ELECTRONICALLY TRANSMITTED

Board Action Summary

An Outline of the Chief Executive Officer's Recommendation to the Board of Education

New Program: Yes ☒ No ☐ **Modified Program: Yes ☐ No ☒**

Subject: Approval of the Design Option Based on the Woodmore Elementary School Feasibility Study

Abstract and Highlights:

The Board of Education of Prince George's County accepts the recommendation of the Interim Chief Executive Officer and approves the Woodmore Elementary School Feasibility Study. The Department of Capital Programs (DCP) conducts an objective evaluation for planning of the existing facility considered for school improvements regarding the facility condition, the anticipated educational program, proposed enrollment and other technical site constraints that must be considered prior to making a recommendation on the conceptual design option. VMDO Architects was hired to prepare a Feasibility Study and to conduct a Planning Committee engagement process to establish criteria as well as stakeholder input. The content and format are as requested by the rules, regulations, and procedures of the State of Maryland Interagency Committee on School Construction (IAC)/Public School Construction Program (PSCP), Section 203-Feasibility Studies.

The Woodmore Elementary School Feasibility Study Planning Committee (as outlined in the Planning Committee process) was comprised of stakeholders from both the Woodmore and Fairwood communities and participated in the development of four options: (Option 1) renovate the existing building and construct an addition; (Option 2A) demolish the existing building and construct a replacement school on the current site (requires swing space for students during construction); (Option 2B) construct a replacement school on the current site and retain use of the existing building for the duration of construction (existing building would be demolished following completion of the new school); and (Option 3) construct a replacement school at the Fairwood school site (optional demolition of existing building). The Committee has reviewed the report and acknowledged Option 3, replacement of Woodmore Elementary school at the Fairwood school site, as the scenario with the highest score. DCP staff concurs that Option 3 is preferred and will best deliver the educational program defined by the approved prototypical educational specifications within the constraints of the budget, timeline and existing conditions. Acceptance of this recommendation does not constitute a commitment to advance this project ahead of other schools that are deemed by having a lower, weighted Facility Condition Index (wFCI), to have greater need. Rather, the study provides guidance on how to implement a future replacement of Woodmore Elementary School.

Explanation:

Woodmore Elementary School's original structure was built in 1964 and is located at 12500 Woodmore Road in Mitchellville, MD on 21 acres. There were major additions to the facility in 1968 and 1995, for a combined total facility size of 56,101 square feet. The current State Rated Capacity (SRC) for the facility is 576. There were several capital improvements to the building including a roof replacement in 1994, electrical wiring in 1998, a boiler replacement in 2008, and installation of low flow toilets and a central A/C system in the administration spaces. The building has also received isolated ADA improvements.

In compliance with the State of Maryland IAC/PSCP guidelines, a feasibility study must be conducted whenever more than 50% of the existing structure is proposed to be demolished. The Feasibility Study Report for Woodmore Elementary School has been finalized and attached for Board of Education approval of the recommended conceptual design option. After Board approval, the study will be submitted to the State for review of the program space summary, the conceptual design intent and the conformity to the State guidelines. For the purpose of this study, a 560 SRC elementary school program was used to develop the proposed options based on the Board of Education approved prototypical educational specifications. A hypothetical space summary was also considered to determine the additional square footage that would be required to add 6th through 8th grade students, if a kindergarten through 8th grade (K-8) configuration was adopted for the school at the Fairwood site. It should be noted that a K-8 prototypical educational specification has not been approved by the Board of Education. The Program Summary Draft section within the report compares the prototypical program space summary with the existing spaces to determine the total building area for a 560 SRC school facility.

Subject: Approval of the Design Option Based on the Woodmore Elementary School Feasibility Study

The Feasibility Study also analyzed the conditions of the existing building components to determine deficiencies and to provide recommendations for immediate and future corrective actions. The proposed conceptual design options assume that all deficiencies will either get replaced, repaired, or restored to original like new condition. The following conceptual design options were developed as the best options in each category to meet the overarching program goals and to satisfy the building/site improvement categories:

- Option 1 – Renovate the existing Woodmore ES building and construct an addition to increase capacity.
- Option 2A – Demolish the existing building and construct a replacement school on the current site.
- Option 2B – Replace existing school on the current site, maintaining the operation of the existing school.
- Option 3 – Replace Woodmore Elementary School at the new Fairwood school site.

In order to establish an objective method to compare and contrast the options, the Planning Committee was asked to generate a list of pros and cons for each of the building/site improvement categories and to rank the suitability of category relative to each of the design options with the technical assistance from the Architect. These factors were then prioritized and developed into the score card that was used to evaluate the design options. A detailed explanation of this process is outlined in the Project Process and Goals section of the Feasibility Study Report.

Of the four conceptual design options developed, Option 3 (construction of a replacement school at the Fairwood school site) received the highest ranking. The Woodmore Elementary School Feasibility Study Planning Committee reviewed the final report and acknowledged Option 3 as having the highest score. The Department of Capital Programs evaluated the conclusion of this report with consideration of the geographical location relating to adjacent schools, the potential travel durations of the students that this school will serve, and community connections. The staff concurs with the Planning Committee's recommendation that Option 3, based on its ranking as the conceptual design, most closely meets the established objective criteria accepted by the Planning Committee.

Prince George's County Public Schools (PGCPS) leadership recommends that Woodmore Elementary School be replaced at the Fairwood school site, as delineated in Option 3, in the order in which it is ranked among all other school buildings.

Budget Implications: None at present; possible implications for future Capital Improvement Plan.

Staffing Implications: None

School(s) Affected: Woodmore Elementary School

Preparation Date: ***September 7, 2018***

Person Preparing: ***Shawn Matlock***

Board Agenda Introduction Date (Consent): ***October 23, 2018***

Board Action Date (Consent): ***October 23, 2018***

Endorsed: _____
Associate Superintendent of Supporting Services

Endorsed: _____
Chief Financial Officer

Endorsed: _____
Chief Operating Officer

Approved: _____
Interim Chief Executive Officer

PRINCE GEORGE'S COUNTY PUBLIC SCHOOLS
Upper Marlboro, Maryland 20772

RESOLUTION

WHEREAS, PGCPS conducted a Feasibility Study for Woodmore Elementary School that included four concepts: (Option 1) renovate the existing building and construct an addition; (Option 2A) demolish the existing building and construct a replacement school on the current site (requires swing space for students during construction); (Option 2B) construct a replacement school on the current site and retain use of the existing building for the duration of construction (existing building would be demolished following completion of the new school); and (Option 3) construct a replacement school at the Fairwood school site (optional demolition of existing building); and

WHEREAS, a Feasibility Study is required prior to State funding by the State of Maryland whenever a Local Education Agency (LEA) considers replacement or abandonment of an existing school rather than renovate 50% or more of the building and/or add to it as per Section 203 of the Interagency Committee on School Construction (IAC) Public School Construction Program (PSCP) Administrative Procedures Guide; and

WHEREAS, PGCPS has contracted with VMDO Architects to undertake a detailed analysis of the existing facility and the development of alternative design concepts; and

WHEREAS, the Woodmore Elementary School Feasibility Planning Committee met from March 1, 2018 through April 26, 2018, and participated in the Feasibility Study; and

WHEREAS, at the April 26, 2018 meeting, the Woodmore Elementary School Feasibility Advisory Committee accepted the findings of the study, and acknowledged Option 3 as the scenario that received the highest score among the four options presented; and

WHEREAS, staff recommends Option 3 as the preferred conceptual design option; and

WHEREAS, PGCPS leadership has reviewed the study and carefully considered the input from the Woodmore Elementary School Feasibility Planning Committee and concurs with the recommendation;

THEREFORE, BE IT RESOLVED, that the Board of Education of Prince George's County accepts the recommendation of the Interim Chief Executive Officer and approves Option 3, replacement of the existing building at the Fairwood school site, selected for the future modernization of Woodmore Elementary School, pending future approval of funding by the Prince George's County Council for planning, design and construction funds in a future Capital Improvement Program.

Submitted by:	Mr. Shawn Matlock
Agenda Date:	October 23, 2018
Discussion:	
First Reader:	
Consent:	October 23, 2018
Emergency:	
Amended:	
Deferred:	
Tabled:	
Approved:	

Woodmore Elementary School

Feasibility Study Report, May 2018

VMDO

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EXECUTIVE SUMMARY

Executive Summary

BACKGROUND

Prince George's County Public Schools Office of Capital Programs requested a detailed feasibility study for the Woodmore Elementary School to explore options for modernization, including the potential to renovate or replace the existing school facility on the existing site and consider the potential uses of an alternative site for a replacement school in the nearby Fairwood neighborhood. VMDO Architects and design partners Waldon Studio Architects, together with PGCPS staff and the Planning Committee, worked to prioritize a set of needs and goals to envision possibilities for a new school in Prince George's County. From there, the group developed a matrix of rating criteria categories with associated pros and cons to rank design concepts developed by the design team. Options were evaluated on the basis of how well each addressed important aspects of the rating criteria, cost-effectiveness, and goals established by the committee. Final recommendations and a preferred option were developed based on the outcomes of the objective rankings as well as strong consideration of important subjective criteria relating to the common goals and aspirations brought forth by the committee.

OBJECTIVE

The objective of the study was to assess and evaluate the pros and cons of the design concepts and provide an overall recommended option to the PGCPS Board of Education. The development and evaluation of each option served to answer the following: 1) Is it possible? 2) How much does it cost? 3) Which is preferred? To reach informed and meaningful recommendations, the following benchmarks were established and met:

- Develop a Vision and Mission of the school and community
- Determine the physical condition and education adequacy of the existing facility
- Establish goals, parameters, considerations and criteria for the new facility
- Develop and evaluate conceptual scenarios based on programmatic standards
- Provide recommendations and an overall preferred scheme

PROGRAMMATIC NEEDS

The education program used for the study was based on the PGCPS Prototype Elementary School Educational Specifications document adopted in February 2015, revised to accommodate enrollment projections for the existing Woodmore ES and the proposed Fairwood ES. The capacity and potential student enrollment were identified from the geographical boundaries for the existing school and the proposed new school locations (see Appendix A). For the purposes of this study and to provide an apples to apples approach, each design option was explored using equivalent enrollment numbers, program, and overall building area. This allowed other variable aspects of each scheme, i.e., building footprint, site location and orientation, safety and security, community connectivity, access and approach, etc., to be compared and contrasted.

PROCESS

The overall process of the study included 3 primary phases of development:

Discovery Phase

The initial assessment process began with a walk-through of the existing Woodmore facility with staff, followed by a period of evaluation, assessment, and investigation which served to lay the groundwork for successful project outcomes. The design and engineering team conducted a comprehensive review of the existing facility to determine the viability of existing conditions including structure, roof, interior and exterior finishes, and building systems including the existing heating, cooling, and ventilation equipment, and the electrical, plumbing, sewer, and water systems. A thorough evaluation relative to updated codes and regulations was conducted and recommendations made, as well as site inventories to address zoning, site restrictions, easements, circulation, landscape and site design, parking capacity, and site utilities at each site. Additionally, a review of the existing Woodmore Elementary School programs and spaces was documented to understand educational adequacy and to determine future program needs.

Community Input

Concurrent with the site evaluation and assessment, the design team facilitated a community engagement process with a school-based Planning Committee consisting of a diverse group of school administration and staff, community and parents, County Council and Education Board representatives, State Delegates and Senators, and stakeholders from both the Woodmore and Fairwood communities. The public engagement process began with a kick-off meeting led by the design team to present the existing conditions analysis of the facility and sites, hear concerns, fears, and hopes of the committee members, and establish parameters for the project. Following the kick-off, the design team facilitated a series of participatory working meetings with the Planning Committee to develop the goals and content for the study.

Findings + Final Recommendations

The design team led group members through goal-setting and priorities exercises to understand and anticipate needs and institutional goals, then translated these findings into actionable recommendations and planning concepts for the proposed sites. Over the course of the process, there were ample opportunities for stakeholders to provide input on and buy-in to findings, recommendations, and solutions that supported collective goals. The work sessions resulted in a shared vision for the future school, an enriched understanding of the benefits and deficiencies of the each design concept and site development, and a rating criteria score card that reflected the key inputs of stakeholders. These activities were planned to enable PGCPS staff to select a preferred scheme and make final recommendations to the Board of Education.

VISION

Through the Planning Committee work sessions, common goals were prioritized and established under four main headings considered most important to the group:

LEARNING

- Meet children where they are and give them what they need
- Provide a learning environment that sparks self-discovery, innovation and creativity
- Deliver quality education
- Be engaging, collaborative, and forward thinking
- Emphasize Universal Design for Learning (UDL) and make it accessible to all levels of need
- Empower students to become life-long learners
- Promote active health and wellness learning

ACTIVITY + HEALTH

- Be environmentally friendly, efficient and sustainable, connecting to the outdoors
- Ensure a safe, clean, and healthy environment
- Promote active health and wellness learning
- Have spaces that allow movement for active learning

COMMUNITY

- Be an anchor of the community's identity
- Be a "Community Hub"
- Provide a place where community can gather but serves kids first

SAFETY + SECURITY

- Ensure a safe, clean, and healthy environment
- Be Safe + Secure

These goals were combined and summarized to formulate a vision statement that reflects the committee's common goals and aspirations:

To meet the needs of students, educators, & the community, an Elementary School in Prince George's County must:

- Provide a learning environment that supports quality education for the whole child.

- Promote health and wellness through active learning and sustainable practices.

- Serve the community and reflect its identity.

- Ensure a physically and emotionally safe and secure environment.

02

PROJECT TEAM

Project Team

ARCHITECTURE

VMDO Architects is a firm of architects with an unwavering commitment to designing environments that shape the way people live, learn, work, and play, and at their best, uplift the human spirit. VMDO is dedicated to helping institutions and communities envision pivotal projects that translate into meaningful buildings of lasting value. In particular, VMDO recognizes the impact that thoughtful and imaginative design can have on education.

Waldon Studio Architects is a full service planning, architecture and interior design firm specializing in providing high quality design for K12 & higher education, community, sports and recreation, worship and performing arts, and interiors. WSA was founded to serve the Community and believe in using our gifts to create for the greater good. We embrace the individualism of our clients, because your building should reflect your vision and culture. We believe communities are strengthened by dedicated service and we seek opportunities to serve & volunteer in our neighborhoods. We strive for excellence to better improve the work, play, learning, and worship communities around us through great planning, design, active listening, and a solid process

CIVIL ENGINEERING

An MDOT certified small business, **ADTEK Engineers** specializes in offering broad-spectrum civil engineering, structural base building design, and specialty engineering services. ADTEK's mission is to provide high quality, personalized design services and to satisfy clients' needs by leveraging highly skilled staff, strong relationships, and cost-effective solutions in an atmosphere that fosters collaboration and creativity. We embrace the application of sustainable design concepts. We understand the environmental impact of our design and implement conservation-oriented technologies and materials.

STRUCTURAL ENGINEERING

Simpson Gumpertz & Heger (SGH) is a national engineering firm that designs, investigates, and rehabilitates constructed works. Our goals are simple: earn the lasting trust of our clients, gain the request of our most capable peers, and further the standards of practice in all areas of our profession. Our staff members are led by principals and project managers who average twenty years of employment with SGH. These leaders provide quality of service and team continuity to support our long-term client relationships. With seven offices across the nation, our staff has the dedication, knowledge and local expertise to tackle any project.

MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION

CMTA is a multi-specialty firm that specializes in cost effective, energy efficient, high performance buildings. Unlike other firms, we are true partners who are vested in the long-term success of our buildings, which is measured by exceeding the expectations of building owners and managers, and maintaining the health and comfort of the occupants. CMTA is the national leader in Zero Energy Design with one million square feet of zero energy projects.

VMDO

WALDONSTUDIO ARCHITECTS

ADTEK

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

CMTA

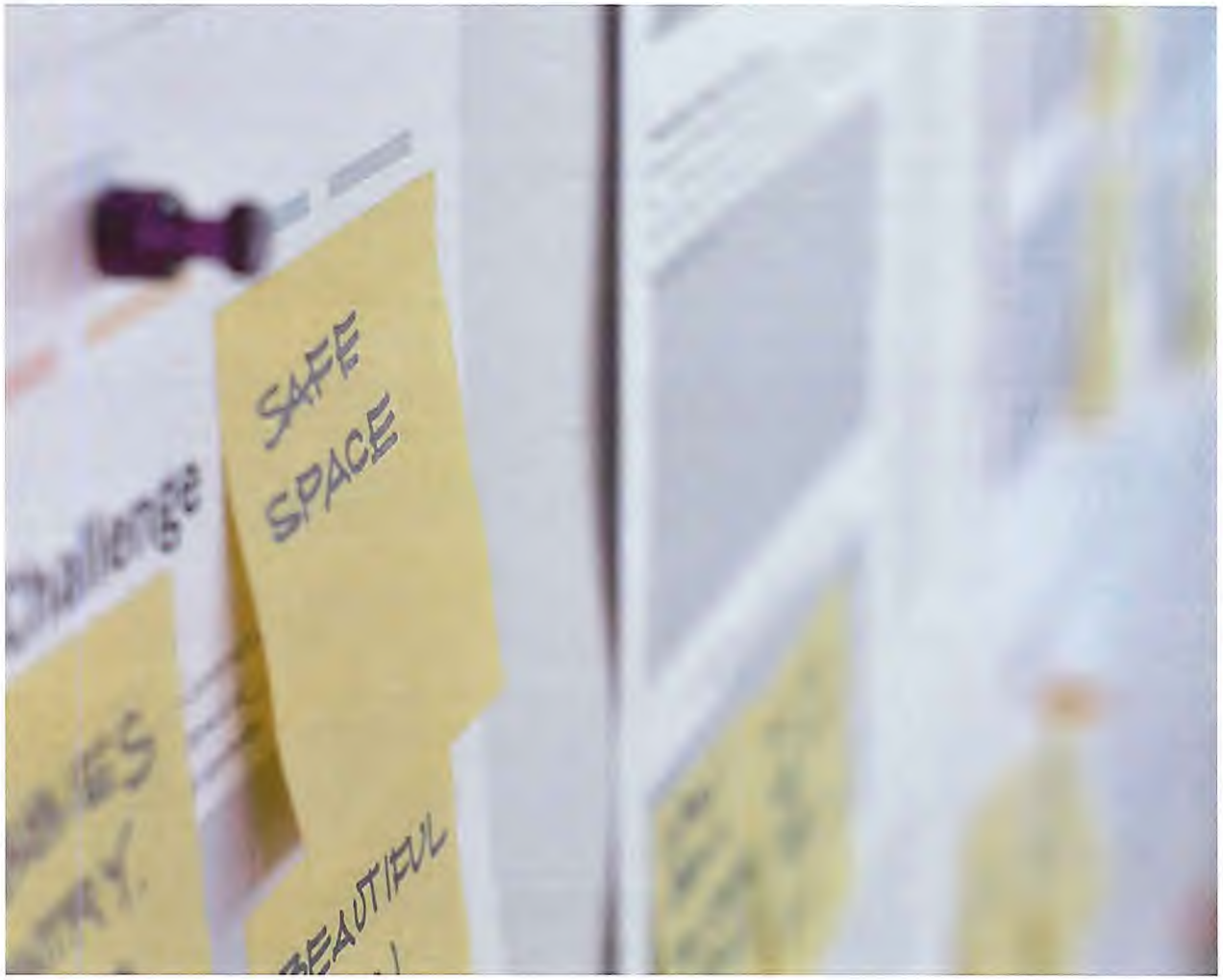
Stakeholder Names + Emails

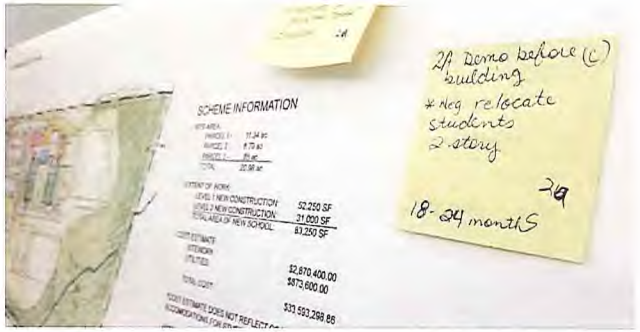
Christa Kerrigan
Derrick Leon Davis
Erek Barron
Robert Winstead
Edson Barbosa
Michelle Jackson
Joseph Vallario J
Jill Walker
Michelle Ryan
Gloria Mikolajczyk
Douglas Peters
Jeffrey Shulenburg
Marvin Holmes
Marsha Jones
Bernice Tonrey

1246 Woodmore Elementary School Feasibility Study

Raaheela Ahmed
Demetre Morris
Melissa Silva
Rhianna McCarter
Elizabeth Chaisson
Ben Thompson
R. Abdullah

Project Team





Executive Summary

"…provide a learning environment that supports quality education for the whole child."

"…promote health and wellness through active learning and sustainable practices."

"…serve the community and reflect its identity."

"…ensure a physically and emotionally safe and secure environment"

03

PROJECT PROCESS + GOALS

Project Process + Goals

Process Overview

The community engagement phase of the project began with an introductory kick-o_ meeting to allow the design team to present a "what we think we know" assessment of the site and building conditions, giving committee members an opportunity to provide input based on their experience and share their goals for the study. Online surveys were distributed to allow the committee members time to process their thoughts away from the meeting and provide the design team with more insight. A series of work session meetings that followed were geared toward identifying goals and critical success factors for the study through the following participatory exercises:

Goals + Aspirations Exercise
Evaluation Criteria Exercise - "Must-do", "Should-do", "Would-do"
Selection of Preferred Options
Pros/Cons and Scoring Exercise
Rankings and Final Recommendations

SURVEY RESULTS: SAMPLE OF ONLINE QUESTIONNAIRES

Q: **Community: Do you believe that a school can become a community, or a community a school? What community services can be offered at a school facility?**

"...I have been privileged to have been a part of a school that fostered a real sense of community. Everyone was invested in the success of the students and the local community..."

"...A school becomes a community when camaraderie and friendship is fostered; a community is a school when people of all ages are open to sharing thoughts, feelings, experiences."

"...Yes I believe that a school can become a community. A school should embrace the surrounding community in order to provide services for all age levels. Ex-Rec center, Shared maker space, Outdoor gardens..."

Q: **How can your school encourage and support learning outside the classroom (i.e., environmental?)**

"...Partner with local organizations and incentivize learning with special tours, tickets, passes, and experiences for the whole family."

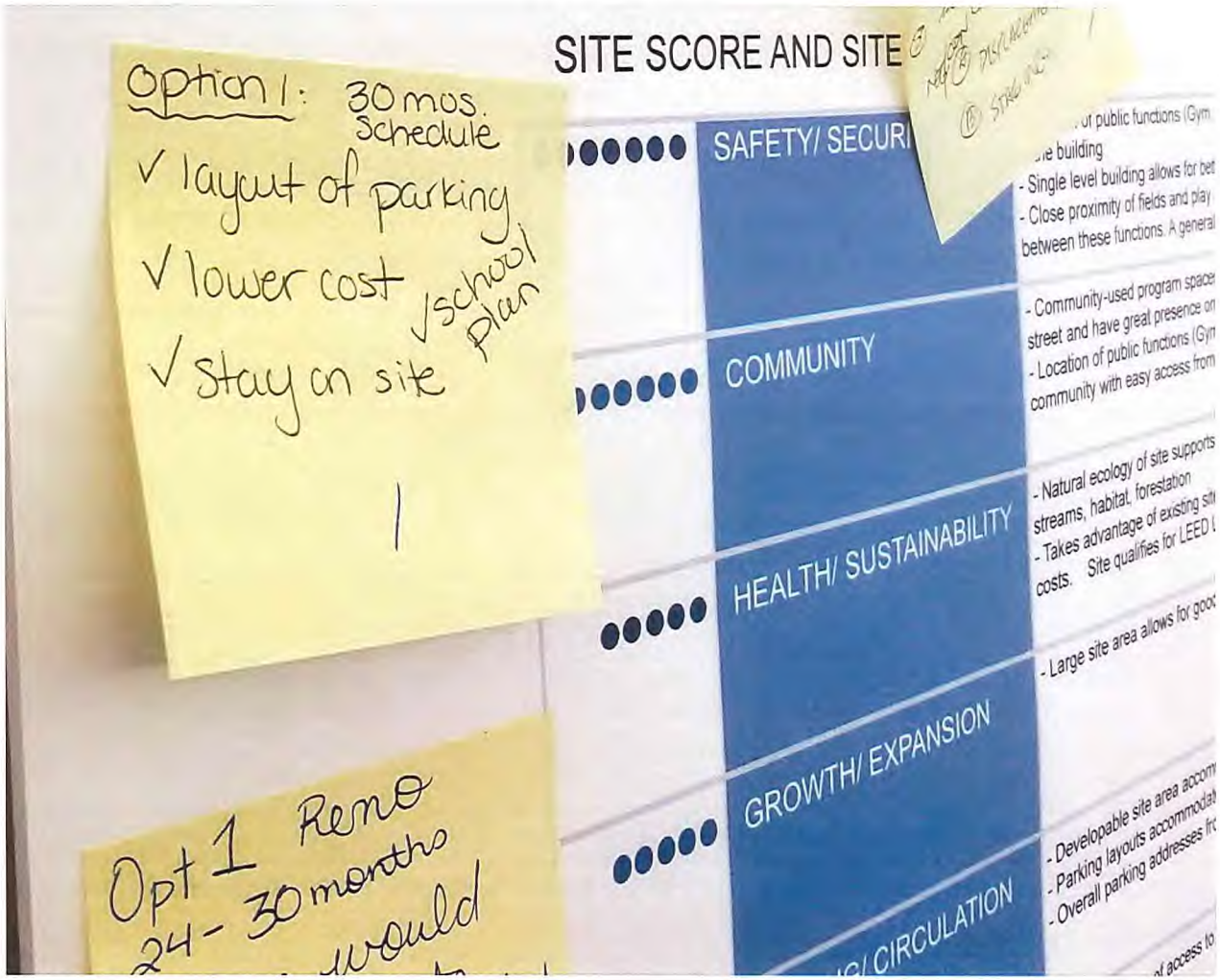
"...Students establish and maintain a garden, which connects children to nature and encourages a sense of responsibility."

"...Develop structures within the school schedule that allows students outside learning time."

Q: **What's the one thing you want to see a feasibility study for a new elementary school address or accomplish?**

"...A fair assessment of the potential of each proposed site..."

"...There may be alternatives, such as community educational initiatives and reutilization of existing structures that are more feasible and sustainable."



Project Process + Goals

Goals + Aspirations Exercise

The goal-setting exercise began with an initial prompt asking the committee members to consider what aspects of a new elementary school would make for a successful project and meet the needs of students, educators, and the community. Participants were split into smaller groups and asked to provide input on creating a healthy, safe, and productive setting for young children to learn, grow, and develop. Common themes were identified across the individual smaller groups when presenting back to the collective group, reflected in four main headings:

LEARNING

ACTIVITY + HEALTH

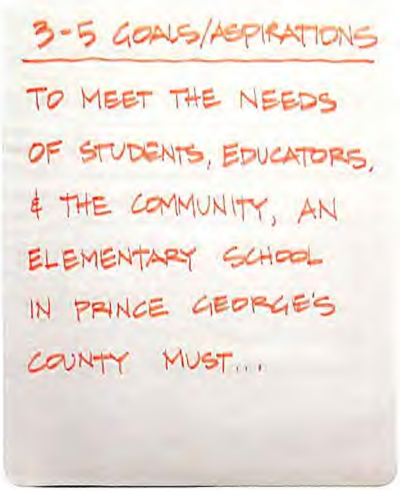
COMMUNITY

SAFETY + SECURITY

Group members prioritized the goals by placing blue dots next to aspects they felt were the most critical to the success of a new school. This exercise resulted in a common vision statement adopted by the group that served to guide overall decision-making in evaluating the outcomes of the study and making final recommendations:

To meet the needs of students, educators, & the community, an Elementary School in Prince George's County must:

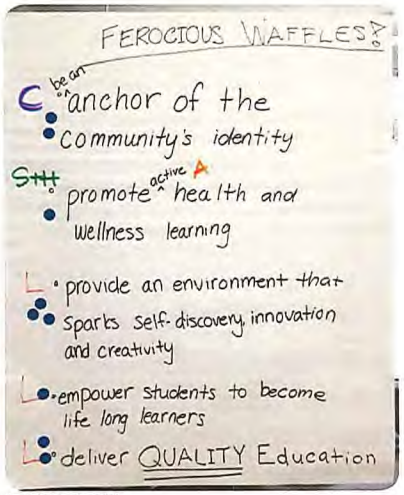
- Provide a learning environment that supports quality education for the whole child.
- Promote health and wellness through active learning and sustainable practices.
- Serve the community and reflect its identity.
- Ensure a physically and emotionally safe and secure environment.

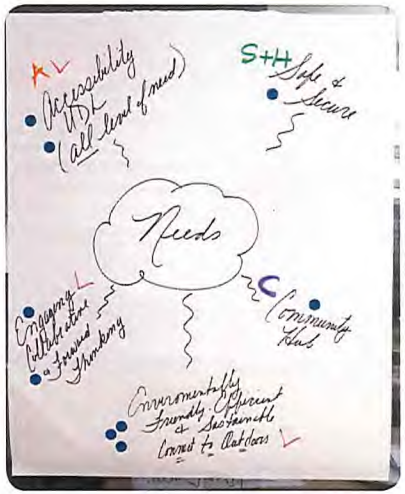


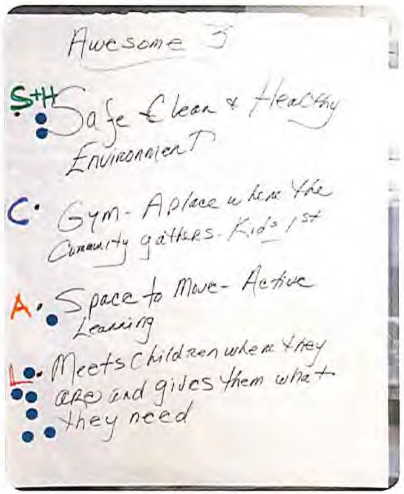
Goals + Aspirations
Summary of goal-setting exercise and participant surveys from 3.15.18 Committee Meeting

"To meet the needs of students, educators, and the community, an elementary school in Prince George's County must..."

Learning		
●●●●●●	*Meet children* ***where they are*** *and give them* ***what they need***	*"...provide a learning environment that supports quality education for the whole child."*
●●●	*Provide a learning environment that sparks* ***self-discovery, innovation and creativity***	
●●	*Deliver* ***quality education***	
●●	*Be* ***engaging, collaborative,*** *and* ***forward thinking***	
●●	*Emphasize Universal Design for Learning (UDL) and make it* ***accessible to all levels of need***	
●	*Empower students to become* ***life-long learners***	
●	*Promote active* ***health and wellness learning***	
Activity + Health		
●●●	*Be environmentally* ***friendly, efficient*** *and* ***sustainable****, connecting to the* ***outdoors***	*"...promote health and wellness through active learning and sustainable practices."*
●●	*Ensure a* ***safe, clean,*** *and* ***healthy environment***	
●	*Promote* ***active health and wellness*** *learning*	
●	*Have spaces that* ***allow movement for active learning***	
Community		
●●	*Be an anchor of the* ***community's identity***	*"...serve the community and reflect its identity."*
●	*Be a* ***"Community Hub"***	
	Provide a place where ***community can gather but serves kids 1st***	
Safety + Security		
●●	*Ensure a* ***safe, clean,*** *and* ***healthy environment***	*"...ensure a physically and emotionally safe and secure environment"*
●	*Be* ***safe*** *and* ***secure***	







Project Process + Goals

Evaluation Criteria Exercise - "Must Do", "Should Do", "Would Do"

To establish a more objective lens through which to compare and contrast the design concepts, the design team facilitated an open discussion with planning committee members around "must-do's", "should-do's", and "would-do's". This helped to distinguish aspects of the study identified as baseline requirements (must-do), opportunities and enhancements to take advantage of along the way (should-do), and dreams for what a school could be (could-do). Examples of "must-do's" included required permitting, code, roadway improvements, and meeting the educational specifications, while examples of "should-do's" included aspects of the project that are not required by code or jurisdiction but reflected some of the committee's aspirations and goals like providing good community access, improving site amenities for outdoor learning, and adaptability for future growth and expansion. The "would-do's" list gave the committee a chance to dream big and share their creative ideas that would inspire students and make learning fun if implemented in a new school, like an art and music garden, great playgrounds, and maker spaces. The group was then given some time to prioritize the list and develop a score card that would be used to evaluate the design options. The following evaluation criteria categories were identified:

SAFETY/ SECURITY
Visibility of students | Easy and safe evacuation | Limits visitors to large portions of building

COMMUNITY
Walk-ability to school and events | Sense of identity | Access to public functions

HEALTH/ SUSTAINABILITY
Natural ecology as a learning tool | Energy efficiency | LEED Gold + 40-year life-cycle

GROWTH/ EXPANSION
Develop-able site area | Building layout | Quality of spaces after expansion

PARKING/ CIRCULATION
Location near front door | Easily accepts expansion | Bus and car drop-off

STAGING/ PHASING
Construction affect on school operations | Construction access | Construction time

SITE AMENITIES
Maximize site for fields, habitat, outdoor learning | Minimize regrading | Access and connectivity

STORM WATER MANAGEMENT
Retain natural topography | Building footprint and scale | Minimize impervious paving

ENVIRONMENTAL/ HAZMAT
Costs to abate hazardous materials | Soil quality | Environmental protection

COST
Low-high | Construction phasing and duration

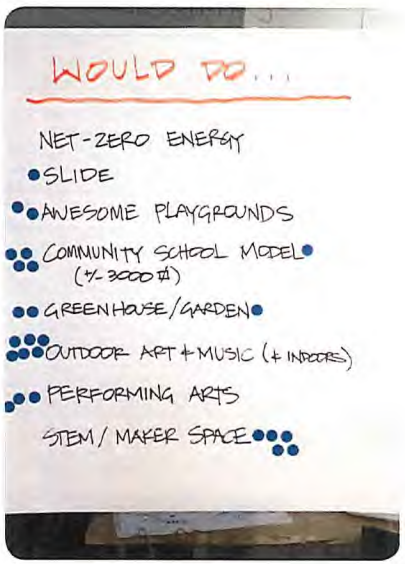
R.O.W/ TRAFFIC/ ACCESS
Roadway dedication requirements | Traffic flows | Access to service deliveries

ADA/ ACCESSIBILITY
Elevation changes in site and building | Distance between site and building programs

PROGRAM / ADAPTABILITY
Accommodates Education Specification programs | Adjacency of programs to outdoor spaces

UTILITIES
Availability of existing utilities | Extent of new utilities required

SITE WORK
New grading | Disturbance of existing topography and slopes | Site reclamation



DESIGN CONCEPTS RATING CRITERIA

Must-Do	Include all in rating criteria	Should-Do	Include some in rating criteria	Would-Do	Not included in rating criteria
●●●●●●●	Safety / Security	●●●●●●●	Community Access	●●●●●●●	Outdoor / Indoor Art & Music
●●●●●	LEED Silver + Energy Star	●●●●●	Growth / Expansion (on-site)	●●●●●	"Community School" model
●●●●	Parking / Circulation	●●●	Community Amenities	●●●●●	STEM Maker Space
●●●●	Staging / Phasing	●●●	Healthy, Sustainable Building	●●●	Greenhouse / Garden
●●●	Stormwater	●●●	Adaptibility	●●●	Performing Arts
●●	Environmental / Hazmat	●●●	Site Amenities	●●	Awesome Playgrounds
●●	Cost	●●	Athletic Fields	●	Indoor slide to connect floors
●	R.O.W. / Traffic / Access		Building Orientation		Net-Zero Energy
●	ADA / Accessibility				
●	Layout				
	Utilities				
	Site Work				
	Durability / Life-cycle				

RATING CRITERIA PROS/ CONS SCORE CARD

Option 1 - Renovation and Addition to Existing Facility at Woodmore Site

Priority	Rating Criteria	Pros	Cons	Rate
Must-Do				
Should-Do				
●●●●●●●	Safety / Security			
●●●●●●●	Community			
●●●●●	Health / Sustainability			
●●●●●	Growth / Expansion			
●●●●	Parking & Circulation			
●●●●	Staging / Phasing			
●●●	Site Amenities			
●●●	Storm Water Management			
●●	Environmental / Hazmat			
●●	Cost			
●	R.O.W. / Traffic / Access			
●	ADA / Accessibility			
●	Program / Adaptability			
	Utilities			
	Site Work			
			Score	0

Project Process + Goals

Selection of Preferred Options

The following 3 workshops focused on presenting design concepts for the planning committee to review and consider. Each option was evaluated on the merits of building layout and program e_ ciency, orientation and location on the site, ability to accommodate parking, quality of site amenities, and future expansion and growth. Four preferred schemes were chosen and carried forward for ranking:

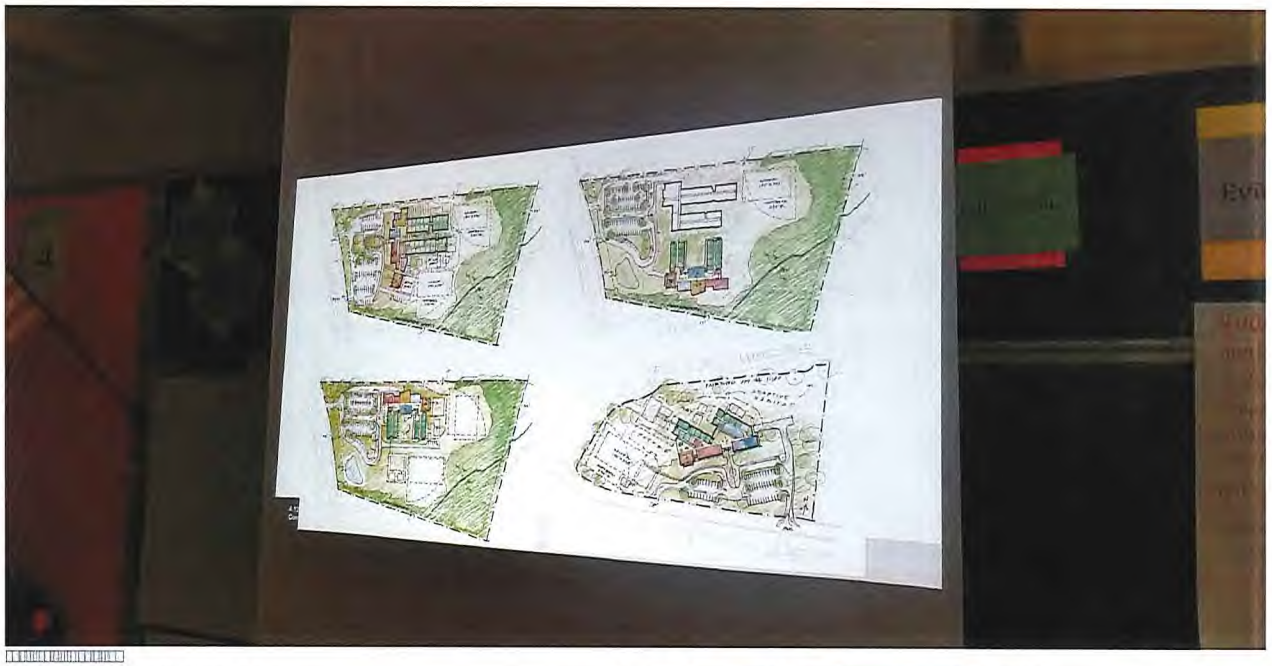
Opt 1 Renovation/Addition of existing Woodmore Elementary School
Opt 2a New replacement school on existing Woodmore site – demolish existing school
Opt 2b New replacement school on existing Woodmore site – retain existing school
Opt 3 New replacement school on Fairwood site

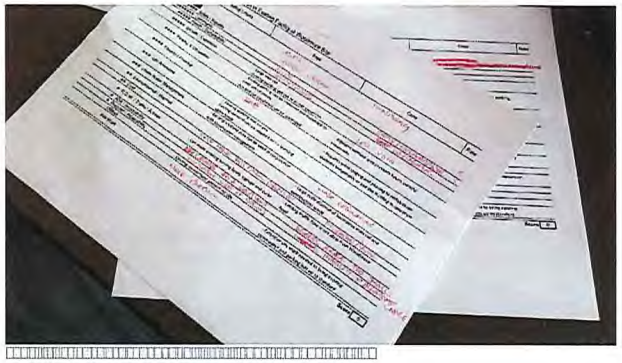
Pros/Cons and Scoring Exercise

Once the preferred schemes were determined, the design team led a pros and cons discussion exercise with the group, giving participants an opportunity to evaluate each option against the rating criteria categories and in comparison to one another. Committee members were broken into discussion groups facilitated by the design team members, and given individual scoring cards to capture thoughts and ratings. The options were evaluated through the objective criteria established by the group on the basis of how well or poorly each scheme addressed issues of storm water management, right-of-way and tra_ c requirements, and ADA accessibility, as well as judge on the basis of some of the more important subjective issues like safety and security in and around the building and site, community connectivity and school identity, and healthy environments with the greatest opportunities for learning. Once completed, the collective pros/cons lists were collated and summarized, and the individual ratings were averaged to create the_ nal scoring and rankings for each of the four options.

Rankings + Final Recommendations

This process allowed for individual input and group consensus, both of which contributed to the_ nal outcomes and recommendations for the study. Once the data from each exercise was collected, the design team summarized the group's_ ndings, sharing the pros and cons, cost estimates, and scoring outcomes of each option with the committee. The committee members were given time to revisit their initial goals and vision for a new school, discuss the outcomes together, and reach informed conclusions.





Project Process + Goals

Site Permeability

914,760 SF — TOTAL AREA 100%

786,239 SF — PERMEABLE SURFACE 86%

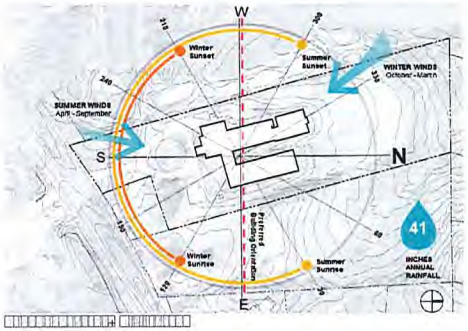
56,000 SF — IMPERMEABLE ROOF SURFACE 6%

72,521 SF — IMPERMEABLE PAVEMENT 8%

14%

Solar & Wind Study

- Preferred building orientation on East-West Axis
- Classrooms currently getting unwanted east and west sun exposure

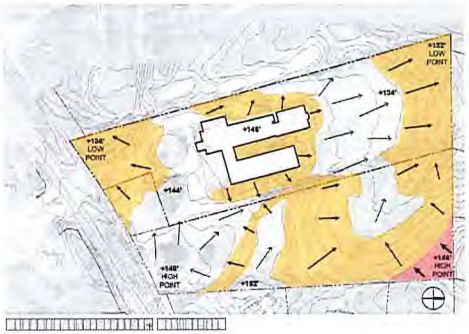


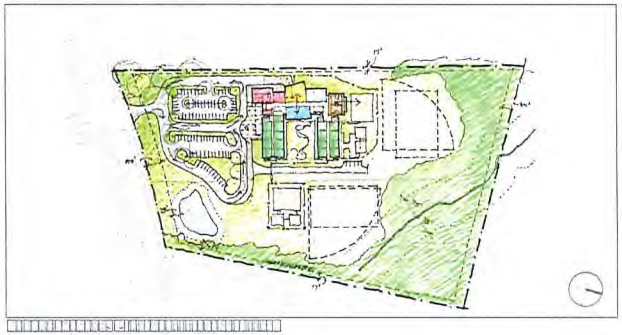
Topography & Water Flow

- Site generally drains along cross slope east to west
- A swale bifurcates the site along the north/south axis

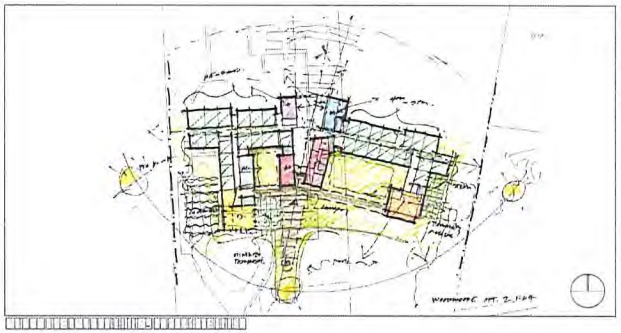
KEY

- Steep Slope
- Moderate Slope
- Direction of Water Flow - Fast
- Direction of Water Flow - Slow
- Inlet / Drain
- +296' Elevation

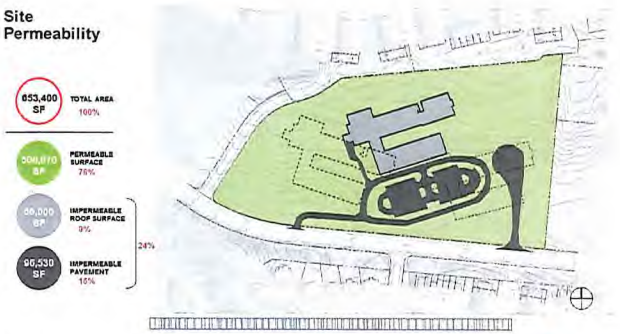


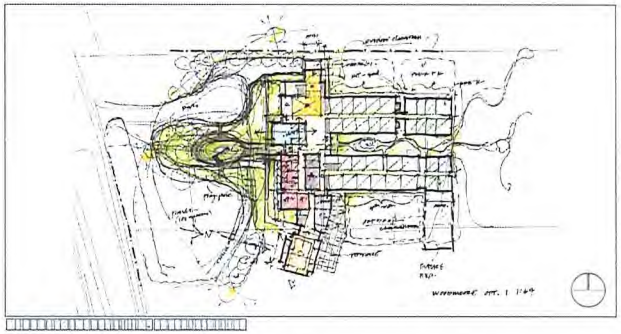


Project Process + Goals



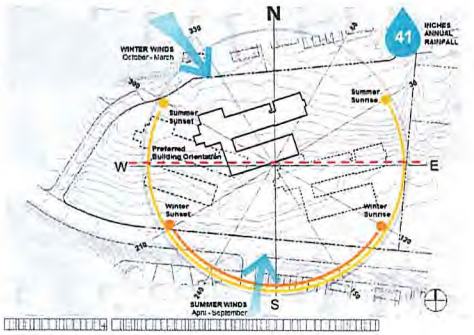
Site Permeability

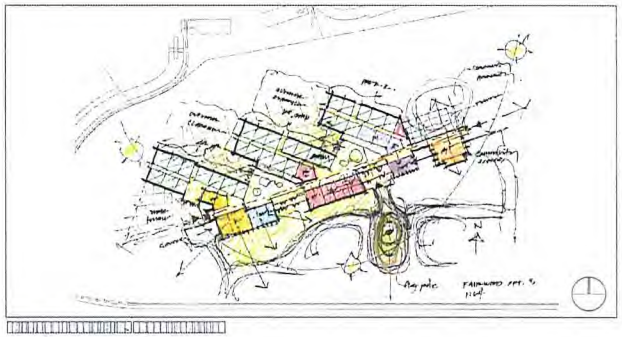




Solar & Wind Study

- Preferred building orientation on East-West Axis



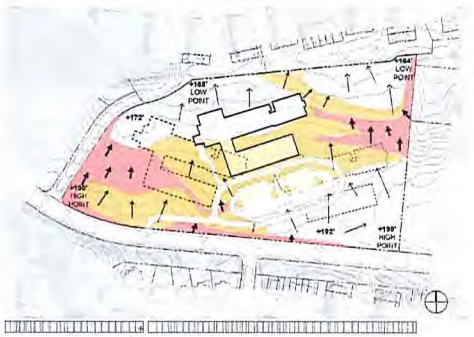


Topography & Water Flow

- Vast majority of site drains to a single low point
- Main buildable area is flanked by existing slopes

KEY

- Steep Slope
- Moderate Slope
- Direction of Water Flow - Fast
- Direction of Water Flow - Slow
- Inlet / Drain
- +256' Elevation



04

PROJECT PROGRAM

Program Summary

Program Summary Draft

SPACE CATEGORIES

The Woodmore Elementary School Feasibility Study program includes 8 categories that group spaces based on their primary activities:

01 **Academic Core** provides teachers and students with primary Academic grade-level Classrooms, informal Collaborative Learning Areas, STEM and computer labs, and teacher planning and support spaces. A dedicated Special Education studio includes classrooms, counseling and other resource and support rooms.

02 **Administration + Health Services** consists of administrative offices and associated support spaces, an adjacent Health Suite with reception and exam rooms, a Student Services Suite with office spaces for therapists, a Student Services/Counselor's suite, and a testing Conference Room.

03 **Maintenance + Custodial** includes MEP, custodial & toilet rooms, loading/receiving, and recycling functions to optimize facility operations.

04 **Media** includes a Reading & Circulation Computer Laboratory, Media Production, Offices, and support spaces (workrooms and storage). Locating the Media Center at the front of the building provides a strong community presence and identity for the school.

05 **Performing Arts** provide spaces that support music and theatrical curriculum including Music Classrooms and a performance stage. Locating this program adjacent to or near the Gym, Media Center, and Visual Arts programs allows for shared amenities between these public functions.

06 **Visual Arts** provide teachers and students with spaces that support art functions and activities with flexibility to accommodate art production and display of student work. Connections to the outdoors offer extended classroom space into the environment and natural light into the studios.

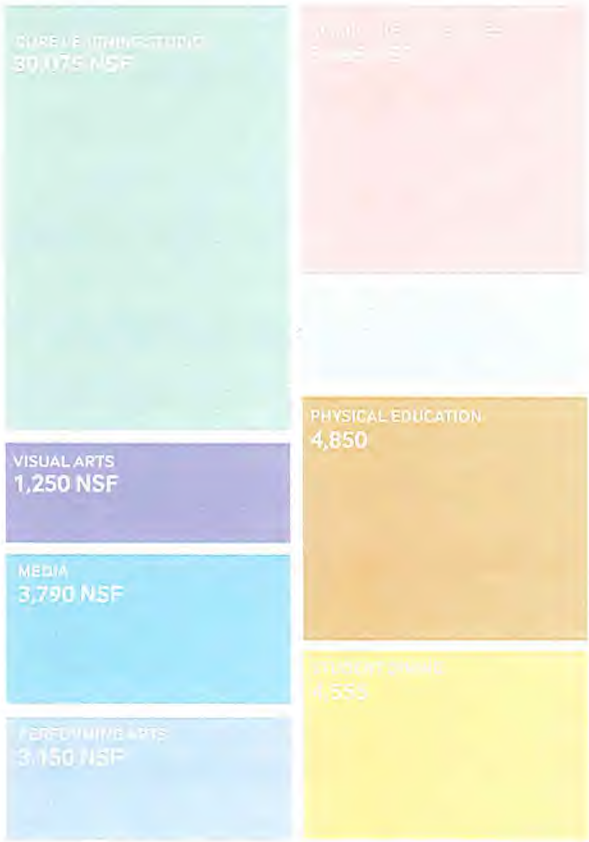
07 **Physical Education** consists of a Main Gym, PE Offices, and PE Storage. Gym spaces are typically located directly or near to outdoor play areas and have a public presence on site for ease of access and use by the community.

08 **Student Dining** includes a Dining Area, Food Preparation, Serving Areas, and Kitchen with equipment and storage. Teaching kitchens and food labs dedicated to the subject of food with a focus on furniture and equipment can be located near the dining areas to emphasize social interaction and mealtime practices.

SUMMARY OF SPACES

	Proposed	Existing	Yield
Academic Core	30,075	28,010	2,065
[illegible]	5,465	5,150	315
[illegible]	1,610	1,380	230
Media	3,790	1,588	2,202
[illegible]	3,150	2,458	692
Visual Arts	1,250	1,167	83
Physical Education	4,850	1,521	3,329
[illegible]	4,555	4,032	523
Subtotal	53,135	43,926	9,209
Building Support	1.567	1.27715	
Gross Total Building Area	83,263	56,100	

GRAPHIC SUMMARY



Program Summary Draft

		Proposed Areas				Existing				
Space Type		NSF/space	# of Spaces	Subtotal NSF	Total NSF	NSF/space	# of Spaces	Subtotal NSF	Total NSF	Notes/Questions
1	Academic Core Learning									
1A	General Computer / STEM LAB									
	General Lab	1,000	1	1,000		907	2	1,814		
	Storage	100	2	200						
					1,200				1,814	
1B	Academic Core Area Space									
	Pre-Kindergarten	1,175	3	3,525		1,039	2	2,078	0	
	Pre-k Toilet Rooms					44	2	88		
	Kindergarten	1,175	4	4,700		1,173	2	2,346		
	Kindergarten		0			928	1	928		
	1st - 3rd Grade	950	11	10,450			0	0	0	
	1st Grade					937	1	937		
	1st Grade					938	1	938		
	1st Grade					928	1	928		
	2nd Grade					946	2	1,892		
	2nd Grade					957	1	957		
	3rd Grade					1,159	2	2,318		
	3rd Grade					1,189	1	1,189		
	Student Development Room					945	1	945		
	4th - 5th	900	6	5,400				0	0	
	4th Grade					1,028	2	2,056		
	4th Grade					1,048	1	1,048		
	5th Grade					1,182	1	1,182		
	5th Grade					1,057	1	1,057		
	5th Grade					1,048	1	1,048		
	Extended Learning Area (Optional)	1,189	0	0						
	STEAM Lab (Wet)	1,100	1	1,100			0	0	0	
	Science Storage/Prep Rooms	200	0	0			0	0	0	
	Teacher Support / Planning Room	200	2	400				0		
	Teacher Storage Room	200	0	0		150	1	150		
					25,575				22,085	

Program Summary Draft

Space Type		Proposed Areas				Existing				Notes/Questions
		NSF/space	# of Spaces	Subtotal NSF	Total NSF	NSF/space	# of Spaces	Subtotal NSF	Total NSF	
1C	Special Education - Studio									
	Classroom	900	2	1,800		768	1	768	0	
	Toilet Rooms (Student Male & Female)	80	0	0				0	0	
	Counseling Room	100	0	0				0	0	
	Time Out Rooms	50	0	0				0	0	
	Locker/Storage Room	100	0	0						
					1,800			0	768	
1D	Small Group Instruction - Resource									
	Special Education	250	3	750				0		
	Reading					761	1	761		
	Reading					801	1	801		
	ECC					801	1	801		
	ESOL					768	1	768		
	Math ILT					122	1	122		
	Special Education							0		
	Other Academic	250	2	500						
	Testing / Conference	250	1	250						
	Locker/Storage Room	50	0	0		90	1	90		
					1,500				3,343	

Program Summary Draft

Space Type		Proposed Areas				Existing				Notes/Questions
		NSF/space	# of Spaces	Subtotal NSF	Total NSF	NSF/space	# of Spaces	Subtotal NSF	Total NSF	
2A	Administration									
	Lobby Area	550	1	550				0		
	General O_ ce & Reception Area	350	1	350		436	1	436		
	Principal's O_ ce	180	1	180		173	1	173		
	Assistant Principal's O_ ce	120	1	120		173	1	173		
	Records Room	120	1	120		30	1	30		
	Workroom	175	1	175		135	1	135		
	Conference Room	225	1	225		406	1	406		
	PTA Storage	50	1	50				0		
	Supplies Storage	75	1	75		126	3	378		
	Text Book Storage Room	400	1	400		297	1	297		
	Sta_ Break Room/ Kitchenette	400	1	400		400	1	400		
	Toilets (Uni-Sex)	80	2	160		35	3	105		
	Family Center/ Parent Resource O_ cer	250	1	250	3,055				2,533	
2B	Health Suite									
	Reception / Waiting	150	1	150		119	1	119		
	Cot Room	100	1	100						
	Exam Room / Treatment Area	125	2	250		100	1	100		
	O_ ce	100	1	100						
	Storage	50	1	50						
	Toilet (Male / Female)	80	2	160	810	17	1	17	236	
2C	Before/ Ab er School Program									
	O_ ce/ Storage	200	1	200	200	400	1	400	400	
2D	Student Services Suite									
	Student Services / Counselor's O_ ce	150	1	150		244	1	244		
	Psychologist	150	1	150						
	Mental Health Therapist	150	1	150						
	Student Services Conference Room	200	1	200						
	Speech/OT/PT	350	1	350						
	Testing/Conference	250	1	250		112	1	112		
	Career Center	300	0	0						
	Records Room	400	0	0						
	Storage	100	0	0		30	1	30		
	Reception & Waiting	300	0	0						
	Student Services / Resource O_ ce	150	1	150						
					1,400				1,981	

Program Summary Draft

Space Type		Proposed Areas				Existing				Notes/Questions
		NSF/space	# of Spaces	Subtotal NSF	Total NSF	NSF/space	# of Spaces	Subtotal NSF	Total NSF	
3A	Custodial Services									
	O_ ce	150	1	150		110	1	110		
	Custodial Storage	200	1	200		66	3	198		
	Toilet/Shower/Lockers	100	1	100		28	1	28		
	Technology Closet	50	3	150				0		
	Electrical Closet	30	3	90				0		
	Service Closets	30	4	120		77	1	77		
	Storage and Receiving -General	550	1	550		967	1	967		
	Central Storage	250	1	250				0		
					1,610				1,380	
04	Media									
	Reading/Circulation	2,180	1	2,180		1,350	1	1,350		
	Computer Labortory/Storage/Reading	700	1	700						
	Media Production/Project Room	300	1	300		117	1	117		
	Switch/File Server Room	150	1	150						
	File Server Room	100	1	100						
	O_ ce/ Production/ Workroom	200	1	200		121	1	121		
	Casual Reading Area	200	0	0						
	Project Rooms	120	0	0						
	Toilet (Adult Male & Female)	80	2	160						
				0	3,790				1,588	
05	Performing Arts									
5A	Music									
	Dual Purpose Room	1,100	1,100	0		0	0	0	0	
	General Music Classroom	1,100	1,100	1,100		1,525	1	1,525	0	
	Instrumental Music Room	1,000	1,000	1,000				0		
	Piano Rooms share w/ Dressing Rm	800	800	0				0	0	
	Practice Rooms	100	100	0				0	0	
	Music Storage	100	100	100						
	Instrument Storage	100	100	100						
	Music Storage	150	150	0				0	0	
	Music O_ ce	100	100	0				0	0	
					2,300				1,525	

Program Summary Draft

Space Type		Proposed Areas				Existing				Notes/Questions
		NSF/space	# of Spaces	Subtotal NSF	Total NSF	NSF/space	# of Spaces	Subtotal NSF	Total NSF	
06	Visual Arts									
6A	Art									
	General Art Studio	1,000	1	1,000		1,167	1	1,167	0	
	Art Storage	150	1	150				0	0	
	Kiln Room	100	1	100						
					1,250				1,167	
07	Physical Education									
7A	Gymnasium									
	Main Gym	4,500	1	4,500		1,331	1	1,331		
	Fitness Lab Gym	3,600	0	0				0		
	Motor Development	2,500	0	0				0		
	Concessions	200	0	0				0		
	Athletic Storage	600	0	0		0		0		
	Boy's & Girls's Locker Rooms	825	0	0				0		
	Boy's Shower Room	125	0	0				0		
	Girl's Shower Room	125	0	0				0		
	PEQ_ ces	150	1	150				0		
	ADQ_ ce	250	0	0				0		
	Training Room	200	0	0				0		
	Drying	200	0	0				0		
	PE Storage	200	1	200		190	1	190		
	PE Laundry	100	0	0						
					4,850				1,521	
08	Student Dining									
	Dining Areas	2,795	1	2,795		2,555	1	2,555		
	Food Preparation Area	450	1	450			1	0		
	Serving Area	200	1	200		165	1	165		
	Kitchen	1,925	0	0		742	1	742		
	Faculty Lounge Room (See Admin.)	400	0	0			1	0		
	Kitchen Q_ ce	100	1	100		60	1	60		
	Caferteria Storage	150	0	0			1	0		
	Dry Kitchen Storage	200	1	200		177	1	177		
	Walk-in Refrigerator / Freezer	200	1	200		86	1	86		
	Pot/Tray Washing	150	1	150		43	1	43		
	Locker/Toilet	80	2	160		41	1	41		
	Chair/Table Storage	300	1	300		163	1	163		
					4,555				4,032	


COFFEE
LOUNGE.
W/ CHILD
PLAY.
EXHIBITION
- ART
- MUSIC
- FOOD.
COMMUNITY
GARDEN
AWARENESS
GARDEN
FITNESS
CLUB
.HIKING
.5K
.ZUMBA.

05

EXISTING CONDITIONS ANALYSIS

Civil Engineering Analysis - Woodmore Site

GENERAL SITE ANALYSIS:

Woodmore Elementary School is located at 12500 Woodmore Road, Mitchellville, within Election District No. 7 and within Prince George's County, Maryland. The school site is 20.98 acres and made up of three parcels. Parcel 54 is a 11.34 acre panhandle lot with address 12510 Woodmore Road (Tax Acct. No. 0680710), then Parcel 25 is a smaller lot of 0.85 acres which sits south of the panhandle adjacent to Woodmore Road with an address of 12500 Woodmore Road (Tax Acct. No. 0680751), and then Parcel 1 is 8.79 acres which is to the east of the school and the where the basketball courts and play areas are located. This parcel doesn't currently have an address. It is known as Mount Oak Road (Tax Acct. No. 0680702). The site is bounded by the Country Club at Woodmore golf course to the west and single family residential housing to the north and east. Woodmore Road is a divided highway, runs east-west, and bounds the property to the south.

Based on the current Prince George's County Zoning Ordinance, the school site is Zoned R-A (Residential-Agricultural) and has the dimensional requirements for the property as indicated below:

- Front Setback – 50'
- Side Setback – 17'
  (Combined the side yards shall total 35')
- Rear Setback – 35'
- Maximum Building Height – 50'
- Maximum Lot Coverage – 50%
  (Maximum of net site area covered by building including accessory buildings)

Since the school property is made up of multiple parcels, a consolidation plat will likely be required by MNCPPC and DPIE. The development of this property is subject to the Mandatory Referral process.

SITE VEHICULAR/ PEDESTRIAN ACCESS AND TRANSPORTATION:

Currently, there is only one vehicular connection point to the site from the right-of-way for Woodmore Road and it provides a single loop at the front of the school for both bus and student drop-o . The single access point con guration appears to exist due to the divided road. The vehicular site access point connects with westbound Woodmore Road and there is a paved connection between eastbound and westbound Woodmore Road to provide turning movements into the site. This paved cross-over also aligns with Parkside Drive on the opposite side of the road. From a safety perspective, it is best to design any new con guration of the site with a separate bus and student drop-o . This may be challenging give Woodmore Road is divided and a second entrance would only be accessed going in the westbound direction. While there is a connecting pedestrian sidewalk from the school entrance to Woodmore Road, there is currently no sidewalk or pathways along westbound Woodmore Road. However, there is sidewalk along the south side of eastbound Woodmore Road. Proposed development of the site must provide accessible access to all students and sta . A connection to Woodmore Road will need to be provided for any future development that may occur. In addition, accessibility must be provided to all the site amenities (i.e. – elds, playgrounds, hard surface play areas, courts, etc.). With a new building or building addition, at least 60% of the building doors must be accessible and connect to a surrounding pedestrian connection that leads to the public right-of-way. If any accessible route require ramps, curb ramps, and/or handrails, they should be provided per the requirements of the Americans with Disability Act and the U.S. Department of Justice.

Existing parking appears to be excessively inadequate. There is a small parking lot o the existing loop on the east side and then parking on the west side of the school where the connection to the loading area and dumpsters are. Currently vehicles park along the entrance loop, which can be a safety concern to students and visitors at the school. The parking lot should be expanded to provide 80-100 spaces; preferable 100. Parking access aisles shall meet the minimum requires of Fire Code by being 22-foot minimum; preferably 24-foot wide, and shall have parking space dimensions as required by the County Code of 9.5-foot by 19-foot. Adequate accessible parking shall be provided that conforms with ADA and the Maryland Accessibility Code requirements. As this school appears to be primarily bus riders and student drop-o s, the length of entrance to the school to provide adequate vehicular stacking should be considered. Preferably, this would be stacking for 50 vehicles or 1000 linear feet. At a minimum, stacking for 30 vehicles should be provided. Another option to expand the stacking length is to add a deceleration lane in the street. This would be complicated for this site since Woodmore Road is divided. A passenger loading area with curb ramps per requirements of ADA should be provided.

Regarding bus parking, the number of buses needs to be con rmed with PGCPS and should assume some growth in the future. Buses typically are in and out in the morning drop-o , but can stack in the afternoon. We recommend stacking for at least 10 buses or 500 linear feet. Buses should stack front to rear as chevron (diagonal) parking is a safety concern for elementary school age students. The bus loop should be a minimum of 30-foot wide.

Roadway dedication for this property will be required based on the Transportation Masterplan. It is unclear if frontage improvements will be required, but they should be considered for the purposes of cost to the project. This is something that will have to be con rmed with DPIE. The ultimate Right-of-Way width per the Masterplan will be 120'-150' and the road will be 4-6 lanes wide similar to the portion of Woodmore Road that connects right at Enterprise Road. The Right-of-Way dedication will require a plat and may be able to be included in the aforementioned consolidation plat.

The loading area is on the west side of the existing school. This also includes the area where the dumpsters are located. This con guration appears to be insu cient to support both dumpsters and daily delivers considering the adjacent parking encroaches into this area. With a separation of the bus loop and student drop-o loop, meanwhile leaving the loading area connected to only the bus-loop will provide for better and more e cient use. It will also be easier for drivers to maneuver the loop without vehicles parked along the main access aisle.

SITE UTILITIES:

There are existing water and sewer connections that extend following the main entrance to the school and cross Woodmore Road onto Parkside Drive on the opposite side of the street. The water connection to the site makes a connection near the loading area at the west side of the building. In addition, there is one re hydrant located near the parking lot on the east side of the building. The sewer connection wraps around the build on the east side and connects to the rear of the building on the northwest side. It is noted that both water and sewer cross perpendicular to the road and there is no water and sewer that parallels westbound Woodmore Road. Power, cable, and telephone are pole mounted along Woodmore Road. Gas service is currently available at the site.

All utilities will need to be evaluated from a size perspective and if they could service a new building addition or even a new building. As the building is currently is situated, the current single re hydrant at the site does not provide enough coverage for the building. At a minimum, one additional re hydrant would need to be installed.

Civil Engineering Analysis - Woodmore Site

STORM DRAINAGE AND STORMWATER MANAGEMENT:

It can be anticipated that any site development will be required to meet the latest regulations to the maximum extent practicable de_ ned in the Maryland Department of Environment (MDE) Stormwater Design Manual, that includes the Environmental Site Design (ESD) in order to treat all areas inside the limits of disturbance. If ESD e_ orts 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 DPIE.

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_ elds. Alternative surfaces would include vegetative roo_ ng for building additions. Permeable pavements could be considered, but a geotechnical report would need to be prepared to con_ rm this.

Due to the watershed that this project site lies within, 100-yr storm attenuation will be required. This can be provided using an underground vault or surface pond. However, surface ponds are not recommended, especially at a school site, due to safety concerns.

It can be anticipated that any new development will require a soil erosion and sediment control plan per PGSCD.

SITE SOILS:

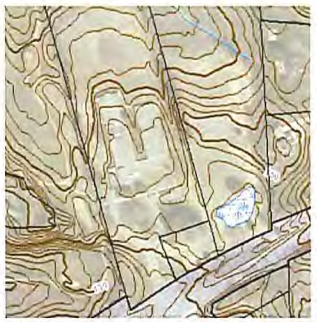
Per the Soil Survey of Prince George's County, Maryland the predominant soils on the site are in the Adelphi-Holmdel complex and Collington-Wist complex. According to the USDA, the depth to bedrock is usually is greater than 6.5-foot. The seasonal water table may be as shallow as 4-foot in arears of the site.
In terms of hydrology, the majority of the site is within the hydrologic soil group 'A' and 'B' and are characteristically known to provide good drainage and allow adequate in_ ltration. Although this is advantageous for stormwater management, a shall water table may prohibit or limit the stormwater management devices for the site. A geotechnical report should be prepared to evaluate this more.

SITE TOPOGRAPHY, ENVIRONMENTAL ITEMS, AND VEGETATION:

There is a ridgeline that bisects the site from east to west through the school and the adjacent parcel to the east. The site drains from this ridgeline toward the street and back towards the rear of the property that is wooded.

There appears to be an intermittent stream or drainage swale that is within the wooded area. In addition, there are documented wetlands in the southeast corner of the site. These will need to be evaluated more through the preparation of a Natural Recourse Inventory / Forest Stand Delineation as there could be additional environmental items that would need to be considered for development of the property.

A sizable portion at the rear of the property is vegetated with mature trees. Protection of this area will be at the request of MNCPPC. Development of the property will require a Tree Conservation Plan.



Civil Engineering Analysis - Fairwood Site

GENERAL SITE ANALYSIS:

The Fairwood Site is located at 13250 Fairwood Parkway, Bowie, within Election District No. 7 and within Prince George's County, Maryland. The school site is 15 acres and is one parcel with Tax Acct. No. 3507142. The site is bounded by the Sanctuary at Fairwood to the north, a townhouse community, Mt. Oaks Sanctuary Drive to the west, undeveloped lots to the east, and single family and townhouse residential housing to the south. Fairwood Parkway runs east-west and bounds the property to the south.

Based on the current Prince George's County Zoning Ordinance, the school site is Zoned M-X-C (Mixed Use Community). This is a unique Zone that typically is being developed with mixed use multi-family residential units. A Sketch Plan is normally required which establishes the setbacks and building heights for the development. Since the development of this property would be for a public school, the Mandatory Referral process would be followed with MNCPPC. Further discussions with MNCPPC will be required to determine what requirements will be set for the property. The only clear requirement from Zoning is that a minimum community use area of 30% must be provided.

It is noted that this property is within the Aviation Policy Area 6 for Freeway Airport located at 3900 Church Road, in Bowie, Maryland. The Aviation Policy Area is an area within a certain proximity to an airport. There may be additional regulations required by MNCPPC as part of this. A detailed discussion with MNCPPC will need to occur to determine if any specific requirement will apply to the development of an elementary school at this site.

SITE VEHICULAR/ PEDESTRIAN ACCESS AND TRANSPORTATION:

Proposed development of the site must provide accessible access to all students and staff. Pedestrian connections related to accessibility must be provided to all the site amenities (i.e. – fields, playgrounds, hard surface play areas, courts, etc.). With a new building, at least 60% of the building doors must be accessible and connect to a surrounding pedestrian connection that leads to the public right-of-way. If any accessible route require ramps, curb ramps, and/or handrails, they should be provided per the requirements of the Americans with Disability Act and the U.S. Department of Justice.

Connections to Fairwood Parkway shall consider site distance per AASHTO requirements. Mt. Oaks Sanctuary Drive is a private street on the west side of the property. Any connection to this street would need to be evaluated as there may be additional legal agreements with the adjacent HOA.
A proposed parking lot should be provide for 80-100 spaces; preferable 100. Parking access aisles shall meet the minimum requires of Fire Code by being 22-foot minimum; preferably 24-foot wide, and shall have parking space dimensions as required by the County Code of 9.5-foot by 19-foot. Adequate accessible parking shall be provided that conforms with ADA and the Maryland Accessibility Code requirements.

Student drop-off and proposed parking should be separated from Bus drop-off. Preferably, stacking for 50 vehicles or 1000 linear feet should be provided. At a minimum, stacking for 30 vehicles should be provided. Another option to expand the stacking length is to add a deceleration lane in the street. This would need to be coordinated with DPIE. A passenger loading area with curb ramps per requirements of ADA should be provided.

Regarding bus parking, the number of buses needs to be confirmed with PGCPS for a new school and should assume some growth in the future. Buses typically are in and out in the morning drop-off, but can stack in the afternoon. We recommend stacking for at least 10 buses or 500 linear feet. Buses should stack front to rear as chevron (diagonal) parking is a safety concern for elementary school age students. The bus loop should be a minimum of 30-foot wide.
The roadway for this property is currently built to Transportation Masterplan requirements. Therefore, it is anticipated that no additional public improvements, outside those required by the project, will need to be provided.

Adequate loading space and dumpster areas shall be provided for ease of access and to be hidden from the public.

SITE UTILITIES:

There are existing water lines that circumscribe the site on all sides. This can be good and bad. This is good because it provides more flexibility with where to connect the water and to also limit its length. However, this may be an indication that there is poor water pressure in the area. This will need to be confirmed with WSSC. There is a sewer manhole that may be utilized for a site connection that is the northeast corner of the site. There is a large 72" storm drain system that parallels the north property line. This may have an easement on it, but could be connected for storm water conveyance to the downstream pond of site to the northeast. There is the potential for street lights along the road for DPIE to request that the lights be updated to LED. This cost should be included in the budget. All power, cable, and telephone are below grade in Fairwood Parkway. There appears to be gas service in the area, but a new connection would need to be provided.

All connecting utilities will need to be evaluated from a size perspective to evaluate if the proposed site development can be sustained. Fire hydrants will need to be installed around the site to provide adequate coverage for a new building.

The Aviation Policy Area previously described prohibits the storage of fuel above ground. This may be an issue with respect to the design of an emergency generator for the school. This item should be discussed with MNCPPC planning staff as part of the Mandatory Referral process.

Civil Engineering Analysis - Fairwood Site

SITE TOPOGRAPHY, ENVIRONMENTAL ITEMS, AND VEGETATION:

The property slopes from Fairwood Parkway toward the rear north end of the site. A Natural Resourse Inventory / Forest Stand Delineation and both Tree Conservation Plan Type 1 and Type 2 have already been provided for this site. These will likely need to be amended and included with the Mandatory Referral submission.

STORM DRAINAGE AND STORMWATER MANAGEMENT:

It can be anticipated that any site development will be required to meet the latest regulations to the maximum extent practicable de_ ned in the Maryland Department of Environment (MDE) Stormwater Design Manual, that includes the Environmental Site Design (ESD) in order to treat all areas inside the limits of disturbance. If ESD e_ orts 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 DPIE.

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_ elds. Alternative surfaces would include vegetative roo_ ng for building additions. Permeable pavements could be considered, but a geotechnical report would need to be prepared to con_ rm this.

The downstream stormwater pond may be size appropriately to handle additional development from the project site. This will need to be evaluated more in design, but it should be considered that no attenuation will be required on the site. It can be anticipated that any new development will require a soil erosion and sediment control plan per PGSCD.

SITE SOILS:

Per the Soil Survey of Prince George's County, Maryland the predominant soils on the site are in the Adelphi-Holmdel complex and Collington-Wist complex. According to the USDA, the depth to bedrock is usually is greater than 6.5-foot. The seasonal water table may be as shallow as 4-foot in arears of the site.

In terms of hydrology, the majority of the site is within the hydrologic soil group 'B' and 'C' and are characteristically known to provide good drainage and allow adequate in_ ltration. Although this is advantageous for stormwater management, a shall water table may prohibit or limit the stormwater management devices for the site. A geotechnical report should be prepared to evaluate this more.

The Fairwood site is 15 acres and has water all the way around the site. This can be good and bad. Good in that we can connect anywhere, but bad in that it normally means that pressure is an issue. There is a sewer manhole that may be utilized to connect to at the low corner of the site to the northeast. There is a large 72" storm drain that runs along the north property line. This may have an easement on it, but could be connected for conveyance to the downstream pond o_ the site to the northeast. It is noted that this property is within the Aviation Policy Area. Not sure what this means right now, but we will have to look into it. There are both Tree Conservation Plans Type 1 & 2 for the property. These will likely need amended, but we will have to_ gure that our later. No public road improvements should be expected as the road is built to the ultimate condition. However, street lights may need to be replaced/installed. This property is also known as Fairway Sanctuary. All power, cable, telephone are below grade in Fairwood Parkway. There appears to be gas service available as well.

Structural Engineering Analysis

INTRODUCTION

VMDO Architects engaged Simpson Gumpertz & Heger Inc. (SGH) to perform a structural condition assessment related to the renovation of the Woodmore Elementary School. The Woodmore Elementary School is located at 12500 Woodmore Rd, Mitchellville, Maryland within Prince George's County.

SGH performed the following tasks:

- Conduct a visual survey of the existing buildings comprising the Woodmore Elementary School,
- Review available building documentation provided to us by VMDO, Architects.
- Provide conceptual repair recommendations for observed de_ ciencies, and
- Provide conceptual recommendations for further structural assessment and repairs necessary to support the proposed renovation options as part of the feasibility study developed by VMDO, Architects.

Representatives from the Prince George's County Public Schools (PGCPS) and SGH conducted a collaborate site visit at the Woodmore Elementary School on Monday, 12 March 2018. SGH conducted an interior and exterior visual survey of the existing 1963, 1966 and 1995 building structures comprising the Woodmore Elementary School.

SGH did not perform or observe exploratory probes (e.g. removal of_ nishes at select locations), extract samples or perform materials testing in our scope of structural condition assessment work. SGH photographed existing conditions and readily visible areas of concern and documented our observations in_ eld notes for the Woodmore Elementary School.

The observations,_ ndings, and recommendations herein are based on SGH's visual observations during our site assessment and our experience with similar buildings.

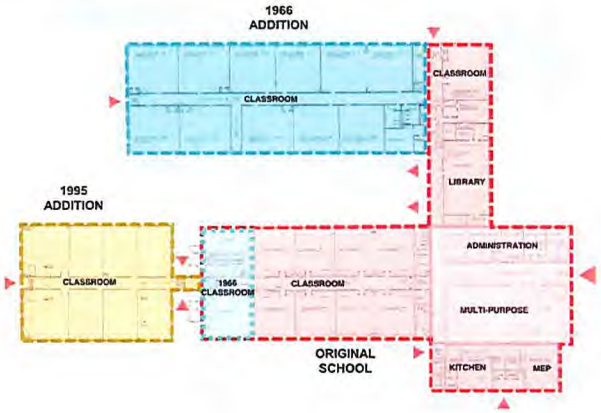
EXISITING DOCUMENT REVIEW

To enhance SGH's understanding of the existing building structures, we reviewed relevant portions of the following documents:

- Woodmore Road Elementary School by Ronald S. Senseman A.I.A. Architect and Scullen & Marchigiani Structural Engineer. The drawings are dated 17 June 1963.
- Addition to Woodmore Elementary School by Ronald S. Senseman A.I.A. Architect and Scullen & Marchigiani Structural Engineer. The drawings are dated 05 October 1967.
- FY-95 Modular Classroom Additions for Woodmore Elementary by Prince George's County Public Schools Facilities Adminstration Building Department of Planning and S.J. Ficarro & Associates, Inc. Structural Engineers. The drawings are dated 18 May 1994.

GENERAL BUILDING DESCRIPTION

Located in Mitchellville, Maryland, the Woodmore Elementary School is part of the Prince George's County Public Schools (PGCPS). The elementary school was originally constructed in 1963. A northeast classroom addition and a northwest classroom addition were added in 1966. A subsequent northwest classroom addition was added in 1995. Figure 1 depicts a plan of the existing buildings comprising the Woodmore Elementary School.



1963 ORIGINAL BUILDING

The 1963 original building is a single-story building consisting of:

- An administrative and multipurpose core,
- An east library/classroom wing,
- A west kitchen and mechanical wing, and
- A north classroom wing.

Design live loads are noted as follows per the 1963 base building drawings S-1 and S-2:

- Storage – 125 pounds per square foot (psf)
- Stairs, Corridor & Vestibule – 100 psf
- Q_ ce, Kitchen & Pipe Trench – 70 psf
- Toilet – 40 psf
- Roof – 30 psf

1963 ORIGINAL BUILDING FOUNDATIONS + FIRST FLOOR

Foundations of the original structure were designed with an assumed 3000 psf allowable soil bearing pressure. The superstructure framing is supported on a combination of interior isolated reinforced concrete spread footings and continuous exterior and interior concrete wall footings supporting mass brick masonry piers and concrete unit masonry (CMU). The mass brick masonry piers support the columns of the steel superstructure above.

The administration core, east wing and north wing have a 5" reinforced concrete slab-on-grade at the building's_ rst_ oor elevation. A pipe trench is located along the east elevation of the administration core running north-south. The trench turns east into the east wing running parallel with the south elevation. The trench is framed with a below grade 4" reinforced concrete slab-on-grade and an elevated one-way 5" reinforced concrete slab supported on continuous CMU bearing walls at the building's_ rst_ oor elevation. The trench continues north into the north wing running parallel with the east elevation.

The west wing has a below grade crawl space with a 4" reinforced concrete slab-on-grade. The _ rst_ oor slab is an elevated one-way 5" reinforced concrete slab spanning east-west between interior and exterior CMU bearing walls at the building's_ rst_ oor elevation. A pipe trench continues from the below grade crawlspace north into the north wing running parallel with the west elevation.

1963 ORIGINAL BUILDING SUPERSTRUCTURE

The administration core has a gable roof with 3" insulating steel roof deck and a built-up roof assembly. The roof deck spans east-west and is supported on steel beams spanning north south between steel 'A' frame spaced approximately 14'-9" on center.

The east, north, and west wing roofs are comprised of 2" rigid insulation on 1 ½" steel roof deck. The roof deck is supported on open web steel joists spanning between perimeter steel beams. The steel beams span between steel columns transferring loads to the foundations. The roofs are pitched slightly to facilitate drainage.

CMU in_ ll partition walls are located between steel column framing.

1966 EAST & WEST ADDITIONS

The 1966 wing addition is a single-story building located at the southwest corner of the original building extending north. A smaller wing addition was added at the north end of the 1963 original building north wing (Figure 1). Design live loads are noted as 30 psf for roof construction and 100 psf for 'other' elements per 1966 base building drawing S-3.

1966 FOUNDATIONS & FIRST FLOOR

Foundations of the 1966 east and west wing additions were designed with an assumed 3000 psf allowable soil bearing pressure. The superstructure framing is supported on a combination of interior isolated reinforced concrete spread footings and continuous exterior and interior concrete wall footings supporting concrete unit masonry (CMU).

The east wing addition has a 5" reinforced concrete slab-on-grade at the building's_ rst_ oor elevation. A pipe trench is located along the east and west running north-south. The trench is framed with a below grade 4" reinforced concrete slab-on-grade and an elevated one-way 5" reinforced concrete slab supported on continuous CMU bearing walls at the building's_ rst_ oor elevation.

Structural Engineering Analysis

The 1966 west wing addition_ rst_ oor slab is comprised of 8" precast plank supported on reinforced concrete beams. The concrete beams are located at column grid lines spanning east-west between interior and exterior concrete piers.

1966 SUPERSTRUCTURE

The 1966 east wing addition roof is comprised of 2" rigid insulation on 1 ½" steel roof deck. The roof deck is supported on two rows of sloped open-web steel joists spanning approximately 34'-0" between steel wide_ ange beams. The wide_ ange beams are supported on exterior steel columns at the perimeter of the building and interior steel columns at the corridor. The corridor roof is framed with wide_ ange beams and angles spanning approximately 9'-6".

The 1966 west wing addition roof is comprised of 2" rigid insulation on 1 ½" steel roof deck. The roof deck is supported on open-web steel joists spanning north-south between steel wide_ ange beams. The wide_ ange beams are supported on exterior steel columns at the perimeter of the building and interior steel columns located in the west corridor wall.

CMU in_ ll partition walls are located between steel column framing in both the east and west additions.

1995 ADDITION

The 1995 addition was designed in accordance with BOCA. Design live loads assume 40 psf for classrooms and 80 psf for corridors. Roof live load is 30 psf with dribing per BOCA. Design loads are noted per 1995 base building drawing S-3.

FOUNDATIONS + FIRST FLOOR

The 1995 addition foundations were designed with an assumed 2500 psf allowable soil bearing pressure. Foundations construction recommendations were based on a report by Geotech Engineers, Inc. dated 16 February 1994. The superstructure framing is supported on continuous exterior and interior concrete wall footings supporting concrete unit masonry (CMU) walls. The addition has a 5" reinforced concrete slab-on-grade at the building's_ rst_ oor elevation. The slab is thickened at all CMU bearing walls.

SUPERSTRUCTURE

The 1966 east wing addition roof is comprised of 2" rigid insulation on 1 ½" steel roof deck. The roof deck is supported on two rows of sloped open-web steel joists spanning approximately 36'-6" between perimeter exterior and interior corridor walls. Exterior walls consist of approximately reinforced 8" CMU piers approximately 3'-9" long with 4" brick veneer spaced between exterior windows. W8x21 steel beams are located at roof elevation above exterior windows to support joists and transfer loads to the reinforced CMU piers. Interior walls are 8" CMU bearing walls. The corridor roof is framed with open-web steel joists spanning approximately 7'-0".

OBSERVATIONS, DISCUSSION & RECOMMENDATIONS

The following highlights areas of notable concern observed during SGH's structural investigation and condition assessment:

- Exterior Observations
- Interior Observations

EXTERIOR OBSERVATIONS: MASONRY DISTRESS

Observations:

SGH observed diagonal cracks above isolated lintels at window and louver openings around the building perimeter.

Rusting was observed of the steel lintels and hung steel plates was observed at select window and louver openings around the building perimeter.

A horizontal step crack was observed at the east elevation of the 1966 east wing addition adjacent to louver openings. The masonry appears to have rotated out of the vertical plane to accommodate the step crack.

Deteriorated and open sealant joints were observed around the building perimeter.
Diagonal cracking in the brick veneer at the northwest corner of the 1966 east wing addition west elevation was observed.

Louvers were not observed at the west elevation of the 1963 west wing and may indicate the existing crawlspace is unvented.

Discussion:

Brick masonry is a porous material that readily absorbs moisture and is subject to moisture and temperature-related movement. Brick masonry is typically kiln_ red and at the time it leaves the kiln, the masonry has a very low moisture content. Aber the brick is installed and exposed to the environment (e.g. temperature, humidity, rain, etc), the brick absorbs moisture and grows over time. Restraint of masonry expansion and contraction may cause cracking. Over time, cracks and weathering and degradation of the brick and mortar allow additional moisture into the wall exposing embedded steel elements to moisture-related deterioration.

Corrosion, in particular rust on structural steel, is a result of moisture in_ ltration. The rust byproduct is several times the original volume of steel and this expansion will create internal tensile forces which act on the surrounding media in a process called rust jacking. Rust jacking is ob en apparent at the bearing locations of steel lintels in exterior masonry brick masonry walls. The growth of the structural steel opens mortar joints in the brick masonry and if leb unaddressed will cause cracking of the mortar joints and adjacent brick masonry. Cracks also lead to additional bulk water in_ ltration, accelerating the deterioration cycle.

To decrease a steel element's susceptibility to moisture distress, steel elements are commonly protected with a corrosion resistant paint or galvanizing and covered with_ ashings to collect and direct water from the wall. Remedial_ ashing installation in coordination with maintenance of protective coatings are durable and reliable options to address minor lintel deterioration. Where lintels are deteriorated beyond repair, lintel repairs or replacement may be required.
Deteriorated and open sealant joints provide a means for moisture in_ ltration and the potential for on-going deterioration of the structural framing.

Previous repairs are evident at the diagonal cracking at the northwest corner of the 1966 east wing addition. The cracking does not appear to be on-going and may be a result of settlement of the building.

Previous repairs are evident at the louvers adjacent to the horizontal step crack in the brick veneer. The cause of the crack and rotated masonry is not apparent.

Unvented crawlspaces trap moisture and may lead to deterioration of the structural elements.

FIG. 2: [illegible]

FIG. 3: [illegible]

FIG. 4: [illegible]

FIG. 5: [illegible]

FIG. 6: [illegible]

RECOMMENDATIONS:

SGH recommends an additional assessment of the exterior masonry to identify the cause and extents of deterioration and develop recommended repairs that address the cause. As part of the exterior masonry assessment hands-on survey and exploratory probes should be conducted at select locations. Locations may include but are not limited to:

- Lintel bearing where rust jacking is observed to determine condition of the existing lintels, hung plates, masonry and_ ashings (if present).
- Diagonal cracks at northwest corner of 1966 east wing addition west elevation.
- Horizontal crack at 1966 east wing addition east elevation.

SGH recommends review of the existing crawlspaces to ensure a means of passive ventilation is provided.

For cost estimating (without further investigation) it may be conservative to assume a complete replacement of the existing veneer system is necessary. Distress in the form of corrosion or rust of the existing steel superstructure may be noted at the time the existing veneer is removed. SGH recommends the cost estimate allow for 30% of all exposed structural steel to be wire brushed clean to bare metal and coated with a corrosive resistant paint prior to installation of the new veneer system. The new veneer system shall provide structural support for veneer at louver, window, and door openings.

EXTERIOR: CONCRETE DISTRESS

Observations:

SGH observed cracked, delaminated and spalled concrete at the exterior site elements including ramps and stairs.

Spalls were observed at a majority of the existing precast architectural facia panels on the original 1963 building.

Discussion:

Common concrete deterioration mechanisms include freeze/thaw deterioration, corrosion deterioration, and alkali-aggregate reactivity.

Freeze/Thaw: Exposed reinforced concrete can also be vulnerable to cyclic freeze-thaw damage. Concrete saturated with water and exposed to freezing temperatures may be damaged by pressure from freezing water, which produces bursting tensile stresses in the concrete. Even air entrained concrete is susceptible to this type of damage when continuously saturated.

Corrosion: Within a composite (reinforced) concrete section, concrete cover acts as a protective layer for the structural steel reinforcement. When cracks form in concrete, a failure of the protection system occurs. Cracks extending past the concrete cover, provide a conduit for moisture to reach the internal reinforcing steel. Corrosion, in particular rust on structural steel, is a result of moisture in_ltration and subsequent expansion as a result of a chemical reaction within the structural steel component. When corrosion of a structural steel element occurs, expansion of the steel occurs creating internal tensile forces which act on the surrounding concrete and in turn create delamination or spalling within the concrete.

Alkali-aggregate reactivity (ASR): Concrete durability can be compromised by a chemical process known as Alkali-silica reaction (ASR), which occurs when certain types of silica-containing reactive aggregates react with the hydroxyl and alkali ions in the concrete to form a silica gel. The gel absorbs signi_cant quantities of water, causing it to swell and crack the aggregates and surrounding cement paste inside the concrete.

Concrete deterioration, depending on the types, extents, and severity, may have signi_cant e_ects on the durability and structural integrity of a building. In the case of reinforced concrete, the structural element (slab, beam or column) is designed such that tensile forces caused by bending are carried by the reinforcing steel while compression forces are carried within the concrete media. Visible concrete spalling and delamination is an indication that internal reinforcement (rebar, welded wire fabric, etc.) is in distress and possesses a reduced ability to carry design tension forces. The increasing tension force is transferred back into the concrete component and as a result continued cracking and spalling occurs, exacerbating the structural element's diminishing load carrying capacity. If leb unaddressed, deterioration may accelerate and may result in the need for substantial repairs to maintain code compliance. Any repair and protection approach should address the cause of the deterioration.

FIG. 7: [illegible]

FIG. 8: [illegible]

FIG. 9: [illegible]

FIG. 10: [illegible]

Recommendations:

SGH recommends further investigation by a structural engineer be conducted of the exterior concrete elements (stairs, ramps, etc.) to determine the cause and better understand the extents of deterioration. Identifying the cause is fundamental in determining and developing a suitable repair approach. The investigation shall establish recommended repairs which may include but are not limited to:

- Protections that address the source of moisture ingress,
- Isolated partial or full-depth concrete repairs to address existing deterioration, and any modi_cations necessary to achieve suitable code compliant loads for embedded elements such as railings.

For cost estimating (without further investigation) it may be conservative to assume complete replacement of all exterior concrete elements (e.g. stairs, ramps, etc.) and associated railing elements is required.

EXTERIOR: EXISTING ROOFLINE DISTRESS

Observations:

SGH observed a notable sag in the 1963 gabled roof slab.

Discussion:

It is important to note, access to the roof was not available at the time of SGH's survey. As such, the visual survey is limited to elements visible at the ground level.
Displaced or sagging roof structure is oben indicative of distress within the supporting framing. If leb unaddressed, signi_cant deterioration may progress to the point of collapse.

Recommendations:

SGH recommends further investigation by a structural engineer be conducted of the existing roof structures. The investigation shall identify the cause and extents of noted gabled roof displacement and provide recommended repairs that address the cause. As part of the investigation, a hands-on survey and exploratory probes should be conducted at select locations.

Locations may include but are not limited to:

- Sagging gabled roof
- 1963 east, north and west wing roof and parapet wall interfaces
- 1966 east and west wing roof and parapet wall interface
- 1995 wing roof and parapet wall interface

For cost estimating (without further investigation) it may be conservative to assume complete replacement of the gable roo_ng assembly and strengthening of the structural framing may be required.

FIG. 12: [illegible]

FIG. 12: [illegible]

FIG. 13: [illegible]

FIG. 14: [illegible]

FIG. 15: [illegible]

FIG. 15: [illegible]

EXTERIOR: STORMWATER MANAGEMENT SYSTEM

Observations:

Negative drainage slope was observed around the perimeter of the entire structure thereby allowing runo_ to be diverted towards building exterior walls. Moisture staining was observed at the base of the exterior walls around the building perimeter.

Exposed brick as part of a missing unknown architectural element was observed adjacent to the 1963 north wing west elevation. The exposed brick holes facilitate water accumulation in the holes allowing water to sit adjacent to the building foundations.
Staining of the brick veneer was observed bellow window mullions of the 1995 addition.

Discussion:

Negative drainage allows stormwater runo_ to accumulate in the soils adjacent to building foundations. Oversaturated soils swell which exert pressure on building foundations and may in turn cause damage to the foundation elements through loss of stability (settlement) and/or material deterioration and cracking as a result of exposure to moisture (reference Section 4.1.1 and Section 4.1.2 for moisture related distress in brick masonry and concrete elements).

It is important for a building to have a functional and appropriately sized stormwater management system that starts at the roof elevation and extends down below grade.

Recommendations:

SGH recommends a review of the stormwater conveyance system (e.g. gutters, roof drains, downspouts, etc.) be conducted to ensure functional capacity and adequacy to carry runo_ away from the exterior walls and into the stormwater drainage system. Downspouts shall be connected to the foundation drain and oriented such that runo_ is directed away from the building perimeter.

The site may be regraded to provide positive drainage away from the building perimeter.
For cost estimating (without further review) it may be conservative to assume complete replacement of the existing stormwater conveyance system (e.g. gutters, roof drains, downspouts, etc.). Regrading the site to provide positive drainage is recommended.

FIG. 16: [illegible]

EXTERIOR: EXISTING CANOPY DISTRESS

Observations:

Distress in the_ nishes at the main entrance canopy was observed.
The corrosion inhibiting protective coat at the 1995 exterior canopies appears to have deteriorated in select areas. Corrosion of the structural framing was not observed.

Discussion:

Distress in the canopy_ nishes appears to be a result of prolonged exposure to environmental elements such as rain and snow.

Protective coatings decrease a steel element's susceptibility to moisture distress. Maintenance of protective coatings is a durable and reliable option to prevent deterioration of the steel framing. If deteriorated coatings are leb unaddressed, structural distress may occur in the steel framing requiring replacement of the steel framing.

Deteriorated and open sealant joints provide a means for moisture in_ ltration and the potential for on-going deterioration of the structural framing.

Recommendations:

SGH recommends select probes be conducted at the main entrance canopy to review the condition of the structural framing.

Maintenance of protective coatings at all exposed structural steel elements is recommended. For cost estimating (without further investigation) it may be conservative to assume complete replacement of the existing canopy systems. Replacement would include demolition of the existing structures and installation of new performance speci_ ed canopy systems in accordance with design wind and snow loads.

- Interior Observations
- Interior: Moisture In_ ltration

Observations:

Corrosion was observed at an interior roof drain penetration in the 1966 east wing addition.

Discussion:

If leb unaddressed, continued moisture in_ ltration at the drain location may negatively impact the integrity of the surrounding interior structural framing. (steel joists, steel beams, CMU, etc).

Recommendations:

SGH recommends a review of the stormwater conveyance system (e.g. gutters, roof drains, downspouts, etc.) be conducted in accordance with Section 4.1.4. to identify and address the source of leakage at the roof drain to help protect the interior structure.
SGH recommends further investigation by a structural engineer and building enclosure consultant be conducted to identify leakage paths and types and extents of leakage-related deterioration in order to develop suitable repair approaches. SGH recommends coordinating exploratory probe work and investigations of the building structural components with any proposed building renovation work.

Structural Engineering Analysis

Exploratory work may include but is not limited to the following building components:

- Exploratory removal of the 1963 gable roof assembly.
- Exploratory removals of the 1963 east, north and west wing roof assemblies.
- Exploratory removals of the 1966 east and west wing roof assemblies.
- Exploratory removals of the 1995 wing roof assembly.

As part of the investigation, removal of all ceiling_ nishes is required. The investigation shall establish recommended repairs which may include but are not limited to:

- Roo_ ng repair and/ or replacement,
- Repairs to moisture-damaged brick and CMU masonry,
- Repairs to moisture-damaged structural steel framing,
- Isolated partial or full-depth concrete repairs, and
- Repair to any other building element damaged by water in_ ltration as identi_ ed during the investigation.

For cost estimating (without further investigation), it may be conservative to assume 100% replacement of all existing roo_ ng assemblies (e.g. insulation, waterproo_ ng, etc.) and 25% replacement of existing roof structural slabs.

INTERIOR: STRUCTURAL SLAB DISTRESS

Observations:

- Cracking was observed in the tiled_ oor_ nish.
- A diagonal crack in the tiled_ oor_ nish was observed near a reentrant corner of the 1995 slab on grade.
- Displacement of the structural slab within the kitchen of the 1963 building was observed.

Discussion:

The cracking in the_ oor tile appears to occur at contraction joints in the slab-on-grade. Contraction joints in slabs-on-grade are sawed, formed or tooled into the slab to control the location where cracking occurs due to shrinkage of the concrete as it cures. The diagonal crack appears to be a result of cracking in the slab-on-grade telegraphing through the_ oor_ nish. The slab displacement in the kitchen is located above crawlspace #2 as noted on 1963 base building drawing #2 of 21. The cause of the displacement is unclear from visual observation.

Recommendations:

SGH recommends further investigation by a structural engineer be conducted to assess the integrity of the existing_ oor where cracking in the_ oor_ nish and/ or slab displacement is observed. The investigation shall identify the cause and extents of distress and provide recommended repairs that address the cause. As part of the investigation, a hands-on survey and exploratory probes should be conducted at select locations.

Locations may include but are not limited to:

- Cracked_ oor tiles, and
- 1963 kitchen slab displacement.

For cost estimating (without further investigation) it may be conservative to assume complete replacement of the displaced slab within the 1963 kitchen located over crawl space #2. Complete replacement of the existing_ oor_ nishes (e.g. tile, carpet, etc.) is warranted.

INTERIOR: CMU PARTITION WALL DISTRESS

Observations:

- Diagonal step cracking was observed in the CMU partition wall at the interphase of the 1963 and 1966 east addition.
- Separation at the interface of an interior CMU partition wall and an exterior perimeter wall was observed at the west elevation of the 1963 west wing adjacent to the kitchen.

Discussion:

The cracking appears to be a result of settlement between the two structures. The distress does not appear to be on-going.

Recommendations:

SGH recommends further investigation by a structural engineer be conducted to verify the cause of the step crack. The investigation shall identify the cause and extents of distress and provide recommended repairs that address the cause. As part of the investigation, a probe at the location of the diagonal crack shall be conducted to review the integrity of the CMU wall.

For cost estimating (without further investigation) it may be conservative to assume replacement of the interior partition wall at the interphase of the 1963 and 1966 east addition.

FIG. 19: [illegible]

FIG. 20: [illegible]

FIG. 21: [illegible]

FIG. 22: [illegible]

Architectural Analysis

INTRODUCTION

The existing facility is a 56,100 SF building constructed in 1963 with additions in 1966 and 1995. The following are architectural observations and recommendations for repairs or improvements.

FLOORS

Existing_ oors in the school consist of resilient tile and carpet. These_ oors are in poor condition throughout the school.

Resilient_ oors throughout the school are from the original construction. Throughout the 1963 and 1966 areas, resilient_ oors are 9" x 9" VAT (asbestos tile). These_ oors are in poor condition throughout the school. Several areas of_ ooring have missing tiles patched with modern 12" x 12" VCT tiles, particularly in the corridors. The 1995 addition was constructed with 12" x 12" VCT _ ooring. Resilient_ ooring in the 1995 addition is in good condition.

Carpet was used in select areas of the school and is original to the time of construction. The media center, constructed in 1963, is currently carpeted. This carpet is lifting from the substrate below, shows staining and is torn in several areas. Carpet installed in classrooms as part of the 1995 addition shows signs of heavy staining in areas from high tra_ c and possible water damage

Recommendations:

It is recommended that all existing_ ooring in the school be replaced. Very little existing_ ooring remains in a usable condition. All carpeted rooms show staining and wear from over 20 years of continuous use with some physical damage also present. Resilient_ ooring is mostly asbestos tile which will require abatement. Areas of resilient tile in good condition are limited to several smaller rooms in the 1995 addition. This_ ooring is itself over 20 years old and limited to the computer lab and Pre-K rooms.

CEILINGS/ LIGHTING

Existing ceilings are a mix of 2' x 4' ACT grid, 2'x2' perforated panel, tectum and hard ceilings. Existing perforated panel ceilings present in the 1966 addition corridors are in poor shape. Many panels are dented or stained. Areas of the ceiling, particularly around lights, have been patched with metal or plastic panels a_ xed with surface screws.

Existing tectum deck in the cafeteria/multipurpose room shows heavy signs of water damage. These panels have stained a dark gray from years of mold and dust
Existing hard ceilings appear to be in good condition. Where present, these ceilings show only minimal damage or discoloration.
Existing ACT ceilings are present in the existing 1963 corridor, many classrooms and the 1995 addition. ACT ceilings from the 1963 and 1966 additions are in poor condition. Ceiling grids show signs of corrosion and warping. Many existing tiles are sagging, stained or mismatched. Grids present from the 1995 addition are in good shape, though several tiles show signs of water damage and in some rooms there is signi_ cant sagging in the tiles.

Recommendations:

It is recommended that all drop ceilings and all classroom ceilings be replaced. There are no areas of drop ceiling in the school that show no signs of sag or staining. Even in the 1995 addition, at minimum, the existing tiles would need to be replaced. Existing classrooms are a mix of hard ceilings, drop ceilings and ba_ ed acoustic tiles. It is recommended that hard ceilings are removed to accommodate any required sprinkler, mechanical, plumbing, structural or electrical work. Existing acoustic ba_ es and ACT grid ceilings show signs of staining, corrosion and other damage. WSA recommends cleaning and re_ nishing the existing tectum deck in the cafeteria/ multipurpose space. WSA recommends re_ nishing the existing hard ceilings in the kitchen, boiler room and other accessory spaces.

WALLS

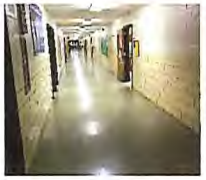
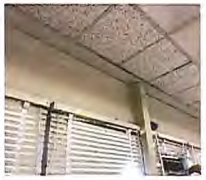
Existing walls throughout the school consist of concrete block or concrete. Existing walls from the 1963 and 1966 construction are concrete block with an integrated glazed block base. These walls are in good condition. The exterior walls in these locations are a mix of tec-fab panels and concrete block. Several of the tec-fab panels show signs of spalling or chipping on the interior. Existing walls from the 1995 addition are concrete block. Several of these walls show signs of cracking from settling.

Recommendations:

It is recommended that all existing block walls be repaired. Any cracking to existing block walls appears to be from prior building settling. According to the structural report, this settling should not continue moving forward. It is recommended that existing tec-fab panels be removed and replaced. The existing panels show signs of damage both on the interior and exterior. They likely do not meet insulation requirements for modern buildings.






Architectural Analysis

CASEWORK

Existing casework is a mix of wood, plastic laminate and metal. Existing classroom casework at the windows is steel with a plastic laminate top. The existing steel casework is scratched and dirty from use. The laminate tops are lifting in some locations and damaged or stained in others, presumably due to water exposure from the windows above. Existing casework at classroom sinks is wood with a plastic laminate countertop. Wood casework shows signs of water damage in some areas from years of splash from the sinks. Many of the wood cabinets are scratched or otherwise damaged from years of use. The plastic laminate countertops at these locations are sometimes chipped, stained or otherwise damaged from use. Classrooms added as part of the 1995 addition have plastic laminate casework. Casework in these rooms appears to be in fair to good condition with no major damage. All classrooms currently have existing wood coat hooks and shelving units.

Recommendations:

It is recommended that existing casework be removed and replaced. Existing metal casework does not show dents, corrosion or signs of permanent damage. However this casework appears to be integrated with aging mechanical units and the integrated countertops show damage. Existing wood casework shows signs of damage from its proximity to the existing plumbing fixtures. Though this damage appears minor and repairable, similar damage will continue to occur. Existing plastic laminate casework from the 1995 addition appears in good shape and could remain, however it represents only a small portion of casework in the building. Existing wood coat hooks and shelves are in good condition, however they do not meet current district standards requiring cubbies.

DOORS

Existing doors are a mix of hollow metal and solid core wood with hollow metal frames. Existing solid wood doors appear largely in good condition. Existing hollow metal doors show signs of wear such as denting and missing paint. Existing hardware on exterior hollow metal doors may not be adequate. The school currently uses a chain and padlock to secure the front door and courtyard at night. As part of our study, it was discovered that classroom and media center doors do not have proper ADA approach clearances.

Recommendations:

It is recommended that existing hollow metal entry doors and frames be removed and replaced. Existing doors and frames show signs of wear and corrosion along with denting and scratches. Existing hardware on these doors is not sufficient for the school. It is recommended that interior doors that do not meet ADA codes be modified, refinished, or replaced. While the existing wood doors could be refinished and reused, if these doors cannot be modified to accommodate modern accessibility requirements, they must be replaced.

WINDOWS

Existing windows are steel frames. Existing windows from 1963 and 1966 construction are steel single pane windows. The exterior sills are steel with slate interior sills. There windows show heavy signs of corrosion, particularly around fasteners. Some interior sills are chipped and all show signs of staining or grime. The windows from the 1995 renovation are steel double pane windows. The exterior sills are row lock brick and interior sills are block. These windows are in good condition. They do not show signs of significant corrosion.

Recommendations:

It is recommended that all existing steel windows and doors be replaced. Steel windows from the original construction and 1966 addition are long past their lifespan and show significant signs of corrosion. Windows from the 1995 addition are in good shape, however may not meet energy requirements for a new building as would be required for a renovation of this extensive nature. Existing exterior steel sills would need to be replaced as they are designed for single pane windows over tec-fab exterior walls. Existing exterior brick sills could remain in place. Cleaning and repair of existing slate sills is recommended.









MEP Engineering Analysis

GENERAL OVERVIEW

An 83,263-sf elementary school is proposed to accommodate 540 students. The following MEP narratives apply to the proposed school renovation and/or replacement options. The vast majority of the infrastructure within the building is beyond it's useful. If any of the renovation options are selected, all new MEP infrastructure will be required.

Heating, Ventilating & Air Conditioning (HVAC) Systems:

A detailed HVAC system selection comparison document is included as part of this study. Based on that document, it is recommended that the HVAC system for this project be a geothermal heat pump system as it has the lowest life cycle cost.

This system consists of unitary geothermal heat pumps for zone control and outside air handling units with energy recovery. In general, to reduce quantity of units and associated maintenance, the schools will be zoned with two similar function classrooms on one heat pump. The ventilation (outside) air is de-coupled from the HVAC heating and cooling with each space (or zone) receiving outside air separately utilizing demand control ventilation.

Each heat pump will be a high e_ ciency, single-stage or two-stage heat pump unit with an ECM fan motor. Most of the units will be_ oor mounted and installed in distributed mechanical room spaces located throughout the building. Each heat pump unit will utilize refrigerant R-410A and will have an ozone depleting potential (ODP) of 0.05 or less.

Each zone will have a heat pump with a thermostat (adjustable) and secondary zone averaging space temperature sensors. The averaging sensors will be used in many areas (i.e. two classroom/ single zone averaging). The unit will operate by maintaining an average temperature of the space based on the setpoint indicated on the adjustable thermostat.

For demand control ventilation, appropriate spaces will also include CO2 and occupancy sensors. The thermostat (and associated sensors), CO2 and occupancy sensors are to interface to the building automation system. The CO2 and occupancy sensor inputs will be utilized to control the space ventilation terminal unit and space temperature set points.

All heat pump units shall have fully ducted supply and return sheet metal ductwork. All supply air ductwork shall be insulated with 2.2" thick, ¾ pcf duct wrap with vapor barrier (installed R-value R>6). Return air ductwork will not be insulated. Each heat pump unit will include a duct-mounted pre-_ lter rack. The pre-_ lters shall be 24"x24" Flanders/ FFI PrePleat 40. Each heat pump shall include integral disconnect. Condensate for each unit will be disposed of through and_ oor drain or open receptacle into the sanitary system.

To provide cleaner indoor air environment, each heat pump unit shall include Global Plasma bi-polar ionization generators. These ionization units produce ions from water vapor (naturally in the air) which clusters the micro particles and gases. These clusters surround harmful substances including mold, virus, bacteria, along with many VOCs. The clusters allow chemical reactions to occur at the cellular level which transforms harmful materials into OH radicals, thus inactivating the harmful e_ ect.

The building geothermal system pumping system shall consist of two variable_ ow pumps (one operational – one 100% standby) for pumping the water to all heat pumps throughout the building. The pumps shall be located in a Mechanical Room and circulate water throughout the building to the individual heat pumps. Manual air vents shall be required at each pipe riser. A complete chemical treatment system shall be required.

All geothermal piping mains interior of the building shall be HDPE butt-fused joints and_ ttings so as to greatly reduce steel piping in this geothermal/hydronic loop. Heat pump run outs shall be copper or HDPE. The well_ eld piping and building piping will be purged to remove dirt, debris and air. The system will include side stream_ ltration, air elimination equipment, isolation zone/ valves, central chemical treatment and_ ll, and a purge pump.

With typical geothermal supply water temperatures operating higher than the space due point, the geothermal piping (HDPE) will not be insulated. Manual startup of the system shall be initiated and the heat pumps shall be operated as required to prevent below dew point distribution water temperatures until steady state operating temperatures are achieved and maintained. However, concealed, non-accessible geothermal piping interior of the building, piping located near main entry ways, piping located near kitchen area, piping located near loading dock, and metallic branch piping shall be insulated with 1" thick_ berglass insulation.

Sizing of the well_ eld is based on block/ diversi_ ed internal loads and designed for 80-85°F geothermal supply water temperature. While the well_ eld isn't designed with spare or redundant capacity, the shutdown of one of the circuits would still allow building operation with geothermal supply water temperature rising approximately 5°F, which results in loss of energy e_ ciency in the heat pumps of approximately 0.05-0.1 kW/Ton.

The geothermal well_ eld will consist of approximately 75 - 550 feet deep wells. The bores will be 6" in diameter and will include a factory made DR-9, 1-1/4" U-tube, fully grouted well. The wells shall be installed on a 21 foot radius, spacing. All horizontal mains shall be a minimum of_ ve feet below grade and the trenches shall be 100% back_ lled with rock or other suitable materials.

The high electrical load IT (MDF) and electrical (central) room will be conditioned utilizing geothermal air conditioning equipment. Smaller IDF/electrical rooms will be ventilated with cabinet exhaust fans connected into the central exhaust system.

The outside air systems for the building shall be de-coupled. In general, outside air shall be provided directly to the occupied space. The dedicated outside air handling unit will be indoor type and include dual supply/exhaust plenum fans and utilize double wall construction. The units shall be variable volume energy recovery type units utilizing building exhaust and general exhaust air to precondition the outside air through a total energy recovery wheel. All conditioned outside air ductwork and building exhaust air ductwork will not be insulated – this applies to positive pressure outside air ductwork and negative pressure exhaust air ductwork. All un-conditioned air ducts shall be insulated with 3" thick, ¾ pcf duct wrap with vapor barrier – this applies to negative pressure outside air ductwork and positive pressure exhaust air ductwork.

The air handling equipment shall be modular air handing units. The outside air units will consist of a dedicated air handling unit (~13,000 CFM) of the following sections/components: stacked on top and in the direction of air_ ow will be an inlet_ lter, energy recovery wheel, and plenum type, dual, exhaust air fans (each sized at 50% air_ ow), on the bottom will be a inlet_ lter, energy recovery wheel, access, hot / chilled water coil (2-pipe) with geothermal reheat coil, access, plenum type, dual, supply air fans (each sized for 50% air_ ow). Each fan bank will be controlled by a VFD for varying air_ ow conditions. During low ventilation conditions, only one of the fans would be needed to meet the ventilation requirements. The exhaust fan is sized at 20% reduction in capacity (thus maintaining building pressurization). The supply air distribution system will supply outside air to VAV terminal units for distribution of outside air to each zone.

To control outside air, CO2 monitoring will be provided to take advantage of building diversity. Each variable occupied area will contain a CO2 sensor. The VAV terminal will modulate in accordance with the CO2 measurements. The VAV terminal will also be interlocked with room occupancy sensor. The ventilation rate will be modulated based on occupied and vacant spaces conditions. The total space by space occupancy count will exceed actual building occupancy, however, the building occupancy is 540 students plus sta_ . Designing a variable ventilation system based on actual building occupancy reduces the central ventilation system by 30 percent, thus reducing the HVAC load.

The outside air conditioning system will be provided with a water to water, reverse cycle, heat pump, chiller unit located in the mechanical room. The heat pump chiller will provide hot or chilled water as required to condition the outside air (2-pipe system) The heat pump chiller is design with two independent refrigeration circuits. The 2-pipe system will changeover from heating to cooling and vice versa based on outside air temperature. A separate primary constant volume hydronic pumping system will circulate water to the dedicated outside air handling unit. With the use of the heat wheel, recovering over 75% of the exhaust energy, the entering air temperature to the heating/cooling coil is 51°F (winter design) and 80°F/69°F (summer design). The outside air/ventilation unit utilizes discharge air control to operate the 2-pipe heating/ cooling coil operates at full water_ ow while using the geothermal reheat coil to provide neutral ventilation air to the spaces. The resulting winter supply temperature is approximately 70°F and summer supply temperature is approximately 68°F/63°F.

MEP Engineering Analysis

The 2-pipe loop will consist copper piping and also contain approximately 30% propylene glycol with chemical treatment and rust inhibitors. The 2-pipe loop will be insulated with 2" thick glass fiber insulation.

Smaller, individual IDF rooms shall contain, ventilation fans which distribute room heat throughout the ceiling plenum.

The Kiln area shall include dedicated kiln exhaust system (as part of the Kiln) along with a dedicated ventilation system which exhausts the Kiln room to the exterior of the building.

A web-based BAC-Net DDC controls system shall be provided for the entire building and associated systems. The controls system will also include a JACE panel to communicate (wired/ wireless) over the web-based area network. The BAS shall also interface with the building lighting, exterior lighting, and switch gear / electric metering. BTUH metering shall be provided for the central geothermal system, kitchen systems, etc. The system shall be ASHRAE 135 BACnet compliant using BTL listed components (to the extent possible).

PLUMBING SYSTEMS:

Systems will be designed in conformance with the Maryland Building and Plumbing Codes Domestic cold water service will enter the building through a pressure reducing valve (with isolation bypass) and RPZ backflow preventer. Provide a pressure gauge at main domestic water service. Self-powered digital thermometers will be installed at main supply piping from storage type domestic water heater(s).

Interior domestic cold, hot and hot recirulating water piping will be Type L copper. Sanitary waste / vent piping will be PVC or cast-iron no-hub below, and PVC (vents only) or cast-iron no-hub above grade. Cast iron piping will be used in ceiling spaces used as return plenums. Interior storm drain piping will be cast iron. Grease interceptor will be provided for kitchen. Domestic water heater for the facility will be gas-fired, condensing vertical storage type.

As an option, the domestic hot water production for the building utilizes geothermal heat pump water heating with C.O.P. > 4. This unit absorbs heat from the geothermal loop to produce 140°F domestic hot water for distribution to the kitchen sinks, dishwasher, pot washing, etcetera. Booster heaters (only as necessary) are utilized at the kitchen equipment to increase the hot water temperature. This system will also be utilized to provide the domestic water needs throughout the building and include hot water recirculation piping, sensored balancing valves, and pumps, which allow recirculation pump operation only as necessary.

Above grade gas piping inside the building will be Schedule 40, black steel. Gas supply piping, exterior above grade and buried within five feet of the building, will be schedule 40, black steel with polyethylene jacket.

Rigid fiberglass pipe insulation with all-service jacket will be used for interior domestic cold / hot water piping, and horizontal / exposed interior storm drain piping. Storm piping leaders enclosed within interior walls will not be insulated, those enclosed within exterior walls will be insulated. PVC fitting covers.

Provide plastic laminate nameplates (or all plumbing equipment; brass or plastic tags for all valves; plastic markers for pipes; plastic underground warning tape for underground piping; ceiling tacks for equipment and valves located above suspended acoustical celling tiles.

Roof drains will be cast iron body with sump and polyethylene dome. Downspout nozzles (overflow drain outlets) will be nickel bronze, round with curved outlet. Floor drains will be lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer. Floor drains (cast brass, round strainers) with trap primers will be provided in mechanical rooms, janitors' closets and public restrooms. Floor sinks will be square lacquered cast iron body with integral seepage pan, epoxy coated interior, dome strainer, sediment bucket, half grate. Cleanouts will be round cast nickel bronze access frame and non-skid cover.

Exterior hydrants will be freeze resistant, self-draining type with chrome plated wall plate hose thread spout, lockshield and removable key, and integral vacuum breaker. Mixing wall hydrants (recessed) will be provided in each gang toilet room for cleaning purposes. Recessed galvanized box and quarter-turn valves will be provided for ice machine and refrigerator ice maker supplies. Water hammer arrestors will be provided in water supply branch piping to flushing fixtures.

Domestic water heater for the facility will be gas-fired, condensing vertical storage type. Plumbing fixtures will be water-conserving type. Kohler, American Standard, Zurn, Florestone, Elkay, Aquaglass used as basis for design in most cases.

- Water closets will be floor- and wall-mounted vitreous china with automatic low-flush valve (1.28 gpf).
- Urinals will be wall mounted, vitreous china, with ultra-low flush valve (1/ 8 gpf).
- Wall hung lavatories will be vitreous china (with floor carrier). Lavatories in solid-surface counters will be integral to the counter. Wall hung lavatories will be provided with grid strainers and single lever faucets (0.5 gpm). Integral counter lavatories will be provided with grid strainers and electronic sensor faucets (0.5 gpm).
- Sinks will be stainless steel with single-lever swing-spout faucets (1.5 gpm) and basket strainers. Sinks in Art Rooms will be provided with solids interceptors. Water fountains (bubblers) will be provided at sinks in the classrooms.
- Service sinks will be floor-mounted, molded stone, 24x24-inch, with 5-foot rubber hose, mop hanger, and wall mounted faucet (wall brace, pail hook, vacuum breaker and lever handles).
- Electric water coolers will be dual-height, stainless steel with recessed compressor compartments.

FIRE PROTECTION SYSTEMS:

The fire suppression system for complete building coverage in accordance with the Maryland Building Codes and NFPA 13. Light hazard for all spaces, except ordinary hazard for storage rooms and mechanical rooms. Piping will be black steel with mechanical couplings. All valves will be provided with integral tamper switches for connection to the fire alarm system. Sprinkler contractor will provide complete hydraulic calculations and shop drawings coordinated with reflected ceiling plans by NICET Level III designer or professional engineer.

The fire service line will have a post indicator valve. The main riser valve (with backflow preventer and OS&Y valves) will be located in a dedicated room. All piping will be run concealed in finished spaces. Piping will be exposed in spaces with exposed structure.

At this time, it is assumed the water supply has sufficient pressure / flow characteristics and a fire pump will not be required. If the municipal water supply is of insufficient pressure / flow, provide a packaged fire pump and service-entrance rated control panel. Fire pump will be electric with a dedicated utility company electrical service. Fire pump will be connected to local municipal water supply. Provide jockey pump and all required controls / accessories.

Sprinkler heads will be concealed pendent type (white finish) for interior spaces with finished ceilings. Standard pendent or upright heads with chrome finish will be used in spaces without finished ceilings (such as spaces with exposed structure ceilings, storage rooms, mechanical rooms, other service areas).

Dry-chemical fire suppression systems will be provided integral to kitchen range hoods.

MEP Engineering Analysis

ELECTRICAL DISTRIBUTION:

A new secondary service will be extended from the utility transformer to feed new 2000A/120/208V/3PH/4W switchgear located in a new main electric room. Each area of the building shall have dedicated electrical space with 120/208V/3PH/4W branch circuit panelboards separated for speci_ c loads such as mechanical equipment, lighting, receptacles, etc. A multi-circuit sub-metering device connected to the building automation system to monitor these building load categories.

All wiring shall be copper, minimum #12AWG installed in conduit, minimum size ¾". MC cable is not acceptable. Power connections and code required disconnecting means will be provided for all HVAC and plumbing equipment. Combination starter/fusible disconnects will be provided for selected equipment as required.

Integral surge protective devices will be provided for the main service switchgear and all branch circuit panels.
A new 100kW diesel generator (BOD: Cummins) with 12-hour belly tank will be provided for life-safety and general emergency loads.

All emergency electrical distribution equipment will be housed in a separate room from the normal power equipment and shall consist of a life-safety and general branch automatic transfer switches (one each), with associated distribution panelboards. All life-safety emergency loads shall be selectively coordinated to 0.1 seconds.

LIGHTING:

Interior arti_ cial lighting will be accomplished with recessed high-performance LED direct/indirect_ xtures throughout the building with more decorative LED lighting in selected spaces such as Media Center, Entry Lobby, Dining, etc. Alternate pricing shall be provided for Dynamic Lighting_ xtures (tunable white) in all classrooms with the ability to independently raise/ lower lighting intensity and CCT. Lighting in the Gymnasium will be round LED high bays with glass di_ users. Lighting throughout will meet the latest Illuminating Engineering Society of North America (IESNA) Handbook, IESNA Recommended Practices, etc. Interior egress lighting shall be connected to the life-safety branch of emergency power.

100% occupancy/vacancy sensor coverage will be provided throughout except in electrical and mechanical rooms. Occupancy sensors will be automatic on/ automatic o_ . Vacancy sensors will be manual on/ automatic o_ . Automatic daylight dimming will be employed in most zones.

Dimming switches will be provided in all o_ ces and classrooms. All interior lighting controls will be stand-alone systems.

Dark sky compliant LED exterior lighting will be provided at all exit doors for egress lighting. Site pathway lighting will be post top LED_ xtures on straight round aluminum poles and in accordance with the site guidelines for color to match the existing landscape architectural theme. Backlight shielded optics will be utilized to minimize glare to adjacent properties. Exterior lights will also feature integral motion sensing for reduced glare, energy usage and extended LED lamp life. Exterior egress lighting shall be connected to the life-safety branch of emergency power.

Exterior lighting will be controlled through the web-based DDC control system through RS-232 connected digital relays.

SYSTEMS:

A new fully addressable voice evacuation type_ re alarm system (BOD: Simplex) shall be provided with noti_ cation and initiation devices per NFPA requirements. All peripheral devices shall be installed per ADA requirements. Connections will be provided to all_ re suppression equipment, air handling units over 2,000CFM, door access controls, etc.
The contractor will provide all rough-in's, faceplates, cabling paths, cabling and patch panels for all telephone and data systems. Telephone system shall be IP based. Owner shall provide active components including wireless access points. Minimum stub-out conduit size will be 1" and cabling paths will consist of 12" cable tray with J-hook assemblies on 48" centers.

The horizontal data network will utilize CAT 6 infrastructure. New_ ber and copper utilities will be demarcated in new MDF and IDF rooms. Wireless coverage will be provided for the entire school utilizing CAT 6A cabling.

Sound reinforcement systems shall be provided in all classrooms typically with two recessed ceiling mounted speakers, ampli_ er and wireless microphone lanyard (BOD: Audio Enhancement).

Gymnasium and Dining shall have local sound systems with ceiling mounted/suspend loud speakers, wall mounted rack (with ampli_ er, mixer, equalizer, etc.), wireless microphone system and hardwired microphone inputs (BOD: Shure/Atlas).

A building wide Public-Address System (BOD: Telecor XL) shall be provided with two-way communication between most spaces. System shall feature a sofware-based head end and shall be integrated with the telephone system. All areas within building shall be individually addressable and shall be capable of having custom bell schedules. Call intuition will be primarily done through the telephone system but call stations will be provided in select areas.

A new electronic safety & security system will include interior and exterior Video Management Systems (VMS), Security Management Control System (SMS) and an emergency warning noti_ cation system interface (BOD: S2).

The SMS includes door access and logic capabilities such as visitor management, time schedules, intrusion detection and digital signage for emergency noti_ cation features. VMS will include security cameras that will be speci_ ed along with servers and analytics (motion detection) that run them. Both VMS and SMS systems will be integrated with a single web portal interface. The integrated system reports directly to any authorized group of users including the local police department if desired via programmed Push Noti_ cation.

Building shall feature a complete Lightning Protection System certi_ ed to NFPA 780. System shall comply with UL #96A. Building steel shall not be used as a down conductor. Down conductors shall be concealed within the building. Each down conductor shall be terminated to a dedicated ground rod. Provide surge protective devices for all systems identi_ ed in NFPA 780.

06

DESIGN CONCEPT OPTIONS

Option 1

RENOVATION & ADDITION OF EXISTING SCHOOL - WOODMORE

SUMMARY

Site Area:	20.98 acres
Extent of work:	
Existing building area:	56,100 GSF
Area of heavy renovation:	49,100 SF
Area of selective demolition:	23,100 SF
Area of complete demolition:	7,000 SF
New construction:	27,163 GSF
Total area of new school:	**83,263 GSF**
Cost Estimate:	
Building:	$18,279,705.43
Site work:	$ 2,164,838.00
Utilities:	$ 582,841.00
Total Cost:	**$34,575,425.00**
Cost/SF:	$415.32
Estimate project length:	30 months

Option 1 takes advantage of an existing asset by retaining a majority of the Woodmore Elementary School building footprint and considers the merits of a renovation and addition to accommodate the new program. To bring the building up to LEED certified and 40-year life cycle standards, a complete gut-renovation of interior and exterior finishes and assemblies, including all building systems and equipment would be performed. The new design will provide new and improved public spaces in the Media Center and Fine Arts (Performing and Visual) programs as well as full upgrade to Dining and Food services. The locations of these public functions address the front of the site to promote school identity and provide easy and safe community access. This option was rated safer overall as a 1-level scheme, but it is the least efficient in its poor classroom solar orientation and does not easily accept growth/expansion of classroom space in future phases. While some reconfiguration of the classroom wings might be required to accommodate new program spaces, most of the classrooms are already right-sized and can be retained. As a phased-occupancy, school operations will be disrupted throughout construction and will require on-site temporary facilities.

While this option ranked the lowest overall, the Planning Committee recognized the nostalgic value of the existing school building, and that any option that retained a portion of the building through renovation and addition would be positive for the community and families in the neighborhood. The committee also determined that a 1-story scheme was an important factor in considering overall visibility and safety of students in transit within the building and in an emergency.

OPTION 1 - FULL BUILD-OUT

OPTION 1 - EXISTING WOODMORE ELEMENTARY SCHOOL AND SITE

OPTION 1 - PHASED BUILDING DEMOLITION/RENOVATION/ADDITION AREAS

	Woodmore E.S. Option 1: Renovation/ Addition of Existing School		New Building GSF:		34,163.00	Existing Bldg Renov:		49,100.00	Total
DIV#	CSI DIVISIONS		% of Total	Cost per SF	CSI Subtotals	% of Total	Cost per SF	CSI Subtotals	
01	GENERAL REQUIREMENTS		4.8%	13.56	$463,221.24	4.3%	11.59	$569,185.10	1,032,406.42
02	EXISTING CONDITIONS		0.0%	0.00	$0.00	5.9%	16.00	$785,600.00	785,600.00
03	CONCRETE		5.3%	15.00	$512,445.00	0.9%	2.39	$117,274.30	629,719.30
04	MASONRY		7.0%	20.00	$683,260.00	5.9%	16.00	$785,600.00	1,468,860.00
05	METALS		10.9%	31.00	$1,059,053.00	5.2%	14.00	$687,400.00	1,746,453.00
06	WOODS, PLASTICS, COMPOSITES		0.6%	1.75	$59,785.25	0.7%	1.75	$85,925.00	145,710.25
07	THERMAL & MOISTURE PROTECTION	Replace all insul, gable roof, canopy, at renovation	7.0%	20.00	$683,260.00	8.2%	22.00	$1,080,200.00	1,763,460.00
08	OPENINGS		5.6%	16.00	$546,608.00	5.9%	16.00	$785,600.00	1,332,208.00
09	FINISHES		8.8%	25.00	$854,075.00	9.3%	25.00	$1,227,500.00	2,081,575.00
10	SPECIALTIES		1.8%	5.00	$170,815.00	1.9%	5.00	$245,500.00	416,315.00
11	EQUIPMENT		1.6%	4.50	$153,733.50	1.7%	4.50	$220,950.00	374,683.50
12	FURNISHINGS		3.2%	9.00	$307,467.00	3.3%	9.00	$441,900.00	749,367.00
13	SPECIAL CONSTRUCTION		0.0%	0.00	$0.00	0.0%	0.00	$0.00	0.00
14	CONVEYING EQUIPMENT		0.0%	0.00	$0.00	0.8%	2.04	$100,000.00	100,000.00
21	SPRINKLER		1.4%	3.93	$134,363.08	1.5%	3.93	$193,110.30	327,473.38
22	PLUMBING		3.5%	10.00	$341,630.00	3.7%	10.00	$491,000.00	832,630.00
23	HVAC	Exclude geothermal	14.4%	41.00	$1,400,683.00	15.2%	41.00	$2,013,100.00	3,413,783.00
26	ELECTRICAL		9.1%	26.00	$888,238.00	9.7%	26.00	$1,276,600.00	2,164,838.00
27	COMMUNICATIONS		1.8%	5.00	$170,815.00	1.9%	5.00	$245,500.00	416,315.00
28	ELECTRONIC SAFETY & SECURITY		1.8%	5.00	$170,815.00	1.9%	5.00	$245,500.00	416,315.00
31	EARTHWORK		2.1%	6.00	$204,978.00	2.2%	6.00	$294,600.00	499,578.00
32	EXTERIOR IMPROVEMENTS		7.0%	20.00	$683,260.00	7.4%	20.00	$982,000.00	1,665,260.00
33	UTILITIES		2.5%	7.00	$239,141.00	2.6%	7.00	$343,700.00	582,841.00
	SUBTOTAL				9,727,646.07			13,217,744.78	22,945,390.85
	GC FEES	GC Overhead and Profit	3.00%		291,829.38	3.00%		396,532.34	688,361.73
	SUBTOTAL				10,019,475.45			13,614,277.13	23,633,752.58
	BONDS & INSURANCE		1.50%		150,292.13	1.50%		204,214.16	354,506.29
	SUBTOTAL				10,169,767.58			13,818,491.28	23,988,258.87
	PHASING CONTINGENCY	Assume design bid build procurement	5.00%		508,488.38	5.00%		690,924.56	1,199,412.94
	SWING SPACE				0.00			750,000.00	750,000.00
	SUBTOTAL				10,678,255.96			15,259,415.85	25,937,671.81
	DESIGN CONTINGENCY	For scope not yet delineated	15.00%		1,601,738.39	15.00%		2,288,912.38	3,890,650.77
	SUBTOTAL	Cost per SF in Current dollars		359.45	12,279,994.36		357.40	17,548,328.22	29,828,322.58
	ESCALATION TO MIDPT	Assume 3.5 years of escalation	16.25%		1,995,499.08	16.25%		2,851,603.34	4,847,102.42
	SUBTOTAL				14,275,493.44			20,399,931.56	34,675,425.00
	GRAND TOTAL LOW END		-5.00%	396.97	13,561,718.77	-5.00%	394.70	19,379,934.98	32,941,653.75
	GRAND TOTAL BASELINE			417.86	14,275,493.44		415.48	20,399,931.56	34,675,425.00
	GRAND TOTAL HIGH END	Cost per GSF in future dollars	5.00%	438.76	14,989,268.11	5.00%	436.25	21,419,928.14	36,409,196.25

Maintenance and Operating Costs	GSF	Unit Cost	Item Cost	4.60
Maintenance costs	83,263.00	1.94	161,680.09	
Operating costs	83,263.00	3.19	265,775.50	
Utility costs	83,263.00	2.66	221,479.58	
Total Cost Per Year			648,935.17	
Discount rate	3.50%			
Escalation	5.50%			
NPV of M/O costs @ 40 years			38,627,391.23	

COST SUMMARY

Recommendations for repair or replacement and associated costs reflect bringing the entire existing building up to new construction standards, including new exterior envelope and insulation assemblies, full MEP systems replacements, material finish replacements, new lighting, and new exterior window and door replacements. Costs in masonry and steel are lower than other options because a majority of the existing CMU backup walls and steel framing can be left in place and reused with limited shoring or bracing. The largest costs of this option are reflected in phasing and swing space to accommodate students and faculty in on-site temporary facilities during school operations, costs that are not required in other schemes. Costs associated with a longer construction time are also higher than that of other options due to escalation.

Option 1

RENOVATION & ADDITION OF EXISTING SCHOOL - WOODMORE

RATING CRITERIA SCORE CARD

	RATING CATEGORY	PROS	CONS	SCORE
●●●●●●●	Safety / Security	- Location of public functions (Gym, Dining, Media) provides good security away from large portions of the building - Single level building allows for better supervision in student transition - Close proximity of fields and play areas to the building maintains best visibility of students between these functions. A generally flat site allows for good visibility of students on site	- Public functions are spread out, requiring certain corridors to be blocked off for security during public functions - Dining location requires further walk from some classrooms	4.4
●●●●●●●	Community	- Community-used program spaces that promote a sense of school/community identity address the street and have great presence on site - Location of public functions (Gym, Dining, Media, Fine Arts) at the front of the building provides community with easy access from parking	- Distance from Woodmore neighborhood to school does not allow students and families to easily walk to school or to community events at school - Public functions are not in close proximity to one another, requiring longer distances to access and walk between them. Parking is not in close proximity to fields	3
●●●●●	Health / Sustainability	- Natural ecology of site supports learning and qualifies for LEED Protect Habitat credit - wetlands, streams, habitat, forestation - Takes advantage of existing site assets in the reuse of existing building structure and site utility costs. Site qualifies for LEED Land Protection credit (1-pt)	- Orientation of existing academic wings creates unsuitable east-west sunlight exposure and glare - Least efficient passive solar orientation to capture daylighting, PV array positioning	2.3
●●●●●	Growth / Expansion	- Large site area allows for good growth/expansion opportunities	- Buffers from natural site features and existing building location limit expansion into certain areas of the site. - Existing building layout/orientation limits growth/expansion opportunities - Expansion would reduce/ eliminate playfield	1.3
●●●●	Parking / Circulation	- Developable site area accommodates parking requirements - Parking layouts accommodate separated bus and car drop-offs - Overall parking addresses front of building	- Building location and site restrictions limit future expansion of parking - Bus and car have to cross at drive intersection. Bus is required to drive through parking drive-aisle to exit - Parking orientation places a majority cars further away from front door	2.3
●●●●	Staging / Phasing	- Allows for ease of access to construction site	- Renovation will cause disruption of ongoing school operations and require students and staff to relocate on or off site during construction - Staging limited to avoid disruption of school operations - Renovation schedule will be longer in duration to accommodate ongoing school operations	1.7
●●●	Site Amenities	- Large site area and natural features maximizes opportunities on site for fields, play areas, garden, habitat, outdoor learning - Natural topography easily accommodates fields without much regrading - Relatively flat site allows for easy access and connectivity between amenities (adjacency to building, walking trails, sidewalks)	- Site amenities are further distance from building	3.3
●●●	Storm Water Management	- Addition impacts less topography change vs new construction - Efficient parking layouts, access drive, and fire lane minimize impervious paving	- Site lies within a watershed, so a 100-year storm attenuation will require an underground vault or surface pond. New addition crosses the natural swale on site. - Larger building footprint increases roof drainage requirement	2.7
●●	Environmental / Hazmat	- Recycle demolished building content - Majority of site is hydrological soil group 'A' and 'B' - provides good drainage and allows adequate infiltration	- Renovation of existing building will require removal of hazardous material and construction waste - Depth to bedrock greater than 6.5 feet. Seasonal water table as shallow as 4 feet. - Site includes environmental features requiring conservation and/or protection (wetlands, tree/ vegetation, streams)	2.7
●	Cost	- Lowest cost outcomes due to mostly renovation - Costs for renovation are lower than new construction costs	- Renovation will include higher phasing costs and longer time to complete - Renovation costs will include temporary on-site or off-site facilities for students/ faculty	2.7
●	R.O.W / Traffic Access	- New roadway access maintains good traffic flow from the street and throughout the site - Provides easy access for service deliveries and to dumpsters	- Roadway dedication requires public frontage improvements and/or establishment of new vehicular connection points to right-of-way - Trucks required to back out along service drive	2.7

	RATING CATEGORY	PROS	CONS	RATE
●	ADA / Accessibility	- Generally provides natural pedestrian connections and ease of navigation between site amenities and building that will require the need for new walks, paths - Elevation changes outside and inside the building minimize navigational hardships - Distances to and from interdependent building and site programs are minimized	- Accessible sidewalk connection to Woodmore Rd will need to be provided - Dispersal of public functions within the building require greater walking distances	3.3
●	Program / Adaptability	- Accommodates education speci_ cation program and building area requirements in aggregate - Single-level scheme minimizes logistics of moving students between multiple_ oors - All classrooms have immediate access to outdoor courtyard and play area	- Requires modi_ cation to some existing interior partitions to accommodate new program areas - Single-level scheme spreads program out and requires greater logistics of moving students from one wing to another	3.7
	Utilities	- Existing utilities (water/sewer) are available and accessible to site - Power, cable, and telephone are currently available on site (above ground)	- Existing utilities may need to be replaced and/or relocated to tie to new lines - (2) new_ re hydrants will need to be installed	3
	Site Work	- Minimizes new grading and disturbance of existing topography and slopes - Renovation minimizes site reclamation vs demolishing building	- Site reclamation required for removal of outdoor ramps and canopies	4

5 - Highest Quality / Best Conditions
4 - Good Quality & Conditions
3 - Adequate Quality & Conditions
2 - Poor Quality & Conditions
1 - Lowest Quality & Conditions

RANK
4
(OUT OF 4)

SCORE
43

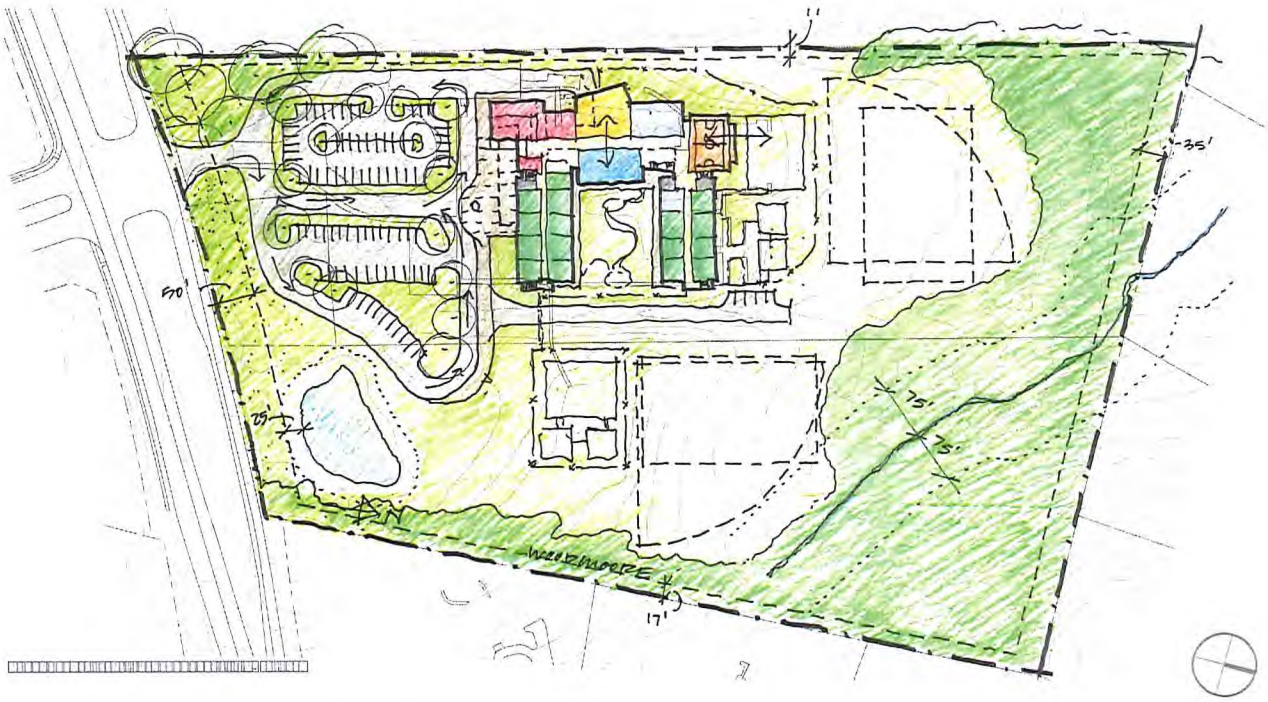
The_ nal ranking for each site is an average of all 15 criteria categories listed in the Pros and Cons chart

Option 2A

REPLACEMENT SCHOOL ON EXISTING SITE – DEMO EXISTING SCHOOL - WOODMORE

SUMMARY

Site Area:	20.98 acres
Extent of work:	
New Construction	
Level 1	52,250 GSF
Level 2	31,000 GSF
Total area of new school:	**83,250 GSF**
Cost Estimate:	
Building:	$19,964,921.60
Site work:	$ 2,870,400.00
Utilities:	$ 873,600.00
Total Cost:	**$33,593,298.86**
Cost/SF:	$403.52
Estimate project length:	18-24 months



Option 2a includes demolition of the existing building and construction of a new replacement school on the Woodmore site. It scores similarly to Option 2b in overall pros/cons rating criteria, but is less costly because it is built in the same location as the existing school which minimizes earthwork and ties to existing utilities already provided. While demolishing the existing building before construction allows flexibility for the new building to be placed anywhere on site, it requires displacement of students and faculty off-site during construction. Overall construction duration and cost is less than Option 1 because the site is not occupied by students and faculty during construction. Because the building is a compact 2-story scheme and is in the same location as the existing school, this option achieves its highest rating marks in the site amenities and storm water management criteria categories by minimizing overall disruption to existing topography and the site's natural features. Additionally, its u-shaped configuration maximizes efficiency by clustering the main public functions around a central courtyard, and placing the nearby classroom wings in the correct solar orientation on the site.

The Planning Committee concluded that a 2-story scheme was less safe overall and potentially more difficult to navigate and evacuate. This did not outweigh other advantages of two-story schemes over one-story schemes, like minimizing building footprint to open up other uses on the site. The group felt the location of the public functions in this option, away from the parking areas and front of the building, was a negative. Classrooms facing the parking also posed a safety hazard from the standpoint of public visibility, but the group agreed this concern could be addressed in further building iterations and orientation. The group raised concerns about possible effects relocating students to other schools would have on enrollment and possible overcrowding that could occur with this temporary transition during construction.

	Woodmore E.S. Option 2a: Replacement School on Existing Site		New Building GSF:		83,200.00	Existing Bldg Renovation:		0.00	Total
DIV#	CSI DIVISIONS		% of Total	Cost per SF	CSI Subtotals	% of Total	Cost per SF	CSI Subtotals	
01	GENERAL REQUIREMENTS		4.8%	14.70	$1,222,886.08	0.0%	0.00	$0.00	1,222,886.08
02	EXISTING CONDITIONS		2.9%	9.00	$748,800.00	0.0%	0.00	$0.00	748,800.00
03	CONCRETE		4.9%	15.00	$1,248,000.00	0.0%	0.00	$0.00	1,248,000.00
04	MASONRY		6.5%	20.00	$1,664,000.00	0.0%	0.00	$0.00	1,664,000.00
05	METALS		10.0%	31.00	$2,579,200.00	0.0%	0.00	$0.00	2,579,200.00
06	WOODS, PLASTICS, COMPOSITES		0.6%	1.75	$145,600.00	0.0%	0.00	$0.00	145,600.00
07	THERMAL & MOISTURE PROTECTION		6.5%	20.00	$1,664,000.00	0.0%	0.00	$0.00	1,664,000.00
08	OPENINGS		5.2%	16.00	$1,331,200.00	0.0%	0.00	$0.00	1,331,200.00
09	FINISHES		8.1%	25.00	$2,080,000.00	0.0%	0.00	$0.00	2,080,000.00
10	SPECIALTIES		1.6%	5.00	$416,000.00	0.0%	0.00	$0.00	416,000.00
11	EQUIPMENT		1.5%	4.50	$374,400.00	0.0%	0.00	$0.00	374,400.00
12	FURNISHINGS		2.9%	9.00	$748,800.00	0.0%	0.00	$0.00	748,800.00
13	SPECIAL CONSTRUCTION		0.0%	0.00	$0.00	0.0%	0.00	$0.00	0.00
14	CONVEYING EQUIPMENT		0.6%	1.78	$148,096.00	0.0%	0.00	$0.00	148,096.00
21	SPRINKLER		1.3%	3.93	$327,225.60	0.0%	0.00	$0.00	327,225.60
22	PLUMBING		3.2%	10.00	$832,000.00	0.0%	0.00	$0.00	832,000.00
23	HVAC		13.3%	41.00	$3,411,200.00	0.0%	0.00	$0.00	3,411,200.00
26	ELECTRICAL		8.4%	26.00	$2,163,200.00	0.0%	0.00	$0.00	2,163,200.00
27	COMMUNICATIONS		1.6%	5.00	$416,000.00	0.0%	0.00	$0.00	416,000.00
28	ELECTRONIC SAFETY & SECURITY		1.6%	5.00	$416,000.00	0.0%	0.00	$0.00	416,000.00
31	EARTHWORK		3.9%	12.00	$998,400.00	0.0%	0.00	$0.00	998,400.00
32	EXTERIOR IMPROVEMENTS		7.3%	22.50	$1,872,000.00	0.0%	0.00	$0.00	1,872,000.00
33	UTILITIES		3.4%	10.50	$873,600.00	0.0%	0.00	$0.00	873,600.00
	SUBTOTAL				25,680,607.68			0.00	25,680,607.68
	GC FEES	GC Overhead and Profit	3.00%		770,418.23	3.00%		0.00	770,418.23
	SUBTOTAL				26,451,025.91			0.00	26,451,025.91
	BONDS & INSURANCE		1.50%		396,765.39	1.50%		0.00	396,765.39
	SUBTOTAL				26,847,791.30			0.00	26,847,791.30
	CONSTRUCTION CONTINGENCY	Assume design bid build procurement	0.00%		0.00	0.00%		0.00	0.00
	SWING SPACE				0.00			0.00	0.00
	SUBTOTAL				26,847,791.30			0.00	26,847,791.30
	DESIGN CONTINGENCY	For scope not yet delineated	10.00%		2,684,779.13	10.00%		0.00	2,684,779.13
	SUBTOTAL	Cost per SF in Current dollars		354.96	29,532,570.43			0.00	29,532,570.43
	ESCALATION TO MIDPT	Assume 3 years of escalation	13.75%		4,060,728.43	13.75%		0.00	4,060,728.43
	SUBTOTAL				33,593,298.86			0.00	33,593,298.86
	GRAND TOTAL LOW END		-5.00%	383.58	31,913,633.92	-5.00%	0.00	0.00	31,913,633.92
	GRAND TOTAL BASELINE			403.77	33,593,298.86		0.00	0.00	33,593,298.86
	GRAND TOTAL HIGH END	Cost per GSF in future dollars	5.00%	423.95	35,272,963.81	5.00%	0.00	0.00	35,272,963.81

Maintenance and Operating Costs	GSF	Unit Cost	Item Cost
Maintenance costs	83,200.00	1.94	161,557.76
Operating costs	83,200.00	3.19	265,574.40
Utility costs	83,200.00	2.66	221,312.00
Total Cost Per Year			648,444.16
Discount rate	3.50%		
Escalation	5.50%		
NPV of M/O costs @ 40 years			38,627,391.23

COST SUMMARY

This option is least costly overall. While building and exterior improvement costs are the same in comparison to Option 2b, there is less cost in earthwork and utilities because the new building is in the same location as the existing building.

Option 2A

REPLACEMENT SCHOOL ON EXISTING SITE – DEMO EXISTING SCHOOL - WOODMORE

RATING CRITERIA SCORE CARD

	RATING CATEGORY	PROS	CONS	SCORE
●●●●●●●	Safety / Security	- Classroom wings can be easily blocked off during public functions - Close proximity of fields and play areas to the building and to one another maintains good visibility between these functions. A generally flat site allows for good visibility of students on site - Less perimeter footprint allows for greater visibility of site activities from building	- Location of public functions (Gym, Dining, Media, Fine Arts) requires community access through the main corridor of the school after hours - Multi-level building creates harder supervision in student transition - Multi-level building provides harder evacuation. Students evacuate into visible open spaces next to school	2.2
●●●●●●●	Community		- Distance from Woodmore neighborhood to school does not allow for students or families to easily walk to school or to community events at school - Public programs that promote a sense of school/community identity face away from the main entrance and have a poor presence on site - Biggest community amenity, the Gym, is at the back of the school.	1
●●●●●	Health / Sustainability	- Natural ecology of site supports learning and qualifies for LEED Protect Habitat credit - wetlands, streams, habitat, forestation - 2-story scheme maximizes energy efficiency with compact footprint. Academic wings offer good solar orientation - New construction allows for design of good passive solar orientation to meet LEED	- Greenfield site impacted by new construction compared to renovation	3.7
●●●●●	Growth / Expansion	- Large site area allows for good growth/expansion opportunities - Compact footprint in 2-story scheme allows for good growth/expansion. Building layout easily accepts expansion in classroom wings	- Buffers from natural site features limit expansion into certain areas of the site - Expansion would reduce/ eliminate open space/ playfield	3
●●●●	Parking / Circulation	- Developable site area accommodates parking requirements and future expansion - Parking layouts accommodate separated bus and car drop-offs - Overall parking addresses front of building	- Parking expansion would have to negotiate slope and avoid wetland buffer - Bus and car have to cross at drive intersection. Bus is required to drive through parking drive-aisle to exit - Parking orientation places a majority cars further away from front door	2.7
●●●●	Staging / Phasing	- Allows for ease of access to construction site once existing building is demolished - New construction allows for efficiencies in construction time and schedule	- Demolition of school will cause disruption of ongoing school operations and require students/ staff to relocate off site during construction - Schedule will have to accommodate demolition of existing building and site reclamation before new construction commences	3
●●●	Site Amenities	- Large site area and natural features maximizes opportunities on site for fields, play areas, garden, habitat, outdoor learning - Natural topography easily accommodates fields without much regrading - Relatively flat site allows for easy access and connectivity between amenities (adjacency to building, walking trails, sidewalks)	- Site amenities are further distance from building	3.3
●●●	Storm Water Management	- Building location minimizes disruption to natural topography and avoids natural swale on site - Smaller building footprint minimizes roof drainage requirements - Efficient parking layouts, access drive, and fire lane minimize impervious paving	- Site lies within a watershed, so a 100-year storm attenuation will require an underground vault or surface pond - 2-story scheme creates more vertical building surface area vs 1-story	3
●●	Environmental / Hazmat	- Recycle demolished building content - Majority of site is hydrological soil group 'A' and 'B' - provides good drainage and allows adequate infiltration	- Demolition of existing building will require large scale disposal of hazardous material and construction waste - Depth to bedrock greater than 6.5 feet. Seasonal water table as shallow as 4 feet. - Site includes environmental features requiring conservation and/or protection (wetlands, tree/vegetation, streams)	3
●	Cost	- Mid-range cost outcomes - New construction allows for faster time and possibly lower phasing costs - Speed of new construction and location of new building anywhere on site	- Schedule includes extra time to demolish existing building and prep site for new construction - Costs will include accommodations to temporarily absorb students at other schools or off-site during construction	2.3
●	R.O.W / Traffic Access	- New roadway access maintains good traffic flow from the street and throughout the site - Provides easy access for service deliveries and to dumpsters	- Roadway dedication requires public frontage improvements and/or establishment of new vehicular connection points to right-of-way - Trucks required to back out along service drive	2.7

	RATING CATEGORY	PROS	CONS	RATE
●	ADA / Accessibility	- Generally provides natural pedestrian connections and ease of navigation between site amenities and building that will require the need for new walks, paths - Dispersal of programs and elevation changes outside and inside the building minimize navigational hardships - Distances to and from interdependent building and site programs are minimized	- Accessible sidewalk connection to Woodmore Rd will need to be provide	3.7
●	Program / Adaptability	- Accommodates education speci_ cation program and building area requirements in aggregate - Multi-level scheme provides for closer program adjacencies and minimizes logistics of moving students from one wing to another - Some classrooms have immediate access to outdoor courtyard and play area	- Multi-level scheme requires greater logistics of moving students between multiple_ oors - Multi-level scheme requires transporting students in all upper level classrooms down stairs to access outdoor program space	3.7
	Utilities	- Existing utilities (water/sewer) are available and accessible to site - Power, cable, and telephone are currently available on site (above ground)	- Existing utilities may need to be replaced and/or relocated to tie to new lines - (2) new_ re hydrants will need to be installed	3
	Site Work	- Minimizes new grading and avoids disturbance of existing topography and slopes - Site reclamation required aber existing building is demolished		4

5 - Highest Quality / Best Conditions
4 - Good Quality & Conditions
3 - Adequate Quality & Conditions
2 - Poor Quality & Conditions
1 - Lowest Quality & Conditions

RANK
2
(OUT OF 4)

SCORE
44

The_ nal ranking for each site is an average of all 15 criteria categories listed in the Pros and Cons chart

Option 2B

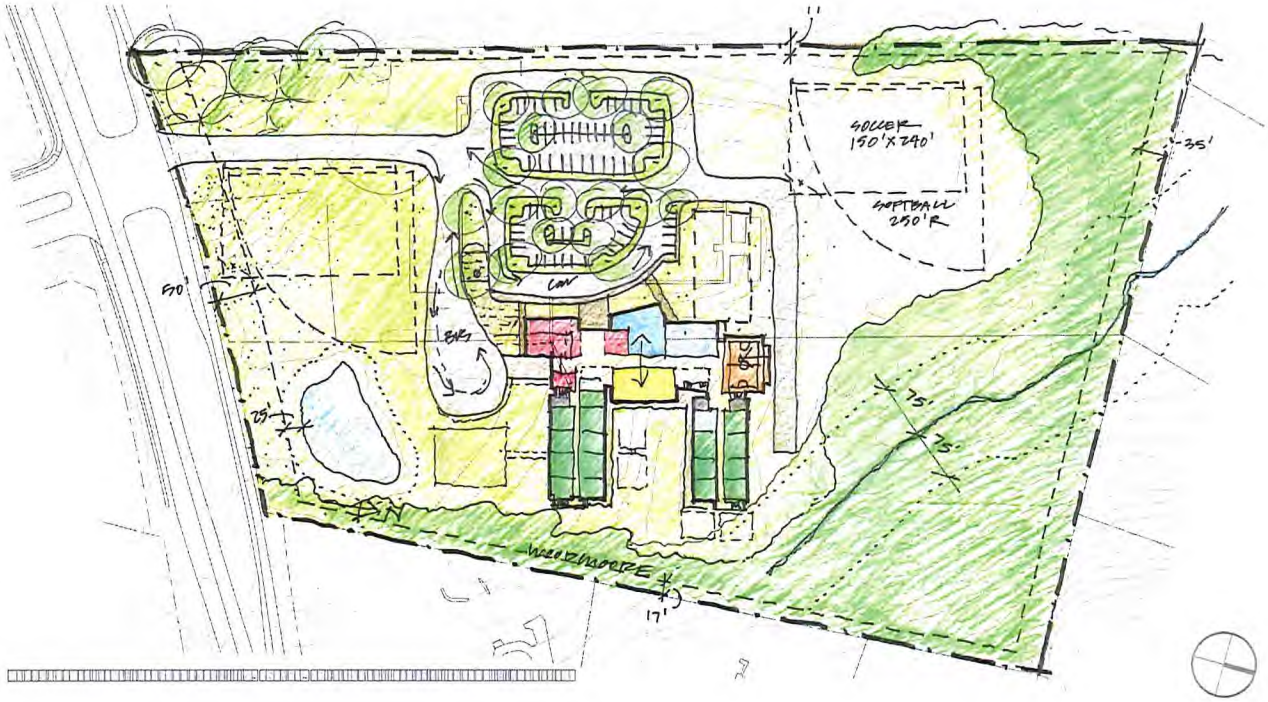
REPLACEMENT SCHOOL ON EXISTING SITE – RETAIN EXISTING SCHOOL - WOODMORE

SUMMARY

Site Area:	20.98 acres
Extent of work:	
New Construction	
Level 1	52,250 GSF
Level 2	31,000 GSF
Total area of new school:	**83,250 GSF**
Cost Estimate:	
Building:	$19,964,921.60
Site work:	$ 3,016,000.00
Utilities:	$ 1,497,600.00
Total Cost:	**$34,593,225.27**
Cost/SF:	$415.53
Estimate project length:	18-24 months

Option 2b includes new construction for a replacement school on the Woodmore site with demolition of the existing building occurring at the end of the project to allow the school to remain fully operational during construction of the new school. It scores similarly to Option 2b in overall pros/cons rating criteria, but is more costly due to additional earthwork and extension of utilities to a new location on site. This option employs a similarly sized u-shaped layout as Option 2a, but is_ ipped to allow the public functions to address the front of the building and main parking areas, o_ ering an improvement from Option 2a from a school identity and community connectivity standpoint. While this scheme allows students to remain in a fully operational building on site, the new school is more restricted in its placement on the site.

The Planning Committee felt that despite its overall close-to-equivalent rank to Option 2a, this option is higher in cost and is less desirable due to safety concerns and noise from construction while students are on-site. Additionally, issues of parking during construction, construction access, and limitations in the new building layout and orientation are all negative factors in comparison to Option 2a.



COST SUMMARY

Costs for earthwork and utilities are greater than Option 2a.

	Woodmore E.S. Option 2b: Replacement School on Existing Site		New Building GSF:		83,200.00	Existing Bldg Renovation:		0.00	Total
DIV#	CSI DIVISIONS		% of Total	Cost per SF	CSI Subtotals	% of Total	Cost per SF	CSI Subtotals	
01	GENERAL REQUIREMENTS		4.8%	15.14	$1,259,286.08	0.0%	0.00	$0.00	1,259,286.08
02	EXISTING CONDITIONS		2.7%	8.50	$707,200.00	0.0%	0.00	$0.00	707,200.00
03	CONCRETE		4.7%	15.00	$1,248,000.00	0.0%	0.00	$0.00	1,248,000.00
04	MASONRY		6.3%	20.00	$1,664,000.00	0.0%	0.00	$0.00	1,664,000.00
05	METALS		9.8%	31.00	$2,579,200.00	0.0%	0.00	$0.00	2,579,200.00
06	WOODS, PLASTICS, COMPOSITES		0.6%	1.75	$145,600.00	0.0%	0.00	$0.00	145,600.00
07	THERMAL & MOISTURE PROTECTION		6.3%	20.00	$1,664,000.00	0.0%	0.00	$0.00	1,664,000.00
08	OPENINGS		5.0%	16.00	$1,331,200.00	0.0%	0.00	$0.00	1,331,200.00
09	FINISHES		7.9%	25.00	$2,080,000.00	0.0%	0.00	$0.00	2,080,000.00
10	SPECIALTIES		1.6%	5.00	$416,000.00	0.0%	0.00	$0.00	416,000.00
11	EQUIPMENT		1.4%	4.50	$374,400.00	0.0%	0.00	$0.00	374,400.00
12	FURNISHINGS		2.8%	9.00	$748,800.00	0.0%	0.00	$0.00	748,800.00
13	SPECIAL CONSTRUCTION		0.0%	0.00	$0.00	0.0%	0.00	$0.00	0.00
14	CONVEYING EQUIPMENT		0.6%	1.78	$148,096.00	0.0%	0.00	$0.00	148,096.00
21	SPRINKLER		1.2%	3.93	$327,225.60	0.0%	0.00	$0.00	327,225.60
22	PLUMBING		3.1%	10.00	$832,000.00	0.0%	0.00	$0.00	832,000.00
23	HVAC		12.9%	41.00	$3,411,200.00	0.0%	0.00	$0.00	3,411,200.00
26	ELECTRICAL		8.2%	26.00	$2,163,200.00	0.0%	0.00	$0.00	2,163,200.00
27	COMMUNICATIONS		1.6%	5.00	$416,000.00	0.0%	0.00	$0.00	416,000.00
28	ELECTRONIC SAFETY & SECURITY		1.6%	5.00	$416,000.00	0.0%	0.00	$0.00	416,000.00
31	EARTHWORK		4.3%	13.75	$1,144,000.00	0.0%	0.00	$0.00	1,144,000.00
32	EXTERIOR IMPROVEMENTS		7.1%	22.50	$1,872,000.00	0.0%	0.00	$0.00	1,872,000.00
33	UTILITIES		5.7%	18.00	$1,497,600.00	0.0%	0.00	$0.00	1,497,600.00
	SUBTOTAL				26,445,007.68			0.00	26,445,007.68
	GC FEES	GC Overhead and Profit	3.00%		793,350.23	3.00%		0.00	793,350.23
	SUBTOTAL				27,238,357.91			0.00	27,238,357.91
	BONDS & INSURANCE		1.50%		408,575.37	1.50%		0.00	408,575.37
	SUBTOTAL				27,646,933.28			0.00	27,646,933.28
	CONSTRUCTION CONTINGENCY	Assume design bid build procurement	0.00%		0.00	0.00%		0.00	0.00
	SWING SPACE				0.00			0.00	0.00
	SUBTOTAL				27,646,933.28			0.00	27,646,933.28
	DESIGN CONTINGENCY	For scope not yet delineated	10.00%		2,764,693.33	10.00%		0.00	2,764,693.33
	SUBTOTAL	Cost per SF in Current dollars		365.52	30,411,626.61			0.00	30,411,626.61
	ESCALATION TO MIDPT	Assume 3 years of escalation	13.75%		4,181,598.66	13.75%		0.00	4,181,598.66
	SUBTOTAL				34,593,225.27			0.00	34,593,225.27
	GRAND TOTAL LOW END		-5.00%	394.99	32,863,564.00	-5.00%	0.00	0.00	32,863,564.00
	GRAND TOTAL BASELINE			415.78	34,593,225.27		0.00	0.00	34,593,225.27
	GRAND TOTAL HIGH END	Cost per GSF in future dollars	5.00%	436.57	36,322,886.53	5.00%	0.00	0.00	36,322,886.53

Maintenance and Operating Costs	GSF	Unit Cost	Item Cost
Maintenance costs	83,200.00	1.94	161,557.76
Operating costs	83,200.00	3.19	265,574.40
Utility costs	83,200.00	2.66	221,312.00
Total Cost Per Year			648,444.16
Discount rate	3.50%		
Escalation	5.50%		
NPV of M/O costs @ 40 years			38,627,391.23

Option 2B

REPLACEMENT SCHOOL ON EXISTING SITE – RETAIN EXISTING SCHOOL - WOODMORE

RATING CRITERIA SCORE CARD

	RATING CATEGORY	PROS	CONS	SCORE
●●●●●●●	Safety / Security	- Location and compact layout of public functions (Gym, Dining, Media, Fine Arts) provides good security away from large portions of the building. - Orientation/location of Academic wings minimizes visibility into classrooms from public areas - A generally_ at site allows for good visibility of students on site - Provides evacuation into less visible open spaces behind the school	- Remote distance of_ elds reduces visibility from the building an between these functions - Multi-level building creates harder supervision in student transition - Multi-level building provides harder evacuation	3
●●●●●●●	Community	-Community-used program spaces that promote a sense of school/community identity have good presence on site from main entrance - Location of public functions (Gym, Dining, Media, Fine Arts) at the front of the building provides community with easy access from parking. Parking is in close proximity to_ elds	- Distance from Woodmore neighborhood to school does not allow for students or families to easily walk to school or to community events at school	3
●●●●●	Health / Sustainability	- Natural ecology of site supports learning and quali_ es for LEED Protect Habitat credit - wetlands, streams, habitat, forestation - 2-story scheme maximizes energy e_ ciency with compact footprint. Academic wings o_ er good solar orientation - New construction allows for design of good passive solar orientation to meet LEED credits.	- Green_ eld site impacted by new construction compared to renovation	3.7
●●●●●	Growth / Expansion	- Large site area allows for good growth/expansion opportunities - Compact footprint in 2-story scheme allows for good growth/expansion - Primary open spaces/ play_ elds are not impacted by expansion	- Bu_ ers from natural site features limit expansion into certain areas of the site - Building layout/orientation limits growth/expansion opportunities	2.3
●●●●	Parking / Circulation	- Developable site area accommodates parking requirements and future expansion - Parking layouts accommodate separated bus and car drop-o_ s - Overall parking addresses front of building. Parking orientation places a majority of cars closer to front door	- Bus and car have to cross at drive intersection	3.3
●●●●	Staging / Phasing	- Avoids disruption of ongoing school operations while new school is being built on site - New construction allows for e_ ciencies in construction time and schedule while existing building remains occupied	- Site is restricted while new school is being built - Existing building to remain in place during construction limits access to new construction area. Staging limited to avoid disruption of school operations - Schedule will have to accommodate demolishing existing building, site reclamation, and constructing new parking before students occupy new building	2.7
●●●	Site Amenities	-Large site area and natural features maximizes opportunities on site for_ elds, play areas, garden, habitat, outdoor learning - Natural topography easily accommodates_ elds without much regrading - Relatively_ at site and single-story scheme allows for easy access and connectivity between amenities (walking trails, sidewalks). Site amenities are adjacent to building.		3.7
●●●	Storm Water Management	- Building location minimizes disruption to natural topography and avoids natural swale on site - Smaller building footprint minimizes roof drainage requirements - E_ cient parking layouts, access drive, and_ re lane minimize impervious paving	- Site lies within a watershed, so a 100-year storm attenuation will require an underground vault or surface pond - 2-story scheme creates more vertical building surface area vs 1-story	3
●●	Environmental / Hazmat	- Recycle demolished building content - Majority of site is hydrological soil group 'A' and 'B' - provides good drainage and allows adequate in_ ltration	- Demolition of existing building will require large scale disposal of hazardous material and construction waste - Depth to bedrock greater than 6.5 feet. Seasonal water table as shallow as 4 feet. - Site includes environmental features requiring conservation and/or protection (wetlands, tree/vegetation, streams)	3
●	Cost	- Mid-range cost outcomes - New construction allows for faster time and possibly lower phasing costs - Scheme allows existing facility to remain fully operational, reducing costs to accommodate relocated students	- Site work/new parking delayed until existing building is demolished - Costs include demolition of existing school. Location of new building is limited due to site constraints	2.7

	RATING CATEGORY	PROS	CONS	RATE
●	R.O.W. / Traffic Access		- Roadway dedication requires public frontage improvements and/or establishment of new vehicular connection points to right-of-way - Remote distance of parking from street creates long drive for new roadway access through the site - Service deliveries and dumpsters are o_ bus-loop and in public view	1
●	ADA / Accessibility	- Generally provides natural pedestrian connections and ease of navigation between site amenities and building that will require the need for new walks, paths - Dispersal of programs and elevation changes outside and inside the building minimize navigational hardships - Distances to and from interdependent building and site programs are minimized	- Accessible sidewalk connection to Woodmore Rd will need to be provided	3.7
●	Program / Adaptability	- Accommodates education speci_ cationcation program and building area requirements in aggregate - Multi-level scheme provides for closer program adjacencies and minimizes logistics of moving students from one wing to another - Some classrooms have immediate access to outdoor courtyard and play areas	- Building layout is restricted by limits of existing building remaining in place during construction - Multi-level scheme requires greater logistics of moving students between multiple_ oors - Multi-level scheme requires transporting students in all upper level classrooms down stairs to access outdoor program spaces	3.3
	Utilities	- Existing utilities (water/sewer) are available and accessible to site - Power, cable, and telephone are currently available on site (above ground)	- Existing utilities may need to be replaced and/or relocated to tie to new lines - (2) new_ re hydrants will need to be installed	3
	Site Work	- New grading and disturbance of existing topography and slopes concentrated around new construction area - Site reclamation required ab er existing building is demolished		3

5 - Highest Quality / Best Conditions
4 - Good Quality & Conditions
3 - Adequate Quality & Conditions
2 - Poor Quality & Conditions
1 - Lowest Quality & Conditions

RANK
3
(OUT OF 4)

SCORE
44

The_ nal ranking for each site is an average of all 15 criteria categories listed in the Pros and Cons chart

Option 3

REPLACEMENT SCHOOL ON AN ALTERNATIVE SITE - FAIRWOOD

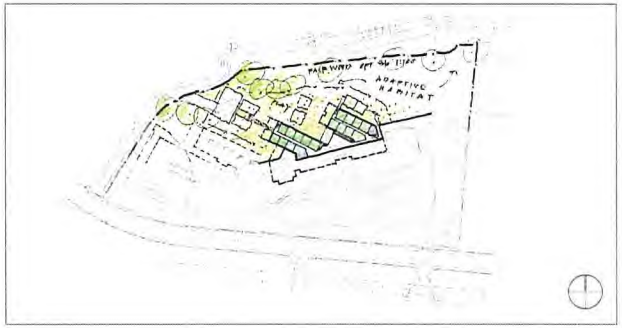
SUMMARY

Site Area:	14.90 acres
Extent of work:	
New Construction	
Level 1	54,874 GSF
Level 2	28,376 GSF
Total area of new school:	**83,250 GSF**
Cost Estimate:	
Building:	$20,748,825.60
Site work:	$ 4,035,200.00
Utilities:	$ 1,664,000.00
Total Cost:	**$35,494,301.63**
Cost/SF:	$426.36
Estimate project length:	12 months

Option 3 explores new construction for a replacement school on an alternative site in the Fairwood neighborhood. Building on a remote greenfield site offers speed in construction and allows the existing school to remain fully operational throughout construction. While the site is smaller in area, it is not as limited to development by buffers or setbacks as the Woodmore site. A more open, less-restricted site allows the building to be sited with optimal solar orientation and along the existing topography. Public programs are organized along the front of the building to address the community, and academic programs are stacked 2-story classroom wings behind the school with shared outdoor amenities between them. Due to the extent of topographical change from the road and relatively steep slope across the site, the lower level program of the building will be retained underground and will necessitate greater site improvements like exterior walls, ramps, and stairs to accommodate navigation and accessibility between site amenities and building levels. While this option scores the highest overall in rating criteria, it is also the highest cost due to more extensive site work and retaining required to address a sloping site.

The Planning Committee felt the physical constraints of the site and overall higher construction costs were outweighed by the advantages of new construction and benefits of the site's location including good community presence and walkability to and from surrounding neighborhoods. While the Woodmore site offered more natural habitats that could be utilized for learning opportunities (wetlands, forestation), the group agreed there were good opportunities on an undeveloped site to introduce new habitat and present creative educational solutions for storm water management.

FAIRWOOD ELEMENTARY SCHOOL / OPTION 3 LEVEL 1



FAIRWOOD ELEMENTARY SCHOOL / OPTION 3 LEVEL 0

Option 3

REPLACEMENT SCHOOL ON AN ALTERNATIVE SITE - FAIRWOOD

RATING CRITERIA SCORE CARD

	RATING CATEGORY	PROS	CONS	SCORE
●●●●●●●	Safety / Security	- Classroom wings can be easily blocked o_ during public functions. - Orientation/location of Academic wings minimizes visibility into most classrooms from public areas - Close proximity of_ elds and play areas to the building maintains good visibility of students - Less perimeter footprint allows for greater visibility of site activities from building - Provides evacuation into less visible open spaces behind the school	- Location of public functions (Gym, Dining, Media, Fine Arts) gives community access to larger portions of the building via atrium stair from main entrance - Natural slope of site and required site walls and stairs minimizes visibility and creates di_ cult transport of students to and from functions outside the building - Multi-level building creates harder supervision in student transition	2.6
●●●●●●●	Community	- Close proximity to Fairwood neighborhoods accommodates greater walk-ability for students and families to easily walk to school or to community events at school - Community-used program spaces that promote a sense of school/community identity address the street and have great presence on site - Location of public functions (Gym, Dining, Media, Fine Arts) at the front of the building	- Parking is not in close proximity to_ elds	4.3
●●●●●	Health / Sustainability	- 2-story scheme maximizes energy e_ ciency with compact footprint. Building layout is in optimal solar orientation - New construction allows for design of optimal passive solar orientation to meet LEED credits. Future expansion meets LEED credit for site master plan	- Added costs for natural habitat restoration to meet LEED credit and for educational opportunities - Green_ eld site impacted by new construction compared to renovation	3.7
●●●●●	Growth / Expansion	- Open site provides more_ exibility for future growth/ expansion - Compact footprint in 2-story scheme allows for good growth/expansion on small site. Building layout/ orientation easily accepts expansion in classroom wings and public functions - Play_ elds are not impacted by expansion	- Site area is smaller and limits growth/expansion opportunities - Open space is reduced by expansion on small site	4
●●●●	Parking / Circulation	- Developable site area accommodates parking requirements and future expansion - Parking layouts accommodate separated bus and car drop-o_ s Bus and car can enter and exit at separate curb cuts - Overall parking addresses front of building. Parking orientation places a majority of cars closer to front door	- Parking expansion would be limited to front end of site due to sloped site - Bus is required to drive through parking drive-aisle to exit	3
●●●●	Staging / Phasing	- Avoids disruption of ongoing school operations while new school is being built on another site - Allows for ease of access to construction site - New construction allows for e_ ciencies in construction time and schedule		5
●●●	Site Amenities	- Site amenities are relatively near building	- Smaller site area with no surface-level vegetation limits opportunities on site for_ elds, play areas, garden, habitat, outdoor learning - Natural topography requires extensive regrading to accommodate_ elds - Multi-level scheme and sloped site make access and connectivity between amenities more di_ cult	1.3
●●●	Storm Water Management	- No attenuation will be required on the site - Smaller building footprint minimizes roof drainage requirements - E_ cient parking layouts, access drive, and_ re lane minimize impervious paving	- Changes in natural topography and smaller site area will require more creative solutions to on site storm water management - 2-story scheme creates more vertical building surface area vs 1-story	2.7
●●	Environmental / Hazmat	- Requires no cost of abatement or disposal of existing hazardous materials - Majority of site is hydrological soil group 'B' and 'C' - provides good drainage and allows adequate in_ ltration - Natural Resource Inventory/Forest Stand Delineation and Tree Conservation Plans have been provided for this site	- New construction creates disturbance of green_ eld site. Depth to bedrock greater than 6.5 feet. Seasonal water table as shallow as 4 feet.	4
●	Cost	- New construction allows for faster time and possibly lower phasing costs - Speed of new construction and no disruption to school operations	- Highest cost outcomes due to site work - Costs of site work required to build/develop are greater on sloping site	3
●	R.O.W / Traffic Access	- Roadway is currently built to Transportation Masterplan requirements, no need for additional public improvements - New roadway access maintains good tra_ c_ ow from the street and throughout the site - Service deliveries are close to road	- Sloping site and need for t-turn around creates di_ cult navigation for service deliveries and dumpsters	3.3

	RATING CATEGORY	PROS	CONS	RATE
●	ADA / Accessibility	- Distances to and from interdependent building and site programs are minimized	- Sloping site creates di_ cult navigation between site amenities and building. Will create need for improved accessible routes, ramps, walks, paths - Elevation changes outside and inside the building create navigational hardships	1.7
●	Program / Adaptability	- Accommodates education speci_ cation program and building area requirements in aggregate - Multi-level scheme provides for closer program adjacencies and minimizes logistics of moving students from one wing to another. - Some classrooms have immediate access to outdoor courtyard and play areas	- Building layout is restricted by limits of sloping site - Multi-level scheme requires greater logistics of moving students between multiple_ oors - Multi-level scheme requires transporting students in all upper level classrooms down stairs to access outdoor program spaces	3.3
	Utilities	- Existing utilities (water/sewer) are available and accessible to site - Power, cable, and telephone are currently available on site (underground).	- Existing utilities may need to be replaced and/or relocated to tie to new lines - (2) new_ re hydrants will need to be installed.	3
	Site Work	- No site reclamation required	- Extensive grading and disturbance of existing topography and slopes will be required beyond new construction area	3

5 - Highest Quality / Best Conditions
4 - Good Quality & Conditions
3 - Adequate Quality & Conditions
2 - Poor Quality & Conditions
1 - Lowest Quality & Conditions

RANK
1
(OUT OF 4)

SCORE
48

The_ nal ranking for each site is an average of all 15 criteria categories listed in the Pros and Cons chart

07

FINAL RECOMMENDATIONS

Score Card Summaries

COMBINED OPTIONS

RATING CRITERIA SCORE CARD SUMMARY

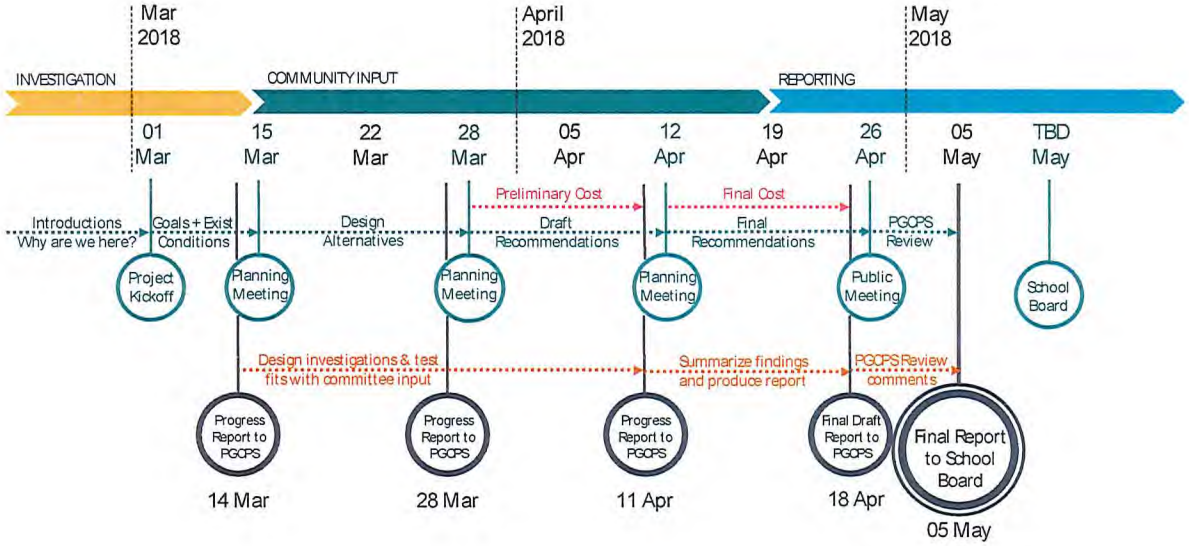
PRIORITY	CATEGORY	SCORES OPT 1	SCORES OPT 2a	SCORES OPT 2b	SCORES OPT 3	CRITERIA
●●●●●●●	Safety / Security	3	2	5	3	Limits community access to large portions of building during public functions
		5	2	3	4	Avoids visibility into classrooms from public areas/ parking
		5	4	2	1	Maintains visiblity of students on site, providing safe transport to and from functions outside the building
		4	2	2	2	Maintains visibility of students moving throughout the building, minimizing "dark areas" and blind spots
		5	1	3	3	Provides for easy and safe evacuation
		4.4	2.2	3	2.6	
●●●●●●●	Community	1	1	1	4	Accommodates greater walkability from surrounding neighborhoods - students walking to school and families walking to community events
		5	1	3	5	Promotes a sense of school/ community identity - presence on site, building orientation, 1- vs. 2-story scheme
		3	1	5	4	Provides community with easy access to public functions - Media Center, Gym, Dining, Fine Arts, site
		3	1	3	4.3	
●●●●●	Health / Sustainability	4	4	4	2	Leverages natural ecology of site for use/improvement and learning - wetlands, streams, habitat, forestation
		1	4	4	5	Maximizes energy efficiency - building layout, orientation, systems
		2	3	3	4	Requirements and challenges to overcome to meet LEED Gold and 40-year LCA criteria
		2.3	3.7	3.7	3.7	
●●●●●	Growth / Expansion	2	3	3	4	Developable site area accommodates future growth potential for school and site
		1	3	1	5	Building layout/ orientation easily accepts expansion
		1	3	3	3	Retains quality of building and open spaces/ play fields after expansion
		1.3	3	2.3	4	
●●●●	Parking & Circulation	1	2	4	3	Developable site area accommodates parking requirements and future expansion
		3	3	3	3	Parking layouts accommodate separated bus and car drop-offs
		3	3	3	3	Parking locations are near front door
		2.3	2.7	3.3	3	
●●●●	Staging / Phasing	1	2	4	5	Avoids disruption of ongoing school operations, allowing students/ staff to remain in place during construction
		3	4	1	5	Allows for ease of access to construction site
		1	3	3	5	Allows for efficiencies in construction time and schedule
		1.7	3	2.7	5	
●●●	Site Amenities	4	4	4	1	Maximizes opportunities on site for fields, play areas, garden, habitat, outdoor learning
		3	3	3	1	Natural topography easily accommodates fields without much regrading
		3	3	4	2	Allows for easy access and connectivity between amenities (adjacency to building, walking trails, sidewalks)
		3.3	3.3	3.7	1.3	

PRIORITY	CATEGORY	SCORES				CRITERIA
		OPT 1	OPT 2a	OPT 2b	OPT 3	
●●●	**Storm Water Management**	3	3	3	2	Maintains natural topography, water flows, swales, rentention areas, habitat on the site to avoid/minimize the need for on site remediation
		2	3	3	3	Smaller building footprint minimizes roof drainage requirements
		3	3	3	3	Efficient parking layouts, access drive, and fire lane minimize impervious paving
		2.7	3	3	2.7	
●●	**Environmental / Hazmat**	2	3	3	5	Requires minimal to no effort/cost to abate, contain, decontaminate, or dispose of existing hazardous materials
		3	3	3	2	Existing site soils are healthy and do not require extensive replacement, and new sitework minimizes disturbance of natural soils
		3	3	3	5	Site includes environmental features requiring conservation and/or protection (critical slopes, wetlands, tree/vegetation, etc.)
		2.7	3	3	4	
●●	**Cost**	4	3	3	1	Low-high cost compared to other options
		1	2	3	5	Cost impact of construction schedule and duration
		3	2	2	3	Pros/cons of renovation, replacement, new construction justify cost outcomes
		2.7	2.3	2.7	3	
●	**R.O.W. / Traffic / Access**	1	1	1	5	Roadway dedication requires public frontage improvements and/or establishment of new vehicular connection points to right-of-way
		3	3	1	3	New roadway access maintains good traffic flow from the street and throughout the site
		4	4	1	2	Provides easy access for service deliveries and to dumpsters
		2.7	2.7	1	3.3	
●	**ADA / Accessibility**	4	4	4	1	Site topogoraphy provides natural pedestrian connections and ease of navigation between site amenities and building
		3	4	4	1	Dispersal of programs and elevational changes outside and inside the building minimize navigational hardships
		3	3	3	3	Distances to and from interdependent building and site programs are minimized
		3.3	3.7	3.7	1.7	
●	**Program / Adaptability**	3	5	4	4	Accommodates education specification program and building area requirements in aggregate
		3	3	3	3	Minimizes logistics of moving students from one wing to another or between multiple floors
		5	3	3	3	Provides adjacent access to outdoor program spaces
		3.7	3.7	3.3	3.3	
	Utilities	3	3	3	3	Existing utilities (water/sewer) are available and accessible to site
		3	3	3	3	Contains other existing utility items available for resuse or upgrade - street lighting, fire hydrants, power, cable, t.v., gas
		3	3	3	3	
	Site Work	4	5	3	1	Minimizes new grading and disturbance of existing topography and slopes
		4	3	3	5	Minimizes site reclamation for removal of existing structures
		4	4	3	3	
	HIGH SCORE	43	44	44	48	
	LOW SCORE					

08

PROJECT SCHEDULE

Feasibility Study Timeline



09

APPENDIX