet rooms, and rooms with lay-in ceilings will be recessed 2' x 2' or 2' x 4' LED luminaires. Recessed LED downlights will be used where smaller luminaires are appropriate. High-abuse wall-mounted LED luminaires will be used in stairwells. LED strip luminaires with lenses will be used in support spaces with open ceilings. High-bay "UFO" style luminaires and wall-mounted lighting fixtures with wire-guards over egress doors will be provided in the gymnasium. Architectural LED luminaires will be provided in the main vestibule, main lobby, media center, and cafeteria.

Exterior full-cutoff dark-sky compliant LED building-mounted luminaires will be provided. Exterior luminaires will include building-mounted luminaires around the perimeter of the building, and pole-mounted luminaires for parking, drop-off, and bus loop.

Lighting levels will be designed in accordance with the recommendations of the Illuminating Engineering Society of North America (IESNA). Lighting controls will meet the requirements of ASHRAE Standard 90.1-2022. The lighting power density will not exceed 0.70 watts per square foot per Table 9.5.1 of ASHRAE Standard 90.1-2022.

Lighting controls will include lighting relay controllers, low-voltage lighting control stations (switches), and occupancy sensors, and will have dimming capability in occupied spaces. Emergency lighting will be automatically switched ON during a power outage.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

COMMUNICATION SYSTEMS

Data, Voice, and Video

A dedicated MDF will be provided near the location of the pre-kindergarten classrooms in the new replacement building under Project Option 4. IDF rooms will be provided for new data racks throughout the new replacement building proposed under Project Option 4 to ensure cabling runs are 295'250 feet or less in length. At least one (1) IDF room will be located on each floor in the proposed 2-story wing and an additional IDF room will be located near the space dedicated for building services. Dedicated MDF and IDF rooms will be provided for new data racks. New outdoor wireless access points (WAPs) will be provided. The communications infrastructure will include outlet boxes, conduits and raceways, and conduit sleeves through walls and floors for the installation of the data and voice cabling. The number of communications outlets in each room will comply with MCPS requirements.

Intercommunications (Public Address) and Sound

A new intercommunications system will be provided throughout the new replacement building under Option 4. This will include call switches and speakers in the classrooms, and speakers in the corridors and multi-occupant toilet rooms. A new head-end console will be provided in the MDF room. Exterior building-mounted speakers will be provided where required.

New sound reinforcement systems will be provided in the gymnasium, multipurpose room (cafeteria), and music rooms per MCPS requirements.

Instructional/Classroom Technology

In the new replacement building under Option 4, classrooms will be equipped with convenience receptacles throughout. Teacher's desk receptacles will be connected to a generator standby panelboard. A receptacle will be located at the front of the classroom teaching wall for Boxlight interactive flat panels on carts.

ELECTRONIC SAFETY AND SECURITY SYSTEMS

Access Control

A new door access control system will be provided under Option 4. Door access control system card readers will be provided where required by MCPS.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - NARRATIVE

ELECTRONIC SAFETY AND SECURITY SYSTEMS CONT.

Intrusion Detection

A new intrusion detection system will be provided under Option 4. Intrusion detection devices will include motion detectors/sensors in corridors and door contacts on exterior doors.

Video Surveillance

A new video surveillance system will be provided under Option 4. IP-based dome cameras will be provided in corridors and exterior walls where required by MCPS.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR - ADVANTAGES AND DISADVANTAGES

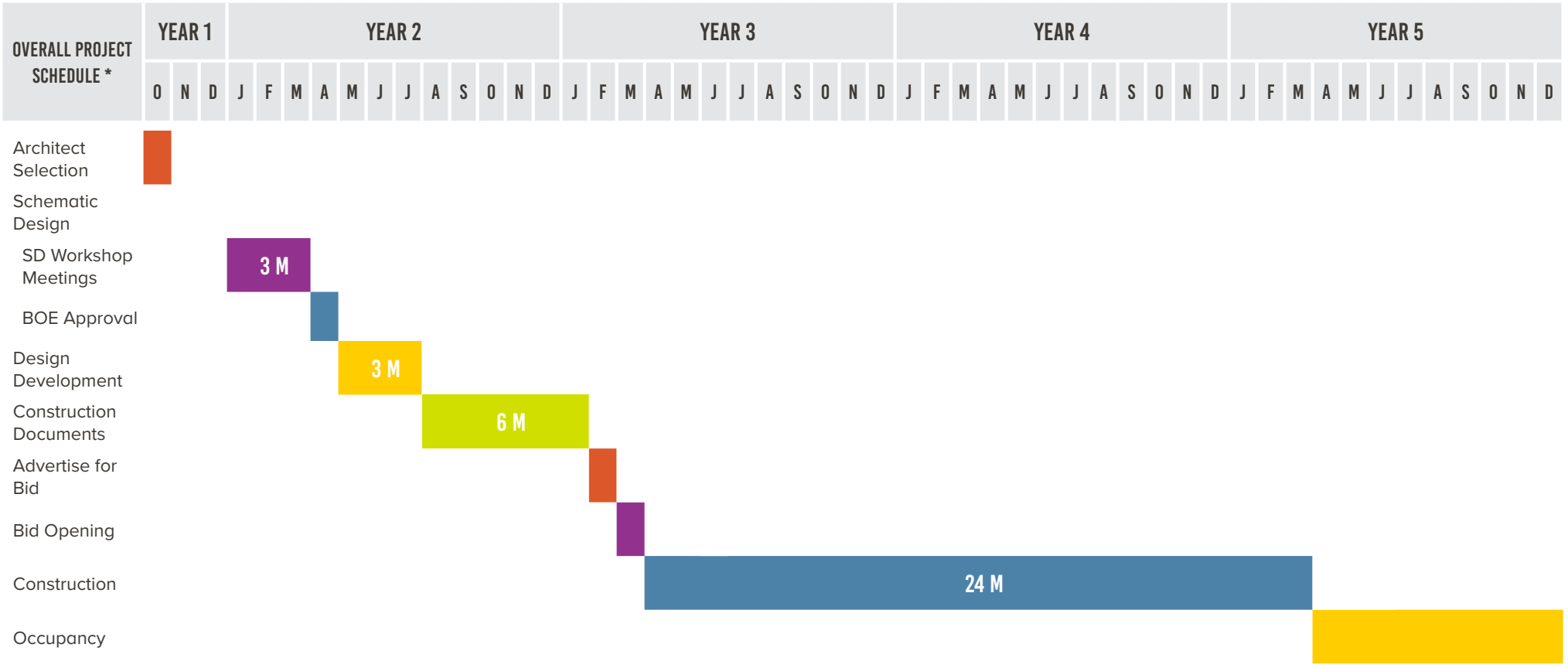
Advantages:

- All new construction.
- Addresses accessibility issues.
- Design meets Educational Specifications.
- Sustainable building materials in new finish materials.
- Most efficient site layout.
- Preferred program adjacencies are achieved.
- Improved visibility for supervision of play areas.
- Provides a community gathering space.
- Alternate design for daycare drop off to address safety concerns.
- Provides civic presence along Ridgway Ave.

Disadvantages:

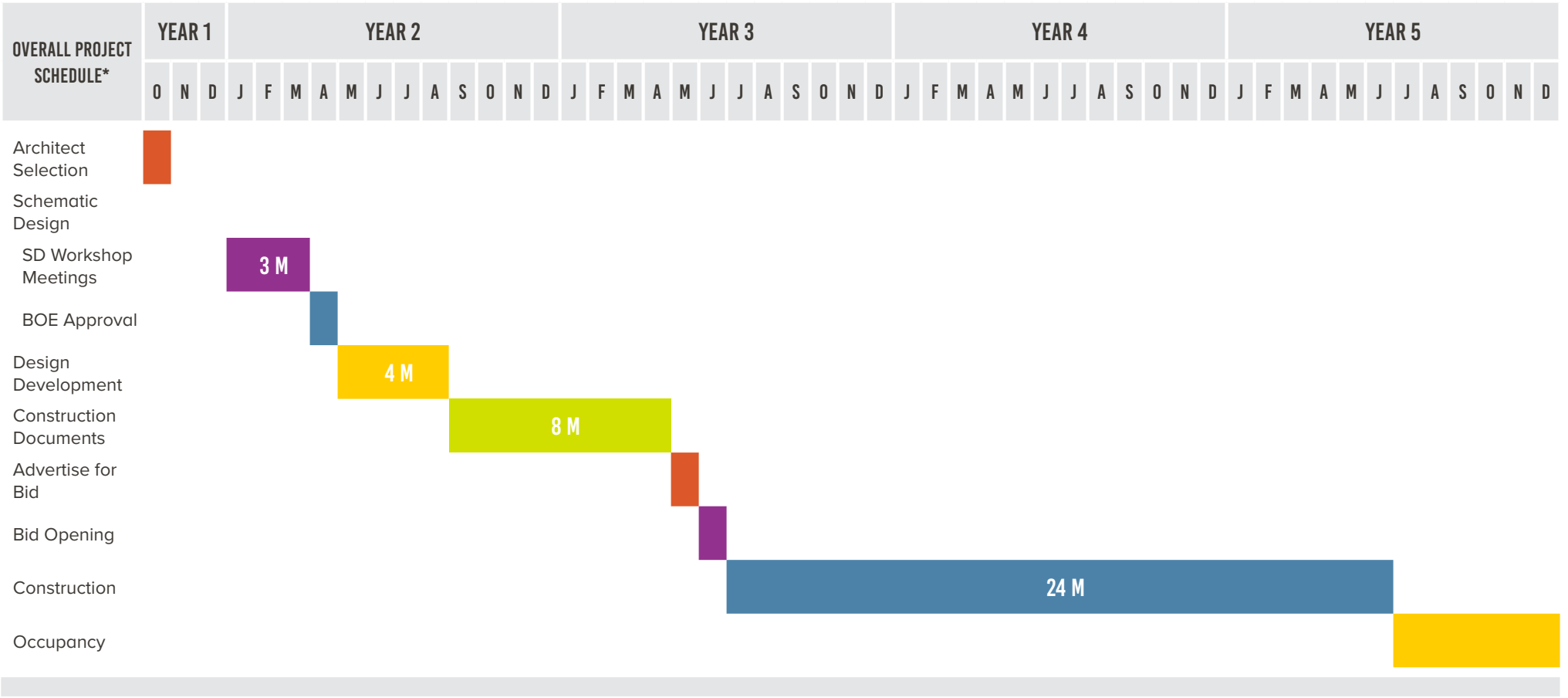
- High impact to the site resulting in higher cost.
- Community-sized gym is an add alternate.
- Longer on-site vehicular circulation may result in dropping off students along the sidewalk.
- Higher volume of construction waste with demolition of existing building.
- Bus traffic utilizes Wainwright Avenue.

VI. PROPOSED PROJECT IMPLEMENTATION SCHEDULE - OPTION 1



* The actual calendar years are to be determined.

VI. PROPOSED PROJECT IMPLEMENTATION SCHEDULE - OPTIONS 2, 3, & 4



* The actual calendar years are to be determined.

APPENDICES

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APPENDIX A - SPACE ALLOCATION SUMMARY

614 students - Core Capacity 640 students

	MCPS ED SPEC		
CLASSROOMS	**ED-SPEC**		
Prekindergarten	2		1200
Storage	1 each	250 sf incl.	
Kindergarten	4		1200
Storage	1 each	250 sf incl.	
Standard	24		850
Storage	1 each	250 sf incl.	
Special Education	0		0
Art	1		1200
Storage	1 each	250 sf incl.	
Music	1		1200
Storage	1 each	250 sf incl.	
Instrumental Music	1		450
Dual Purpose Room	1		1000
	AREA SUBTOTAL		**31,450**

SUPPORT ROOMS	**ED SPEC**	
Large Instructional Support	1	550
Small Instructional Support Room	2	425
Speech Lanuage Therapy	1	250
Therapy Support Room	1	250
Personal Care Room	1	100
Testing / Conference Room	1	140
Support Staff Offices	2	140
Parent Resource Room	1	500
	AREA SUBTOTAL	**2,920**

LIBRARY / MEDIA CENTER	**ED-SPEC**	
Learning Environment	1	2100
Work and Production Area	1	475
LMC Storage Room	1	300
	AREA SUBTOTAL	**2,875**

PHYSICAL EDUCATION	**ED-SPEC**	
Gymnasium	1	3700
Office	1	140
Storage	1	250
Storage	2	100
Outside Storage	1	140
	AREA SUBTOTAL	**4,430**

APPENDIX A - SPACE ALLOCATION SUMMARY (CONTINUED)

MULTI-PURPOSE	ED-SPEC	
Multi-purpose Room	1	3200
Chair Storage	1	180
Table Storage	1	180
Platform	1	450
Before / After Care Prep Area	1	25
Before / After Care Storage	1	100
	AREA SUBTOTAL	**4,135**

KITCHEN	ED-SPEC	
Serving Area	1	300
Walk-In Cooler/Freezer	1	155
Dry Storage	1	192
Office	1	100
Toilet Room	1	70
Preparation Area	1	555
	AREA SUBTOTAL	**1,372**

ADMINISTRATION	ED-SPEC	
General Office	1	500
Workroom	1	300
Principal's Office	1	250
Assistant Principal's Office	1	140
Conference Room	1	275
Storage	1	100
Record Room	1	75
Toilet Room	1	50
Workroom (2nd level)	1	75
	AREA SUBTOTAL	**1,765**

COUNSELING SUITE	ED-SPEC	
Counselor's Office	1	160
Itinerant Staff Office	1	160
	AREA SUBTOTAL	**320**

STAFF DEVELOPMENT AREA	ED-SPEC	
Staff Development Office	1	100
Reading Specialist Office	1	100
Training / Conference Room	1	400
	AREA SUBTOTAL	**600**

HEALTH SERVICES SUITE	ED-SPEC	
Waiting Area	1	100
Treatment / Medication Area	1	120
Office / Health Assessment Room	1	100
Health Assessment / Isolation Roo	1	100
Rest Area	1	200
Storage Room	1	40
Toilet Room	1	50
	AREA SUBTOTAL	**710**

APPENDIX A - SPACE ALLOCATION SUMMARY (CONTINUED)

STAFF AREAS	ED-SPEC	
Staff Lounge	1	650
Privacy Room	2	50
	AREA SUBTOTAL	**750**

BUILDING SERVICES FACILITIES	ED-SPEC	
Building Services Office	1	140
Locker / Shower Area	1	150
Compactor / Trash Room	1	150
General Storage & Receiving	1	550
General Storage	3	240
Building Services Outdoor Storag	1	175
	AREA SUBTOTAL	**1,885**

BUILDING SUPPORT AREAS	ED-SPEC	
Book Storage	1	200
PTA Storage	1	100
Emergency Command Center	0	200
Telecommunications Closet (MDF	1	150
Telecommunications Closet (IDF)	3	50
	AREA SUBTOTAL	**600**

ADD ALTERNATE 1: LINKAGES TO LEARNING	ED-SPEC	
Administrative Area		
General Office / Reception Area	1	225
Conference Room	1	275
Linkages to Learning Suite		
Child / Family Therapy Room	1	175
Family Care Manager Office	1	140
Family Resource Closet	1	50
Other		
Toilet Room	1	50
	AREA SUBTOTAL	**915**

ADD ALTERNATE 2: COMMUNITY GYMNASIUM	ED-SPEC	
Additional area for gymnasium	1	2,600
	AREA SUBTOTAL	**2,600**

NET AREA TOTAL (WITHOUT ADD ALT)	**53,812**
NET AREA TOTAL (WITH ADD ALTS)	**57,327**

** Emergency Command Center is not required for any school under 100,000 SF

APPENDIX B - EDUCATIONAL SPECIFICATIONS

Twinbrook Elementary School

Educational Specifications
Feasibility Study/Schematic Design

Date: February 25, 2025

Montgomery County Public Schools
Rockville, Maryland 20850

MONTGOMERY COUNTY PUBLIC SCHOOLS
Expanding Opportunity and Unleashing Potential

Table of Contents

Introduction

☐ This document describes the facilities that are needed for the Twinbrook Elementary School educational program. The descriptions below will provide the architect with important guidelines and staff will be used by staff representatives to review drawings for the facility.

☐ This school will be designed with a capacity for 614 students, a core capacity for 640 students. There is no scheduled completion date at this time.

☐ The educational specifications are divided into three sections.

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

☐ 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 schematic design, design development, and final design phase.

☐ The design of the school should promote a collaborative approach for both teaching and learning. Flexibility of design should be provided to accommodate changing educational programs and pedagogy.

☐ The project will be designed to the meet current local and state sustainability guidelines.

General Planning Considerations

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

Code and Guidelines

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

☐ The building is to be accessible to the disabled within the meaning of the latest edition of the Americans with Disabilities Act and to conform to all the latest requirements of the *Americans with Disabilities Act Standards for Accessible Design*. (The regulation can be found at https://www.ada.gov/2010ADAstandards_index.htm)

☐ In addition to the ADASAG, the *Maryland Accessibility Code* (COMAR.05.02.02) also is required for public schools. (The regulation can be found at http://mdcodes2.umbc.edu/dhcd/access.htm).
Per COMAR 23.03.02: Regulation .29, all high 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.

☐ 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

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

☐ The architect should refer to MSDE 2006 *Classroom Acoustic Guidelines* to address the acoustical qualities for classrooms. Core learning spaces should include sound-absorptive finishes for compliance with reverberation time requirements as specified in ANSI, *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools* (ANSI S12.60-2002.)

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

Educational Considerations

☐ The school should be designed to support flexible and collaborative learning environments. When possible, the architect should

identify collaborative work spaces throughout the building. These spaces can be located near the instructional spaces as well as informal areas such as the library, hallways, etc.

- ☐ All spaces should be designed in such a way that can be adapted to changes in pedagogical changes in the future.
- ☐ 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.
- ☐ For maximum instructional flexibility, large special instruction areas such as those provided for general music and multipurpose laboratories should be designed to allow easy conversion of some or all of the space for other kinds of instruction in the future
- ☐ Every teaching station, support space, and core area must be wired for computer and VOIP telephone, along with adequate electrical supply in compliance with Maryland Sate design guidelines for Technology in Schools and the MCPS Office of Technology and Innovation (OTI) 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.

Facility Considerations

- ☐ The architect is to design the spaces within 5 percent (plus/minus) of the net square foot guidelines provided in this document unless otherwise noted.
- ☐ The first impression of a building is important. The main entrance to the school should have a clear and inviting identity, and the architect should emphasize the entrance area through its design and landscape.
- ☐ 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 should be used.
- ☐ The design of the main lobby area needs to convey a feeling of warmth and welcome. The inclusion of a lighted showcase in which student work can be displayed is recommended.

General Planning Considerations

- ☐ The main lobby should have a large overhead-animated electronic display board for messages and videos.
- ☐ Lighting must meet current guidelines and provide adequate levels.
- ☐ 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 library media center (LMC).
- ☐ The inclusion of lighted showcases to display student work should be provided in the corridors of the main entrance, art, technology education, gymnasium, and in each grade level area. They should be recessed into the wall with access from within a room and have an electric outlet.
- ☐ Staff work areas should be arranged to encourage interdisciplinary interaction.
- ☐ 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.
- ☐ A MCPS-designed alarm system will provide security for this facility. The architect will provide for this system in consultation with the Division of Design and Construction (DDC) staff.
- ☐ Some windows must be operable in each space in the building. Transmission of radiation through windows into various portions of the plant is to be considered in relation to heating and ventilating and in relation to planning the building for air conditioning. All instructional spaces should have windows, preferably exterior windows. If the design does not permit exterior windows, windows onto corridors should be provided.
- ☐ All windows should be equipped with window coverings. The specification for the window coverings will be provided by DDC. Screens on operable windows should be installed in all food related areas.
- ☐ Careful placement of glass is required to avoid excess heat gain in occupied areas.
- ☐ The entire school is to be air-conditioned.
- ☐ 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.

General Planning Considerations

- ☐ Core spaces such as the cafeteria, gymnasiums, and LMC should be easily accessible for community use and secure from the rest of the building after school hours.
- ☐ Special attention should be given to security measures within the building including location of security barriers in corridors, lockable doors to secure various sections of the building for after-hour use.
- ☐ 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 LMC, multipurpose room, gymnasium, specialized centers, and support rooms.
- ☐ For security purposes, all doors into classrooms, conference rooms, offices, etc. must be designed with a sidelight window with shades. If a sidelight is not possible, then the door requires a vision panel.
- ☐ Noise and distracting sounds are to be minimized. In areas such as the multipurpose room and classrooms, which may be used for meetings and adult education, the sound of operating fans for ventilation should not interfere with instruction.
- ☐ Some toilet rooms should be located so that they may be used during after-hour use.
- ☐ Bathrooms for staff and students should be located throughout the building. Some student bathrooms must be located near the cafeteria and gymnasiums.
- ☐ To the extent feasible, at least one inclusive restroom should be provided on each floor and in high-traffic areas for student use. These toilets should be designed with a non-locking door and one individual stall in each toilet room.
- ☐ Electric water bottle filling stations with filters should be strategically located throughout the building and close to the restrooms. All of the water coolers should have water bottle filling stations and should be located near high volume areas such as the cafeteria and gymnasium and on each floor.
- ☐ Corridors where lockers are installed must be a minimum of 10' in width.
- ☐ The number of lockers in the corridor should be equal to the core capacity plus 10% of the core capacity.
- ☐ The location of the elevator(s) must consider use by the student population, LMC staff, and after-hours users.

- ☐ A public address system is required in the facility. The architect and engineers should refer to the MCPS Facility Guideline Specifications for additional information.
- ☐ A building services call system is required.
- ☐ A room numbering system which is logical and understandable and which lends itself to electronic scheduling of room assignments for students is required.

Site Considerations

- ☐ A covered walkway from the bus loading area to the front door is desirable.
- ☐ The design of the building and grounds must provide for a secure environment for students and staff. Isolated areas should be minimized and natural surveillance encourage by eliminating visual barriers.
- ☐ Exterior lighting is to be shaded from neighboring properties and is to be operable as appropriate from both time and key switches. For major entrances, a doorbell should be installed.
- ☐ Separate controls on a time clock for illumination of walkways and parking lots, including parking areas for the stadium area are required.
- ☐ Landscaping and provision for outdoor watering are to be included. Planting is to include screen planting and those that may be needed for erosion control. Other landscaping to support energy conservation and to relate the building to the site with aesthetic appeal must be included.

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/Kindergarten Classroom

- ☐ If the school has a Head Start program, the 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 (NIC).
- ☐ A 100 square foot walk-in storage closet and 150 square feet of general storage (casework throughout the classroom) is needed.
- ☐ 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 marker board 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 DDC. Computer/technology wiring must be in accordance with MSDE/MCPS guidelines.
- ☐ Every classroom must have computer outlets for two 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 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 must be provided,

- ☐ In a non-class-size reduction school, the built-in student wardrobe area must provide at least 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.
- ☐ In a class-size reduction school, the built-in student wardrobe area must provide least 24 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 marker board should be installed at eye-level height for small children, with tack stripping along walls for display of student work.
- ☐ A small lockable teacher's wardrobe must be provided, as per MCPS Facility Guideline Specifications.
- ☐ 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 child height sink with 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 coverings per the MCPS design guidelines.
- ☐ Battery operated clocks will be installed.
- ☐ All classrooms should be equipped with a handicapped accessible sink, with cabinets above and below.
- ☐ A full-length mirror should be installed in the prekindergarten rooms only.

Standard Classroom

- ☐ Each classroom should be designed to support flexible furniture arrangements that will support a variety of teaching and learning models.
- ☐ 150 square feet of casework storage is needed in the classroom.

- ☐ The computers should not be located next to a marker board 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 DDC. Computer/technology wiring must be in accordance with DDC/MSDE/OTI guidelines.
- ☐ Every classroom must have computer outlets for two 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*.
- ☐ The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ The remaining walls should be outfitted with magnetic maker board and a tack strip above.
- ☐ A small 4x4 tack board may be considered near the entrance of each classroom and will be discussed during the quarter scale review.
- ☐ Lockers will be provided in the hallway for storing student belongings. The architect should design the facility with 700 lockers if the core capacity is 640 and 815 lockers if the core capacity is 740.
- ☐ All classrooms should be equipped with an accessible sink.
- ☐ 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 coverings or shades. The specifications for the window coverings will be provided by DDC.
- ☐ Battery operated clocks will be installed.
- ☐ A school may consider reducing the size of each classroom to create small break-out/collaborative rooms in the school. The number and design of these breakout/collaborative rooms may be determined by school and MCPS staff.

Special Education Classroom

☐ The specific requirements are the same as the requirements for standard classroom requirements. Please refer to the preceding section for these requirements.

☐ Please see the additional requirements section of document for additional special education program requirements specific to this school.

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 minimum square footage for the teaching area must be 800 square feet. The ideal room dimensions are approximately 25’ x 32’.
- ☐ The art room must not be carpeted.
- ☐ Both art and music rooms must be located near student restrooms.
- ☐ Two computer drops along wall for student use should be provided.
- ☐ 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).
- ☐ Any available wall space should have tack boards.

The window wall should have the following:

- ☐ Windows that permit views of the surrounding landscape.
- ☐ Window coverings 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:

- ☐ Standard teaching wall should be provided. The architect should refer to DDC standards.
- ☐ Fourteen-inch deep, 24 inch high, shelving under the center of the 16-foot long tack board and white board.

Sinks and sink area:

- ☐ Three sinks should be provided. Faucets should be accessible to students and positioned to prevent splashes onto floor.
    - ☐ One ADA accessible sink (34" high)
    - ☐ One sink located on a peninsula (30" high). Peninsula is to be no longer than 3 feet.
    - ☐ One 12” deep sink (32").
- ☐ 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
- ☐ A tile backsplash that spans from the countertop to the bottom of the wall cabinets.
- ☐ Extra caulking where the countertop meets the backsplash.
- ☐ A 5- to 7-foot open space is needed for drying rack(s) along one wall.

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.

Art Storeroom

- ☐ The storeroom must be approximately 8.5-9’ wide by approximately 25-30’.
- ☐ The storeroom must have a 6-foot wide, 30-inch tall, and 34-inch deep worktable immediately inside the entrance to the storeroom with 5-6 built-in sliding drawers. This table will accommodate a 30-inch square paper cutter and storage of large art reproductions and papers below.
- ☐ Three or four 6-foot tall, 36-inch wide paper storage shelf sections, 24” deep with shelves 8 inches on center to accommodate 18” x 24” paper.
- ☐ An empty floor space should be left to accommodate flat files. 5-drawer flat file units are 40 ¾”W x 15 3/8”H x 28 3/8”D x 2” drawer depth. Three of these 5-drawer units will be stacked on top of each other. (NIC)
- ☐ Empty floor space should be left to accommodate one rolling care and filing cabinet.
- ☐ All extra space should be filled storage shelving and cabinets. There should be no empty walls in the storage closet.
- ☐ 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.
- ☐ Teacher wardrobe should be provided in the storeroom.

Kiln Area

- ☐ The kiln area should be located at the far end of the storeroom and should accommodate two kilns.
- ☐ Two or three 7-foot tall, 18-inch deep, 36-inch wide shelf sections near kiln area for storage of ceramic work.

- ☐ Two kiln exhaust hoods and fans (local switch) must be installed with a 24 hour timer. 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 250 volt, 50 amps, single phase, and 7200 watts. Provide 2-250V, 50 amp 3-prong plug outlets. NEMA configuration 6-50R. Provide two outlets on wall behind the kilns.

Hallway Outside

- ☐ The hallway outside of the art room should have two tack boards for displaying artwork. Tack strips also should be provided on other walls.
- ☐ There should be a lockable showcase with lights located near the art room or at the main entrance of the school.

Music Suite

Spatial Needs
Music Room
Instrumental Music Room
Music Storage 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 performance platform.
- ☐ The two music rooms must be acoustically treated for isolation and reverberation with a combination of absorptive and reflective acoustic wall panels, by Wenger or equal, to be included the base bid design.

Music Room

- ☐ The teaching area for the music room must be 34’ x 31’ and have a circle 20 feet in diameter, with chairs arranged around three sides of a surrounding box of the circle.
- ☐ 100 linear feet of general storage (casework throughout the classroom) is needed in the classroom. Adjustable, open shelving must allow for storage of books, CDs, and small instrument as follows:
  - ☐ 12” deep shelving for 140 books (140 linear inches)
  - ☐ 12” deep shelving for 13-15 baskets 12”x9” for small musical instruments
  - ☐ 12” deep shelving for four medium sized drums (12”x12”x12”)
  - ☐ Two 18” deep shelves, 3’ long for bass xylophones
  - ☐ 12” deep shelving, 42” long for 4 alto xylophones, 2 shelves high
  - ☐ 12” deep shelving, 42” long for 4-6 soprano xylophones, 3 shelves high

- ☐ 12” deep shelving for 4 alto and 4 soprano glockenspiels
- ☐ Some additional shelving for books, CDs, instruments, and teaching materials.

☐ The music room needs a child height sink.

☐ Window coverings will be provided for room darkening. If there is a roof monitor then window coverings are required.

☐ The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout. The teaching wall also should have a single music staff on both marker boards located on the upper third of the magnetic board.

☐ An additional 8’magnetic marker board should be provided in the classroom with a single music staff.

☐ Two 4’ tack boards should be provided in the classroom.

☐ A minimum of eight duplex electrical outlets should be provided in the classroom. No fewer than four outlets should be located on the teaching wall, space out along the teaching wall.

☐ 36” wide doors into the music room and platform to accommodate the passage of a piano.

☐ Two speaker outlets and 12” deep shelves, installed 6’ 8” high, should be located in the front of the classroom for speakers.

☐ Additional outlets should be provided throughout the room for use of instruments and sound system.

☐ The architect should show the location for an electronic keyboard at the main teaching wall.

☐ A location for a teacher’s desk is required.

☐ A teacher’s wardrobe is required.

Instrumental Music Room

☐ A deep sink and countertop area should be provided for cleaning and repairing musical instruments.

- ☐ 36” doors into the instrumental music room must be wide enough to accommodate the passage of piano and large instruments.

Music Storage Room

- ☐ A 250-square foot secure room to store instruments, equipment, choral and instrumental music, music stands, and instructional charts is necessary with access from the music room.
- ☐ Ideally, this room should be located between the general and instrumental music rooms with access from both rooms.
- ☐ 48”W x 24”D x 84”H wood cabinets with adjustable shelves and lockable doors should be provided in the instrumental storage room for the sound system. Some open adjustable shelving also should be provided. Specific storage and shelving specifications are available through Montgomery County Public School's MCPS Facility Guideline Specifications.

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 designed at 34” 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.

Support Rooms

Spatial Needs
Large Instructional Support Room
Small Instructional Support Room
Speech/Language Room
Occupational Therapy/Physical Therapy (OT/PT) Room
Testing Room
Support Staff Offices
Parent Resource Room (For Title 1 Schools)

Large Instructional Support Room

- ☐ Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- ☐ This room should 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*.
- ☐ The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ The remaining walls should be outfitted with magnetic maker board and a tack strip above.
- ☐ A small 4x4 tack board may be considered near the entrance of each classroom and will be discussed during the quarter scale review.
- ☐ 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 classroom should be equipped with a handicapped accessible sink. Cabinets should be provided above and below the counter area.
- ☐ Each classroom should be equipped with window coverings. DDC will provide the specifications for the window coverings.
- ☐ Battery operated clocks will be installed. The clock should not be mounted behind the projection screen.

Small Instructional Support Room

- ☐ Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- ☐ This room should 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*.
- ☐ The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ The remaining walls should be outfitted with magnetic maker board and a tack strip above.
- ☐ A small 4x4 tack board may be considered near the entrance of each classroom and will be discussed during the quarter scale review.
- ☐ Each classroom 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 classroom should be equipped with a handicapped accessible sink. Cabinets should be provided above and below the counter area.
- ☐ Each classroom should be equipped with window coverings. DDC will provide the specifications for the window coverings.
- ☐ 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 marker board, 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 two marker boards that are 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 two teacher's desks, lockable file cabinet, and assorted sized furniture with adjustable legs should be provided.
- ☐ The OT/PT room should be wired for access to two computer workstations each.
- ☐ Data and electrical outlets should be located on all walls to allow for multiple uses and flexibility to move equipment around if needed.
- ☐ The OT/PT room requires a ceiling mounted hook, with a 12’foot diameter clear space for hanging swings and other suspended equipment.

Swing Hardware and Accessories Recommendations

- **Equipment that should be paired**- Base mat, chain for length, height adjuster, rotational component.

- Kit-LINK
- Includes rotational hook: LINK and chain: LINK Height adjuster: LINK
- Mat- LINK

Swings:

- Cocoon: LINK - Autism
- Platform: LINK - OT/PT/PEP

☐ The OT/PT room requires a lockable storage closet 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 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 should be designed as a secure room for testing materials and should have a counter with lockable cabinets above and below.

☐ This room needs acoustical treatment as well as video, voice, and data outlets.

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.

Parent Resource Room (For Title 1 Schools)

- ☐ Space for a teacher's desk, computer, and telephone should be provided.
- ☐ Space for a conference table and chairs as well as soft seating should be provided in this room.
- ☐ Space should be provided for bookshelves and other shelving to store a variety of types of materials and supplies.
- ☐ Data and electrical outlet should be provided for an interactive teaching board.
- ☐ Magnetic board should be provided in this room.

Library Media Center

Spatial Needs
Main Learning Environment
Instructional Area
Work and Production Area
General Storage

☐ The Library Media Center (LMC) is the information hub of the school.

☐ The latest version of the MSDE document, *Facilities Guidelines for Library Media Programs,* may be used as a reference for the design of the LMC.

☐ The LMC should be centrally located and easily accessible from the outside to allow the LMC easy access by outside groups during after school hours and in the summer.

☐ There should be easy access to the elevator.

☐ Toilet rooms should be located nearby the LMC.

☐ Sight lines are an important feature in the design of the LMC. Staff should have visual supervision of the entire LMC including the entrance from the LMC circulation desk.

☐ Flexible lighting with the ability to darken separate areas of the main resource room without affecting other spaces.

☐ If possible, the LMC should not be located below high noise level activities such as music, technology education, cafeteria, or physical education.

☐ Multiple charging outlets need to be provided throughout the LMC and can be located in the floor, wall, and counters. Consideration should be given to the location of the circulation desk and seating areas that may require data and or power for the use of computers or staff/student work areas.

☐ Ideally, a countertop with outlets above the counter should be provided along one of the walls of the LMC to allow users to plug in portable devices. The counter should be located in an area that can be easily supervised and at a desk top height so that chairs can be interchanged in the library.

Main Learning Environment

This is the main area of the library that includes the stacks, instructional space, and circulation area.

Stacks (the area containing book shelves)

- ☐ The height of the low moveable bookshelves should accommodate three rows of books and the height should be 42 inches high in order to accommodate picture and nonfiction books.
- ☐ Must be on wheels to allow for flexibility.
- ☐ Different materials can be explored based on design and cost factors to include metal and wood shelving.
- ☐ Soft, comfortable seating should be provided for individual and collaborative student work and power should be provided throughout this area.
- ☐ Consideration should be given for shelving for special types of collections such as graphic novels, periodicals, and oversized books including picture books. The shelving should be flexible that can convert for different types of collections.
- ☐ Wall shelving should be maximized in this area, where possible. (height 5 feet when possible)
- ☐ Consideration should be given to provide opportunities to display and highlight student work and items in the collection.
- ☐ Lights should be designed to allow for flexible arrangement of shelving in the stacks.
- ☐ Shelving is to be allocated on the average as follows:

	Linear Feet
Non-Fiction (including biographies)	430
Fiction	285

Picture Books (with no dividers)	75
Magazines (with space for back issues)	12
New Book/Interest Display	10
Media Center Storage (20-24” depth)	As space allows

Circulation Area

☐ The architect needs to identify a location for a circulation desk that is large enough to accommodate two computer workstations and a networked printer to access the online catalog system.

☐ If space permits, storage cabinets should be provided in the circulation area for miscellaneous activities such as book repairs and holds.

☐ The circulation desk furniture package will include the following features:

- ☐ a storage area for book return carts;
- ☐ a book return container to catch the books;
- ☐ supplies drawers;
- ☐ a writing area unit; and
- ☐ an area for a laser printer and supplies.
- ☐ The front height of the circulation desk should have an area that does not exceed 39" in height so that elementary students have access.
- ☐ There should be two means of egress for the circulation desk.

☐ The work surface for the staff member should meet ADA compliance with optimal ergonomics (keyboard height).

☐ Electric and Ethernet needs to be provided.

Instructional Area

☐ Sight lines are an important feature in this area. Staff should have visual supervision of the entire LMC from this area.

☐ A teaching wall area designed for an interactive board should be included.

☐ This area needs to accommodate read-alouds and other instructional activities.

☐ This area should include table and chair seating as well as soft seating so that the combination of seating totals 30. A variety of heights in the instructional area for students including standing and sitting options should be provided.

☐ The space should be easy to reconfigure for a variety of uses and groupings with the use of flexible furniture to support whole class, small group, and project based learning activities.

☐ The instructional areas need access to all forms of technology in the school including wireless access.

Work and Production Area

This area was formerly two distinct spaces: the library media specialist office and library media center workroom. The new combined space now supports the library media staff functions and is also used as a multipurpose space to include maker activities for student and school staff use.

☐ The work area should be delineated through the use of a different ceiling height or half wall.

☐ This room requires VCT floor material.

☐ Consideration for a counter for student use is preferable.

- ☐ Adequate electrical and data outlets are to be designed in consultation with the LM Specialist and central office staff members.
- ☐ It must contain a sink with hot and cold water, in addition to ample worktops for library media processing, student and teacher use.
- ☐ Space is needed for two staff work stations. This can be built-in or through furniture.
- ☐ Two lockable wardrobes need to be provided. See media center specifications available from the MCPS Facility Guideline Specifications.
- ☐ This space needs to contain open shelving to accommodate materials for student use such as maker space supplies and hands on activities as well as closed lockable cabinets for library media center supplies.
- ☐ Space should be provided for a networked school printer that is accessible by teachers and students.
- ☐ Electric and data should be located on all walls to provide flexibility in the use of the space.
- ☐ The work area includes space for collaborative planning and processing of library media materials.

Library Media Storage

- ☐ The library media storage room provides for storage of library media materials, equipment, seasonal materials and supplies.
- ☐ Electric and Ethernet should be provided to accommodate library media technology needs.
- ☐ A variety of shelving should be provided for instructional materials for teacher use such as DVDs, audio book resources, and equipment with some open space to accommodate computer cart storage.
- ☐ Varied depths of shelving should be provided including 6”, 12” and 24” deep.

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.

☐ No glass walls should be designed in the gymnasium for safety and security purposes. Clerestory windows can be designed to provide natural light in the gymnasium.

☐ 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 a minimum of 24 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 marker board, 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.
- ☐ Audio controls for a sound system that are easily accessible to the instructor should be provided.
- ☐ A wall-mounted, chin up bar should be provided. The lowest bar height should be approximately 5 feet from the floor.
- ☐ Video, voice, data and electrical outlets 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.
- ☐ Video, voice, data and electrical outlets are required.
- ☐ Window 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.

- ☐ One of the storage rooms needs to accommodate and maneuver a mat mover cart (7’ x 3’) in and out of the room easily.
- ☐ 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.
- ☐ The large storage closet must have a length that will accommodate a 12' long balance beam.
- ☐ 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.
- ☐ One of the small storage rooms will be used for community use (ICB) and should have straps to store the volleyball standards along one wall (about 10’ long).

Lobby Area

- ☐ Separate toilet rooms for boys and girls should be located in the lobby.
- ☐ An electric water cooler with bottle filling station and filter 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 set of doors 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
Before/After Care 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.
- ☐ The doors from the main corridor into the multipurpose room should be on hold opens.
- ☐ Toilet rooms and an electric water cooler with bottle filling station and filter 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 video, voice, data and electrical outlets.

- ☐ 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 Desisgn and Construction .
- ☐ An independent sound system should be provided in the multipurpose room.
- ☐ A call button to the main office should be provided.

Platform

- ☐ A minimum of 450 square feet of useable space must be provided for the performance 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 video, voice, data and electrical outlets.
- ☐ Access should be provided to the platform from both sides.

Chair and Table Storage

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

Before/After Care Kitchenette

☐ A sink (34”), refrigerator, counter space, and base and wall cabinets should be provided in this area.

☐ A secured overhead door is required for this space.

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 floor such as, slip resistant quarry tile floor or polyurethane cement flooring system is required. If quarry tile is used then the 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 three 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 drain board 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
Command Center
Principal's Office
Assistant Principal's Office
Conference Room
Counselor's Office
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.
- ☐ Sufficient electrical outlets are to be provided (where feasible, quadruplex outlets may be utilized) as well video, voice, data and electrical outlets 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.

- ☐ The administrative secretary should have access to a private area during the day to work on fiscal duties.

General Office

- ☐ A counter/or furniture 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/furniture.
- ☐ 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. Staff mailboxes are to be readily accessible but not visible from the main entrance and are to contain 80 boxes at least 5.5 inches tall by 12 inches wide plus five additional boxes that are somewhat larger.
- ☐ 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 (34”) 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 shelter in place/lock down 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 the 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 shelter in place/lock down emergency kit.

Principal's Office

- ☐ This office requires an outside window, a public entrance connected to the main office, and a private entrance.
- ☐ These areas are to relate effectively with each other as well as to the general office.
- ☐ Each office should be planned for an l-shaped desk, computer, phone, file cabinets, and a small table for four to six chairs for small group meetings.
- ☐ This office requires a private toilet room.

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 requires a magnetic marker board, a tack board, and one bookcase.
- ☐ The conference room should be equipped with a video, voice, data and electrical outlets and outlets to accommodate an interactive teaching board.

Counselor's Office

- ☐ 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 marker board, tackboard, telephone and computer.

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

Staff Development Office

- ☐ The staff development area should be located near the classrooms.
- ☐ The office should include one workstation.
- ☐ This office needs a marker board, 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 marker board, 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 marker board and tack board should be installed.
- ☐ Data and electrical outlets should be provided to accommodate an interactive teaching board.

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 from the Montgomery County Department of Health and Human Services (DHHS) 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 (34”) 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 (34”), with cup, towel, and soap dispensers should be provided.

Health Assessment/Isolation Room

- ☐ This room needs to have access and have a door to the corridor.
- ☐ The spaces used for consultation and examinations must be enclosed with sufficient acoustical isolation to ensure complete privacy and confidentiality.
- ☐ A small sink (34”), with cup, towel, and soap dispensers should be provided.

- ☐ Space should allow for a small desk, secretarial chair, three lateral file cabinets with four drawers and a recovery cot.
- ☐ This room will require a telephone and a computer..
- ☐ In the rest area and Isolation 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.
- ☐ A window is needed in this room to provide supervision from the treatment area and office. The design of the window also needs to ensure that only staff can see into the room.

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 four cots with individual light switches for wall sconces, electrical outlets 16” from the finished floor, and bedside cabinets for each 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 Isolation Room (see above) should be located adjacent to the rest area,
- ☐ In the rest area and Isolation 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 staff lounge should contain a compact built-in kitchen with six linear feet of counter space for a microwave and sink (34”) and a space for a refrigerator (NIC).
- ☐ A clock should be provided.
- ☐ Ventilation must be provided. An operable window in the staff room is preferred.
- ☐ An area should be designated for Video, voice, data and electrical outlets.

Privacy Room

- ☐ A small, enclosed room with countertop and space for one chair is needed.
- ☐ An electrical outlet should be provided above and below the counter and the counter should be tall enough to accommodate a small refrigerator.
- ☐ A small sink is needed for hand washing and washing of personal items.
- ☐ A mirror should be provided above the counter.
- ☐ This space needs to be accessible to staff with disabilities.

Building Service Facilities

Spatial needs
Building Service Office
Locker/Shower area
Compactor/Trash Room
General Storage & Receiving Area
General 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.
- ☐ If possible, the office should have a window or a sightline to the outside to monitor weather conditions.

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.
- ☐ An ENERGY STAR stackable washer and dryer are required in this area.

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.

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

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

Building Service 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 and near the gymnasium.
- ☐ 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.

Building Support Spaces

Spatial needs
Book Storage
PTA Storage
Emergency Command Center
Telecommunications Rooms

Book Storage

☐ This room should be located near the standard classrooms.

☐ Metal shelving that is 12’ deep should be provided in this room.

PTA Storage

☐ This room should be located near the multipurpose room.

☐ Metal shelving should provided along one side of the room.

Telecommunication Equipment Closet

☐ These rooms should have corridor access and be centrally located in the school.

☐ Specifications for this space are available from the MCPS Facility Guideline Specifications.

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. The architects may refer to the following two MSDE design guidelines: *Conserving and Enhancing the Natural Environment on New and Existing School Sites,* 1999 and *A Practical Guide Planning, Constructing, and Using School Courtyards,* 2012. The documents are available at the following website: www.marylandpublicschools.org/MSDE/newsroom/publications
- ☐ 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.
- ☐ Accessible parking spaces should be located near the main entrance, the before/after Care entrance, and the playing fields.

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 minimum useable site size of 7.5 acres that is capable of fitting the instructional program, including site requirements. 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

☐ If there is major site work on this project, the design team should review how the arrival and drop-off of disabled students are accommodated to meet current accessibility requirements.

☐ Linkages to Learning will be considered as an add alternate. The draft program of requirements from DHHS are listed below:

PROGRAM OF REQUIREMENTS
FOR
LINKAGES TO LEARNING-SMALL
TWINBROOK ELEMENTARY SCHOOL

I. Overview

The Linkages to Learning (LTL) staff will provide behavioral health, social services, and community education/development services to the students and families of the school community.

II. Project Description

A. The project provides for the construction of a comprehensive LTL facility where services are delivered to members of the school community. It should incorporate these basic components: the administrative area and the mental health/social services/community education suite.
B. It is preferred that the LTL suite be located near the main entrance for supervision and security purposes and have at least one direct access to the outside with clear identification of LTL entrance to provide access during evening and weekend hours when the school is closed.
C. One entrance from the school to the LTL suite is needed.
D. The design shall consider safety and security of the LTL staff and school uses. The facility is to be arranged so access from it to the school can be controlled when school is not in session.
E. Doors should have windows, and all windows should have blinds, including the window within the door. There should be Vinyl Composite Tile (VCT) flooring throughout the center. A doorbell should be placed at the outer entrance, with audible notification to one office and the main reception area. All rooms should have the capability to be locked.

III. Linkages to Learning Operations

A. Hours of Operation: 8:00 a.m.-4:30 p.m. Monday through Friday, with some evening hours during the week and on the weekend (LTL operates evening hours at least one evening per week).
B. Staff: child/family therapist, family care manager, and may include community service aide, and LTL coordinator.
C. Months of Operation: a full component of the above-mentioned staff will be present during the school day during the school year and during the summer.

IV. Site Requirements

The site chosen by MCPS for the school facility must be able to accommodate the LTL suite. Site selection considerations shall include, at a minimum, the feasibility to provide separate access to an LTL suite and safety and security considerations with the operation of an LTL suite on the property.

The location of the LTL facility is to have convenient access to the school foyer and parking lot drop off area.

V. Mechanical and Electrical Systems

The facility is to be compatible with the systems of the school at which it is located. It should have heating and air conditioning. Because the LTL may operate while the main portion of the school is not in session, the Heating, Ventilation and Air Conditioning (HV AC) must be zoned for after-hours use. The system shall be included in the school energy management system but shall allow for zoning separation capabilities. Systems selected must be maintainable by MCPS.

Electrical outlets are to be provided on all walls and comply or exceed the number required by applicable code(s). There should be an electrical outlet and data drop in the copy machine area. There should be two data drops in every office and area that will house phones and computers, including conference room and offices, except for the Community Services Aide/Intern Workstation (only one electrical outlet and data drop is needed in this room). On new construction only, a center data drop and plug in the floor of the conference room should also be included.

VI. IT/Telecommunications

The telecommunication network conduit and wiring infrastructure are to be provided in all spaces except the toilet room, building service closets, and small storage rooms under 100 square feet. Additionally, wireless access points are to be provided to enable uninterrupted wireless service to MCG/DHHS computers throughout the LTL suite.

The telephone systems shall be owned by MCPS and connected to the MCPS' telephone network (see VIII. School Facilities Needed for Support). If an individual LTL school is at full capacity in terms of phone lines, Montgomery County Government (MCG)/Department of Health and Human Services (DHHS) will pay for the costs associated with required increased phone line capacity.

The computer devices will be purchased and owned by MCG/DHHS and shall be connected to the MCPS computer network. Fiber optic service or equivalent Internet connection will be provided by MCPS. The LTL suite will utilize the fiber optic service to connect to the County Government network via the Carver Educational Services Center (CESC) county link. All equipment and software will meet County standards and provide compatibility with other LTL suites.

VII. Security

The LTL suite is to be integrated into the school security system. The system must include provisions for permitting use of the suite when school is not in session, for example, a separate control panel for the suite.

The suite is to be arranged so access from the suite to the school can be controlled when school is not in session. The door to this exit should be visible so that the staff can monitor the entrance and control access. This door should have a lock and bell system. Emergency buzzers should be installed in all rooms and areas of the LTL suite. Also required are doors with interior windows in LTL Coordinator's offices into the administrative/reception areas.

Exterior security, including the design of access from the parking area to the entrance, a doorbell, security camera system and the provision of substantial exterior lighting is important.

VIII. School Facilities Need for Support

A mailbox to accommodate letters and packages shall be identified for the LTL suite in the school mailroom. The school public address/intercom system shall be extended to all rooms in the LTL suite. Speakers in the facility shall have volume and on/off controls, as well as call back features to the school's main office. A telephone system integrated into the school telephone system shall be provided by MCPS with voice mail capabilities.

IX. Furnishings and Equipment

Montgomery County Government (MCG) shall provide the furniture and equipment as needed to operate the LTL suite. A furniture and equipment summary is attached for design purposes.

As part of the construction contract, the following items will be provided upon completion of construction (other items may be identified during design):

- Shelves in the supply closet;
- Sign outside (Linkages to Learning spelled out);
- Tack boards in every office and reception area (number and size are provided in the space descriptions);
- Large marker board in conference room;
- Television mount in conference room;
- Built-in locking cabinets in Child/Family therapist office, Family Care Manager office, and printer area;
- Soap dispenser and towel holders at the sink;
- Vents in the bathroom;
- Changing table in the bathroom.

X. Applicable Laws

This facility shall comply will all applicable current local, state, and federal laws, regulations, and codes.

XI. Space Descriptions

Square Foot Summary			
Description	# of Spaces	Net SQ. FT. Each	Total Net SQ. FT.
Administrative Area:			
3. General Office/Reception Area	1	225	225
4. Conference Room	1	275	275
Linkages to Learning Suite			
4. Child/Family Therapy Room	1	175	175
5. Family Care Manager Office	1	140	140
6. Family Resources Closet	1	50	50
Other			
2. Toilet Room	1	50	50

Total Net SQ. FT.	**915**
Total Gross SQ. FT. - # net sq. ft. x 1.34 =	**1,226**

A. General Office/Reception Area
Key Features:

The general office space should be designed to be near the entrance of the suite and serve as a reception/waiting area. Two 4'x4' tack boards should be located in this area. It should have space for a reception desk and secretarial chair and 4-6 guest chairs. This room requires a telephone and computer. This space should have VCT flooring.

B. Conference/Meeting Room
Key Features:

Conference room configuration should seat 10-12 people around a conference table or seat 15-20 people in an informal seating arrangement. A storage closet with five adjustable shelves should be provided within this space, as well as a credenza. A center data drop and plug should be in the floor. This space should have VCT flooring. This room will require a telephone. There should be a wall mounted bracket for a TV monitor and in focus. Two 4'x6' tack boards and one 4'x8' marker board should be provided in this room.

C. Child/Family Therapy Room
Key Features:

This room should accommodate an L-shaped desk and space for play/group therapy. This space should be located in an area that affords clients the most privacy for their counseling. Built-in storage cabinets for toys, games, and supplies are to be provided with countertop, base and wall cabinets. Space should be provided for a round table and four chairs or small couch and two chairs, a 4-drawer lateral file cabinet, and bookcase. This space should have VCT flooring. This room will require a telephone and computer. One 4'x4' tack board should be provided in this room.

D. Family Care Manager Office
Key Features:

This room should accommodate an L-shaped desk and space for round table and four chairs. Space should be provided for a 4-drawer lateral file cabinet and bookcase. This space should have VCT flooring. This room will require a telephone and computer. One 4'x4' tack board should be provided in this room.

E. Family Resource Closet

Key Features:

Lockable storage space is needed for the following:

- Food and clothing pantry
- Toys, books, and other tangible resources for children and families
- Literature

This closet should be equipped with a clothing rod and adjustable shelves.

F. Toilet Room

Key Features:

A student handicapped accessible toilet room with sink, soap and towel dispensers, toilet, and changing table. This space should have ceramic tile flooring and wainscot.

Adult toilets within the school should be close to the LTL suite and accessible for staff and visitor use.

Furniture and Equipment Summary

	Item Description	Units
Reception and General Office		
	Secretarial chair	1
	Desk 30”x60”	1
	Personal computer	1
	42” 4-drawer lateral file	1
	Telephone	1
	Chairs-fan back	6
Conference Room		
	Table	1
	Conference room chairs	8

	Chairs stack	6
	Projection screen/TV	1
	Telephone	1
	Credenza	1
Child/Family Therapy Room		
	L-shaped desk	1
	Desk hutch with doors	1
	Secretarial chair	1
	Personal computer	1
	Telephone	1
	Small round table 36” or 42”	1
	Chairs-fan back	4
	Book case 36”x72”	1
	Lateral file cabinet 4-drawer	1
Family Care Manager Office		
	L-shaped desk	1
	Desk hutch with doors	1
	Secretarial chair	1
	Personal computer	1
	Telephone	1
	Small round table 36” or 42”	1
	Chairs-fan back	4
	Book case 36”x72”	1
	Lateral file cabinet 4-drawer	1

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APPENDIX C - EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

GENERAL SITE INFORMATION

The Twinbrook Elementary School facility is situated on a 455,585 square foot (10.45 Acre) lot, at 5911 Ridgway Avenue, Rockville, Maryland within Election District 04. The site is located within the incorporated limits of the City of Rockville. The property is has a tax account number of 4-00142935. The site is zoned R-60 and is bounded on the west and northwest by detached single family residential properties, on the north east by Ardennes Avenue, on the east by Wainwright Avenue, and to the south by Ridgway Avenue. Daycare of Kids MCS leases the property belonging to MCPS to the northeast located in the MCPS Richard Montgomery cluster. The daycare is not operated by MCPS or the County. It is a private facility owned and run by Kids Maryland Child Services (https://www.kidsmcs.com) and operates under an established land lease agreement.

The site is located on ADC Map page 5165 at grid A09/A10
The site is not located in a County designated Special Protection Area or Environmental Overlay District/Zone.
As this site is located with the incorporated limits of the City of Rockville, and as such is not subject to a County Masterplan. The City has a comprehensive plan for this area of the city called Planning Area 8 – Twinbrook and Twinbrook Forest.
Encroachments: the western property line is bordered with residential homes. There are several fences that encroach onto MCPS property (one by over 20'). Additionally, there is a shed that is over the property line at 5938 Lemay Road. MCPS is encouraged to alert these property owners to remove the encroachment.
There are no known easements or forest conservation plans that effect the property. However, there is a possible abandoned right-of-way on the property along Ardennes Ave.
Based on the current City of Rockville Zoning Ordinance, dimensional regulations for the property will include the following:
Front setback – 25'
Front setback where established setback exceeds standard - 50'
Side setback Where Street Abuts – 20'
Side setback where land abuts - 8'
Rear setback – 20'
Maximum Building Height - 35'
Maximum Site Building Coverage – 35%
Maximum Impervious Surfaces in Front Yard - 40%

The zoning ordinance will also require any site improvements to adhere to the landscaping, screening, and lighting requirements associated with the parking lot. per the City Landscaping, Screening and Lighting Manual (https://www.rockvillemd.gov/DocumentCenter/View/244/Landscaping-Screening-and-Lighting-Manual-and-Resolution). Specifically related to this project:

- All off-street parking and loading facilities required by this Article for any use must be located on and entirely within the same record lot with that use.
- All parking spaces must be separated from walkways, sidewalks, roads, streets, or alleys by curbing and all roads, streets, alleys, sidewalks, walkways, and lot lines must be protected from vehicular overhang by wheel bumpers or curbs. Wheel bumpers or curbs must be installed at least five (5) feet from a street right-of-way line.
- Landscape Strip Area Adjoining a Street Right-Of-Way - Parking facilities adjoining a street right-of-way must provide a landscaping strip at least 10 feet in width.
- Perimeter Landscape Area for Parking Adjoining Property Other Than a Street Right-of-Way – Landscaped areas must be provided along the perimeter of a parking facility. (i) The perimeter landscape strip must be at least seven (7) feet wide to allow for the planting of trees, but not less than the setback required in an adjoining Single Dwelling Unit Residential Zone.
- Internal Landscaping of Surface Parking Facility - A minimum of five percent (5 percent) of the internal area of a surface parking facility must be landscaped with shade trees.
- All lights must be shielded in such a way as to direct all light towards the Earth's surface and away from reflective surfaces.
- Lights on poles must not be taller than the building whose area they illuminate nor taller than fifteen feet, whichever is shorter.

Twinbrook Elementary School - Aerial

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

SITE ANALYSIS

Adjoining Streets, Pedestrian Access, and Vehicular Access:

There are three right-of-ways which border the site, all of which afford vehicular access onto the property. Ridgway Avenue is a 50-foot right-of-way that runs along the southern boundary of the site offering access into the main parking lot and bus-loop of the school. This right-of-way contains a 15 mph, two-lane street with sidewalks along both sides. Wainwright Avenue is also a 50-foot right-of-way that runs along the eastern boundary of the site. This right-of-way consists of a two lane road with one sidewalk flanking the eastern edge of the thoroughfare. Finally, Ardennes Avenue which provides access to an ancillary drop-off loop and staff parking circle, runs along the northeastern boundary of the site. This two-lane, 15 mph street is lined with sidewalks and street trees along both sides. All streets are residential in nature with 15-mph school zone speed limits which offer safe pedestrian circulation corridors for the surrounding neighborhood. The pavement in these streets appears to be in moderate condition, although some heavy cracking was observed in Ardennes Avenue. Sidewalks along the streets were also in decent condition; however, many site driveway intersections along Ardennes and Wainwright Avenues do not have the appropriate sidewalk ramps or detectable warning surfaces required by ADA. If site improvements are proposed, these areas should be upgraded to meet current ADA requirements.

Ardennes Avenue – Looking south towards Wainwright Avenue

Site Access, Parking and Circulation:

On-Site Pedestrian and Vehicular Access

Vehicular access into the school-site is currently afforded by one of the three previously mentioned streets. The main parking lot and bus-loop are accessed by an entrance off of Ridgway Avenue located at the southern end of the site. The area currently serving as the student drop-off loop is accessed off of Wainwright Avenue along the eastern edge of the site. Lastly, a secondary 13 space circular parking lot/

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

drop-off area is accessed by Ardennes Avenue in the northwest area of the site. Pedestrians wishing to access the site may use any of the previously mentioned right-of-ways as all the surrounding streets are lined with sidewalks linking the surrounding neighborhood to the school.

Driveway Entrances

There are five existing driveways into the property. The concrete residential driveway off of Ardennes Avenue is approximately 24-feet in width and appears to be in fair condition. The two driveways on Wainwright Avenue, which serve as the entrance and exit of the student drop-off loop are also residential concrete driveways. These driveways also appear to be in decent condition. Another 20-foot concrete driveway off of Wainwright serves as the main parking lot exit and is also free from substantial cracking. Finally, the fifth driveway is concrete and approximately 40-feet in width. This driveway serves as the main entrance to the site and appears to be in decent condition as well. There were no sight-distance issues observed in association with any of the existing driveways and all access points into the site appear to be safe and functioning properly.

Bus Loop

Bus Loop

The school's bus-loop consists of 120-foot circular loop accessed by a 24-foot drive aisle located in the center of the site. The bus loop is accessed by the Ridgway Avenue right-of-way and is designated by signage for bus use only during certain times. The bus loop also provides access to a small, 10-space parking lot and the adjacent loading area. Though functional, this likely requires deliveries to be scheduled so as not to interfere with bus loading/un-loading times. With approximately 345 linear feet of queuing space and ample width for buses

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

to pass one another, it appears that the size of the bus-loop is more than sufficient for the six individual routes that are currently serving the school. In terms of ADA compliance, the bus-loop drop-off area does provide a small handicap ramp; however, the ramp is not up to current code as there is no detectable warning surfaces. Furthermore, there is no passenger loading zone, which is required by ADA as well. Lastly, the bus loop is not striped for after-hours parking.

Student Drop-off Loop

The student drop-off loop is located on the eastern side of the building and consists of a 300-foot long, 16-foot wide, one-way drive aisle and also includes 11 chevron-style parking spaces. With staff members and parents trying to utilize the drop-off area at roughly the same time, the area can get congested during peak use times. Currently, handicap access from the drop-off area is accomplished with an area of depressed curb which leads into an at-grade doorway. Due to the lack of detectable warning surfaces, this route is not up to current ADA requirements. Also, it should be noted that grades in excess of five percent are prevalent throughout the drop-off loop area. It should be anticipated that many of the pedestrian routes in this area do not currently meet ADA requirements and should be upgraded if site improvements are proposed. Approximately half of the students use the drop-off area in a typical day (roughly 300 vehicles).

On-Site Parking

There are four different areas with parking spaces located around the site. The main parking area contains approximately 51-spaces arranged in a one-way, L-shaped lot in the southern portion of the site. There are currently no spaces designated for handicap use within this parking lot. On the west side of the school, just north of the bus-loop is a small 10-car lot which shares space with the dumpsters and loading areas. Included in this lot are two handicap accessible spaces both sharing a 72-inch access aisle. On the northeastern end of the school is a small 100-foot loop with striping for 13-spaces around its perimeter. This area also does not contain any spaces reserved for handicap use. Lastly, the aforementioned student drop-off loop contains 11-chevron style parking spaces, none of which are designated as handicap spaces. Overall, the parking system and site layout appear to have been arbitrarily placed. There is little implied organization or sense of overall plan which makes the site confusing when trying to locate a parking space. Furthermore, with 85-total spaces and just 2 designated for handicap usage, the site is not offering an appropriate ratio of handicap spaces from a total or from an individual lot perspective. The parking as striped appears to meet City of Rockville minimum dimensions.

Although the pavement and condition of the lots appeared to be acceptable, if extensive site improvements are anticipated it is recommended that the overall site layout be re-visited, with an emphasis on spatial reorganization and a separation of the various uses. At a minimum, it is anticipated that all lots will be required to provide a percentage of parking spaces to be designated for handicap use.

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

On-Site Loading

It appears that the small parking lot just north of the bus-loop is being used for the building loading area. In its current state however, this space is devoid of loading docks. This likely makes deliveries more difficult than is typical for a facility of this capacity. It is recommended that the space currently being utilized for loading is upgraded to include an area designed for the quick, safe, and efficient off-loading of deliveries.

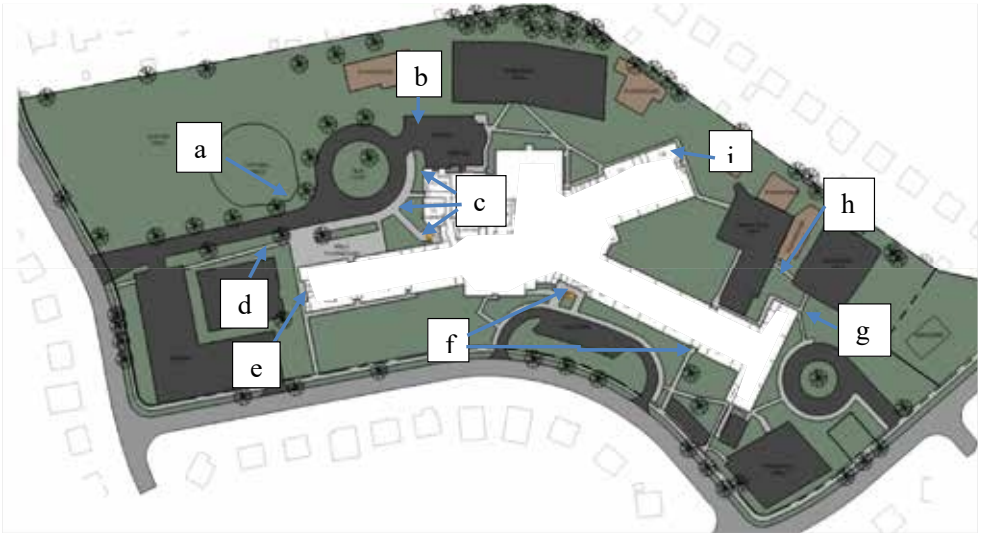
Rolling Topography along eastern side of building

Sidewalks

Although the site is not compliant with current ADA standards, it does provide for a thorough system of pedestrian circulation of sidewalks of varying width, but a minimum of 5' wide. Linked together by the sidewalks of the three surrounding right-of-ways, on-site sidewalks provide movement between the various athletic fields, playgrounds and parking lots. Because of the topography, many of the sidewalks utilized for access to the play-areas on the west, require staircases. If upgrades are anticipated, ramps and new handrails will be required in order to provide ADA access between all of the facilities throughout the campus. In general, the condition of the sidewalks is fair. Although most walk-ways are sufficient, there are areas where prevalent cracking and chipping has been noticed. It should be anticipated that site improvements will likely include comprehensive sidewalk replacement in order to bring all areas of the site within ADA compliance.

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

The below chart represents areas of observed non-compliance with ADA



a. No sidewalk to the player benches at the softball field.
b. Two existing parking spaces are not sloped per ADA.
c. Sidewalk from street to the front door does not meet slope requirements per ADA.
d. Non-complaint sidewalk and handrail.
e. Non-complaint sidewalk to door of building.
f. Non-compliant ramp to door.
g. Non-complaint sidewalk to playground.
h. Non-complaint sidewalk and handrail.
i. Non-complaint sidewalk to playground.

Fire Access

Currently, the bus loop, student drop-off loop and northeastern parking loop are all delineated by yellow paint as fire lanes. As the bus-loop is the only one of the previously mentioned areas which meets the 20-foot wide dimensional requirements of a fire lane, fire access around the school will need to be addressed along with any other site improvements. Depending on whether or not the building has a

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

sprinkler system, fire access may be required to reach up to a maximum of 300-feet from both sides. If the building does have sprinklers, the 500-feet will be the maximum allowed. In either case it is assumed that the northeastern drop-off loop provides for the fire lane for the building. This lane is located between 30' and 50' from this assumed fire lane. There was no observed fire department connection on the building. There is only one fire hydrant on-site, this is located in the bus loop, approximately 165' from the main entrance to the building.

Site Topography

The property slopes from a high-point on the central western boundary to the north, east and southern portions of the site. The lowest points occur in the northeastern and southeastern corners of the site, with the areas of greatest topographic relief falling just to the east and west of the building in the central portion of the site. Multiple retaining walls should be anticipated with site improvements in order to allow for ADA accessibility and to achieve MCPS standards for slopes.

Vegetation

The majority of significant on-site vegetation is concentrated along the northwestern border and along the bus-loop access drive. There are multiple significant trees on the site, most notably a 55-inch Willow Oak located in the hard-surface play area just to the west of the school. It will be important to coordinate site improvements to avoid disturbance of any of the large trees on-site during construction. If the proposed improvements involve impacts to specimen trees, a variance of the forest conservation law will need to be approved by the City Arborist. MCPS is currently working with their consultant to prepare a NRI/FSD, that plan is not available as of the time of this narrative. Furthermore, there is no known active forest conservation plan for this site. Lawn and athletic fields are well established with lawn and appear to be well maintained. It is understood that there is a bench and plaque memorial to a teacher located in the existing circular drive at the north end of the site.

Water and Sewer

The site is located within the incorporated limits of the City of Rockville, and as such the City owns and maintains the water and sanitary utilities within the right-of-way. There are 8" water and 8" sewer lines within every street that surrounds the property. The existing building is served by a six inch sanitary sewer line coming off the north side of the building and flows by gravity into the eight inch mainline in Ardennes Avenue. It is assumed that the sanitary sewer service is sufficiently meeting the current needs of the building and should also meet the needs of any prospective improvements. Water service is currently gained through a three inch waterline coming off of the eastern side of the building, through the student drop-off loop where it connects to the six inch main in Wainwright Avenue. Additionally there is an non-metered eight inch waterline feeding the fire-hydrant in the bus-loop. This line is reduced to connect to the six inch mainline in Ridgway Avenue. The water meter is located along Wainwright Avenue within a vault, located in the city right of way between the

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

sidewalk and the curb. Per the fire flow test conducted on June 12, 2025 on the mainline in Wainwright Avenue, pressures were determined to be between 55 psi and 75 psi. It is assumed that the existing domestic water service is of sufficient capacity to meet the needs of the prospective improvements. However, fire service upgrades should be anticipated.

Gas, Electric and Telephone, Etc.
All utility service connections are made with the main service lines in the Wainwright Avenue right-of-way. Electric (Pepco) and telephone (Verizon) service connections come into the building from a utility pole on the southern side of the student drop-off exit driveway. Gas (Washington Gas) service is obtained in the same general area connecting to a main located in Wainwright Avenue. There are no other dry utility service connections known on-site. It should be noted that there are a number of utility poles along Ardennes and Wainwright Avenues. Should site improvements be proposed in these areas, there could be the potential for costly utility pole relocations. There are no known deficiencies in these services that would limit the proposed development of the site.

Storm Drainage and Stormwater Management
All stormwater is currently conveyed without treatment to the surrounding public stormdrain system. Just south of the main parking lot, two structures are utilized to convey on-site runoff by two 15-inch stormdrains into the adjacent streets. On the northern side of the site, a 12-inch stormdrain is used to carry runoff into the Ardennes Avenue right-of-way. All remaining runoff sheetflows into the adjacent right-of-ways where it is then picked up by the public stormdrain system. Based on conversations with the City of Rockville, the downstream capacity is not adequate and thus on-site detention will be required as there is not a downstream regional stormwater management facility.

There are no known existing stormwater management facilities on-site, thus, it can be anticipated that site improvements will be required to include Environmental Site Design (ESD) to the maximum extent practicable in order to treat all areas inside the limits of disturbance. If all 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 The City of Rockville.

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 as well as permeable pavements. Permeable pavements could be utilized instead of traditional hardscapes in all areas except where heavy loading or significant fill is expected.

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

The site drainage area appears to be less than 30 acres and thus, not subject to floodplain review.

Site Soils

Per the Soil Survey of Montgomery County, Maryland the predominant soils on the site are in the Glenelg series. According to the USDA, the depth to bedrock is usually greater than five feet in Glenelg soils. However, this estimated depth is based upon virgin soils. Because the site was previously disturbed, bedrock could be encountered at shallower depths. It will be necessary to perform site-specific borings to establish the actual depths to bedrock. In terms of hydrology, Glenelg soil groups are characteristically known to provide good drainage and allow adequate infiltration. With a 'B' hydrologic soil group classification and typical groundwater depths greater than five feet, limitations on stormwater management facilities and significant anti-flotation measures are not anticipated.

Flood Plains, Stream Valley Buffers and Non-Tidal Wetlands

Initial investigations reveal that the site is safely located outside of a floodplain in a zone "X" on FEMA Flood Insurance Rate Map number 24031C0353D. Furthermore, according to the U.S. Fish and Wildlife Mapping services there are no nationally recognized wetlands or streams located on or around the site.

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

ARCHITECTURAL

Twinbrook Elementary School is located within the City of Rockville. Originally constructed in 1951, the structure was added on to in multiple phases to account for a growing population. The site is situated among Post-WWII era housing with low, single family homes on small lots. The diverse Rockville community is passionate about the school. Many generations of families have attended. Twinbrook Elementary School is designated as both a Title I school and a Community School. The school offers support to students and families through wrap around services, including health and food support. The active school community comes together for multiple events during the year demonstrating the importance of this building within the City. Twinbrook Elementary School is in the Richard Montgomery cluster.

Existing Layout & Configuration

Twinbrook Elementary School has a circuitous layout making it challenging for circulation and accessibility. The additions were constructed as double-loaded corridor wings extended out from the central core. The circulation is challenging since the various corridors do not connect at the ends. Additionally, the northern portion of the building, is set at a higher floor elevation, exacerbating the accessibility challenges and circulation within the building. Lastly, the two-story portion of the building does not have an accessible connection between floors. The existing ramps do not meet ADA standards since they lack the required landings and handrail extensions. There are limited accessible toilets within the building. The room designation signage lacks required braille and mounting height. Door hardware, such as knobs, is outdated. Ramps, toilets, signage, and door hardware will be replaced to meet accessibility guidelines. An elevator will be provided at the two-story portion of the building in Option 1. There are currently a total of 64 lavatories, 37 water closets, 12 urinals, 2 showers, and 2 custodial sinks in the existing school.

Twinbrook Elementary School is a one-story building with a small two-story portion at the north end of the site. The floor-to-floor elevation at the two-story structure is 12’-0”. The two stairs that connect between the levels are code compliant. Ceilings in classrooms are generally set at 9’-4”. Ceilings in corridors are generally set at 8’-4”. The 1951 and 52 roof structure consists of 2x wood joists approx 11’ AFF. The plenum above the ceiling in these classrooms is ~16”. The roof structure is elevated in adjoining space providing ample plenum above ceilings. There is a low portion of 1955 roof structure set where the plenum is roughly 6”. The roof structure in the 1959 corridors is 8” deep resulting in roughly 24” plenum space in corridors and at intersections. The 1959 roof structure in classrooms are 12-16” deep resulting in roughly 16” plenum space in classrooms and perimeters rooms. The roof was last replaced in 2023 and is under a 10-year warranty. The roof over the classroom wings and at the perimeter of the building are sloped towards the edge of the building. Roof drainage is provided via through-wall scuppers and downspouts connected to the below grade storm system. The central portion of the roof has various adjacent roof heights. This area of the roof are sloped to internal drains connected to the below grade storm system.

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

ARCHITECTURAL CONT.

The finishes within the building align with MCPS standards, including VCT flooring, rubber walls base, ACT ceilings. Carpet is provided within administrative areas. While it is possible to find similar matching materials, all design options include replacement of finishes.

Hazardous Materials & Maintenance History

Due to the age of the structure and the history of renovation work, there are known hazardous materials within the building based on MCPS' records. Information from the 2024 AHERA # year report states that the main building was found to contain hazardous materials under carpet and tile flooring in 21 classrooms, the Multipurpose room, ILM, Administrative Suite, however most of the corridors, and classrooms on the northeast corner of the building tested negative. The report also lists several areas of plaster ceilings that tested positive for hazardous materials. Please refer to MCPS' original report for more detailed information. Hazardous materials are generally found in older buildings when use if these materials was acceptable. As manufacturing has developed over the years, certain materials have been categorized as 'hazardous' and not permitted to be contained within building products installed today. Removal of existing hazardous materials is typically addressed during major renovation due to the impact to building occupants during removal. Abatement of all hazardous material is included in each concept option. According to MCPS' records, there are no current PLAR maintenance projects or compliance projects for this school.

Code Compliance

The existing building has a mix of wood, load-bearing masonry, and steel structure. Therefore, this building type is classified as type VB construction. It is also non-sprinklered. According to the current 2021 version of the IBC, the total allowable area for a two-story, non-sprinklered type VB building is 9,500 GSF, without frontage increases. There are no known fire walls. With an existing area of 73,595 GSF of the Main Level, Twinbrook Elementary School does not comply with the Table 506.2, Allowable Area. Existing, non-conforming buildings are generally permitted with the approval of the local building department and fire marshal. This should be discussed with the authority having jurisdiction.

Comparison to MCPS Education Specifications

The existing building was surveyed by the design team and compared to the MCPS educational specifications. The comparison of room size is provided on the following pages.

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

ARCHITECTURAL CONT.

	MCPS ED SPEC			EXISTING TWINBROOK			DELTA	
CLASSROOMS	ED-SPEC			EXISTING			SQUARE FEET	PERCENTAGE
PREKINDERGARTEN (NET)	2	TOTAL	2400	2	TOTAL	2674	274	11%
Prekindergarten	1		1200	1		1391	191	16%
Prekindergarten	1		1200	1		1283	83	7%
KINDERGARTEN (NET)	4	TOTAL	4800	5	TOTAL	5666	866	18%
Kindergarten	1		1200	1		1476	276	23%
Kindergarten	1		1200	1		1281	81	7%
Kindergarten	1		1200	1		1037	-163	-14%
Kindergarten	1		1200	1		967	-233	-19%
Kindergarten	0		0	1		905	905	
STANDARD (NET)	24	TOTAL	20400	23	TOTAL	19838	-562	-3%
Standard	1		850	1		811	-39	-5%
Standard	1		850	1		809	-41	-5%
Standard	1		850	1		775	-75	-9%
Standard	1		850	1		731	-119	-14%
Standard	1		850	1		956	106	12%
Standard	1		850	1		953	103	12%
Standard	1		850	1		929	79	9%
Standard	1		850	1		917	67	8%
Standard	1		850	1		887	37	4%
Standard	1		850	1		880	30	4%
Standard	1		850	1		858	8	1%
Standard	1		850	1		850	0	0%
Standard	1		850	1		962	112	13%
Standard	1		850	1		887	37	4%
Standard	1		850	1		880	30	4%
Standard	1		850	1		858	8	1%
Standard	1		850	1		850	0	0%
Standard	1		850	1		882	32	4%
Standard	1		850	1		867	17	2%

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

ARCHITECTURAL CONT.

	MCPS ED SPEC		EXISTING TWINBROOK		DELTA	
Standard	1	850	1	855	5	1%
Standard	1	850	1	819	-31	-4%
Standard	1	850	1	814	-36	-4%
Standard	1	850	1	808	-42	-5%
Standard	1	850	0	0	-850	-100%
MUSIC & ART (NET)	**4 TOTAL**	**3850**	**2 TOTAL**	**2059**	**-1791**	**-47%**
Art	1	1200	1	1189	-11	-1%
Music	1	1200	1	870	-330	-28%
Instrumental Music	1	450	0	0	-450	-100%
Dual Purpose Room	1	1000	0	0	-1000	-100%
	AREA SUBTOTAL	31,450	AREA SUBTOTAL	30,237	-2,700	-9%
SUPPORT ROOMS	**ED SPEC**		**EXISTING**			
Large Instructional Support	1	550	1	339	-211	-38%
Small Instructional Support Room	2	425	3	304	62	7%
Speech Lanuage Therapy	1	250	2	274	298	119%
Therapy Support Room	1	250	1	102	-148	-59%
Personal Care Room	1	100	0	120	-100	-100%
Testing / Conference Room	1	140	0	0	-140	-100%
Support Staff Offices	2	140	1	325	45	16%
Parent Resource Room	1	500	0	0	-500	-100%
	AREA SUBTOTAL	2,920	AREA SUBTOTAL	2,226	-694	-24%
LIBRARY / MEDIA CENTER	**ED-SPEC**		**EXISTING**			
Learning Environment	1	2100	1	2098	-2	0%
Work and Production Area	1	475	1	610	135	28%
LMC Storage Room	1	300	1	1127	827	276%
	AREA SUBTOTAL	**2,875**	AREA SUBTOTAL	**3,835**	**960**	**33%**

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

ARCHITECTURAL CONT.

	MCPS ED SPEC		EXISTING TWINBROOK		DELTA	
PHYSICAL EDUCATION	**ED-SPEC**		**EXISTING**			
Gymnasium	1	3700	1	5415	1715	46%
Office	1	140	1	105	-35	-25%
Storage	1	250	1	360	110	44%
Storage	2	100	2	105	10	5%
Outside Storage	1	140	0	0	-140	-100%
	AREA SUBTOTAL	**4,430**	**AREA SUBTOTAL**	**6,090**	**1660**	**37%**
MULTI-PURPOSE	**ED-SPEC**		**EXISTING**			
Multi-purpose Room	1	3200	1	2845	-355	-11%
Chair Storage	1	180	1	112	-68	-38%
Table Storage	1	180	1	0	-180	-100%
Platform	1	450	1	382	-68	-15%
Before / After Care Prep Area	1	25	0	0	-25	-100%
Before / After Care Storage	1	100	0	0	-100	-100%
	AREA SUBTOTAL	**4,135**	**AREA SUBTOTAL**	**3,339**	**-796**	**-19%**
KITCHEN	**ED-SPEC**		**EXISTING**			
Serving Area	1	300	1	134	-166	-55%
Walk-In Cooler/Freezer	1	155	1	142	-13	-8%
Dry Storage	1	192	1	154	-38	-20%
Office	1	100	1	271	171	171%
Toilet Room	1	70	1	43	-27	-39%
Preparation Area	1	555	1	620	65	12%
	AREA SUBTOTAL	**1,372**	**AREA SUBTOTAL**	**1,364**	**-8**	**-1%**
ADMINISTRATION	**ED-SPEC**		**EXISTING**			
General Office	1	500	1	377	-123	-25%
Workroom	1	300	2	261	222	74%
Principal's Office	1	250	1	309	59	24%

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

ARCHITECTURAL CONT.

	MCPS ED SPEC		EXISTING TWINBROOK		DELTA	
Assistant Principal's Office	1	140	1	148	8	6%
Conference Room	1	275	1	409	134	49%
Storage	1	100	1	13	-87	-87%
Record Room	1	75	1	91	16	21%
Toilet Room	1	50	3	43	79	158%
Workroom (2nd level)	1	75	1	128	53	71%
	AREA SUBTOTAL	**1,765**	AREA SUBTOTAL	**2,126**	**361**	**20%**
COUNSELING SUITE	**ED-SPEC**		**EXISTING**			
Counselor's Office	1	160	1	270	110	69%
Itinerant Staff Office	1	160	1	115	-45	-28%
	AREA SUBTOTAL	**320**	AREA SUBTOTAL	**385**	**65**	**20%**
STAFF DEVELOPMENT AREA	**ED-SPEC**		**EXISTING**			
Staff Development Office	1	100	1	446	346	346%
Reading Specialist Office	1	100	1	339	239	239%
Training / Conference Room	1	400	1	409	9	2%
	AREA SUBTOTAL	**600**	AREA SUBTOTAL	**1,194**	**594**	**99%**
HEALTH SERVICES SUITE	**ED-SPEC**		**EXISTING**			
Waiting Area	1	100	1	105	5	5%
Treatment / Medication Area	1	120	1	212	92	77%
Office / Health Assessment Room	1	100	0	0	-100	-100%
Health Assessment / Isolation Room	1	100	0	0	-100	-100%
Rest Area	1	200	0	0	-200	-100%
Storage Room	1	40	0	0	-40	-100%
Toilet Room	1	50	1	43	-7	-14%
	AREA SUBTOTAL	**710**	AREA SUBTOTAL	**360**	**-350**	**-49%**

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

ARCHITECTURAL CONT.

	MCPS ED SPEC		EXISTING TWINBROOK		DELTA	
STAFF AREAS	**ED-SPEC**		**EXISTING**			
Staff Lounge	1	650	1	650	0	0%
Privacy Room	2	50	0	50	-100	-100%
	AREA SUBTOTAL	**750**	**AREA SUBTOTAL**	**650**	**-100**	**-13%**
BUILDING SERVICES FACILITIES	**ED-SPEC**		**EXISTING**			
Building Services Office	1	140	1	74	-66	-47%
Locker / Shower Area	1	150	1	40	-110	-73%
Compactor / Trash Room	1	150	1	188	38	25%
General Storage & Receiving	1	550	1	162	-388	-71%
General Storage	3	240	8	74	-128	-18%
Building Services Outdoor Storage	1	175	1	112	-63	-36%
	AREA SUBTOTAL	**1,885**	**AREA SUBTOTAL**	**1,168**	**-717**	**-38%**
BUILDING SUPPORT AREAS	**ED-SPEC**		**EXISTING**			
Book Storage	1	200	2	100	0	0%
PTA Storage	1	100	1	424	324	324%
Emergency Command Center**	1	0	1	0	0	#DIV/0!
Telecommunications Closet (MDF)	1	150	1	190	40	27%
Telecommunications Closet (IDF)	3	50	1	190	40	27%
	AREA SUBTOTAL	**600**	**AREA SUBTOTAL**	**1,004**	**404**	**67%**
ADD ALTERNATE 1: LINKAGES TO LEARNING	**ED-SPEC**		**EXISTING**			
Administrative Area						
General Office / Reception Area	1	225	0	0	-225	-100%
Conference Room	1	275	0	0	-275	-100%
Linkages to Learning Suite						
Child / Family Therapy Room	1	175	0	0	-175	-100%
Family Care Manager Office	1	140	0	0	-140	-100%
Family Resource Closet	1	50	0	0	-50	-100%

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

ARCHITECTURAL CONT.

	MCPS ED SPEC		EXISTING TWINBROOK		DELTA	
Other						
Toilet Room	1	50	0	0	-50	-100%
	AREA SUBTOTAL	**915**	AREA SUBTOTAL	**0**	**-915**	**-100%**
ADD ALTERNATE 2: COMMUNITY GYMNASIUM	ED-SPEC		EXISTING	INCLUDED		
Additional area for gymnasium	1	2,600	0	0		0%
	AREA SUBTOTAL	**2,600**	AREA SUBTOTAL	**0**	**0**	**0%**
NET AREA TOTAL (WITHOUT ADD ALT)		**53,812**		**53,978**	**-1,321**	**-2%**
NET AREA TOTAL (WITH ADD ALTS)		**57,327**		**0**	**0**	**0%**

** Emergency Command Center is not required for any school under 100,000 SF

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

STRUCTURAL SYSTEMS

Existing Conditions Survey

The condition survey was conducted in accordance with the preliminary assessment requirements outlined in the American Society of Civil Engineers' *Guideline for Structural Condition Assessment of Existing Buildings*. A cursory visual inspection of the existing building was performed, without the use of testing or destructive investigation methods. Where available, maintenance personnel were consulted regarding any known structural concerns within the facility. Existing structural and architectural drawings were reviewed and used to verify the visible structural components. The purpose of the assessment was to evaluate the building's compliance with engineering standards for serviceability and life safety, as defined by the International Building Code.

Each area of the school was visually inspected for signs of structural distress affecting floors, walls, ceilings, and roof structures above the ceiling. Indicators of distress included cracking in walls and floors—particularly those exhibiting differential movement—sloping floors, and walls that appeared out of plumb. These conditions may suggest foundation settlement or underlying soil and drainage issues.

Roof areas were examined for visible water stains, which may indicate current or historical leaks. Water infiltration into the building envelope poses risks such as corrosion of steel elements or deterioration of wood members. Additionally, the assessment included identifying any significant deflection in elevated floor or roof structures beyond expected limits, which could signal structural overload, damage, or design deficiencies. Observations of roof and elevated floor structures were generally limited to one or two accessible areas per room with a drop ceiling. The survey also included a review for any structural modifications or deviations from the original construction documents.

Twinbrook Elementary School was built in 1951 and has had 7 additions added to the existing school (1952, 1955, 1957, 1959, 1960, 1971 and 1985). All the construction documents are available for the various sections of the school. The school also had mechanical renovation in 2020. The school is mostly a one-story structure. The only area that is two stories is the furthest north section built in 1959 parallel to Ardennes Avenue. The gym and 1955 section of the building are higher than the main level of the school and have some ramps and stairs to make the connection.

ADTEK visually assessed the structure on June 6, 2025. The structural condition of the school is generally in good condition; however, there are a few minor issues which should be addressed. Even though the structure has performed well up to this point, it does not meet current codes and might not be able to withstand a large wind or seismic event without some damage.

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

STRUCTURAL SYSTEMS CONT.

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

STRUCTURAL SYSTEMS CONT.

Existing Section of Building 1951

The original section of the building has two center corridor walls with classrooms and support spaces on each side. The corridor and exterior walls are masonry bearing walls on continuous concrete walls footings. The roof structure has built up wood beams consisting of two 2x12 and one 3x12 at 4'-6" on center spanning from exterior wall and cantilevering over the corridor wall to meet in the center of the corridor. The roof is sheathed with 2" nominal tongue and grooved plywood. The large classroom windows are framed with a series of wood posts between windows that support the wood roof beams. The floor is a 5 inch thick reinforced concrete slab on grade.

The condition of this section appears to be good with no damage observed in limited review of the roof structure and the floor structure. The interior and exterior walls all appeared to be in good condition with no observed cracks or any other damage.

First Addition – Classrooms and Multipurpose Room, Kitchen, and Library in 1952

The first addition is to the south of the existing school and consists of multipurpose room, kitchen, library, and classrooms. The classroom part of the addition has the same structure as the original section of the school. The roof structure over the larger spaces (multi-purpose and kindergarten rooms) consists of 5" x 18" glulam beams at 5'-7" on center supporting 2" thick tongue and groove sheathing. The roof structure bears on interior and exterior bearing walls. The large windows in these areas are supported by built-up c-channel columns (2-C4x5.4). In the smaller support areas adjacent to these spaces are framed with 2x sawn wood joists at 16 inches on center supporting the 2" thick tongue and groove sheathing. The condition of this section appears to be good with no damage observed in limited review of the roof structure and the floor structure. The interior and exterior walls all appeared to be in good condition with no observed cracks or any other damage.

1955 Addition – Classrooms and Support Spaces

The second addition is to the west of the school and floor elevation is two feet higher than the existing school. The addition is attached to the 1952 addition with a sloped floor in the connector section. This addition consists of classrooms and support spaces. The roof structure over the support spaces being only by 8'-8" at the low point of the sloped roof. The structure consists of steel columns on spread concrete column footings. The columns are all connected with steel beams forming 16' x 25' column bays. The roof structure is 7-1/2" corrugated metal decking spanning 25 feet to the steel beams.

The condition of this section appears to be good with no damage observed in limited review of the roof structure now and the floor structure. The interior and exterior walls all appeared to be in good condition with no observed cracks or any other damage.

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

STRUCTURAL SYSTEMS CONT.

1959 Addition - Classrooms Support Spaces

The third addition is to the north of the existing 1951 section of the school. This addition consists of a one story section aligned with the level of the existing school and a two story section with a level below the main level of the school. The one-story section is two kindergarten rooms on each side of the central corridor. The two-story section is perpendicular to the one story section and consists of classrooms on one side of a corridor with small support spaces on the other side of corridor.

The structure of the lower level is concrete columns on spread concrete column footings supporting concrete beams with one-way spanning concrete joists and concrete slab. The lower level floor is a concrete slab on grade. The roof structure of both sections are steel columns supporting steel beams with steel joist spanning between the beams. The joists support a roof deck of 2 inch gypsum poured on formboard that spans to bulb tees connected to the steel joists. The floor of the one story section of the school is a 5 inch thick reinforced structured slab on grade supported on masonry knees wall spaced at 13 feet on center. There does not appear to be any crawl space below this slab. It appears this is a structural slab to account for any settlement that might occur if the subgrade supporting the slab on grade.

The condition of this section appears to be good with no apparent damage; no roof leaks were observed in limited review of the existing roof structure. The exterior walls all appeared to be in good condition with no observed damage. The concrete structure appears in good condition with no observed damage or deflections to the existing concrete joists and beams.

1960 Additions - Classrooms Support Spaces

The 1960 addition was to add a new kitchen and multipurpose room to the existing school on the west of the 1952 addition. The new addition is a one-story with a masonry load bearing walls supporting steel joists clear spanning the high spaced multipurpose room and the low roof kitchen. The joists support a roof deck of 2 inch gypsum poured on formboard that spans to bulb tees connected to the steel joists. At the multi-purpose room, there is a roof top mechanical unit supported by steel beams over the kitchen there are some small roof top equipment supported on steel joist with miscellaneous steel angle framing out roof openings. The bearing walls are supported by continuous concrete wall footings, and the floor is a 5 inch thick reinforced concrete slab on grade.

The condition of this section appears to be good with no visible damage observed in limited review of the existing roof structure and concrete slab on grade. The exterior and interior walls all appeared to be in good condition with no observed damage.

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

STRUCTURAL SYSTEMS CONT.

1971 Additions – New Gymnasium and Support Spaces

This addition was in three sections with a new gymnasium and support spaces to the west of the 1952 section and to the north of the 1960 kitchen/multipurpose room. The gymnasium was separated from the school to create a courtyard area. On the south side it was connected to the school with a low roof connector and on the north side with support spaces infilling the space between the gymnasium and the 1952 and 1955 sections. There also was a new kitchen storage area added to the southwest corner of the kitchen and finally the new administrative addition between the 1955 classroom addition and the original section of the building. The new gymnasium addition is a tall story space with a masonry load bearing walls supporting steel joists clear spanning the gymnasium. The support spaces next the gymnasium are masonry bearing walls with wood sawn 2x12 wood joists at 16” on center supporting plywood sheathing. The kitchen storage addition is masonry bearing walls supporting 2x8 wood joists at 16 inches on center with plywood sheathing. The new administrative addition is a one-story masonry bearing walls supporting steel joists at 4’-6” on center with metal roof deck. The bearing walls are supported on continuous concrete wall footings with the floors being 5” thick reinforced concrete slab on grade.

The condition of this section appears to be good with no visible damage observed in limited review of the existing roof structure and concrete slab on grade. The exterior and interior masonry walls all appeared to be in good condition with no observed damage.

1985 Additions – New Main Entrance Vestibule/Canopy and Infilling Existing Courtyard

This addition was in two sections with a new entrance vestibule to the south of the corridor to the multipurpose room and kitchen. The addition was a masonry load bearing supporting steel beams that supported steel joists and aluminum skylight. The joists supported a galvanized metal deck. The entrance canopy was steel framed with steel columns supporting steel beams and steel joists with galvanized metal roof deck.

The second section was the infill of the existing courtyard between the gymnasium and current media center. The new roof over the existing courtyard was created by spanning new steel joist supported on the existing gymnasium walls and media center walls. In the existing media center wall, a large new opening was created with a new steel beam replacing the masonry bearing wall. The joist supported a new galvanized metal deck.

The condition of this section appears to be good with no visible damage observed in limited review of the existing roof structure and concrete slab on grade.

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

STRUCTURAL SYSTEMS CONT.

2020 Mechanical Renovation

In this mechanical renovation, new mechanical units were added to the roof of the school. In the original section along with the 1953 and 1959 sections of the school. The new roof top units were added over the corridor by spanning new steel beams below the roof bearing on the existing masonry walls. On these beams new posts were added to extend through the roof to support a new tube steel frame supporting the new roof top units on curbs. The steel frames were enclosed by the roofing membrane. In the 1955 section the new units were supported new steel framing above the existing 7-1/2" roof deck. This was accomplished by adding new posts above the existing columns extending through the roof to support new steel framing. The new steel framing supported the new units on new mechanical curbs. Over the media center support spaces new steel faming was added under the existing roof to provide support for the new mechanical unit curbs. Lastly, some existing units were just replaced on their existing steel support structure, some of which was exposed steel dunnage.

The condition of this all the new steel framing appeared to be in good condition since most of the new steel was covered by new roof membrane. The steel dunnage that was exposed all appeared to be in good condition. There was some minor corrosion that should be cleaned and painted with touch up epoxy paint.

Representation

ADTEK Engineers, Inc. has observed the structure described in this report in accordance with our understanding as to the nature and scope of the assignment. Our examination was made within the time limitations imposed following the generally accepted visual inspection standards; our examination did not include the testing of physical conditions that may be referred to in this report.

This report is intended to fairly present ADTEK Engineers, Inc.'s professional opinion of the condition of the area and component parts to which reference is made in the report, as of the date of the site observation, based on ADTEK's physical inspection and the information provided/available to us as to the age and the material that was apparently used, subject to qualifications expressed in this report. Unless otherwise stated, ADTEK has reported on only those items that we were able to visually inspect. It was not possible, nor was it feasible to remove major portions of the existing finished construction in order to expose concealed, and thus not apparent conditions for an internal detailed inspection.

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

MECHANICAL SYSTEMS

General

Twinbrook Elementary School was originally constructed in 1952, with classroom additions in 1953, 1956 and 1959, a kitchen/multipurpose room addition in 1961, and a gymnasium addition constructed in 1972. It appears all major HVAC equipment serving the building was installed during the 2020 HVAC systemic renovation. The following is a description of the existing mechanical systems.

HVAC Systems

The heating, ventilating, and air conditioning (HVAC) systems vary slightly throughout the school. A majority of these existing systems, excluding the gymnasium area, were installed in 2020 and appeared to be in good condition. No future PLAR work is scheduled. The following is a breakdown of the various spaces and their associated HVAC system:

- **Classroom Areas:** Classroom areas throughout the school are provided with space conditioning through a series heat recovery type air-cooled variable refrigerant flow (VRF) systems. The equipment was manufactured by Daikin, installed during the 2020 HVAC systemic renovation and appeared to be in good condition. Indoor VRF terminal units are comprised of 3'x3' ceiling cassette type units. Outdoor condensing units (Daikin Model REYQXATJA) are installed on platform type roof curbs with piping penetrating the roof through a roof curb with stainless steel cab and shroud. There are numerous holes through the roof-mounted refrigerant piping insulation. This insulation is expected to continue degrading over time if not replaced.

  Conditioned outdoor air for the classroom areas is provided through a series of rooftop dedicated outdoor air system (DOAS) units. DOAS units are provided with direct expansion (DX) cooling, gas-fired heating, a hot-gas reheat coil for humidity control, and an enthalpy wheel for pre-conditioning the outdoor air. Above-ceiling conditioned outdoor air ductwork and associated air devices provide tempered, dehumidified ventilation air to each classroom. Above-ceiling exhaust air ductwork and associated air devices remove excess airflow from each classroom. Manufactured by Daikin (Model DPS___AHMG2), the DOAS equipment is generally located on rooftop support curbs, was installed during the 2020 HVAC systemic renovation, and appeared to be in good condition.

- **Administration and Health Suite Areas:** The administration and health suite areas are provided with space conditioning through an air-cooled VRF system. Indoor VRF terminal units are comprised of ceiling-cassette type units. Manufactured by Daikin, this VRF equipment was installed during the 2020 HVAC systemic renovation, appeared to be in good condition, and is similar to the systems serving classroom areas. Ventilation for the administration and health suite areas is provided by a single DOAS unit (DOAS-1). This DOAS unit is similar in configuration as the classroom DOAS equipment described previously.

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

MECHANICAL SYSTEMS CONT.

- **Gymnasium Areas:** The gymnasium is provided with space conditioning and ventilation by two indoor air handling units, manufactured by Aaon (Model H3-CRB), and located in a mezzanine above the corridor adjacent to the gymnasium space. The air handling units are provided with direct expansion cooling. Heat is rejected through a split air-cooled condensing unit (Aaon Model CFA-050) installed on roof mounted steel dunnage and located adjacent to the mezzanine. Supply air is ducted from each of the air handling units to an indirectly fired, condensing type, natural gas furnace for heating. The indoor air handling units and gas furnaces are installed on miscellaneous steel supports within the mezzanine space with the gas furnaces located directly above the associated air handling unit. The supply air duct leaving each gas furnace is ducted through the roof of the mezzanine, across the gymnasium roof and down through a roof penetration to serve the gym space. This equipment was installed during the 2020 HVAC systemic renovation and appeared to be in good condition.

- **Media Center and Media Support Areas:** The media center and adjacent media support areas are provided with space conditioning through an air-cooled VRF system (VRF-4). Indoor VRF terminal units are comprised of ceiling-cassette type units. Manufactured by Diakin, this VRF equipment was installed during the 2020 HVAC systemic renovation, appeared to be in good condition, and is similar to the systems serving classroom areas. Ventilation for the administration and health suite areas is provided by a single DOAS unit (DOAS-4). This DOAS unit is similar in configuration as the classroom DOAS equipment described previously.

- **Multipurpose Room and Stage Areas:** Primary space conditioning and ventilation for the multi-purpose room and stage areas is accomplished through a packaged DX rooftop unit with gas-fired heating. Manufactured by Daikin (Model DPS016AHMG2), this rooftop unit is positioned above the Multipurpose Room, was installed during the 2020 HVAC systemic renovation, and appeared to be in good condition.

- **Kitchen Area:** A single ceiling cassette type VRF terminal unit, connected to VRF system 8, provides space conditioning for the kitchen area. A cooking hood is positioned above the kitchen's convection oven and is ducted to a dedicated rooftop exhaust fan. The kitchen exhaust fan appears to have been installed during the Kitchen Renovation in 2003. The kitchen VRF terminal unit was installed during the 2020 HVAC systemic renovation and appeared to be in good condition.

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

MECHANICAL SYSTEMS CONT.

- **Building Exhaust Systems:** The majority of building exhaust is accomplished through the DOAS equipment's associated internal exhaust fans. Select roof mounted exhaust fans remain to serve mechanical spaces, exterior storage, and other spaces where returning exhaust air to the DOAS units was undesirable or not feasible. With the exception of the kitchen hood exhaust fan, the fans were installed during the 2020 HVAC systemic renovation and appeared to be in good condition.

Automatic Temperature Control (ATC) / Energy Management Systems (EMS)
The school's existing ATC/EMS system is comprised of a Reliable Controls direct digital control (DDC) system with BACnet IP protocol. The system consists of a Reliable Controls Mach ProWebCom Building controller located within Boiler Room 201 and multiple Mach ProPoint Expansion Modules located in mechanical spaces throughout the school.

PLUMBING

Domestic Cold Water And Associated Domestic Water Piping
Twinbrook Elementary School is served from the county water system through a 3-inch domestic water service, entering the building within Boiler Room 201. The domestic water service is provided with a shut-off valve where the piping enters the school. Currently, no backflow preventer is provided on the domestic water service. It is anticipated that limited surplus capacity exists within the existing 3-inch domestic cold water main.

The school's domestic water piping systems (including cold water, hot water, and hot water return piping) vary in age, with this piping installed either during the school's 1952 original construction or during the additions that occurred between 1953 and 1972. These piping systems and associated piping components (valves, fittings, and piping insulation) have exceeded their useful service life and are recommended for replacement during any planned building renovations.

Domestic Hot Water Equipment
Domestic hot water for general building areas is generated by three water heaters that are located within boiler room areas throughout the school. Thermostatic mixing valves are not installed on any of the domestic hot water systems.

The water heater located in Boiler Room 201 is manufactured by State Industries (Model GS675XRRS 300), provided with a 75.1 MBH gas burner, capable of 72.82 gallons per hour recovery, and complete with an integral 74-gallon hot water storage tank. This equipment was

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

PLUMBING SYSTEMS CONT.

manufactured in 2011 and appeared to be in fair condition. A circulation pump maintains continuous hot water flow throughout the building. It is anticipated that minimal surplus capacity exists for the existing hot water heater.

The water heater located in Boiler Room 175 is manufactured by State Industries (Model GS675XRRS 300), provided with a 75.1 MBH gas burner, capable of 72.82 gallons per hour recovery, and complete with an integral 74-gallon hot water storage tank. This equipment was manufactured in 2010 and appeared to be in fair condition. A circulation pump maintains continuous hot water flow throughout the building. It is anticipated that minimal surplus capacity exists for the existing hot water heater.

The water heater located in Boiler Room B11 is manufactured by State Industries (Model GS6-50-BRT 400), provided with a 40 MBH gas burner, capable of 41 gallons per hour recovery, and complete with an integral 50-gallon hot water storage tank. This equipment was manufactured in 2024 and appeared to be in good condition. A circulation pump maintains continuous hot water flow throughout the building. It is anticipated that minimal surplus capacity exists for the existing hot water heater.

Domestic hot water for kitchen areas is generated by a dedicated water heater located within the kitchen, adjacent to the three-compartment sink. A thermostatic mixing valve and recirculation pump is not installed on this system. The water heater is manufactured by State Industries (Model ES6-20-SOMS 200), provided with a 1650 Watt electric resistance heating element, and an integral 17-gallon hot water storage tank. This equipment was manufactured in 2024 and appeared to be in good condition. It is anticipated that minimal surplus capacity exists for the existing hot water heater.

Natural Gas Service

The 2-inch incoming natural gas service and associated rotary meter (Washington Gas Meter No. Z58872) is located outdoors and positioned adjacent to Boiler Room 201. The gas service is regulated to a 2-psi delivery pressure. This gas service supplies MEP equipment throughout the school, including the existing gym air handling units, multipurpose room packaged rooftop unit, water heaters, DOAS units, and the emergency generator.

Sanitary Waste, Vent, and Storm Water Piping

Like the domestic water piping systems, a majority of the existing above- and below-grade sanitary waste, vent, and storm water piping systems were installed either during the school's 1952 original construction or during the additions that occurred between 1953 and 1972. These piping systems have exceeded their useful service life and are recommended for replacement during any planned building renovations.

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

PLUMBING SYSTEMS CONT.

Plumbing Fixtures

Plumbing fixtures appeared to generally be in good to fair condition. The water closets are floor-mounted, urinals are wall-hung, and the lavatories are individual wall-hung type.

Condensate Drain Piping

Condensate drain piping from HVAC terminal units discharges to grade at multiple locations through the building's exterior walls. This can lead to freezing conditions on sidewalk surfaces during periods of cold outdoor air temperatures. Revisions to condensate drain piping to discharge to the buildings below grade storm water system through an indirect connection are recommended under any planned revisions.

No future PLAR work is scheduled.

FIRE PROTECTION SYSTEMS

Sprinkler System

Twinbrook Elementary School is currently provided with limited sprinkler coverage that extends from the school's domestic water piping system. Sprinkler zone valve assemblies are located above corridor ceilings. Sprinkler piping and associated sprinkler heads extend from these zone valve assemblies and serve storage areas throughout the school. The addition of sprinkler coverage throughout the entire school is recommended under any planned building renovations.

Fire Detection and Alarm System

The fire detection and alarm system, installed in 2010, is by Fire-Lite Alarms / Honeywell with a fire alarm control panel (FACP) (model MS-9600LS), voice evacuation panel (model ACC-25/50), and three notification appliance circuit (NAC) panels are located in Boiler Room 175. A fire alarm annunciator panel (FAAP) is located in the main entrance vestibule. Fire alarm devices include manual pull stations, smoke detectors, and audible and visual notification devices.

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

ELECTRICAL SYSTEMS

General

Twinbrook Elementary School was originally constructed in 1951 with building additions in 1953, 1956, 1959, 1961, 1971, and 1986. The electrical equipment within Twinbrook Elementary School varies in age with most of the distribution equipment having been installed either in 1951 during the original construction of the school or during the subsequent additions from 1953 to 1961, apart from electrical equipment upgraded during the school's addition in 1971, and electrical equipment added in 2020 for the HVAC system upgrade. The electrical equipment from the 2020 HVAC system upgrades is in fair to good condition. Electrical equipment installed prior to the 2020 HVAC system upgrades that are still being used is obsolete and spare parts for Federal Pacific and older Square D panelboards can no longer be obtained.

The following is a detailed description of the existing electrical, communications, and electronic safety and security systems.

Power Distribution

The school's electrical service comes from the east side of the school from an underground Pepco primary utility line along Wainwright Avenue. A primary utility feeder is routed underground to the primary section of a Pepco utility transformer located in an underground transformer vault in front of the former main entrance of the school. Secondary service feeders then run underground from the secondary section of the Pepco utility transformer to the CT cabinet section in the main switchboard located in the main boiler room.

The main boiler room, which doubles as the main electrical room, is located on the Main Level of the school and contains the main switchboard MDP-1, Distribution Panel MDP-2, Panel R, Panel BR, Panel EM (life safety panel), automatic transfer switch, utility meter, and two enclosed circuit breakers.

The main switchboard MDP-1 is by Cutler Hammer, type CVB, circa 1971 per Alterations & Addition to Twinbrook Elementary School Existing drawings dated 1971, rated at 120/208 volts, 3-phase, 4-wire, with 1600-ampere bus. The main switchboard consists of two sections. From left to right, the first section is a C/T cabinet. The second section houses the main breaker section on top with a 1600-ampere rated main circuit breaker as the main service disconnect and a distribution section below with the following feeder circuit breakers: Panel M (500), Panel S (200A), Panel G (200A), Panel D (200A), Panel B (200A), spare breaker (200), A/C IMC (150A), A/C Lounge (100A), Panel BR (100A), Panel F (100A), Panel A (100A), Panel O (100A), an unknown existing load (100A), spare breaker (100A), Panel H (100A), spare breaker (100A), and the Automatic Transfer Switch (125A). A 100A branch panel is mounted adjacent to the main distribution section serving additional branch circuits. The switchboard is 54-years old and is obsolete. New parts can no longer be obtained for modifications to the main switchboard.

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

ELECTRICAL SYSTEMS CONT.

Distribution panelboards are found in the school as follows:

- Distribution Panel MDP-2: Westinghouse, Type CDP, 1200A MCB, surface mounted in Main Boiler Room next to the automatic transfer switch.
- Distribution Panel M: Federal Pacific, Type GMQB (obsolete), 600A MLO, recess mounted in Multi-Purpose Storage Room.
- Distribution Panel M1A: Siemens, Type P3, 600A MCB, surface mounted in Multi-Purpose Storage Room.
- Distribution Panel M1B: Siemens, Type P4, 600A MCB, surface mounted in Gymnasium Storage Room.
- Distribution Panel M1C: Siemens, Type P5, 800A MCB, surface mounted in Storage Room 228.

120/208-volt, 3-phase, 4-wire branch circuit panelboards are located throughout the school as follows:

- Panel A: Square D, 100A MLO, obsolete, 42-pole, recess mounted in the corridor.
- Panel B: Square D, 200A MLO, obsolete, 42-pole, recess mounted in the corridor.
- Panel BR: Westinghouse, Type W10B, 225A MLO, 42-pole, surface mounted in Main Boiler Room.
- Panel BR3: General Electric, Powermark Plus Load Center, 12-pole, surface mounted in Lower Level Boiler Room.
- Panel C: Square D, Type NQ, 100A MLO, 42-pole, recess mounted in the corridor.
- Panel D: Square D, Type MLN (obsolete), 200A MCB, 42-pole, recess mounted in the corridor.
- Panel EM: Siemens, Type S1, 125A MLO, 42-pole, surface mounted in Main Boiler Room.
- Panel F: Cutler Hammer, Type CHB, 125A MLO, 30-pole, surface mounted in Building Services across from the Main Boiler Room.
- Panel G: Cutler Hammer, 60A MLO, 16-pole, surface mounted in Gymnasium Storage Room.
- Panel GP: Cutler Hammer, Type CHB, 125A MLO, 24-pole, surface mounted in Gymnasium Storage Room.
- Panel H: Cutler Hammer, Type CHB, 100A MLO, 30-pole, surface mounted in Storage Room 167.
- Panel K: Westinghouse, Type W10B, 100A MLO, 30-pole, recess mounted in the kitchen.
- Panel L: Unknown, was unable to survey panel.
- Media Center Load Center: Square D, Type QO, 12-pole, surface mounted in Control Room 156.
- Panel MA: Cutler Hammer, Type CHB, 100A MCB, 30-pole, surface mounted in Multi-Purpose Storage Room.
- Panel MB: Cutler Hammer, 100A MCB, 16-pole, surface mounted in Multi-Purpose Storage Room.
- Panel R: Westinghouse, Type W10B, 225A MLO, 42-pole, surface mounted in Main Boiler Room.
- Panel S: Federal Pacific, 200A MLO, obsolete, 42-pole, recessed mounted in Storage Room 228.
- Panel T: Federal Pacific, 225A MLO, obsolete, 42-pole, surface mounted in the Lower Level Boiler Room.

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

ELECTRICAL SYSTEMS CONT.

The power receptacles located in classrooms were installed anywhere from 1951 to1971 depending on what section of the school the classroom is located. The receptacles are black in color with beige plastic device covers / wall plates. It was noted that several of the outlets located in the lower level classrooms are inoperable due to flooding, causing water infiltration in the walls.

Generator Power

There is a natural-gas outdoor generator by Kohler Power Systems located just outside the main boiler room, rated at 35 kW, 120/208 volts, 3 phase, 4-wire installed in 2000. The generator serves an automatic transfer switch (ATS) located inside the main boiler room next to Panel EM. The automatic transfer switch is also by Kohler Power Systems. The ATS serves Panel EM located adjacent to the ATS. The main switchboard serves the “normal” line side of the ATS.

Lighting and Lighting Controls

Fluorescent lighting is primarily used throughout the school, except for a couple of 2’x4’ LED flat panels located in the corridor of the main office. 2’x4’ fluorescent lighting fixtures are used in the classrooms, corridors, main office area, multi-purpose, kitchen, and media center. Back of house spaces such as the boiler rooms, storage rooms, and building services spaces utilize either fluorescent 1’x4’ industrial pendants or fluorescent strip lighting fixtures. The restrooms use surface mounted fluorescent 1’x4’ lighting fixtures. The gymnasium uses high-bay metal halide lighting fixtures.

Classrooms use line-voltage toggle switches zoned to allow light levels to be reduced in the space by turning off certain lighting fixtures completely. There are no occupancy sensors or dimming controls in any of the classrooms.

Exterior lighting consists of pole-mounted lighting fixtures, building-mounted wall packs with make-shift shielding, and canopy lighting fixtures utilizing high-intensity discharge lamps.

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

COMMUNICATION SYSTEMS

Data, Voice, and Video

The school uses Category 5/5E data cabling. Each typical classroom has both student and teacher outlets. The main distribution frame (MDF) is in the special language room off the main entrance corridor across from the main office, consisting of a main file server cabinet by Dell, and data rack. The intermediate distribution frame (IDF) is in a storage room almost above the lower level boiler room in Storage 228 with an additional data rack. Data racks have rack-mounted data fiber-optic distribution enclosures, electronic hardware by Cisco, data patch panels, and uninterruptible power supplies by APC. Category 5/5E data cables are blue green and yellow in color. Data wireless access points (WAPs) are found throughout. There are 110-connecting blocks behind the data racks for voice cables.

Intercommunications (Public Address)

The main console intercom cabinet is in the main office area. Intercom administrative phones are used in the main office. Classrooms have ceiling speakers and call switches. Wall mounted speakers are found in the media center support spaces. Horn speakers are found on the building exterior.

ELECTRONIC SAFETY AND SECURITY SYSTEMS

Access Control

Exterior card readers by HID are found at selected doors.

Intrusion Detection

The intrusion detection system is by Napco. Intrusion detection system devices consist of keypads by Gemini and motion detectors.

Video Surveillance

IP-based video surveillance cameras are found in corridors and building exterior.

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APPENDIX D - EXISTING PHOTOS

Main Entry

Gym Entrance

Bus Loop

Play Fields / Playgrounds

APPENDIX D - EXISTING PHOTOS

Existing VRF System

Existing Condensing Unit

Existing Main Distribution Panel MDP-1

Existing ATC (automatic temperature control)

APPENDIX D - EXISTING PHOTOS

Intercom Main Console

Existing Fire Detection and Alarm Systems

Exterior Canopy Lighting

Exterior Card Reader and Video Surveillance Cameras

APPENDIX D - EXISTING PHOTOS

Typical Corridor

Existing Ramp

Ramp Access to a Classroom

Gym

APPENDIX D - EXISTING PHOTOS

Typical Classroom

Kitchen

Media Center / Library

Multi-Purpose Room

APPENDIX D - EXISTING PHOTOS

Exterior Gym Wall with Steel Plates and Rods

Glulam Wood Beams Over Current Pre-K

Joists and Metal Deck on CMU Walls

Steel Joists Bracing in CMU Walls - Gymnasium

APPENDIX D - EXISTING PHOTOS

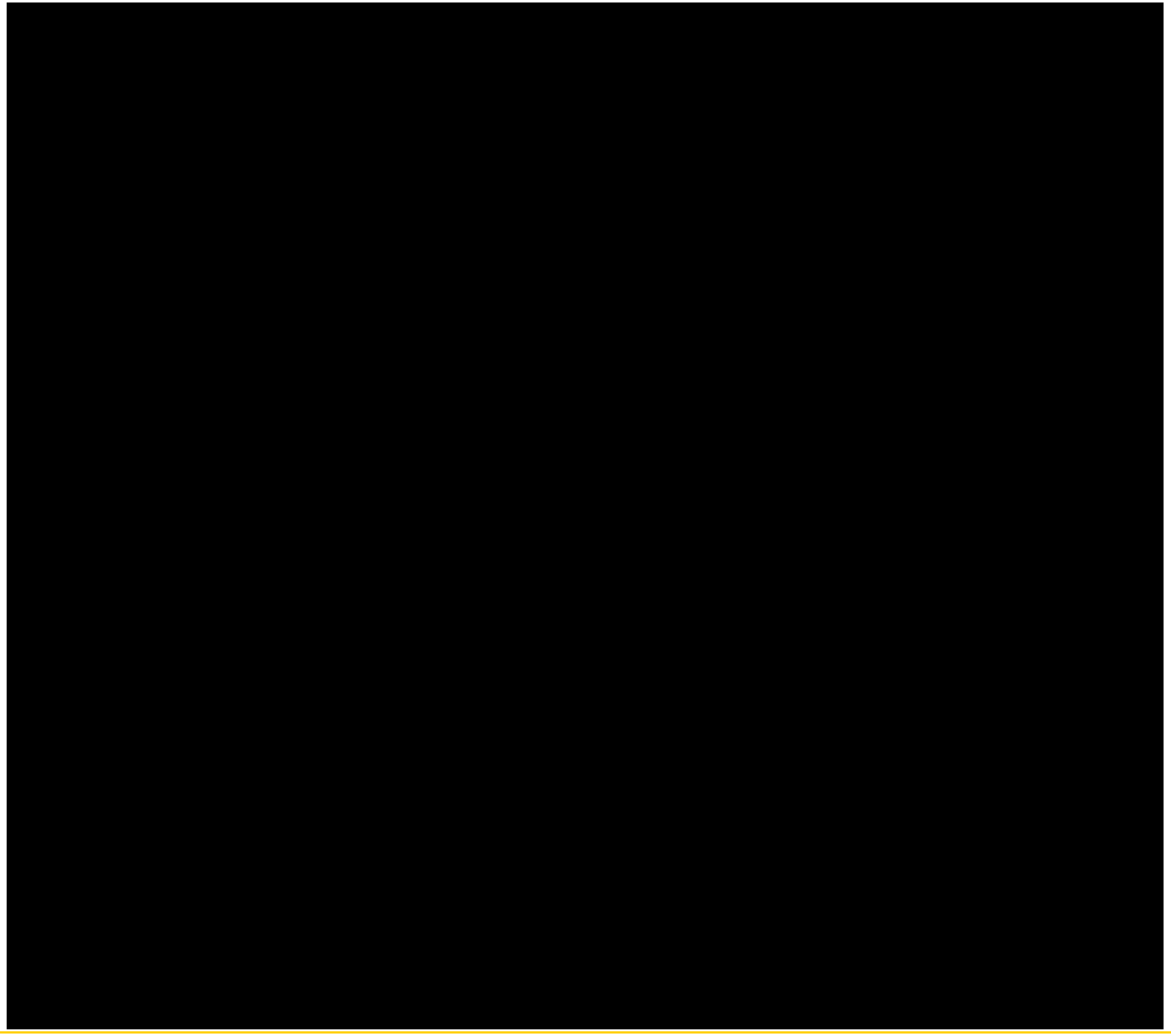
7” Metal Deck - 1955

Built-up Wood Beam and T&G Roof Sheathing - 1955

Connection of Cantilevered Beams at Corridor - 1952

Existing Concrete Pan Joist Floor - 1959

APPENDIX E - IAC FEASIBILITY STUDY COST ESTIMATE



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