KENSINGTON PARKWOOD ELEMENTARY SCHOOL ADDITION FEASIBILITY STUDY

Prepared for
Montgomery County Public Schools

October 2013

By
GWWO Inc./ Architects

KENSINGTON PARKWOOD ELEMENTARY SCHOOL
ADDITION

4710 Saul Road
Kensington, Maryland 20895

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I. INTRODUCTION

INTRODUCTION

This addition feasibility study was conducted for Montgomery County Public Schools (MCPS) by the architectural firm of GWWO Inc. Kensington Parkwood Elementary School is located at 4710 Saul Road, Kensington, MD 20895. The work was performed under the direction of the MCPS Department of Facilities Management, Division of Construction.

FEASIBILITY STUDY PARTICIPANTS

The feasibility study participants reviewed, revised, and approved the design concepts for the Kensington Parkwood Elementary School addition. The meetings occurred on May 3, May 16, and May 30, 2012; and June 13, 2012. The proposed designs are a result of the group's suggestions, guidance and recommendations, during the process.

Ms. Barbara Leiss	Principal	Kensington Parkwood Elementary School
Ms. Lara Akinbami	Parent	Kensington Parkwood Elementary School
Ms. Debbie Attar	Parent	Kensington Parkwood Elementary School
Mr. Al Carr	Parent	Kensington Parkwood Elementary School
Mr. David Conaway	Parent	Kensington Parkwood Elementary School
Ms. Bailey Condrey	Community	Kensington Parkwood Elementary School
Mr. Dennis Cross	Project Manager	Division of Construction, MCPS
Ms. Aimee Cunningham	Parent	Kensington Parkwood Elementary School
Ms. Emily Dunigan	Parent	Kensington Parkwood Elementary School
Ms. Lindsay Field	Parent	Kensington Parkwood Elementary School
Ms. Christine Foster	Community	Kensington Parkwood Elementary School
Ms. Meg Grabb	Parent	Kensington Parkwood Elementary School
Ms. Karen Hansel	Parent	Kensington Parkwood Elementary School
Ms. Jill Hicks	Parent	Kensington Parkwood Elementary School
Mr. Andrew Iskowitz	Parent	Kensington Parkwood Elementary School
Ms. Amy Kraft	Parent	Kensington Parkwood Elementary School
Ms. Martha Lawrenz	Community	Kensington Parkwood Elementary School
Ms. Susan Mackey	Staff	Kensington Parkwood Elementary School
Ms. Candice Marshall	Staff	Kensington Parkwood Elementary School

I. INTRODUCTION CONTINUED

FEASIBILITY STUDY PARTICIPANTS CONTINUED

Mr. Craig Milhiser	Parent	Kensington Parkwood Elementary School
Ms. Marianne Oursier	Parent	Kensington Parkwood Elementary School
Ms. Patti Poss	Parent	Kensington Parkwood Elementary School
Ms. Betty Poindexter	Community	Kensington Parkwood Elementary School
Ms. Susan Priester	Parent	Kensington Parkwood Elementary School
Ms. Karen Puente	Parent	Kensington Parkwood Elementary School
Mr. Chris Reed	Parent	Kensington Parkwood Elementary School
Ms. Michele Santy	Parent	Kensington Parkwood Elementary School
Mr. Leo Schwartz	Parent	Kensington Parkwood Elementary School
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Ms. Jillian Storms	Architect	Maryland State Department of Education
Ms. Debbie Szyfer	Facilities Planner	Division of Long-range Planning, MCPS
Mr. Mark Tamaro	Parent	Kensington Parkwood Elementary School
Mr. Michael Uhlman	Parent	Kensington Parkwood Elementary School
Mr. Andy VanHorn	Parent	Kensington Parkwood Elementary School
Mr. Joel Widener	Community	Kensington Parkwood Elementary School

II. EXECUTIVE SUMMARY

PURPOSE

The purpose of this Feasibility Study is to develop options for an addition to the existing school that will accommodate the educational specification requirements for Kensington Parkwood Elementary School, determine constructability, and develop cost estimates. When completed, the facility will have a capacity of 740 students, with core spaces designed for 740 students.

BACKGROUND INFORMATION

The modernized Kensington Parkwood Elementary School, opened in 2006, is 83,474SF and has a current capacity of 420 students. It has 29 classrooms, including 4 Kindergarten classrooms; support spaces; a computer lab; media center; gym; and a multipurpose room.

Current enrollment: 653 Students
Area: 83,474 SF
Capacity: 420 Students

II. EXECUTIVE SUMMARY CONTINUED

METHODOLOGY

The site has been evaluated by a design team of architects and engineering consultants to determine the feasibility of building an addition to the Kensington Parkwood Elementary School that meets the educational specifications. Equipped with an understanding of the project challenges and the educational specifications developed by MCPS, the design team was tasked with creating options for review by staff and community at a series of public meetings. After each meeting, the options were further refined based on the comments received.

This study is based on the following:

- Public meetings with the feasibility study participants and MCPS staff.
    - There were four meetings.
    - The meetings were well attended.
    - There were 37 different attendees.
    - There were a total of 21 design options.
- Analysis of the existing facility.
- Review of the existing condition documents provided by MCPS.
- Review of the educational specifications provided by MCPS.
- Research and site visits conducted by the design team.

II. EXECUTIVE SUMMARY CONTINUED

OVERVIEW

The existing Kensington Parkwood Elementary School facility is situated on a 9.8 acre parcel (P950) at 4710 Saul Road, Kensington, MD 20895. The site is bound to the south by Franklin Street, to the east by Saul Road, to the west and the north by neighboring homes.

The existing school, placed atop a hill, is a two-story, split-level structure with exits to grade at the first floor and the second floor. The north end of the school is at the highest grade elevation and allows for the building to be only one-story whereas the south end of the school is two stories placed at the bottom of the hill. The lower level of the site accommodates the softball fields, soccer field, basketball courts and a mulched play area with play structure.

The site slopes about 20 feet from east to west. The west side of the site has a retaining wall that provides access to paved play areas and the basketball courts. The site has two parking areas. The south parking lot, a 32-space parking lot off of Franklin Street, is designated for student drop off and also allows access to the loading dock and building services. It is conveniently located for after-school use of the ball fields. A single bus loop off Saul Road provides access for busses, cars, and parking for 18 staff and visitor vehicles. There is a total of 15 parking spaces provided on-site at the school.

The building is constructed of non-combustible materials. The exterior walls are masonry with brick veneer. The structural system is a combination of load bearing masonry walls, steel framing, steel roof joists, and concrete slabs-on-grade.

Of the three final options, two are preferred. Option 1 is an addition at the front of the school, and requires a retaining wall that creates a new student queuing area for after school pick-up. In Option 2, the addition is located at the rear of the school requiring play field relocation, but allows the front of the school to remain unaffected. Option 3 is located in the front of the school, and stretches from the main entrance, along the front yard, and out towards Saul Road. Options 1 and 2 are preferred.

II. **EXECUTIVE SUMMARY** CONTINUED

COMMON DESIGN ELEMENTS FOR EACH OPTION

SITE

- Car and bus traffic are separated.
- Areas for student drop-off queuing and for after school pick-up are provided.
- Areas for outdoor play are provided per education specifications.
- A walking path from the south parking lot to the main entrance of the school is provided.

BUILDING

- The playground equipment area is available for use by all students.
- Kindergarten has "at-grade" access to the play areas.
- Multipurpose room expands into the space currently occupied by the serving kitchen.
- The serving kitchen and loading dock shift south; occupying the current screened loading area. The addition removes an existing roll-up door that has been problemmatic.
- The Kindergarten classrooms are located adjacent to the current Kindergarten classrooms, requiring renovations to existing classrooms.

II. EXECUTIVE SUMMARY CONTINUED

OPTION 1

Option 1 locates the addition on the south end of the site, in an undeveloped area in front of the main entrance. It is a two-story addition, with classrooms on the south and north sides, overlooking the front and an interior courtyard. The connection to the existing school passes through the existing stair and loops to reconnect through the existing south entrance. The vertical circulation has been pulled out towards Franklin Street and opens to the exterior, thus requiring a retaining wall to pull the grade away from the building and allow the stair to exit. The retaining wall allows daylight to the lower level classrooms and provides a student queuing area during after school pick-up.

OPTION 1

New:	22,606 SF
Renovated:	6,777 SF
Total:	29,383 SF
Total Cost	**$ 10,494,000**

II. EXECUTIVE SUMMARY CONTINUED

OPTION 2

Option 2 explores a two-story addition, organized along a single loaded corridor located behind the gym. This option takes the shape of an 'L', creating an enclosed courtyard between the addition and the existing school. The field layout places the basketball courts to the north end of the site, thus separating the paved play area into two locations

OPTION 2

New:	22,500 SF
Renovated:	7,700 SF
Total:	30,200 SF
Total Cost	**$10,786,000**

II. EXECUTIVE SUMMARY CONTINUED

OPTION 3

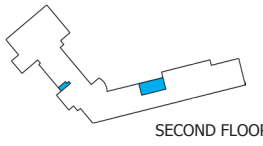
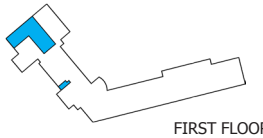
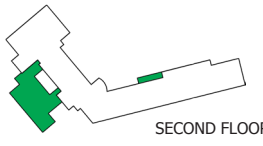
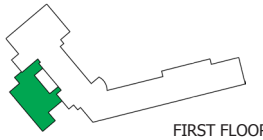
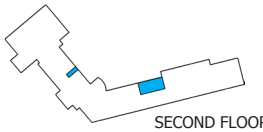
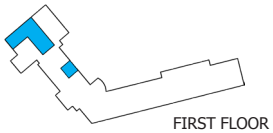
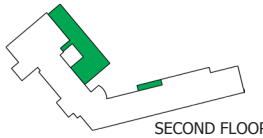
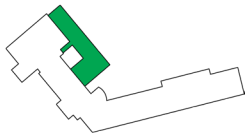
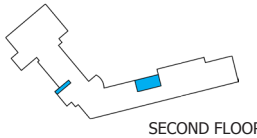
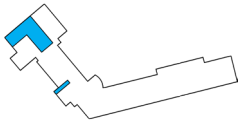
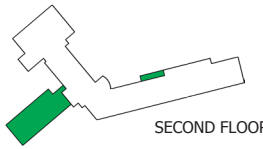
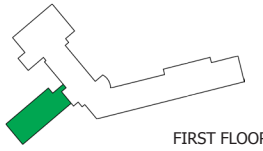
Option 3 locates the addition on the south end of the site, in an undeveloped area on the corner of Franklin Street and Saul Road. It is a two-story addition. The lower level has a single loaded corridor with classrooms on the west side, overlooking the lower parking lot. The second level has a double loaded corridor with classrooms on the east and west sides. The connection to the existing school passes through the existing administration suite.

OPTION 3

New:	20,800 SF
Renovated:	6,700 SF
Total:	27,500 SF
Total Cost	**$ 9,821,000**

II. EXECUTIVE SUMMARY CONTINUED

COMPARATIVE ANALYSIS OF OPTIONS 1,2 & 3

OPTION 1 New: 22,606 SF Renovated: 6,777 SF Total:29,383 SF Net Assignable= 16,300 SF Building Efficiency= 55.47% (Addition only)	**Option 1** **Renovation**  SECOND FLOOR Total = 6,777 SF  FIRST FLOOR	**Option 1** **New Construction**  SECOND FLOOR Total = 22,606 SF  FIRST FLOOR
OPTION 2 New: 22,500 SF Renovated: 7,700 SF Total: 30,200 SF Net Assignable= 16,300 SF Building Efficiency= 53.98% (Addition only)	**Option 2** **Renovation**  SECOND FLOOR Total = 7,700 SF  FIRST FLOOR	**Option 2** **New Construction**  SECOND FLOOR Total = 22,500 SF 
OPTION 3 New: 20,800 SF Renovated: 6,700 SF Total:27,500 SF Net Assignable= 16,300 SF Building Efficiency= 59.27% (Addition only)	**Option 3** **Renovation**  SECOND FLOOR Total = 6,700 SF  FIRST FLOOR	**Option 3** **New Construction**  SECOND FLOOR Total = 20,800 SF  FIRST FLOOR

II. EXECUTIVE SUMMARY CONTINUED

SUMMARY TABLE AND COST COMPARISON OF OPTIONS 1,2 & 3

SQUARE FOOTAGE COMPARISON

SQUARE FOOTAGE	OPTION 1 (PREFERRED)	OPTION 2	OPTION 3
Existing	73,035	73,035	73,035
New Construction	22,606	22,500	20,800
Modernization	0	0	0
Renovation	6,777	7,700	6,700
Demolition (Total)	0	0	0
Existing to Remain	73,035	73,035	73,035
Total Gross Square Feet	**95,641**	**98,535**	**93,835**
Total Cost	**$10,494,000**	**$10,786,000**	**$9,821,000**

PDF/FEASIBILITY STUDY COST OUTLINE ($000s) (PREFERRED OPTION 1)

Construction Cost Estimate	8,511
Planning Cost	998
Contingency and Related Costs	985
Total	**10,494**

This cost estimate in this study is based on current construction market conditions.

II. EXECUTIVE SUMMARY CONTINUED

CONCLUSIONS AND RECOMMENDATIONS

Three options are presented within and were designed with input from the feasibility study participants. All three options meet the educational programmatic requirements for the elementary school. A consensus could not be made on one preferred option. The participating members were split between Options 1 and 2. It was decided that Options 1 and 2 are tied for being the preferred option with Option 3 being the least preferred option.

In accordance with the opinions of the feasibility study participants and MCPS staff, it is recommended that either Option 1 or 2, as described in Section V, and its associated site improvements be implemented.

III. PROJECT SCOPE, OBJECTIVES & GOALS

SCOPE AND INTENT

Montgomery County Public Schools (MCPS) needs to expand Kensington Parkwood Elementary School to meet current and projected student population. When completed, the facility will have an increased capacity of 740 students, with core spaces designed for 740 students.

The architectural and engineering design team: GWWO Inc./Architects, James Posey Associates, and A. Morton Thomas & Associates, Inc.; analyzed the educational specifications, met with the school, and developed three building concepts that meet the addition criteria. The Feasibility Study Participants reviewed the progression of these concepts throughout the design process. Their comments and suggestions were discussed, refined, and incorporated at each step during the process. The final concepts are presented in this report.

GOALS & OBJECTIVES

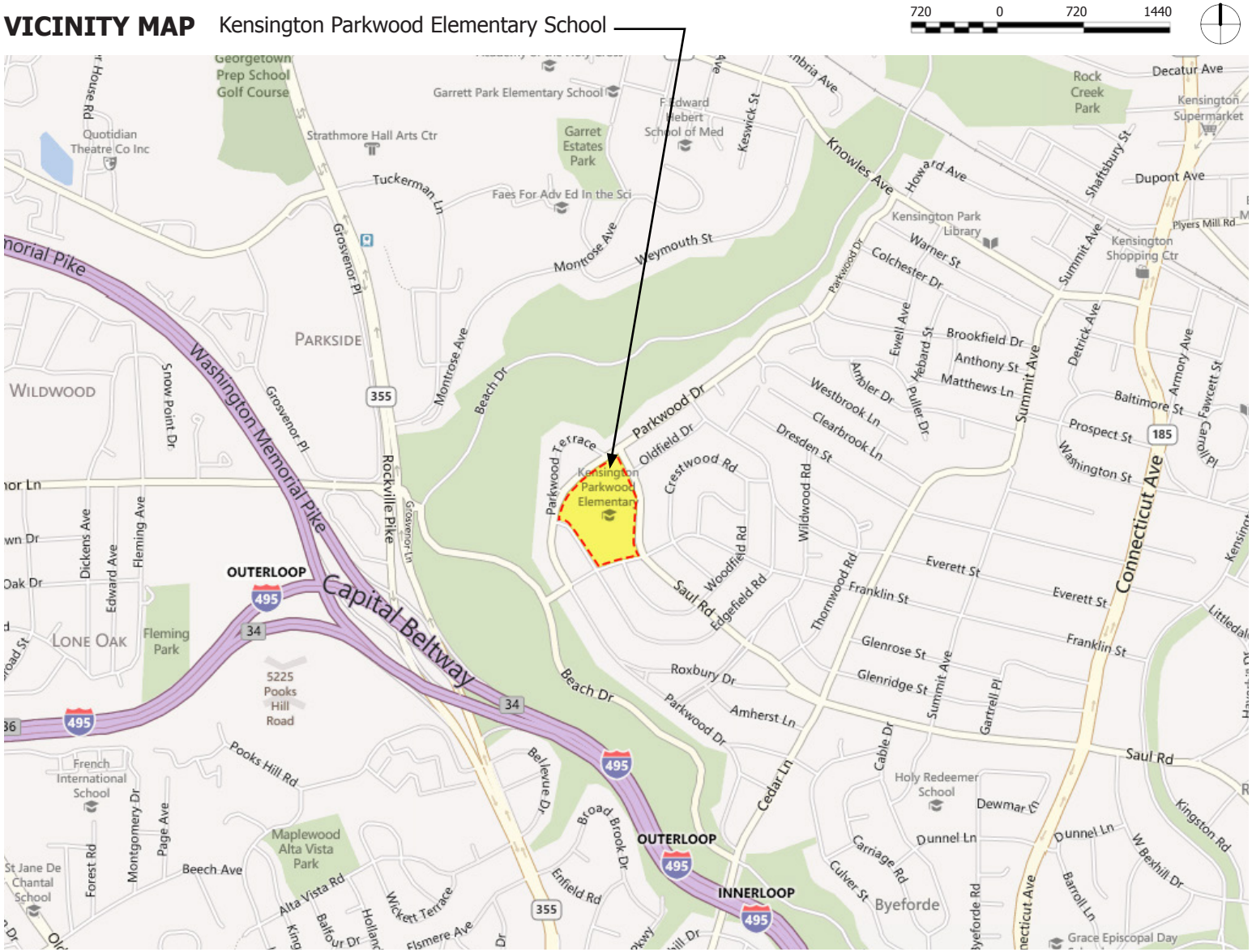
The following goals and objectives have been developed as a summary of the comments received from the public meeting process. The addition shall:

- Be a welcoming and beautiful building that enhances the education of students.
- Be a design that reflects the school's unique character.
- Be an environmentally sensitive school that is comfortable, naturally lit, and energy efficient.
- Provide a site that is safe and efficient for pedestrian and vehicular use.
- Provide the safest possible environment for students and staff. Provide passive security throughout.
- Provide barrier-free ADA compliant access throughout the addition.
- Provide a clear and easily supervised circulation path for intuitive way-finding.
- Maintain the special and identifiable main entrance.
- Provide areas for student queuing, both indoors and out.
- Allow the playground equipment to be used by all students.
- Allow kindergarten to easily access to their play areas.

IV. EXISTING CONDITIONS

VICINITY MAP

Kensington Parkwood Elementary School



IV. EXISTING CONDITIONS CONTINUED

EXISTING SITE PLAN

IV. EXISTING CONDITIONS CONTINUED

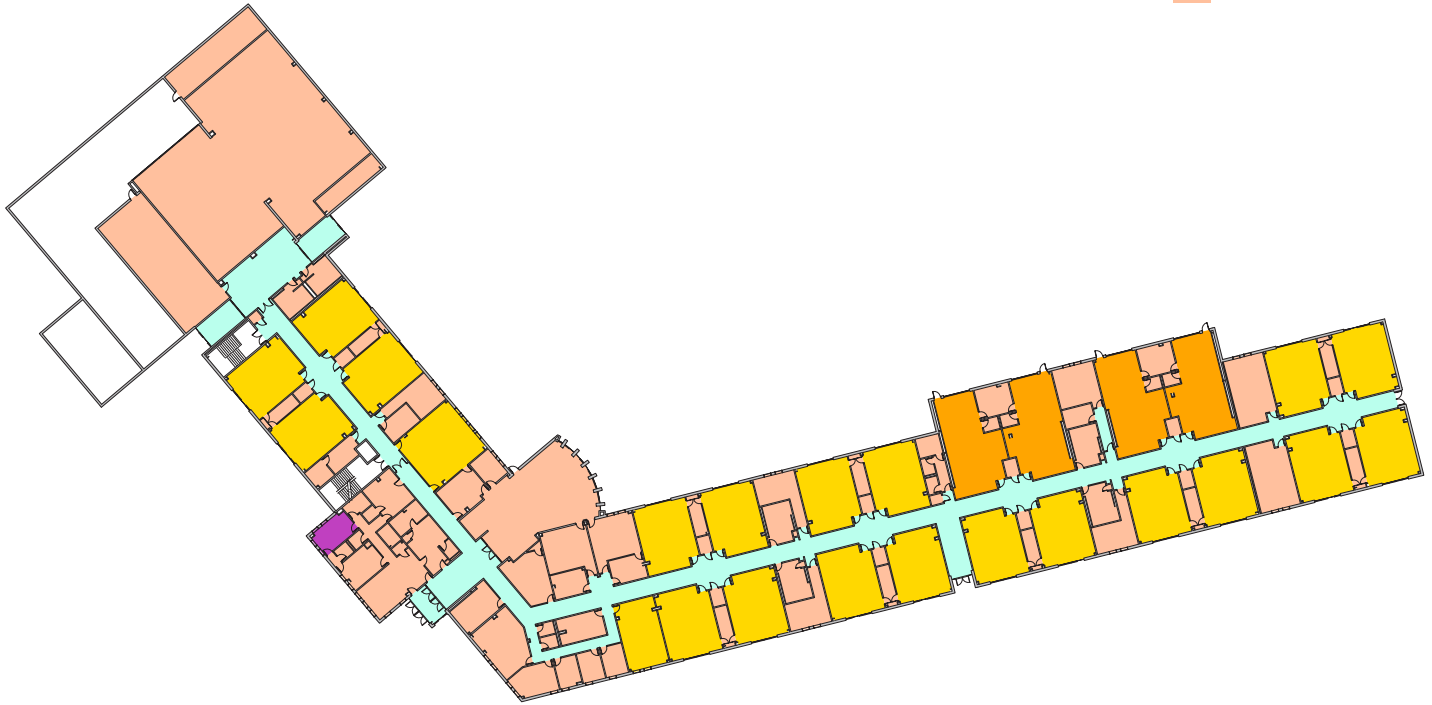
EXISTING- SITE PLAN

IV. EXISTING CONDITIONS CONTINUED

EXISTING- FIRST FLOOR PLAN

IV. EXISTING CONDITIONS CONTINUED

EXISTING- SECOND FLOOR PLAN



IV. EXISTING CONDITIONS CONTINUED

EXISTING CONDITIONS SUMMARY

The existing Kensington Parkwood Elementary School facility is situated on a 9.8 acre parcel (P950) at 4710 Saul Road, Kensington, MD 20895. The site is bound to the south by Franklin Street, to the east by Saul Road, to the west and the north by neighboring property lines.

The site slopes about 20 feet from east to west. The west side of the site has a retaining wall that provides access to paved play areas and the basketball courts. The site has two parking areas. The south parking lot, a 32-space parking lot off of Franklin Street, is designated for student drop off; and it also allows access to the loading dock and building services. It is conveniently located for after-school use of the ball fields. A single loop off Saul Road provides access for busses, cars, and parking for 18 staff and visitor vehicles.

The existing school is a two-story split-level structure with exits to grade at the first floor and the second floor. The school is placed atop a hill on the site allowing the fields and parking areas to be lower. The north end of the school is at the highest peak and allows for the building to be only one-story whereas the south end of the school is placed into the hill giving way to a two-story facade. The lower level of the site accommodates the softball fields, soccer field, basketball courts and a mulched play area. The existing structure is constructed of non-combustible materials. The exterior walls are masonry with brick veneer. The structural system is a combination of load bearing masonry walls, steel framing, steel roof joists, and concrete slabs-on-grade.

The existing site plan intentionally had less on-site parking to minimize paving due to the availability of on-street parking. Available on-street parking has been reduced by neighbor-requested permit parking restriction.

Refer to Appendix C for more information.

IV. **EXISTING CONDITIONS** CONTINUED

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V. DESCRIPTION OF OPTIONS

GENERAL

Three options have been developed in response to the MCPS educational specifications for Kensington Parkwood Elementary School. Each addresses the physical and instructional capacity of the school. Option 2 is not able to satisfy all of the play field requirements due to space limitations.

COMMON DESIGN ELEMENTS FOR OPTIONS

SITE

- Car and bus traffic is separated.
- Area for student queuing, for after school pick-up, are provided.
- Areas for outdoor play are provided per educational specifications.
- A walking path from the south parking lot to the main entrance of the school is provided.

ARCHITECTURAL

- The playground equipment area is available for use by all students.
- Kindergarten has "at-grade" access to their play areas.
- Multipurpose room expands into the space currently occupied by the serving kitchen.
- The serving kitchen and loading dock shift south; occupying the current screened loading area.
- The kindergarten classrooms are located adjacent to the current Kindergarten classrooms, requiring renovations to existing classrooms.

V. DESCRIPTION OF OPTIONS CONTINUED

CIVIL

The physical characteristics of the site direct all of the future development to occur in either the front of the school (southeast) or the rear of the school (southwest corner). Option 2 places a two-story addition in the rear of the school; located on top of existing asphalt plays areas (impacting about half of both the 80' by 100' asphalt play areas). In addition to relocating/expanding the asphalt play areas, which would reduce footprint of the open athletic field and increase the need for storm water management, some existing storm drain will have to be relocated. The amount of earthwork required for this option would be minimal; however the rear play areas also act as a fire lane so the new play areas and the building addition will have to be carefully designed such that MCDPS Fire Marshal accepts the plans. Tree removal or mitigation is not needed with this option.

Options 1 and 3 place the building addition on the grassy hillside located in front of the school, between the bus parking area and the student drop off parking area. A significant amount of earth will have to be moved for each of these options; retaining walls, steps and ramps will be required to provide ADA connections; the main line storm drain will have to be relocated; the main power line feeding the school will have to be relocated; and there will be impacts to some trees in this area, including the specimen willow oak. Major stormwater resolutions will be necessary. Option 1 will require the 4" sewer to be relocated as well.

Stormwater Management for all 3 options will consist of providing Environmental Site Design measures for the new areas of construction (green roof, biofilters, porous paving) and for Options 1 and 3, relocating or modifying the infiltration trench. A concern with this infiltration trench is that very high rates of infiltration were found with previous geotechnical testing. Although allowed in 2006, these high rates would not be permitted in 2012. A micro bioretention system or a structural practice, such as underground sand filter might be required.

V. DESCRIPTION OF OPTIONS CONTINUED

MECHANICAL

HVAC SYSTEM – BUILDING RENOVATIONS

A similar mechanical solution is recommended for supporting the three proposed renovation options within the existing school. These renovation options include expansion of the existing multipurpose room, relocation of the existing kitchen area, and creation of two Kindergarten classrooms at the second floor level.

Accommodating the expansion of the existing multipurpose room will require provisions for additional heating and cooling within the space. The existing air-handling unit serving this space does not have sufficient additional capacity to support the proposed expansion even when utilizing an option where the existing platform area is provided with a new dedicated air-handling unit system. Therefore, a new air-handling unit will be required to accommodate the proposed expansion. This unit would match both the existing air handling unit's configuration and components. System components would be connected to the existing building's four-pipe distribution system. Expansion of the existing penthouse area is anticipated for accommodating this new air-handling unit system. As an alternate, the use of a rooftop air-handling unit could be evaluated. The option for rooftop equipment would need further review and input from MCPS prior to proceeding.

Reuse of the existing vertical air-handling unit serving the kitchen area is anticipated, since the overall extents and capacity of the new kitchen appears similar to that which currently exists. The kitchen air-handling unit will continue to utilize DX cooling and hot water heating provided by the existing heating water system. Ductwork modifications in support of the new kitchen layout are anticipated, with new ductwork systems routed to the penthouse for connection to the existing air-handling unit system. The existing ductless split system and kitchen exhaust fan systems will need to be relocated in support of the proposed renovations.

To support the creation of the two new Kindergarten classrooms, the HVAC systems serving the existing classroom areas will need to be renovated. Each classroom's existing fan coil unit system will need to be replaced with larger capacity units, similar in size to the units serving the adjacent Kindergarten classrooms. Branch chilled and heating water piping will need to be modified in support of the new fan coil unit systems. Supply, return, and exhaust air ductwork will need to be modified in support of the new architectural floor plan.

V. DESCRIPTION OF OPTIONS CONTINUED

HVAC SYSTEM – PROPOSED ADDITION CONCEPTS

The three proposed addition concepts provide a significant increase in the overall size, capacity, and square footage of the existing school. The design for the existing facility provided provisions for a four classroom addition alternate, as well as a gymnasium alternate. Since both alternates have already been constructed, the surplus capacity of the facilities existing chilled and heating water systems have been utilized, with little to no extra capacity available. Therefore, utilizing the existing chilled and heating water systems to support proposed addition is not feasible.

To support the proposed addition, two HVAC solutions were evaluated:

- Option 1: Maintain a similar mechanical systems approach as the existing school. A four-pipe fan coil unit system with companion energy recovery units would be utilized. Cooling for energy recovery units would be accomplished through the facilities new chilled water systems, rather than utilizing DX compressors as currently exists. Fan coil units and energy recovery systems would be provided with chilled and heating water from new central chilled and heating water plants, complete with a high-efficiency air-cooled chiller and gas-fired condensing boilers. Since the existing mechanical room does not have sufficient excess space to house this new central plant equipment, this equipment would be located within a new mechanical room contained within the footprint of the building addition. Replacement of the existing central plant equipment with larger capacity equipment is not feasible since the existing school must remain in operation while the addition is constructed.

- Option 2: Utilize a ground-source geothermal system, for addition only, complete with vertical heat pump units to support the classroom areas and energy recovery units with water-cooled compressors for ventilation. The geothermal borefield would be located at either the rear of the building (Options 1 and 3 only) or in the front the building (Option 2 only). Similar to mechanical Option 1 described previously, new mechanical equipment would be located within a new mechanical room contained within the footprint of the building addition. However, a smaller overall mechanical room footprint is required with Option 1, as the space would only contain geothermal headers and new pumping systems.

Based on the two mechanical options described above, Option 1 is the recommended approach for the addition. This solution aligns with the school's existing mechanical systems, simplifying the overall maintenance complexity of the school. Having a building with two distinctly independent mechanical systems can increase the overall maintenance complexity of a facility. Option 1 also integrates well with all three addition concepts, allowing the new mechanical systems to be contained within the extent

V. DESCRIPTION OF OPTIONS CONTINUED

of the addition. However, it does require the use of two independent heating and cooling plants. While this is not always desired, it should not present a concern with proper maintenance training. Finally, the overall disruption to the building's site is significantly reduced with Option 1, as the installation of a geothermal borefield is not required. This is an important element to consider as the existing building will remain occupied during the construction of the addition.

Building automation system controls for the proposed addition will be an extension of the building's existing direct digital controls (DDC). All new control components will be networked to the central MCPS energy management control system for occupied/ unoccupied settings and other energy management routines.

To accommodate the site requirements of the Option 1 and 3 addition schemes, rerouting or modifications to the existing incoming gas service is required. The footprint of both addition concepts is positioned directly above the building's existing service. Depending on the final addition scheme, two options are available for addressing this gas main. These options include intercepting the existing gas piping, providing a new meter, and re-feeding the existing underground piping extending to the existing mechanical room; or rerouting the existing gas main around the proposed addition and re-feeding the existing gas meter at the existing mechanical room. Both options will require site work to accommodate installation of the new gas piping, as well as an extended disruption to the existing gas service. This disruption will affect the existing building's boilers, hot water heater, gymnasium air-handling unit's gas-fired furnace, and emergency generator. Therefore, it is anticipated that this construction activity will need to be sequenced and completed during the summer months.

PLUMBING SYSTEMS – EXISTING BUILDING RENOVATIONS

Plumbing piping systems serving the existing kitchen areas will need removed to support the expansion of the multipurpose room, with new piping systems provided in support of the relocated kitchen. Piping mains will extend from the adjacent mechanical room and support sinks and other fixtures within the new kitchen area. A 1600-galllon underground grease interceptor will need to be provided adjacent to the renovated kitchen area to comply with current WSSC plumbing code requirements. This grease interceptor was not required by WSSC for non-grease kitchens during the project's original construction. All sanitary waste piping from the new kitchen area will need routed through this grease interceptor.

To support the proposed Kindergarten classroom renovations, modifications to the existing branch plumbing piping systems within these rooms are anticipated. New branch hot and cold water, sanitary, and vent piping will extend from the existing plumbing mains and connect to new fixtures provided within the renovated spaces.

V. DESCRIPTION OF OPTIONS CONTINUED

PLUMBING SYSTEMS – PROPOSED ADDITION CONCEPTS

It is anticipated that the existing cold water piping system can be extended to support the proposed addition. To support the building addition's hot water requirements, a new gas-fired hot water heater may be necessary. The requirement for this new heater will be subject to the final quantity of lavatories added and will be further evaluated during the design phase. If required, the new hot water heater would be located within the new mechanical room. A new domestic hot water circulation pump, expansion tank, and thermostatic mixing valve would also be provided. If a new water heater is not required, hot water supply and recirculation piping would be extended from the existing piping mains currently serving the school.

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

FIRE PROTECTION SYSTEMS – EXISTING BUILDING RENOVATIONS

Modifications to the existing branch sprinkler piping and associated heads serving the multipurpose room, kitchen, and renovated Kindergarten classrooms is anticipated. Existing sprinkler system components will be modified in support of the revised architectural floor plan within each space. Provisions for additional zone valve assemblies are not anticipated for these supporting the existing building renovations.

FIRE PROTECTION SYSTEM – PROPOSED ADDITION CONCEPTS

The existing fire protection system for the existing school will be extended to handle the proposed addition. Depending on the final addition scheme selected, relocation of the existing fire department connection may be required. It is anticipated that the existing fire service size and available street pressure is sufficient for the additional building area. New zone valves would be extended from the existing fire main; with sprinkler piping extending from the zone valves to support the addition. New air-handling units and energy recovery units supplying 2,000 cubic feet per minute (CFM) or more of airflow will be equipped with smoke detectors in both the supply and return air ductwork.

V. DESCRIPTION OF OPTIONS CONTINUED

ELECTRICAL

POWER DISTRIBUTION

Since new central chilled and heating water plants, complete with a high-efficiency air-cooled chiller and gas-fired condensing boilers in a new mechanical space, are recommended for the classroom addition, the size of the existing distribution switchboard may not be adequate to serve the new construction.

It is proposed that a new main electrical room be installed in the new classroom addition, complete with a new 2500 ampere, 277/480-volt, 3-phase, 4-wire main distribution switchboard This new main distribution switchboard will back-feed the existing 2000A distribution switchboard in the existing main electrical room.

A new electrical service with new pad-mounted Pepco utility transformer will be required to serve the new main distribution switchboard This will consist of a new primary feeder run from a Pepco utility pole to the new pad-mounted Pepco utility transformer. Exact location of the primary feeder run will depend on which option (Option 1, 2 or 3) is selected, and where the new pad-mounted Pepco utility transformer and new main electrical room is to be located.

The existing electrical service will need to be maintained during construction. Options 1 and 3 have the classroom addition located where the existing primary utility feeder in two-way ductbank is run from the Pepco utility pole to the existing pad-mounted Pepco utility transformer. Therefore, Options 1 and 3 will require the existing Pepco utility transformer to be temporarily fed in order to demolish this existing two-way ductbank for construction of the classroom addition.

The existing main electrical room will remain to serve the existing building. The panelboards and associated feeders located throughout the existing building will remain. The existing kitchen panelboard (Panel KP) and associated feeder will be relocated due to the relocation of the existing kitchen.

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

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

V. DESCRIPTION OF OPTIONS CONTINUED

designated receptacles in all new classrooms of the classroom addition. New conduits will be concealed in new walls. Where existing walls remain, surface metal raceway will be used to conceal wiring.

The temporary relocatable classrooms installed at the school will be removed.

GENERATOR POWER

The current MCPS standard is to provide emergency power for life safety systems and standby power for the heating system in order to keep the building from freezing. The existing building generator system provides this capability for the existing building. The existing generator has the capacity and can be used to serve the life-safety emergency lighting and fire alarm system for the classroom addition. A larger or additional generator will be required to accommodate both the standby and heating loads of the classroom addition.

Existing generator Panels ELP and ER1 can be utilized to serve the life-safety emergency lighting and fire alarm system for the classroom addition. An additional automatic transfer switch (and associated generator panelboards and transformer) will be required in the new main electrical room to serve the standby and heating loads.

LIGHTING

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

FIRE ALARM SYSTEM

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

INTERCOMMUNICATIONS AND SOUND SYSTEMS

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

V. DESCRIPTION OF OPTIONS CONTINUED

VOICE AND DATA SYSTEMS

The existing voice and data systems will be expanded to the new addition. A new telecommunications closet will be required in the addition to serve the new classrooms. The number of outlets in each room will comply with MCPS and Maryland State requirements.

SECURITY SYSTEM

The existing security system will be expanded for the addition. Intrusion detection will include motion sensors and door contacts.

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 1- DESCRIPTION

Option 1 locates the addition on the south end of the site, in an undeveloped grassy area directly in front of the main entrance. It is a two-story addition; the lower level has a double loaded corridor with classrooms on the south and north sides, overlooking the front and an interior courtyard The second level has a double loaded corridor with classrooms on the north and south sides. The connection to the existing school passes through the existing stair that loops to reconnect through the existing south entrance to the school. This looping corridor surrounds a functional courtyard and allows for entrances into this space, directly from the main circulation. The vertical circulation has been pulled out towards Franklin Street and opens to the exterior, thus requiring a retaining wall to pull the grade away from building and allow the stair to exit. The retaining wall allows daylight to the lower level classrooms and provides a student queuing area during after school pick-up.

- Option 1 is a 22,606 square foot addition requiring 6,777 square feet of interior renovation, which includes the multipurpose room and the new Kindergarten classrooms.
- Option 1 does not affect the exterior play areas.
- Option affects the viewshed from Saul Road and Franklin Street

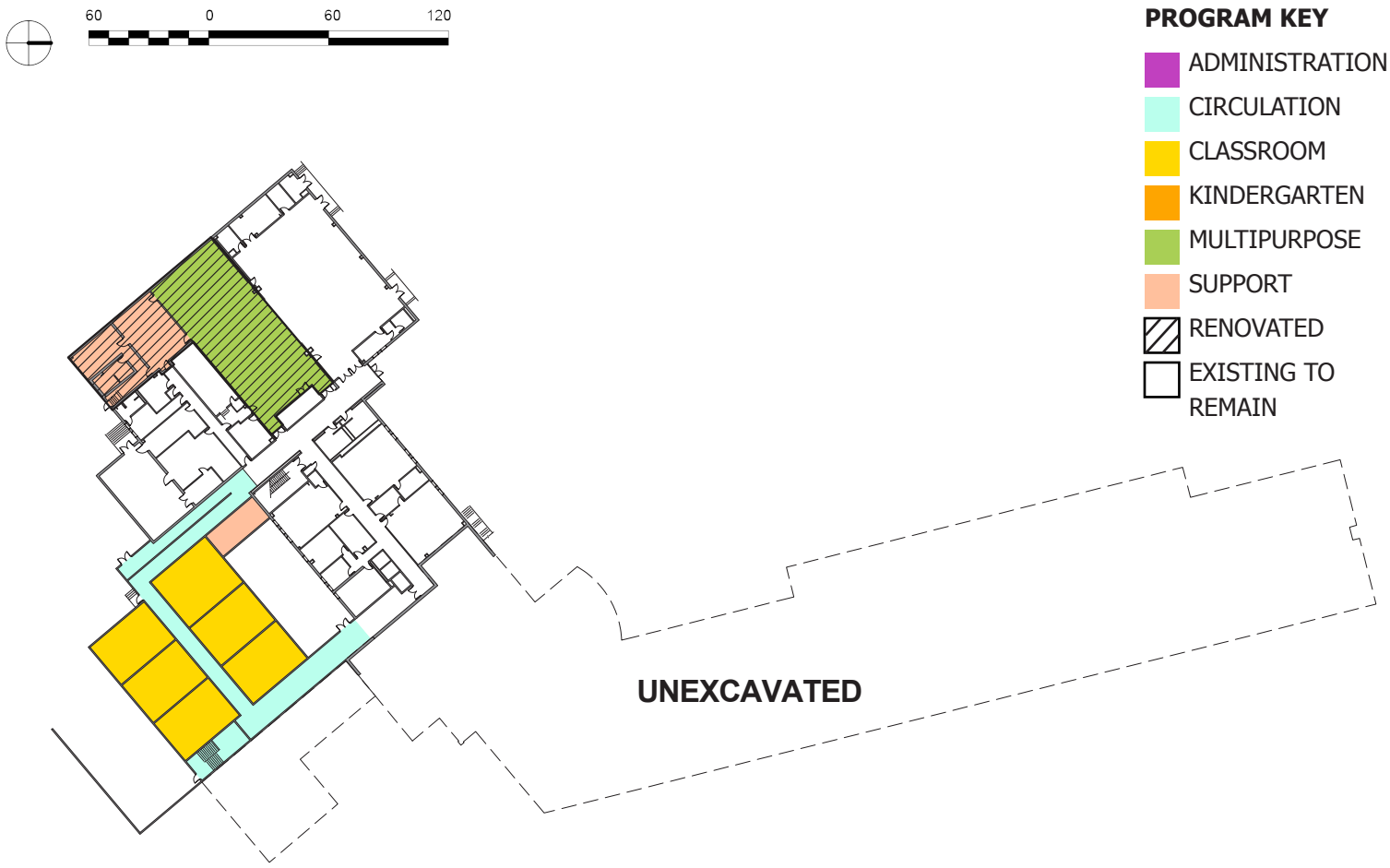
Total Cost **$ 10,494,000**

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 1- SITE PLAN

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 1- FIRST FLOOR PLAN



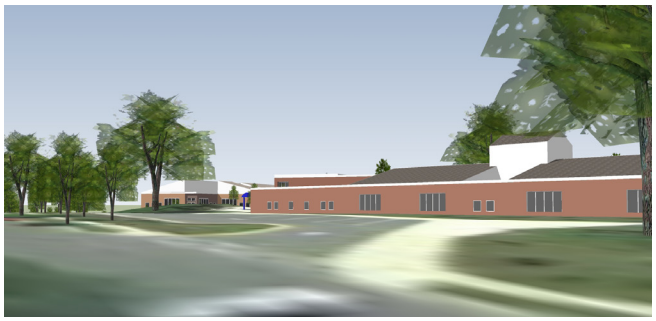
V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 1- SECOND FLOOR PLAN

V. DESCRIPTION OF OPTIONS CONTINUED

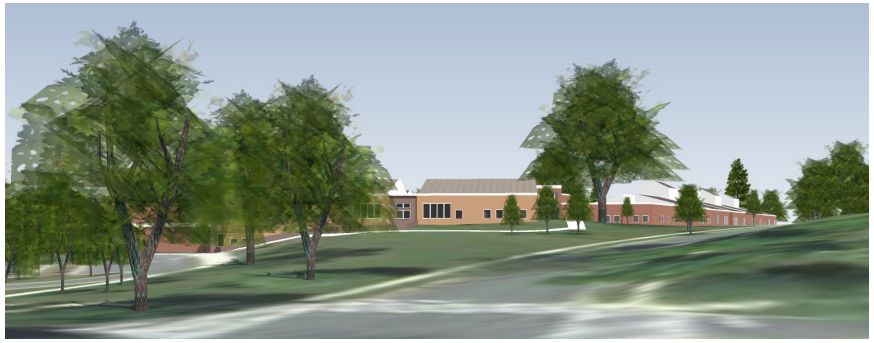
OPTION 1- PERSPECTIVES

Birds eye view

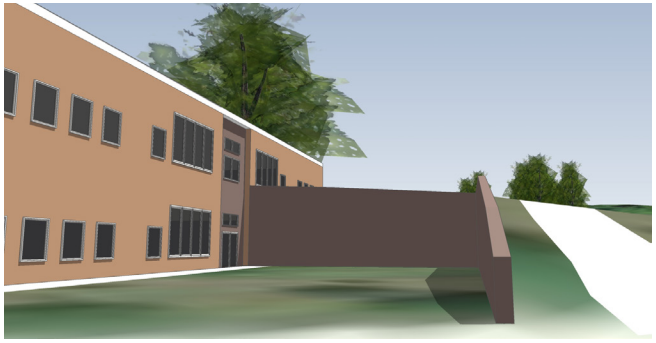


View from Saul Road

View from Franklin Street



View from the intersection of Saul Road and Franklin Street



View of retaining wall from parking lot

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 1- ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- This location does not reduce the play areas nor prevent their use during construction.
- Construction would be located far from the majority of the existing classrooms.
- The looping circulation creates a friendlier path and allows for multiple access points to the proposed classrooms.
- More respectful to the viewshed from Saul Road and Franklin Street than Option 3.
- Classrooms are oriented north/south, giving better day lighting into the classrooms.
- Does not increase occupant load on already overcrowded main classroom corridor.
- Builds on under utilized portion of the site.
- Creates a functional courtyard.
- Creates an outdoor queuing area for students during after school pickup.
- Provides at least five classrooms on one level, which allows the school to have all the classes in one grade on the same level.
- Groups Kindergarten classrooms together.

DISADVANTAGES

- Construction would require new stormwater retention solutions.
- There is a storm water pipe and infiltration trench below the proposed addition that would need to be rerouted or relocated.
- This option would require the removal of trees.
- This option requires extensive site modifications.
- This option would require modification to the administration suite.
- Building encroaches on the south parking lot sidewalk.
- Disrupts site circulation from the lower parking lot to the main entrance and administration suite.
- Requires modification to incoming electrical and gas service.
- Construction would require new stormwater retention solutions.

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 2- DESCRIPTION

Option 2 is a two-story addition organized around both a single and double loaded corridor. It is located behind the school adjacent to the gymnasium and short wing. This part of the site is flat and allows for minimal cutting and filling. This option takes the shape of an 'L', creating an enclosed courtyard between the addition and the existing school. The loop circulation surrounds the courtyard allowing an accessible entrance. The new field layout divides the paved play area into two locations. The first paved play area is located directly adjacent to the building, allowing for the required fire truck turnaround. The other paved play area, containing the basketball courts, will be located on the north side of the site near the existing mulched area and below the new Kindergarten classrooms. Relocating the basketball courts will require a new retaining wall along the east side of the fields.

- Option 2 is a 22,500 square foot addition requiring 7,700 square feet of interior renovation, which includes the multipurpose room and the new Kindergarten classrooms.
- Option 2 reduces the paved play areas by 1,475 square feet, but allows for a full size, 36,000 square foot, soccer field.
- Option 2 does not affect the view shed from Saul Road and Franklin Street.

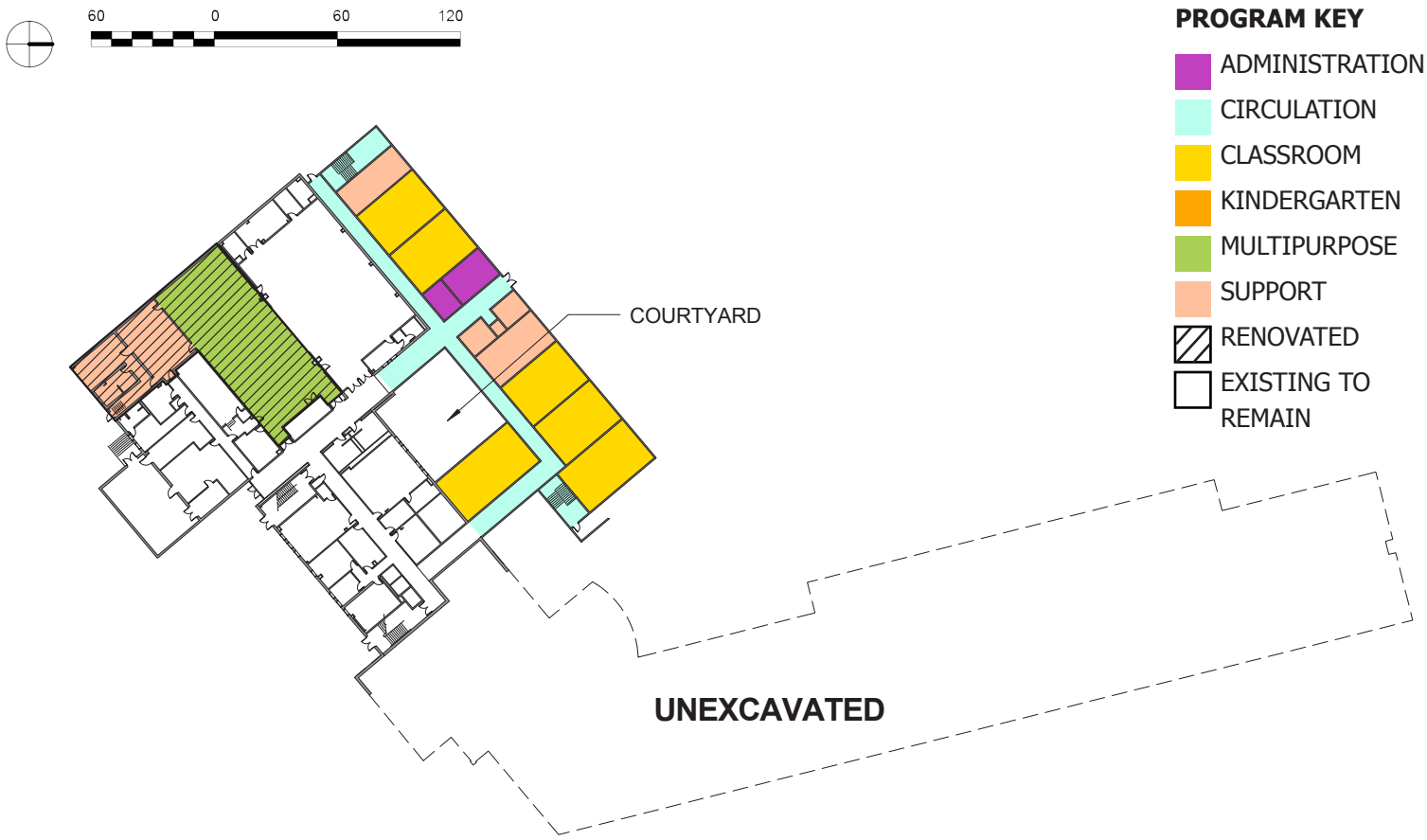
Total Cost **$10,786,000**

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 2- SITE PLAN

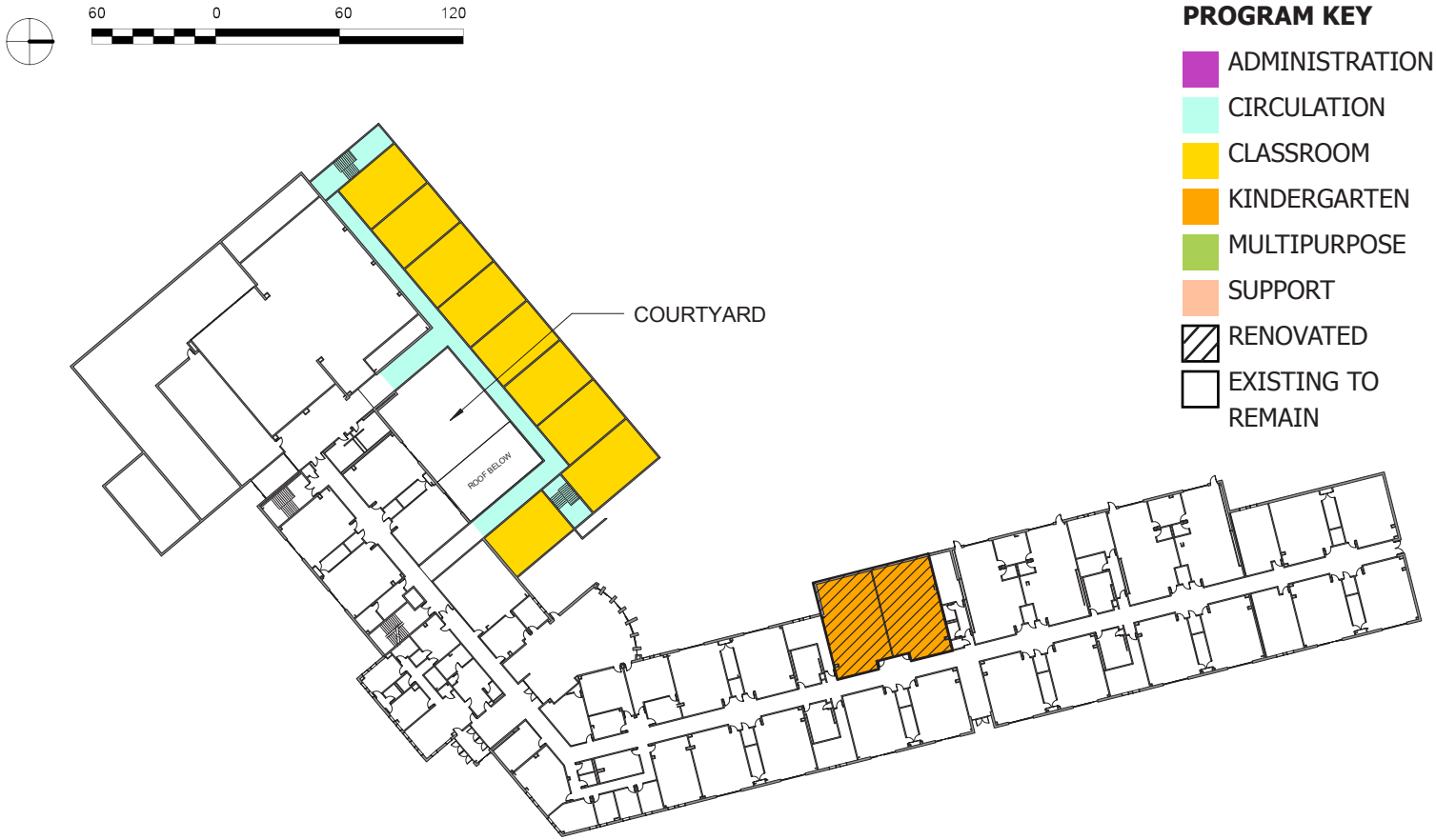
V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 2- FIRST FLOOR PLAN



V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 2- SECOND FLOOR PLAN

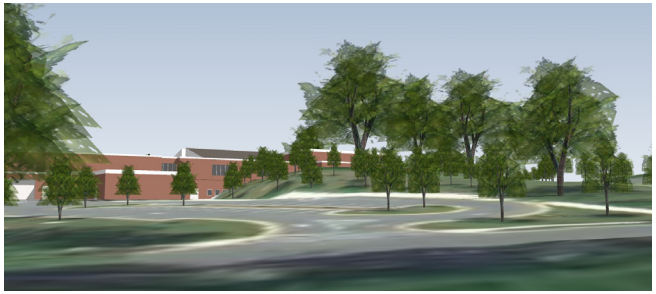


V. DESCRIPTION OF OPTIONS CONTINUED

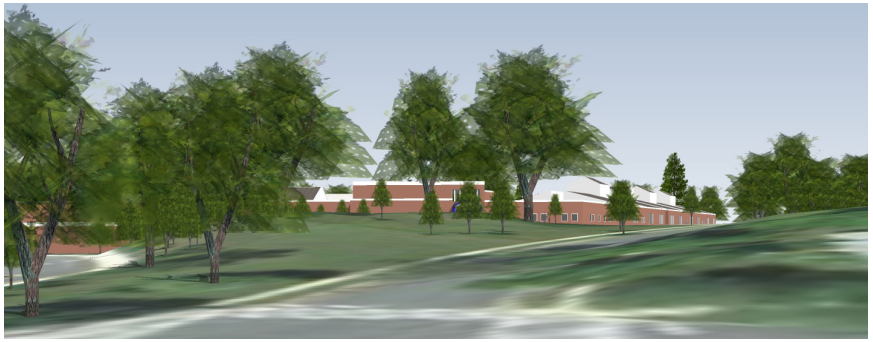
OPTION 2- PERSPECTIVES

Birds eye view

View from the soccer field



View from Franklin Street



View from the intersection of Saul Road and Franklin Street

View from the Kindergarten classrooms

GWWO ARCHITECTS

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 2- ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- Location builds on a flat site.
- Creates a functional courtyard.
- Requires minor modifications to utilities.
- Has no impact to the view shed from Saul Road and Franklin Street.
- Placing an administrative office next to the lunch and recess areas allows for a control point for student activities.
- Does not increase occupant load on an already overcrowded main classroom corridor.
- Looping circulation creates a friendlier path and allows for multiple access points to the classrooms.
- Groups Kindergarten classrooms together.
- Provides at least five classrooms on one level, which allows the school to have all the classes for one grade on the same level.

DISADVANTAGES

- This option reduces the paved play area and rearranges the play fields creating disruption to the play spaces for possibly up to a year.
- Classrooms would be located adjacent to outdoor play areas causing a noise concern.
- Requires modifications to existing music classroom and support spaces.
- Affects view from neighboring houses.
- The computer lab loses its windows.

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 3- DESCRIPTION

Option 3 locates the addition on the south end of the site, in an undeveloped grassy area on the corner of Franklin Street and Saul Road. It is a two-vstory addition; the lower level has a single loaded corridor with classrooms on the west side, overlooking the lower parking lot. The second level has a double loaded corridor with classrooms on the east and west sides, the connection to the existing school passes through the existing administration suite. The walking path from the south parking lot to the main entrance is relocated and wraps around the front of the addition.

Total Cost **$ 9,821,000**

- Option 3 is a 20,800 square foot addition requiring 6,700 square feet of interior renovation, which includes the multipurpose room and the new Kindergarten classrooms.
- Option 3 does not affect the exterior play areas.
- Option 3 affects the viewshed from Saul Road and Franklin Street

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 3- SITE PLAN

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 3- FIRST FLOOR PLAN

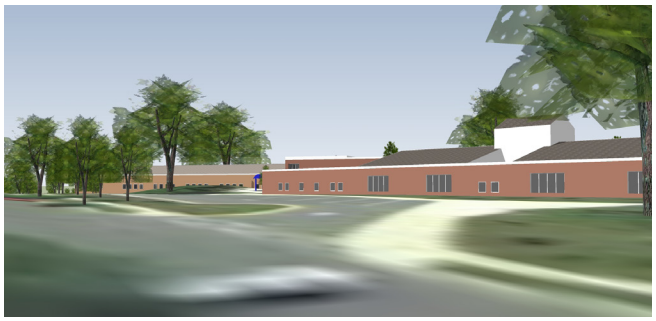
V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 3- SECOND FLOOR PLAN

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 3- PERSPECTIVES

Birds eye view



View from Saul Road

View from Franklin Street

View from the intersection of Saul Road and Franklin Street

V. DESCRIPTION OF OPTIONS CONTINUED

OPTION 3- ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- This location does not reduce the play areas nor prevent their use during construction.
- Uses an undeveloped and unused part of the site.
- Straightforward construction phasing. Construction would be located far from the majority of the existing classrooms.
- New classrooms are located far from the play areas.
- Does not increase occupant load on already overcrowded main classroom corridor.
- Builds on an under utilized portion of the site.
- Provides at least five classrooms on one level, which allows the school to have all the classes in one grade on the same level.
- Groups Kindergarten classrooms together.

DISADVANTAGES

- Construction would require new stormwater retention solutions.
- There is a stormwater pipe and infiltration trench below the proposed addition that would need to be rerouted or relocated.
- This option would require the removal of trees.
- Addition is close to the specimen willow tree, the building location must be a minimum of 20'-30' from the tree to preserve the tree.
- This option would require extensive site modifications- cut and fill.
- This option would bring the building closer to Saul Road and Franklin Street, altering the view from the street and neighboring houses.
- This option disrupts the circulation from the lower parking lot to the main office. This circulation would be routed around the addition.
- This option would require modification to the administration suite.
- Requires modifications to incoming electrical and gas services.

V. DESCRIPTION OF OPTIONS CONTINUED

DISCUSSION OF OPTIONS

In Option 1 the approach is to maintain the view of the front facade of the building. However, the impact on the playing fields is significant. This option reduces the amount of play area and changes the current configuration.

Option 2 creates a new student queuing area and maintains the front appearance of the school. However, this approach requires extensive site work and will require a retaining wall for access to the first floor.

In Option 3 the approach is to save as much of the existing building facade and outdoor play areas. It was disliked by the Feasibility Study Participants for its proximity to Saul Road and the impact it will have in the neighborhood. This approach also requires extensive site work.

The Feasibility Study Participants selected Options 1 and 2 as their preferred Options. Option 3 is not recommended by the study group.

V. PROJECT IMPLEMENTATION SCHEDULE

GENERAL

In evaluating the time required to fully execute the addition to Kensington Parkwood Elementary School, the A/E evaluation team has developed the following schedule of activities and time durations.

SCHEDULE

	YEAR	YEAR 1												YEAR 2												YEAR 3												YEAR 4											
	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
TASK DESCRIPTION	**DURATION**																																															
A/E SELECTION	1 MOS.																																															
SCHEMATIC DESIGN PHASE	4 MOS.																																															
COMMITTEE MEETINGS			X	X	X																																										
BOE APPROVAL						X																																									
DESIGN DEVELOPMENT PHASE	4 MOS.																																														
CONSTRUCTION DOCUMENTS PHASE	4 MOS.																																														
BID PHASE	3 MOS.																																														
ADVERTISE FOR BID															X																																
ISSUE NOTICE TO PROCEED																	X																														
CONSTRUCTION PHASE	18 MOS.																																														
FACULTY/STAFF OCCUPANCY	3 MOS.																																														
STUDENT OCCUPANCY																																						X										

END OF REPORT

APPENDIX A- SPACE ALLOCATION SUMMARY

When this project is complete, the following spaces are to be provided.
Capacity after modernization will be 740 with a 740 core capacity.

Updated 12/5/11

FACILITY	#	DESCRIPTION	NET SQ FT	TOTAL NET SQ FT
Classrooms				
Kindergarten	2	Includes 250 SF of storage	1300	2600
Grades 1-5	11	Includes 150 SF of storage	900	9900
Dual Purpose Room	1		1000	1000
Support Rooms				
Large Instructional Support Room	1		600	600
Small Instructional Support Room	1		450	450
Multipurpose Room				
Multipurpose Room (expand)	1		1300	1300
Administration				
Assistant Principal's Office	1		150	150
Conference	1		300	300
Total	**14**			**16300**

APPENDIX B- EDUCATIONAL SPECIFICATIONS

Kensington Parkwood Elementary School Educational Specifications December 5, 2011

TABLE OF CONTENTS

APPENDIX B- EDUCATIONAL SPECIFICATIONS

INTRODUCTION

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

- The program capacity for this school will be 752 with a master-planned (core) capacity for 740.

- The educational specifications are divided into three sections.
    - The first section, the space summary, lists the type of spaces and square footage required when the project is complete.
    - The second section describes the general design, location, and specific requirements for each type of space in accordance with Montgomery County Public Schools (MCPS) standards.
    - The third section identifies any additional program requirements for the school that were identified by the Facility Advisory participants.

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

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

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

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

GENERAL PLANNING CONSIDERATIONS

- In the general planning of this building, special consideration is to be given to the following comments and instructions:
- The architect is expected to be compliant with all national, state and local fire safety, life safety, and health code regulations and to follow applicable rules of the State Interagency Committee on School Construction.
- The building is to be accessible to the disabled within the meaning of the latest edition of the Americans with Disabilities Act and to conform to all the latest requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board. (The regulation can be found at http://www.access-board.gov/adaag/html/adaag.htm). In addition to the ADAAG, the Maryland Accessibility Code (COMAR.05.02.02) revised in 2002 also is required for public schools. (The regulation can be found at http://mdcodes.umbc.edu/dhcd2/Title05.pdf)
- The facility is to reflect an appealing visual, acoustic, and thermal environment and is to be properly furnished and equipped. Well chosen colors and textures are to be used. Lighting must meet current standards and provide adequate levels.
- High quality materials are to be used in the construction. The architect should refer to the MCPS Design Guidelines.
- The first impression of a building is important. The main entrance to the school should have a clear and inviting identity, and the entrance area should be designed and landscaped to emphasize its importance. A covered walkway from the bus loading area to the front door is desirable. The design of the main lobby area needs to convey a feeling of warmth and welcome. The inclusion of a lighted showcase in which children's work can be displayed is recommended.
- The design of the building and grounds must provide for a secure environment for students and staff. Isolated areas should be minimized and natural surveillance encouraged by eliminating visual barriers.
- For security purposes, all doors into classrooms, conference rooms, offices etc. must have a sidelight window with shades.
- Water coolers should be provided throughout the school.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

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

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

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

- Building code requirements call for less than fifty percent of interior corridor space to be used for displaying flammable materials. Display areas can be provided by a 5′ x 5′ bulletin board per classroom or an equivalent amount of space in a larger area. Please refer to the Division of Construction for specific standards.

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

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

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

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

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- Appropriate location of parking, corridor barriers, and toilet rooms is necessary for after-hours use. Some classrooms nearby the multipurpose room should be zoned for after hour use as well.

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

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

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

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

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

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

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

- The shape of the classroom and the design of built-in features and storage areas should provide optimum net usable floor area. Elongated rooms and features that protrude into floor area, limiting flexibility, are to be discouraged. Rectangular shaped classrooms are preferred.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- Metal adjustable shelving is to be provided in all building storage closets.
- All plan reviews will be coordinated through the Division of Construction.
- Special consideration must be given to energy conservation including total life-cycle costs. The current Maryland State Department of General Service (DGS) requirements will be applied as design criteria. Life-cycle cost accounting in accordance with DGS criteria is required.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

DESCRIPTION OF FACILITIES

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

PREKINDERGARTEN/KINDERGARTEN CLASSROOM

- If the school has a Head Start program, the classroom should be designed as a prekindergarten/kindergarten classroom.
- Each room should allow flexibility in creation of activity areas and to provide for individualized instruction through arrangement of the "centers" approach.
- An area should be designated for placement of a 12' by 15' area rug over the finished floor.
- A 100 square foot walk-in storage closet and 150 square feet of general storage (casework throughout the classroom) is needed.
- When possible there should be interconnecting interior doors between all kindergarten and prekindergarten rooms.
- All prekindergarten rooms should have an outside door or be directly accessible to the outside and convenient to the main entrance of the school building.
- The prekindergarten classrooms must have direct access to the prekindergarten play areas. See the Site Requirements section for a description of play areas. The computers should not be located next to a whiteboard where magnets might damage the hardware and software. Glare from the windows on the computer screens should be eliminated as much as possible. Security for the computers should be planned in consultation with the MCPS Division of Construction (DOC). Computer/technology wiring must be in accordance with MSDE/MCPS standards.
- Every classroom must have computer outlets for five student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

February 2002 revision of the MSDE Maryland Public School Standards for Telecommunications Distribution Systems.

- The main teaching wall layout should be in accordance to DOC Facilities Guide.
- A sink with a drinking fountain must be provided, with cabinets above and below.
- In a non class-size reduction school, the built-in student wardrobe area must provide 2 individual compartments to store students' belongings. The architect is to refer to the DOC construction standards for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.
- In a non class-size reduction school, the built-in student wardrobe area must provide 24 individual compartments to store students' belongings. The architect is to refer to the DOC construction standards for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.
- A total of 20 feet of tack board and 10 feet of magnetic whiteboard should be installed at eye-level height for small children, with tack stripping along walls for display of student work.
- Each room must have a toilet room that is accessible from within the room and easily accessible from outside. The toilet room will contain a standard height toilet, a sink with child-height mirror, and soap and towel dispensers that are accessible to small children. The light switch should automatically turn on the vent fan.
- Each classroom should be equipped with window blinds per the MCPS design guidelines.
- Battery operated clocks will be installed.
- All classrooms should be equipped with a handicapped accessible sink with drinking bubbler.
- A full-length mirror should be installed.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

STANDARD CLASSROOM

- Each room must have an open classroom area with moveable furniture.
- 150 square feet of casework storage is needed in the classroom.
- When possible there should be interconnecting interior doors between all classrooms.
- The computers should not be located next to a whiteboard where magnets might damage the hardware and software. Glare from the windows on the computer screens should also be eliminated as much as possible. Security for the computers should be planned in consultation with the MCPS Division of Construction (DOC). Computer/technology wiring must be in accordance with DOC/MSDE/OCTO standards.
- Every classroom must have computer outlets for 5 student workstations and 1 teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE Maryland Public School Standards for Telecommunications Distribution System.
- Approximately 30 to 35 linear feet of magnetic white board and 20 to 24 linear feet of tack board, both with tack strips and map rails above the boards, should be installed in each classroom. White boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the DOC Facilities Guide standards for the main teaching wall layout.
- Thirty built-in individual compartments in the wardrobe area for storing student personal property are required. The architect should refer to the DOC construction standards for a typical cubby design for grades K-1 and grades 2-5. Lockers in the hallway may be used in place of the classroom cubbies.
- If lockers are designed for storing individual student property, the architect should design the facility with 700 lockers if the core capacity is 640 and 815 lockers if the core capacity is 740.
- All classrooms should be equipped with a handicapped accessible sink with drinking bubbler.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- A storage area is needed to hold at least two science kits (approximate 27" x 17" x 12" each) and one math kit in each classroom.
- General storage space must be built in and must accommodate 24- by 36-inch paper and a 4- drawer file cabinet. Each classroom must include 48 linear feet of built-in adjustable shelving.
- A small lockable teacher's wardrobe must be provided, as per DOC construction standards.
- Designated shelf space, not near a window, for an aquarium/terrarium with nearby electrical outlet, is desirable.
- Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- Battery operated clocks will be installed.
- Shelving or cabinetry should be provided in every teaching station for the VCR and television. A school may choose to place the television and VCR on a cart. Appropriate CCTV receptacles and a duplex outlet should be provided nearby for the operation of the TV and VCR. Placement of the TV should be to maximize student viewing and not be unduly influenced by exterior or interior extraneous light.
- A school may consider reducing the size of each classroom to create small break-out rooms in the school. The number and design of these breakout rooms may be determined by school and MCPS staff.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

DUAL PURPOSE ROOM

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

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

SUPPORT ROOMS

Spacial Needs
Large Institutional Support Room
Small Institutional Support Room

Large Instructional Support Room

- Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- Every classroom must have computer outlets for two or three student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE Maryland Public School Standards for Telecommunications Distribution System.
- Approximately 10 to 15 linear feet of magnetic marker board and 10 to 15 linear feet of tack board, both with tack strips and map rails above the boards, should be installed in each classroom. Marker boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the DOC construction standards for the main teaching wall layout.
- Each classroom must include a minimum of 50 linear feet of built-in adjustable shelving for books.
- Space for a big book rack should with an incline to display the book open and also for storage beneath for space to lay the books flat should be provided.
- A small lockable teacher's wardrobe must be provided, as per DOC construction standards.
- 40 mailboxes should be designed for storage of student work such as folders or notebook.
- This classroom should be equipped with a handicapped accessible sink with drinking bubbler. Cabinets should be provided above and below the counter area.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- Each classroom should be equipped with a retractable projection screen (7' x 7'). The projection screen should not be mounted near any emergency lighting tracks. All areas of the screen should be illuminated and readable when the lights are dimmed.
- Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- Battery operated clocks will be installed. The clock should not be mounted behind the projection screen.

Small Instructional Support Room

- Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- Every classroom must have computer outlets for two or three student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE Maryland Public School Standards for Telecommunications Distribution System.
- Approximately 10 to 15 linear feet of magnetic marker board and 10 to 15 linear feet of tack board, both with tack strips and map rails above the boards, should be installed in each classroom. Marker boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the DOC construction standards for the main teaching wall layout.
- Each classroom must include built-in adjustable shelving under the windows.
- A small lockable teacher's wardrobe must be provided, as per DOC construction standards.
- This classroom should be equipped with a handicapped accessible sink with drinking bubbler. Cabinets should be provided above and below the counter area.
- Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- Each classroom should be equipped with a retractable projection screen (7' x 7'). The projection screen should not be mounted near any emergency lighting tracks. All areas of the screen should be illuminated and readable when the lights are dimmed.
- Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- Battery operated clocks will be installed. The clock should not be mounted behind the projection screen.

MULTIPURPOSE ROOM AND PLATFORM

Spacial Needs
Multipurpose Room

Multipurpose Room

- The multipurpose room should have a ceiling height of 12–14 feet.
- A building service utility closet should be provided near the entrance to the multipurpose room for convenient lunch cleanups.
- Table storage and chair storage must be located adjacent to the multipurpose room.
- Exits from the multipurpose room must be sufficient to allow maximum seating.
- Toilet rooms and an electric water cooler should be near the multipurpose room to allow for public use.
- Audiences need to be able to hear and see presentations from all locations in the room.
- Ventilation equipment noise must not inhibit use of the space for auditorium purposes.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- Acoustical treatment is needed.
- Proper lighting and sound amplification are required.
- Each side of the risers at the multipurpose room floor level should be equipped with CCTV/data/voice/modem/electrical receptacles.
- Lighting, windows, fire alarm box, clock, and ceiling must be protected to prevent damage by balls.
- Outdoor play areas should be accessible from the multipurpose room. Children should not have to cross driveways or parking lots to access the play areas.
- An audio loop system should be provided for hearing impaired students; guidelines are available through the Division of Construction.
- An independent sound system should be provided in the multipurpose room.
- A call button to the main office should be provided.
- If there is no gymnasium, then the architect should refer to the physical education section for the storage requirement

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

ADMINISTRATION SUITE

Spacial Needs
Assistant Principal's Office
Conference Room

Assistant Principal's Office

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

Conference Room

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

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

SITE REQUIREMENTS

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

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

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- Playground equipment areas should not be located at the bottom of hills unless a provision is made to channel water away from the equipment areas.

DRIVEWAY AND SERVICE DRIVE

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

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- Site access must be provided to comply with fire protection and storm water management regulations.

PARKING

- Ideally, a minimum of 80 parking spaces should be designed initially for a school with regular staffing allocations, with future expansion possible. At schools with class-size reduction, 100 parking spaces should be provided.
- The parking area should be designed to maximize safety and minimize speed.
- Adequate lighting should be provided.
- Parking area should have two exits.
- Guardrails or bollards are to be installed to protect fields and play areas.

LANDSCAPING

- Planting should include screen planting and other planting needed for erosion control.
- Existing plant stock, if on site, is to be evaluated for reuse and protected accordingly.
- Landscaping to support energy conservation and to relate the building to the site with aesthetic appeal must be included.
- Consideration should be given to safety and security when selecting plant materials.
- Provision for outdoor watering must be included.
- The landscaping plan should include areas for outdoors environmental education programs.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

PHYSICAL EDUCATION SITE REQUIREMENTS

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

Softball Fields

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

Soccer

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

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

Paved Play Areas

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

Kindergarten Paved Play Area

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

Playground Equipment Areas (mulched areas)

- One or two areas shall be provided near the playing fields and large paved play area for playground equipment. Each area should be approximately 40'x40'. The size and shape of the play area will be developed during the design process in consultation with MCPS staff.
- The area shall be level, bare ground, unseeded, and no sod. MCPS will provide equipment dimensions for these areas.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- An underground drainage system must be provided.
- The loose-fill surfacing material (engineered wood fiber) must meet ADA requirements. A border must be provided to contain the filler. The surfacing materials must meet or exceed safety specifications for shock absorbing qualities as outlined by US CPSC.

Kindergarten Play Area (mulched area)

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

Prekindergarten Play Areas

- If the school has a prekindergarten, Head Start, or Preschool Education Program, then a separate and fenced outdoor play is required.
- This area must be adjacent to the classrooms with access directly from the classrooms.

APPENDIX B- EDUCATIONAL SPECIFICATIONS CONTINUED

- If the school does not have a prekindergarten program than the outdoor play area should be master planned so that it can be added on at a later time.

- The prekindergarten play area should include a 40'x40' paved play area and a 40'x40' mulched area. The architect will consult with the MCPS staff on the design of the playground equipment.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS

GENERAL SITE INFORMATION

The existing Kensington Parkwood Elementary School facility is situated on a 9.8 acre parcel (P950) at 4710 Saul Road, Kensington, MD 20895. The site is bounded to the south by Franklin Street, to the east by Saul Road, to the west and the north by neighboring property lines. The existing building footprint occupies approximately 60,000 gross square feet.

The school, opened in 2006, is 83,474SF and has a current capacity of 420 students. It currently has 29 classrooms, including 4 Kindergarten classrooms; support spaces, many directly serving the classrooms; a computer lab; media center; gym; and multipurpose room.

The building is a two story split level structure with exits to grade at the upper and the lower levels of the site. The school is placed atop a hill on the site allowing the fields and parking areas to be lower. The north end of the school is at the highest peak and allows for the building to be only one story whereas the south end of the school is placed into the hill giving way to a two story facade. The upper level provides on-grade access to the front of the school and main entrance off of Saul Road. The lower level accommodates the softball fields, basketball courts and a mulched play area, with play structure. Along the west side of the site there is a retaining wall that holds the paved play areas and the basketball courts.

The existing structure is constructed of non-combustible materials. The exterior walls are masonry with brick veneer. The structural system is a combination of load bearing masonry walls, steel framing, steel roof joists, and concrete slabs-on-grade.

The site has two parking areas. The south parking lot, a 32-space parking lot off of Franklin Street, is designated for student drop off; it also serves the loading dock and building services. It is conveniently located for after-school use of the ball fields. A single loop off Saul Road provides access for busses, cars and parking for 18 staff and visitor vehicles.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

ZONING

This site is currently zoned R-60. Based on current Montgomery County Zoning regulations, the setbacks are as follows:

MAIN BUILDING

- Front setback – 25 feet – Subject to an established building line in accordance with Section 59-A-5.33, if applicable.
- One side setback – 8 feet
- Sum of both sides setback – 18 feet
- Rear setback – 20 feet
- Corner – "In the case of a corner lot, if the adjoining lot on one of the streets either does not front on that street or is in a nonresidential zone, the setback from that street line must be at least 15 feet."
- Maximum building height - The height must not exceed: (1) 35 feet when measured to the highest point of the roof surface regardless of the roof type, or (2) 30 feet to the mean height level between the eaves and ridge of a gable, hip, mansard, or gambrel roof, subject to the following:
    - (a) The height must not exceed 2 ½ stories or 30 or 35 feet, depending on the method of measurement, if other lots on the same side of the street and in the same block are occupied by buildings with a building height the same or less than this requirement.
    - (b) The height may be increased to either 3 stories or 40 feet if approved by the Planning Board through the site plan approval procedures of Division 59-D-3.

ACCESSORY BUILDINGS

- Front setback – 60'
- Side setback – 5'
- Rear setback – 5'
- Corner – "If the adjoining lot on a side street is a residential zone and has frontage on the side street, the setback from the side street line is 25', and the setback from the rear lot line is 10'. Finally, if there is no residentially zoned lot on the side street with frontage on the side street in the same block and on the same side of the street, the setback from the side street line is 15'."
- Max building height (Accessory building) – Two stories or 20' from highest grade.

Lot Coverage – 35% maximum lot coverage by buildings

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

CODE EVALUATION

The existing school is a two-story sprinklered structure of 83,474 GSF. Under current codes the school is classified as Educational Occupancy with Type III-B Construction.

SITE CONDITIONS

SITE FEATURES

The elementary school building, which was modernized in 2006, encompasses the center of the site. In the northwest portion (rear) of the site, there are two approximately 80' by 100' asphalt play (one having basketball hoops) areas, one multiuse athletic field (240' by 150'), and a large mulched play area. There is also a Kindergarten paved and mulched play adjacent to the rear of school. The front of the school has the parking areas as noted above.

There are significant elevation differences throughout the school property, with a low point of 236' in the southwest corner and a high point of around 273' between the bus loop and Saul Road (eastern site). The school building has a first floor elevation of 272' and a lower level elevation of 258.67'. The bus loop pavement area has an average elevation of 270' while the student drop off/ parking area has an average elevation of 254'. The rear hard play areas are at an average elevation of 257' while the grass field sits at about 254'.

ADJOINING STREETS

The site is bounded along its southern property boundary by the 60-foot Saul Road right-of-way. Saul Road is a two-lane residential street with a speed limit of 25-mph. Along the eastern boundary lies the 50-foot Franklin street right-of-way. These 25-mph, residential streets provide sidewalks and street trees.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

SITE ACCESS, PARKING AND CIRCULATION

ON-SITE PEDESTRIAN AND VEHICULAR ACCESS

The existing school has two driveways which offer vehicular access. Pedestrian access is provided by a public sidewalk on both Saul Road and Franklin Street.

DRIVEWAY ENTRANCES

The southern driveway is located off of Franklin street, and provides access to the main parking lot adjacent to the gym and loading area. This driveway is asphalt and appears to be in good condition. The eastern driveway enters the site off of Saul Road and provides access to the bus loop and staff parking area; it is located directly in front of the main entrance. This driveway is also asphalt and appears to be in good condition.

BUS LOOP AND STUDENT DROP OFF

As mentioned, the bus loop is located on the east end of the property off of Saul Road. There are 9 bus pull in spaces with a sidewalk connecting to the main entrance of the building. The student drop off area is located at the southern parking lot. There is a right of way lane provided for parents to line up. Students are lines up directly outside the south entrance in the student queuing area.

TRAFFIC AND PARKING

There are two curb cuts that provide access to the school and the 46 (4 ADA) designated parking spaces for vehicles and 9 designated spaces for busses. A topographical survey has not been provided as of July 2012 so ADA grades have not been checked for walkways and ADA parking, however; each of the parking areas is relatively flat. The eastern side curb cut is used as the entrance to the bus drop off and reserved staff parking (16) and ADA parking (2). The student drop off, visitor parking (26 regular and 2 ADA), loading dock and trash area is located along the southern side of the school. With local parking restriction implement, storage of parking is a typical problem.

FIRE ACCESS

Currently, there is a fire access lane running on the west end of the site, next to the gym. It leads to a paved play area with the appropriate turn around radius.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

SIDEWALKS

The site provides sidewalks that connect the parking lots to the entrances on the building. There is also a sidewalk in the rear of the building connecting the gym to the mulched play area at the north end of the site.

PLAY AREAS AND FIELDS

The site provides sufficient existing play areas and fields. As mentioned, there is a paved play area adjacent to the gym which provides miscellaneous painted activities and the two full basketball courts. There are two softball fields located in diagonal corners of the field with a soccer field places within. There is a mulched play area located at the north end of the site with steps leading down to them from the Kindergarten classrooms. It has been noted that the outside storage building location hampers supervision of the play areas.

SITE TOPOGRAPHY

The site predominantly slopes from the north east corner to the southwest portions of the site, ultimately ending at a retaining wall that separates the property from the neighboring properties. Overall, the site has a great deal of relief and is generally comprised of a large hill which plateau's in the central portion of the site where the school building is currently located. Depending on the proposed layout, the topographic character of the site could have major impacts on the amount of earthwork required. It is anticipated that the proposed site improvements will need to consider ramps and retaining walls in order to accommodate the facility and provide the necessary site features.

VEGETATION

Mature vegetation is located at the perimeter of the site. It should also be noted that a specimen willow tree is located directly in front of the main entrance; impacts to root zones of specimen trees will require a variance from the County Arborist.

TREE PROTECTION/FOREST CONSERVATION

A Natural Resource Inventory Forest Stand Delineation has not been provided by MCPS as of July 2012. MCPS consultant, Norton Land Design, met with M-NCPPC on May 29 regarding this property. M-NCPPC desired that the FSD/FCP begin from scratch and

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

not utilize tree canopy like done in 2001. M-NCPPC will be looking for preservation of the specimen willow oak, which is located about 30' from some of the building addition options. If 30' of clearance between the building and the tree can be maintained, preservation is likely. This is will also depend on no cutting, filling, utilities, etc. between the building and tree. All of the small trees scattered through the front of the site are the tree canopy credit that was taken during the modernization. Because this project is subject to Forest Conservation, administrative mandatory referral is not going to be an option.

STORM DRAINAGE AND STORMWATER MANAGEMENT

Full SWM Quality and Quantity Control are provided for the site. Quality control is achieved through two (2) below grade infiltration trenches (with Baysavers providing pretreatment) and an underground sand filter vault. Infiltration Trench IF-1 treats the northern, back half of the building, IF-2 treats the northern front portion of the building and the bus loop, and the underground sand filter treats the remaining portions of the building, rear play areas, and the parent drop off parking lot. A large below grade quantity control facility is located beneath the parent drop off parking lot. All of the water is then outfalled to the southwest corner of the site where there is a headwall leading to a 24" RCP that exits the site and ties into the storm drain beneath Franklin Street.

SWM for the addition would be provided via green roof, porous paving and other environmental site design (ESD) facilities such as biofilters for areas with the new Limits of Disturbance (LOD). IF-2 could be impacted by some of the options and may have to be relocated, if feasible.

UTILITIES

WATER AND SEWER

The site is located in the WSSC Grid 213NW05. Water is supplied to the building by an 8" line that connects to an 8" in main in Franklin Street (building connection is near the loading dock). A fire hydrant, connected to this 8" line, is located in the parent drop off parking lot. An additional fire hydrant is located in the front of the school near the bus drop off; this one connects to an on site 8" line that extends to the 8" main in Saul Road.

The site is served by a 6" sanitary sewer that is exits at the midpoint of the eastern border (bus parking lot) and an additional 4" sewer line that exits the building along the southern side of the school (runs parallel to 8" water main) in the vicinity of the loading dock. There are 3 building connections to the 6" line and two building connections to the 4" line.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

ARCHITECTURAL/ STRUCTURAL/ MPE

BUILDING STRUCTURE DESCRIPTION

The school was constructed from 2004-2006. The original structural engineer was Faisant Associates Inc. of Baltimore, Maryland. The building is a two story split level structure. The one-level portion is located on the east part of the site. The two-level portion is located on the west part of the site.

The building is a steel frame structure. The elevated floor and roof framing is a mixture of open-web K series joists and W-section steel beams. The roof framing is sloped in most locations to provide drainage and create a pitched-roof for aesthetics. The small penthouse roofs have no slope to the structure. The steel columns are W-sections with the exception of a few which are steel tubes. The columns are supported by cast-in-place spread footings of various sizes.

The existing slab on grade is 4" thick concrete. The elevated slabs are of composite floor construction with 3 ¼" lightweight concrete on 2" x 22 gauge galvanized composite floor deck resulting in a total thickness of 5 ¼". There are two roof deck systems. The roof deck at the multipurpose and gymnasium is Tectum deck, the other roof decks are 1 ½" x 22 gauge galvanized wide rib deck.

The exterior walls are non-bearing concrete masonry with a brick veneer. They are supported with a continuous concrete footer 1'-0" high by 2'-0" wide. Interior concrete masonry partitions are also supported with a continuous footer 1'-0" high by 1'8" wide. There are a number of site and building retaining walls. Both are constructed from 16" "Ivany" block, a fully reinforced concrete masonry unit designed for retaining.

BUILDING STRUCTURE CONDITION AND OBSERVATIONS

Minor rust stains were noted on the concrete pedestals of the entrance canopy columns.

The building displays no evidence of major structural issues, which would be expected based on its recent construction date. Overall it is in excellent condition.

BUILDING ENVELOPE

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

The exterior walls are masonry with brick veneer or metal studs with exterior metal wall panels. All exterior walls are insulated. The school's interior finishes are in good condition. The floors are mainly Vinyl Composition Tile and they are in good condition. The ceiling heights in corridors are eight feet; ceiling tiles are in good condition.

The roof, supported by steel trusses, is a black asphalt architectural shingle, pitched to echo the style of the existing neighborhood.

Exterior doors are painted steel and are equipped with panic hardware. Interior doors are primarily wood, with original hardware and are in good condition.

MECHANICAL

Kensington Parkwood Elementary School was originally constructed in 2006. The mechanical equipment that currently exists within the school dates back to the original construction and is generally in good working condition. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

HEATING SYSTEM

Four gas-fired AERCO KC-1000 Series condensing boilers produce heating water for the building. These boilers were installed as part of the original building construction and appear to be in good working condition. This equipment has a gross input rating of 1000 MBH per boiler and a gross output rating of 860 MBH per boiler. The existing gas service is routed below grade along the southern portion of the building, with the existing gas meter located within the mechanical equipment yard adjacent to the mechanical room. A gas pressure regulator is provided at each boiler for reducing the incoming gas pressure from 14 to 10-inches WC. Dedicated flues and ducted outdoor air intakes are provided at each boiler, terminating at the roof level located above the mechanical room. While the boilers are functioning adequately to satisfy the existing school, surplus capacity is not available to support the overall size of the addition being proposed.

The facility is provided with a four-pipe distribution system with a pair of dedicated chilled and heating water piping mains routed throughout the building. Heating water is distributed to the building's mechanical system components through two base-mounted end-suction pumps located within the mechanical room and manufactured by Bell & Gossett (Model 1510). These pumps are arranged in a lead/lag setup with only one pump operating at any time. The heating water distribution system is equipped with an air separator, shot feeder, and two horizontal expansion tanks suspended from the mechanical room roof structure.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

COOLING SYSTEM

A single 150-ton Trane (model RTAC 155) air-cooled chiller with remote evaporator is provided for the facility. The remote evaporator unit is located within the mechanical room, with the air-cooled chiller located within the adjacent mechanical equipment yard. This equipment utilizes R-134a refrigerant with refrigerant piping extending between the remote evaporator and air-cooled chiller. This equipment was installed as part of the original building construction and appears to be in good working condition. Similar to the building's boiler systems, surplus capacity is not available to support the overall size of the addition being proposed.

A primary-secondary chilled water distribution arrangement is provided for the facility. A single constant speed primary chilled water pump circulates chilled water though the remote evaporator unit. Two variable speed secondary chilled water distribution pumps distribute chilled water to the building's mechanical systems components. Secondary chilled water pumps are arranged in a lead/ lag setup with only one pump operating at any time. All chilled water pumps are base-mounted end-suction type, located within the mechanical room, and manufactured by Bell & Gossett (Model 1510). . The chilled water distribution system is equipped with an air separator, shot feeder, and a single horizontal expansion tank suspended from the mechanical room roof structure.

In addition to chilled water, direct expansion (DX) type cooling is provided for the building's energy recovery unit systems, air-handling units serving the administration, media center, computer lab, kitchen, and multipurpose room areas, and several ductless split systems located throughout the school. Spaces served by DX space conditioning typically require cooling operation at times when chilled water is not available.

HVAC SYSTEMS

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

- Typical Classroom: Classrooms are heated and cooled through vertical fan coil units with chilled water cooling and hot water heating, connected to the building's four-pipe chilled and heating water distribution systems. Manufactured by International Environment (IEC), these fan coil units are located within a mechanical closet positioned adjacent to the classroom served. Supply air is ducted from each fan coil unit to supply registers located within each space. Return air is transferred from the classroom to the associated mechanical closet through a wall-mounted return grille,

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

positioned high on the classroom wall. Conditioned ventilation air is ducted from the 100-percent outdoor air energy recovery units to each mechanical closet for distribution within the classroom. Excess ventilation from classrooms is transferred into adjacent closets and classroom support areas when the air is exhausted through the energy recovery units. Each energy recovery unit is provided with DX cooling, hot water heating, and dual plate-and-frame heat exchangers for preconditioning outdoor air and tempering conditioned ventilation air. Fan coil unit and energy recovery unit systems were installed as part of the original building construction and appear to be in good working condition.

- Computer Lab: The computer lab area is provided with space conditioning and ventilation through an indoor vertical air-handling unit located within the penthouse area above. Manufactured by the Trane Company (Model LPCA03), this air-handling unit is provided with DX cooling and hot water heating. A remote air-cooled condensing unit is located at the roof area adjacent to the penthouse and support's the air-handling unit's DX coil. A ducted outdoor air connection is provided to an intake ventilator located at the penthouse roof level. Excess ventilation from the computer lab is transferred into the adjacent storage area and exhausted through a rooftop exhaust fan. The air-handling unit was installed as part of the original building construction and appears to be in good working condition.

- Administration and Health Suite: An indoor variable-air volume (VAV) modular air-handling unit and associated series fan-powered VAV terminal units provide space conditioning and ventilation for the administration and health suite areas. Manufactured by the Trane Company (Model MCC08), this air-handling unit system is located within the penthouse above the administration area and equipped with chilled water and DX cooling, as well as hot water heating. The use of DX cooling allows for year round cooling independent of chiller operation. This unit was installed as part of the original building construction and appears to be in good working condition. Series fan-powered VAV terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. Airflow from the administration areas is returned back to the air-handling unit through an inline return fan located within the penthouse. Airflow from the health suite areas is exhausted through a rooftop exhaust fan. An additional switch-operated exhaust fan is also provided for the health suite treatment areas to purge odors generated within this space.

- Gymnasium: The gymnasium area is served by an indoor constant volume heating-only modular air-handling unit, located within a mechanical room adjacent to the gymnasium area. An indirectly-fired gas furnace section, installed remote from the main air-handling unit, provides heating for the areas served. Manufactured by the Trane Company (Model MCC17), this unit was installed as part of the original building construction and appears to be in good working condition. Supply air ductwork is routed around the perimeter of the gymnasium area and distributed through a looped ductwork main located tight to the underside of

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

the roof trusses. A rooftop outdoor air intake and exhaust fan also provides ventilation for the area during the summer months.

- Media Center: An indoor constant volume modular air-handling unit provides space conditioning and ventilation for the media center area. Manufactured by the Trane Company (Model MCC10), this air-handling unit is located within the penthouse above the media center area and is equipped with chilled water and DX cooling, as well as hot water heating. The use of DX cooling allows for year round cooling independent of chiller operation. This unit was installed as part of the original building construction and appears to be in good working condition. Supply air is ducted from the air-handling unit to supply diffusers located throughout the space. The ductwork main serving the perimeter linear air devices is provided with a duct-mounted heating coil, allowing for supplemental perimeter heating during the winter months. Airflow from the media center area is returned back to the air-handling unit through an inline return fan located within the penthouse.

- Multipurpose Room / Platform Area: An indoor constant volume modular air-handling unit provides space conditioning and ventilation for the multipurpose room and platform areas. Manufactured by the Trane Company (Model MCC14), this air-handling unit system is located within the penthouse adjacent to the multipurpose room and equipped with chilled water and DX cooling, as well as hot water heating. The use of DX cooling allows for year round cooling independent of chiller operation. This unit was installed as part of the original building construction and appears to be in good working condition. Exposed supply air ductwork extends from the air-handling unit to diffusers located throughout the space. Airflow from the multipurpose room is returned back to the air-handling unit through an inline return fan located within the penthouse.

- Kitchen: The kitchen area is provided with space conditioning and ventilation through an indoor vertical air-handling unit located within the penthouse above the adjacent platform area. Manufactured by the Trane Company (Model LPCA03), this air-handling unit is provided with DX cooling and hot water heating. A remote air-cooled condensing unit is located at the roof area adjacent to the penthouse and supports the air-handling unit's DX coil. A ducted outdoor air connection is provided to an intake ventilator located at the penthouse roof level. The air-handling unit was installed as part of the original building construction and appears to be in good working condition. The kitchen area also contains a capture hood located above the two stacked convection ovens and range equipment. This hood is ducted to an exhaust fan located at the roof level. A ductless split system is also provided for space conditioning within the dry food storage room.

- Art, Art Storage, and Music Rooms: An indoor VAV modular air-handling unit and associated series fan-powered VAV terminal units provide space conditioning and ventilation for the art and music classroom areas. Manufactured by the Trane Company (Model MCC12), this air-handling unit is located within the penthouse

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

above the administration area and equipped with chilled water cooling and hot water heating. The unit was installed as part of the original building construction and appears to be in good working condition. Series fan-powered VAV terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. Airflow from classroom areas is returned back to the air-handling unit through an inline return fan located within the penthouse. A kiln is located within the art storage room. Local exhaust for this kiln equipment is accomplished through a dedicated capture hood. This arrangement offers an effective means of providing local exhaust for this equipment.

- Building Exhaust Systems: A combination of roof-mounted and inline fans remove exhaust air throughout the building. These fans were installed as part of the original building construction and appear to be in good working condition.

CONTROL SYSTEM

The existing control system for the school is a direct digital control (DDC) system manufactured by Andover Controls. All valve and damper components are provided with electric or electronic actuation. Building control components are interfaced with the central MCPS energy management control system for occupied/unoccupied settings and other energy management routines.

PLUMBING SYSTEM

The building is served from the county water system through an 8-inch combination fire and water service, entering the building within the mechanical room. A 3-inch domestic water main extends from this service to support the building's domestic water requirements. A backflow preventer and WSSC water meter is provided at the domestic water service entrance within the mechanical room. It is anticipated that limited surplus capacity exists for the 3-inch domestic water main to support the proposed addition.

Domestic hot water is generated through a PVI Turbopower 125-gallon gas-fired water heater (Model 250P-125A-TP). This heater is equipped with a 199 MBH gas burner that produces 250 gallons per hour recovery. The heater was installed as part of the original building construction and appears to be in good working condition. A dedicated flue extends from the water heater to a termination at the roof level. The hot water system is provided with a domestic hot water circulation pump, expansion tank, and thermostatic mixing valve. It is anticipated that limited surplus capacity exists for the hot water heater to support the proposed addition.

Plumbing fixtures appear to be in good condition and were installed as part of the original building construction. The water closets are floor-mounted, urinals are wall-hung, and the lavatories are individual wall-hung type. The school is equipped with plumbing fixtures that meet Americans with Disabilities Act (ADA) requirements.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

FIRE PROTECTION SYSTEM

The building is currently provided with sprinkler coverage throughout. Located within the mechanical room, an 8-inch fire line extends from the incoming water service and is provided with a 6-inch double-check type backflow preventer. This fire line serves six zone valve assemblies located within mechanical spaces and building service areas throughout the school. Sprinkler mains extend from each zone valve assembly and serve sprinkler heads located throughout their respective zone. Sprinkler system components appear to be in good condition. The existing 6-inch fire service also appears adequately sized to support any planned additions to the school. Relocation of the existing fire department connection may be required to support the two addition schemes (Options 2 and 3), which place the addition near the front of the building.

ELECTRICAL

The electrical equipment that currently exists within Kensington Parkwood Elementary School dates back to the original construction (2006) and is generally in good working condition. The following is a detailed description of the existing electrical, communications, and security systems.

POWER DISTRIBUTION

The school's electrical service is fed from a Pepco utility pole along Saul Road in front of the school. A primary utility feeder is run in a two-way underground ductbank from this utility pole to the primary of a pad-mounted Pepco utility transformer (Pepco #772432-8250) located outside the main electrical room in a mechanical yard. Secondary services feeders then run in a 12-way underground ductbank from the secondary of the Pepco utility transformer to the CT cabinet of the distribution switchboard, located in the main electrical room.

The distribution switchboard is rated at 277/480 volts, 3 phase, 4-wire with a 2000-ampere bus. The switchboard consists of two sections. The first section contains the power company CT cabinet. The second section is the main section that can accommodate up to six main circuit breakers. There are currently three main circuit breakers in the switchboard. A 3P-600A main circuit breaker serves Distribution Panel MP2, a 3P 1200A circuit breaker serves Distribution Panel MP3, and a 3P-600A main circuit breaker serves the chiller.

The electrical equipment (switchboard, panelboards, transformers, disconnects) in the building are manufactured by Siemens, with the exception of harmonic mitigating transformers that are manufactured by Power Quality International, and combination starters

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

for mechanical equipment that are manufactured by Eaton/Cutler-Hammer. Phase and voltage protection devices by ICM Controls are located in a separate enclosure adjacent to each combination starter and are connected to respective combination starter controls.

Electrical equipment in the main electrical room consists of mechanical panelboards (Panel MP1, Distribution Panel MP2, and Distribution Panel MP3), Panel L1, branch circuit panelboards, transformers, and automatic transfer switches. There is no space in the main electrical room to install additional equipment.

Distribution Panel MP2 serves mechanical equipment, including air-handling units, pumps and fans, as well as Panel L3. Distribution Panel MP3 serves mechanical panelboards, lighting panelboards (Panels L1 and L2), and panelboards for generator loads (Panels ELP and ESP) via automatic transfer switches.

There are two electrical closets in the school. The main electrical room and electrical closets each have a lighting panelboard that serves a receptacle panelboard and computer panelboard via step-down transformers in the same respective room. Receptacle panelboards serve general receptacles (ivory in color) and plug loads. Computer panelboards serve receptacles (gray in color) for computer loads. Surge protection devices (Siemens TPS) are adjacent to and connected to each computer panelboard. Transformers serving computer panelboards are ultra-high efficiency harmonic mitigating type.

Typical classrooms have five duplex general receptacles and six double-duplex (quad) computer receptacles. There are two general receptacles in front of the classroom, two general receptacles along the exterior walls near the windows, and one GFCI receptacle near the sink in back of the classroom. There is one quad computer receptacle in front of the classroom for the teacher desk. There are five quad computer receptacles in the back of the classroom for student computers.

It appears that power for the temporary relocatable trailers/classrooms installed at the school is served from the school and not from a separate Pepco electrical service.

GENERATOR POWER

There is a 125-kW natural gas outdoor generator in the mechanical yard adjacent to the Pepco utility transformer. The generator serves generator panelboards via two automatic transfer switches (ATS) in the main electrical room. The first ATS is for life safety and serves Panels ELP and ER1. Panel ELP serves egress and emergency lighting. Panel ER1 serves systems (fire alarm, public address, security, telephone) equipment. The second ATS is for standby loads and serves Panels ESP and ESR. Panel ESP serves

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

heating pumps. Panel ESR serves boilers, boiler pumps, water heater, energy management system control panels, and kitchen cooler and freezer.

The generator and automatic transfer switches are by Generac Power Systems.

LIGHTING

Fluorescent lighting is primarily used throughout the school. The standard fixture in classrooms, media center, and main lobby is a linear direct/indirect pendant suspended fluorescent lighting fixture. Corridors, art, music rooms, and support spaces with drop ceilings use 2' x 4' recessed lensed troffer fluorescent lighting fixtures. General office and computer lab use 2' x 4' recessed parabolic fluorescent lighting fixtures. The linear fluorescent lamps used throughout the building are T8 lamps. Downlights, where used, have compact fluorescent lamps.

Lighting fixtures with metal halide lamps are located in the gym and multipurpose room, and are used for uplights in the main lobby and exterior canopy. Pole lights in the parking lot use high pressure sodium lamps.

FIRE ALARM SYSTEM

The fire alarm system is by Notifier/Wheelock. The fire alarm control panel with voice evacuation (Notifier NFS-3030) and fire alarm communicator (Notifier 411UDAC) are located in the main electrical room. The fire alarm annunciator panel is located in the vestibule of the main lobby. Fire alarm devices include manual pull stations, smoke detectors, duct-type smoke detectors, heat detectors, monitoring modules for flow and valve tamper switches, and audible and visual notification devices. Fire alarm ceiling-mounted combination speakers/strobes are located in the classrooms. Fire alarm ceiling speakers are located in the corridors.

INTERCOM AND SOUND SYSTEMS

The school intercom system is by Rauland, Telecenter 21. The main intercom console is located in a workroom within the main office area. The system has the capability to perform select local calls to classrooms or paging throughout the school. Each classroom has a speaker and call switch. Speakers are also located throughout the corridors.

TELEPHONE SYSTEM

The telephone system is a separate key system for telephones in the school offices. The telephone company demarcation point is in the MDF closet adjacent to the computer lab. The telephone switch is by Verizon and is also located in the MDF closet.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

VIDEO AND AUDIO/VISUAL SYSTEMS

Cable TV outlets are located in rooms throughout the school. The head-end equipment is rack-mounted and located in the MDF closet adjacent to the computer lab. Promethean smart boards are located in classrooms.

SECURITY SYSTEM

The security system consists of an intrusion detection system by Napco and video surveillance camera at the main entrance by Pelco. The intrusion detection system includes keypads in the main office, motion sensors in the corridors and door contacts on the exterior doors. The main security control panel is located in the MDF closet adjacent to the computer lab. The battery backup power supplies for the main security control panel are by Altronix.

DATA WIRING SYSTEM

A Category 5E wiring system is installed throughout the school. This system provides connectivity for the computer lab, media center, offices, and classrooms. Each typical classroom has both student and teacher outlets. The main file server is located in the MDF closet adjacent to the computer lab. The main file server is a Dell file server cabinet that is also located in the MDF closet. Data racks are by Chatsworth Products, Inc. (CPI). Rack-mounted data fiber optic enclosures and data patch panels are by Superior Modular Products. Category 5E data cables are blue and voice cables are white in color.

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

SITE PHOTOS

KEY PLAN

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

1. View of main entrance

2. View of main entrance and specimen willow tree

3. View of front

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

4. View of south entrance and student queuing area

5. View of path from south parking lot to main entrance

6. View of south parking lot, entrance and student queuing area

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED




7. View of paved play area

8. View of soccer field

APPENDIX C- EXISTING CONDITIONS SURVEY & CODE ANALYSIS CONTINUED

9. View of rear of school

10. View of media center and gym