LUXMANOR ELEMENTARY SCHOOL
MODERNIZATION FEASIBILTY STUDY

Prepared for

Montgomery County Public Schools

By

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October 2013

Luxmanor Elementary School

Revitalization / Expansion

6204 Tilden Lane
Rockville, Maryland 20852

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I. INTRODUCTION

This revitalization / expansion feasibility study was conducted for Montgomery County Public Schools (MCPS) by the architectural firm Hord Coplan Macht. Luxmanor Elementary School is located at 6201 Tilden Lane, Rockville, Maryland 20852 and is part of the Walter Johnson cluster. 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 Luxmanor Elementary School revitalization / expansion. The meetings occurred on March 14, 2013; April 4, 2013; April 30, 2013; May 16, 2013; and June 4, 2013. The proposed designs are a result of the participant's suggestions and guidance during the process.

Ryan Forkert	Principal, Luxmanor Elementary School
Runaka Anderson	Parent
Jaclyn Bailey	Staff, Luxmanor Elementary School
Devorah Bergman	Staff, Luxmanor Elementary School
Allison Castel	Staff, Luxmanor Elementary School
Jordan Cooper	Maryland General Assembly Candidate
Debbie Corwin	Parent
Rick Darby	Parent
Nancy Delasos	Parent
Patricia Garcia	Parent
Karen Greenfield	Parent
Lindsay Hein	Staff, Luxmanor Elementary School
Hollie Hornstein	Staff, Luxmanor Elementary School
Linwood Jackson	Staff, Luxmanor Elementary School
Joane Kee	Parent
Zach Lanard	Planner, MCPS Division of Construction
Adam Lee	Parent
David Nguyen	Assistant Principal, Luxmanor Elementary School
Saeyin Oh	Project Manager, MCPS Division of Construction

I. INTRODUCTION

Feasibility Study Participants (Continued)

Debby Orsak	PTA President, Luxmanor Elementary School
Stephanie Oshinsky	Parent
Sharon Plotnick	Parent
Sulten Ragheb	Parent
Bruce Rich	Neighbor
Mark Rotton	Parent
Tracy Rotton	Parent
Ceilna Schmidt	Parent
Natalie Shelton	Parent
Deborah Szyfer	Planner, MCPS Division of Construction
Elli Tahmassebi	Parent

II. EXECUTIVE SUMMARY

Purpose

The purpose of this feasibility study is to explore revitalization / expansion options to accommodate the educational specification requirements for Luxmanor Elementary School. Further, this study provides specific recommendations to the Montgomery County Public Schools (MCPS) for implementation. When completed, the revitalized / expanded facility will have a maximum capacity of 745 students, with core spaces designed for 740 students.

History

Luxmanor Elementary School is located at 6201 Tilden Lane, Rockville MD 20852. The original one-story structure was built in 1966 with a total of 25,413 gross square feet (GSF). The school received two major additions; an addition in 1988 that provided a new library, gymnasium and classrooms, and an addition in 2008 that provided classrooms and offices on two levels. As in many schools which were expanded over a long period of time, classrooms, support space and specialized facilities are no longer located in a relationship conducive to modern teaching practices. Currently, the school capacity is 428 students in grades pre-K – 5. The existing structure is 61,694 GSF on a 6.5 acre site.

Existing Facility Challenges

The existing school has been evaluated by a team of architects and engineers to determine what was required to revitalize / expand the school to comply with the educational specifications, dated March 12, 2013. Per the educational specifications, the school would require a total of 64,287 net square feet (NSF). The current building totals 51,503 NSF of space so it would be necessary to add 12,784 NSF. The site is expected to accommodate parking for 26 more cars, a dedicated bus loop, increased play areas, and space for micro-bioretention per new stormwater regulations.

II. EXECUTIVE SUMMARY

Justification for Demolition of Existing Building

It should be noted that the approach to revitalize / expand the existing facility necessitates either the renovation or demolition of building structure that are more than forty years old. The cost and challenges to retain and upgrade these structures are not feasible given new building code requirements, sustainable goals and life-cycle cost. The following are reasons why the existing structure should be demolished:

- The majority of the existing school is a one-story structure, and the building floor to ceiling height will not accommodate the larger mechanical duct work required to meet modern mechanical design and LEED standards while still providing a minimum of 8'-6" clear ceiling height in the new classrooms.
- The original 1966 building's exterior walls and existing windows are not insulated and would require major modifications or total replacement to meet new required insulation values for energy efficient building shell.
- The existing building location on the site does not allow an expanded single story floor plan to meet the Educational Specifications.
- Retaining the existing building footprint and adding the additional new square footage required to meet the current MCPS Educational Specifications would consume a major portion of the already constricted site. Therefore there would not be adequate square footage to meet the Educational Specifications exterior requirements for paved play, mulch play and ball fields.
- The existing building structure is not designed to accept the addition of a new second floor. It would be costly to modify the existing structural support system, and the ceiling heights on the first floor still cannot be achieved.

Methodology

Equipped with an understanding of the project challenges, 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 five meetings.
    - The meetings were well attended with consistent attendance.

  - There were 30 different attendees.
  - There were a total of 10 versions from an original field of four 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.

The initial analysis and review resulted in four options. Included were alternatives that maintain the existing gym addition, renovate the existing gym and classroom additions, and minimize the building footprint on the site with a new building. All options maintained the 2008 classroom addition. The options were all efficient but took a different approach to dealing with placement of the largest site programmatic features (gymnasium, multipurpose room & media center).

The options that were preferred were the two-story building options. The 3-story option was eventually eliminated because it split the school population on too many levels and it was not able to pair classroom spaces with needed support spaces. As the meetings progressed, the 2-story new building option continued to develop more interest and ultimately emerged as the preferred option.

II. EXECUTIVE SUMMARY

Overview

The existing Luxmanor Elementary School facility is situated on a 6.5 acre parcel at 6201 Tilden Lane, Rockville MD 20852. The site is bounded to the South by Tilden Lane, to the East and West by a neighborhood of single family homes, and to the North by MNCPPC Luxmanor Neighborhood Park.

The site is generally flat with the higher elevation being the first floor elevation of the school. The site slopes downhill and away from the school. The western boundary of the school is lower than the eastern and ranges from 330 at the front (southwest) corner to 320 at the rear corner (northwest). The playground equipment and some play courts are constructed on this level. The neighborhood park encompasses a lower terraced level which accommodates the ball fields. This change in terrace levels is around 10 feet. Currently the only way to travel from one site level to another is via an external stair.

There are three curb cuts that provide access to the school and the 53 (3 ADA) designated parking spaces for vehicles and a dedicated bus loop. The southeastern curb cut is used as the entrance to the bus drop off and to the loading dock and trash area that is located along the eastern side of the school. The central curb cut is used as a bus and staff parking exit only. The southwestern curb cut is used as the entrance/exit to the student drop off and also for parking.

The existing structure is constructed of non-combustible materials. The exterior walls are masonry with brick veneer. The original 1966 building does not have a cavity or insulation within its exterior masonry walls. The 1988 addition does a cavity and 1-1/2" rigid insulation. Neither the original building nor the 1988 addition has roof insulation which meets current building code standards. The structural system is a combination of load bearing masonry walls, steel framing, steel roof joists, and concrete slabs-on-grade. The original building and the 1988 addition is not sprinklered; a sprinkler service was installed in the 2008 addition. The school's interior finishes are worn and are at the end of their useful life.

Of the three final options, only two of them are considered truly feasible. The Feasibility Study participants did investigate an option to revitalization / expansion by renovating as much of the school as possible and constructing an addition. All options meet the programmatic requirements outlined in the Educational Specifications, and they reflect input received at the public meetings and resulted in this study.

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

II. EXECUTIVE SUMMARY

Common Design Elements

SITE

- Car and bus traffic is separated on-site.
- Parking for 80 cars is provided on-site.
- Bus loop accommodates 8 large and 4 small busses.
- Student drop-off traffic is routed through the main parking lot to maximize queuing.
- There is one main entrance to the building, adjacent to both car and bus drop-off loops.
- The gymnasium will have easy access to play areas and ball fields.

BUILDING

- A welcoming and easily identifiable main entry is provided.
- The school is separated into two zones: the public areas (gymnasium and multipurpose rooms), and the academic areas.
- The academic areas can be closed off from the public for after-hours use.
- Classrooms are placed to maximize daylight and views.
- Areas for student queuing both (indoors and outdoors) are provided.
- Clustered play areas are provided for supervision purposes.
- Kindergarten has “at-grade” access to outdoors.
- The majority of instructional support spaces are placed closer to the younger grades like pre-K, K & Head Start.
- Toilets are provided within public area for after-hours use.

ZONING

- Zone R-200, the building height must not exceed 50 feet to roof peak
- Front Setback = 40’-0”
- Rear Setback = 30’-0”
- Side Setback = 12’-0”

II. EXECUTIVE SUMMARY

Option 1

Option 1 proposes revitalization / expansion by demolishing the entire existing building (except the 2008 addition), and providing a new 2-story school building on the site. Because the revitalization / expansion requires additional site amenities, the new building is positioned so that it provides an efficient footprint while preserving a majority of the site's most memorable feature, the trees. Advantages of this option also include good separation of community use spaces, efficient play area supervision, and good grade clustering.

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

Option 1 (Preferred):

Total	**$ 25,673,000**

II. EXECUTIVE SUMMARY

Option 2

Option 2 proposes revitalization / expansion by demolishing the entire existing building (except the 2008 addition), renovating the existing gymnasium into a new administration suite, and providing a new 2-story school building on the site. Because the revitalization / expansion requires additional site amenities, the new building is positioned so that it provides an efficient footprint while preserving a majority of the site's most memorable feature, the trees. Dis-advantages of this option include internal level changes at the main entry (accessibility) and reduced bus queuing capacity on-site (compared to Option 1).

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

Option 2:

Total	**$ $24,791,000**

II. EXECUTIVE SUMMARY

Option 3

Option 3 proposes revitalization / expansion by demolishing the entire existing 1966 building, renovating the existing 1988 addition into a new administration suite and media center, and providing a new 3-story school building on the site. Dis-advantages of this option include internal level changes at the main entry (accessibility), first grade located on second floor, complicated community use separation, reduced play area and bus queuing capacity on-site (compared to Option 1). An additional elevator is also required to serve the third floor.

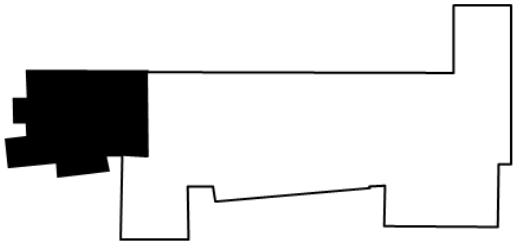
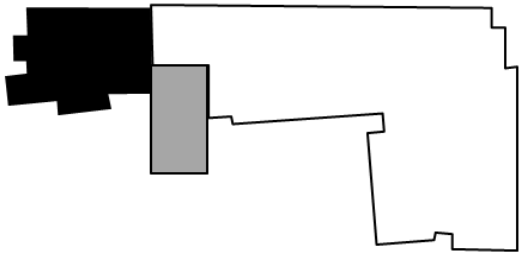
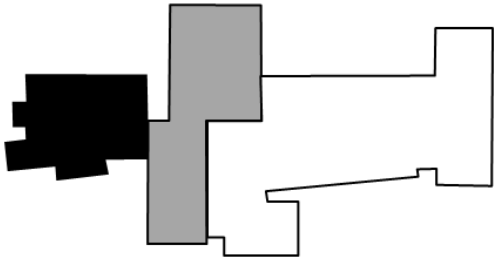
All new infrastructure and systems will be designed to meet MCPS standards. These include the HVAC, life safety, fire protection, electrical, lighting, data and communication systems. The revitalized / expanded facility will comply with accessibility codes.

Option 3:

Total	**$26,787,000**

II. EXECUTIVE SUMMARY

Comparative Analysis of Options 1, 2 & 3

OPTION 1 (Preferred)	OPTION 2	OPTION 3
		
Existing: 62,912 SF **Demolition: 42,650 SF** **Addition: 79,125 SF** **Total After Addition = 99,387 SF** **Addition Efficiency = 68%**	**Existing: 62,912 SF** **Demolition: 37,410 SF** **Renovation: 5,240 SF** **Addition: 71,167 SF** **Total After Addition = 96,669 SF** **Addition Efficiency = 70%**	**Existing: 62,912 SF** **Demolition: 28,138 SF** **Renovation: 14,512 SF** **Addition: 68,046 SF** **Total After Addition = 102,820 SF** **Addition Efficiency = 65%**

LEGEND

Existing to Remain

Renovation

New Construction

II. EXECUTIVE SUMMARY (continued)

Cost Analysis

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

Square Footage

	Option 1 (Preferred)	Option 2	Option 3		
Existing	62,912	62,912	62,912		
New Construction	79,125	71,167	68,046		
Renovation	0	5,240	14,512		
Demolition (Total)	42,650	37,410	28,138		
Existing To Remain	20,262	20,262	20,262		
Total Gross	99,387	96,669	102,820		

PDF/ FEASIBILITY STUDY COST OUTLINE ($000's)

Building Construction Cost Estimate	$21,431				
Project Planning Cost	$1,792				
Contingency	$2,450				
Total Cost in FY 2013 Dollars	**$25,673**	**$24,791**	**$26,787**		

Notes:
1. This cost estimate does not include furniture and equipment.

II. EXECUTIVE SUMMARY

Conclusions and Recommendations

Of the three options presented only two of them meet the project goals. These are Options 1 and 2. Of the two options the feasibility study participants preferred for Option 1 as the approach to revitalize / expand this school. The advantages are numerous and are outlined in Section V of this report.

Option 1 is consistent with MCPS standards, program requirements, and addresses the interests and concerns of the principal, school staff, the PTA, and the community as represented by the feasibility study participants. In accordance with the thoughts of the feasibility study participants and MCPS staff, the design team recommends that the project move forward with Option 1.

III. SCOPE, METHODOLOGY AND GOALS

Scope and Intent

Montgomery County Public Schools (MCPS) desires to upgrade Luxmanor Elementary School to meet current specifications relative to educational programs, instructional philosophy, program space allocations, energy use, accessibility and life safety. When completed, the facility will have an increased capacity of 740 students, with core spaces designed for 745 students.

The A/E design team analyzed the educational specifications, met with the school and developed initial building concepts addressing the revitalization / expansion 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.

Methodology

The existing school has been evaluated by a team of Architects and Engineers to determine what was required to revitalize / expand the school to comply with the Educational Specifications, dated March 12, 2013 (See Appendix B). The existing site presents spatial challenges to meet the requirements of the revitalization / expansion. Under revitalization / expansion, the school would be required to have a total of 64,287 net square feet (NSF). The current building totals 51,503 NSF of space and so it would be necessary to add 12,784 NSF or one-quarter more NSF than exists. The site area will remain the same size, and is expected to accommodate parking for 26 additional cars, a dedicated bus loop, increased play areas, and space for micro-bioretention per new Stormwater Regulations. Equipped with an understanding of the project challenges, the design team was tasked with creating and presenting multiple options for review by both the Luxmanor staff and the community. The options were presented and reviewed at a series of public meetings and subsequently refined based on the comments received.

III. SCOPE, METHODOLOGY AND GOALS

This study is based on the following:

- Public meetings with the Feasibility Study participants and MCPS Staff.
    - There were five meetings.
    - The meetings were well attended with consistent attendance.
    - There were 30 different attendees.
    - There were a total of 10 versions from an original field of four 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.

The initial analysis and review resulted in four options. Included were alternatives that maintain the existing gym addition, renovate the existing gym and classroom additions, and minimize the building footprint on the site with a new building. All options maintained the 2008 classroom addition. The options were all efficient but took a different approach to dealing with placement of the largest site programmatic features (gymnasium, multi-purpose room & media center).

The two-story building options were favored. The 3-story option was eventually eliminated because it split the school population on too many levels, and it was not able to pair classroom spaces with needed support spaces. As the meetings progressed, the 2-story new building option continued to develop more interest and ultimately emerged as the preferred option.

III. SCOPE, METHODOLOGY AND GOALS

General Goals

The following is a list of project goals that have been developed over the series of public meetings. It articulates the goals and hopes for the revitalization / expansion:

- Provide a welcoming and easily identifiable main entry
- Develop a site layout that provides safe and efficient pedestrian and vehicular use
- Plan an environmentally-sensitive school that provides visual connections to the landscape

Site Goals

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

- Separate bus traffic from car traffic.
- Provide more staff parking.
- Improve the safety and functionality of pedestrian site access.
- Provide adequate recreation spaces per Educational Specifications.
- Provide clustered play areas for better supervision.
- Provide more on-site student drop-off queuing.

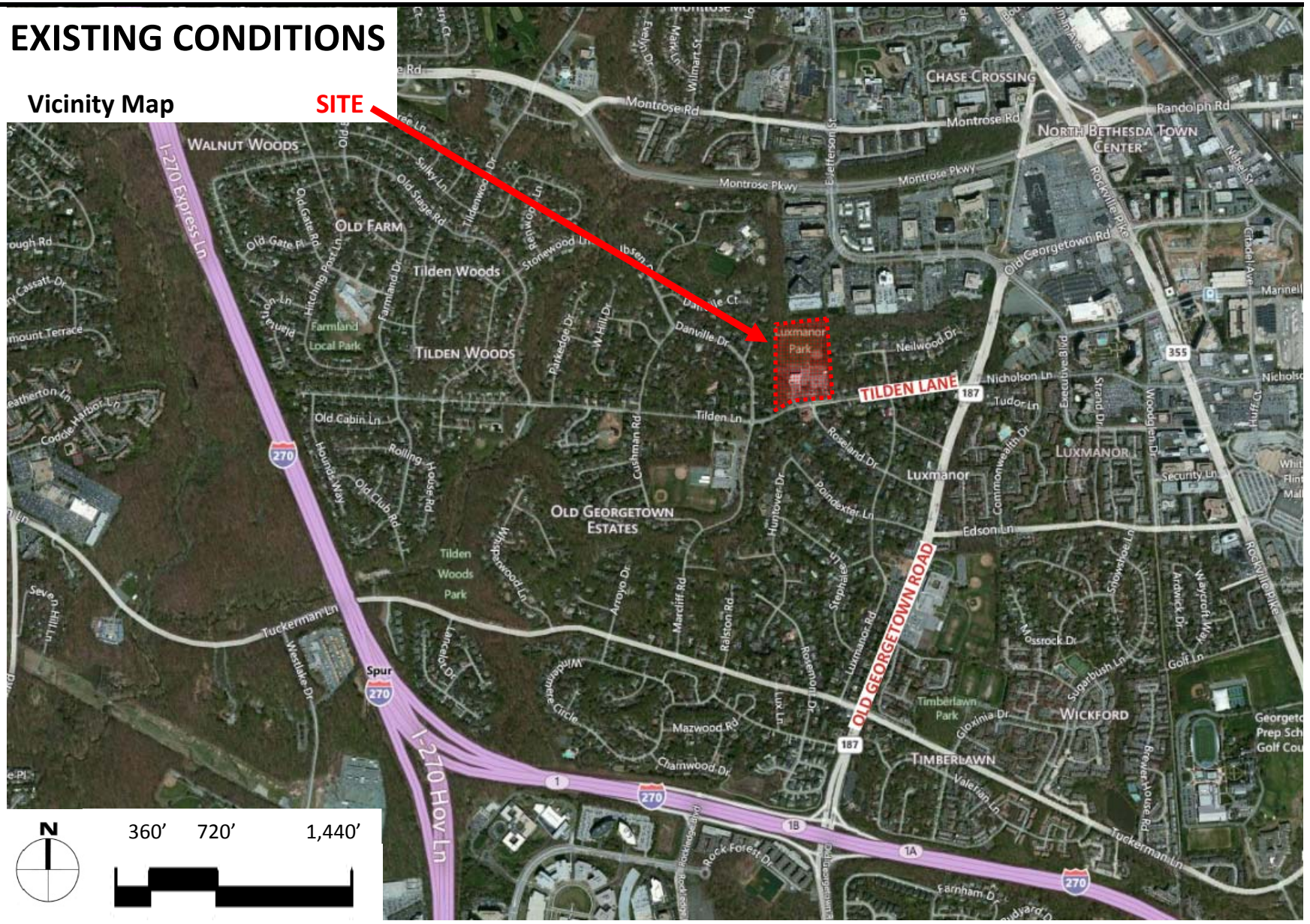
Building Goals

The following goals and objectives have been developed based on the comments received from the public meeting process. The revitalized / expanded building shall:

- Introduce natural light into the building. Controllable natural light will be provided for all teaching spaces.
- Provide barrier-free ADA compliant access throughout the building and site.
- Have clear, easily supervised circulation paths for intuitive way-finding.
- Have a special and identifiable main entrance.
- Designs should be mindful of travel times to shared rooms.
- Provide areas for student queuing, both indoors and out.
- Allow Kindergarten students to easily access their play areas.

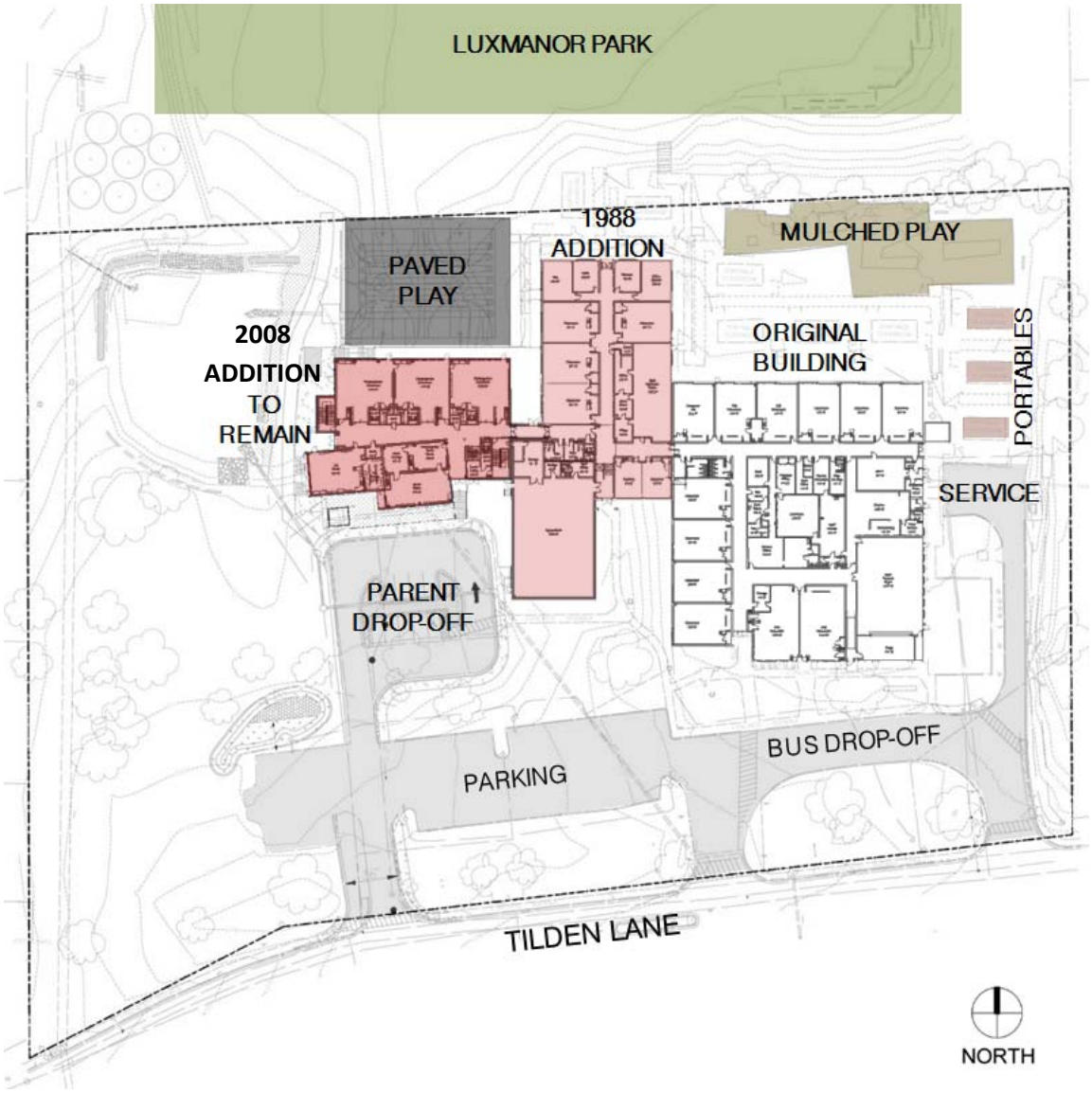
IV. EXISTING CONDITIONS

Vicinity Map



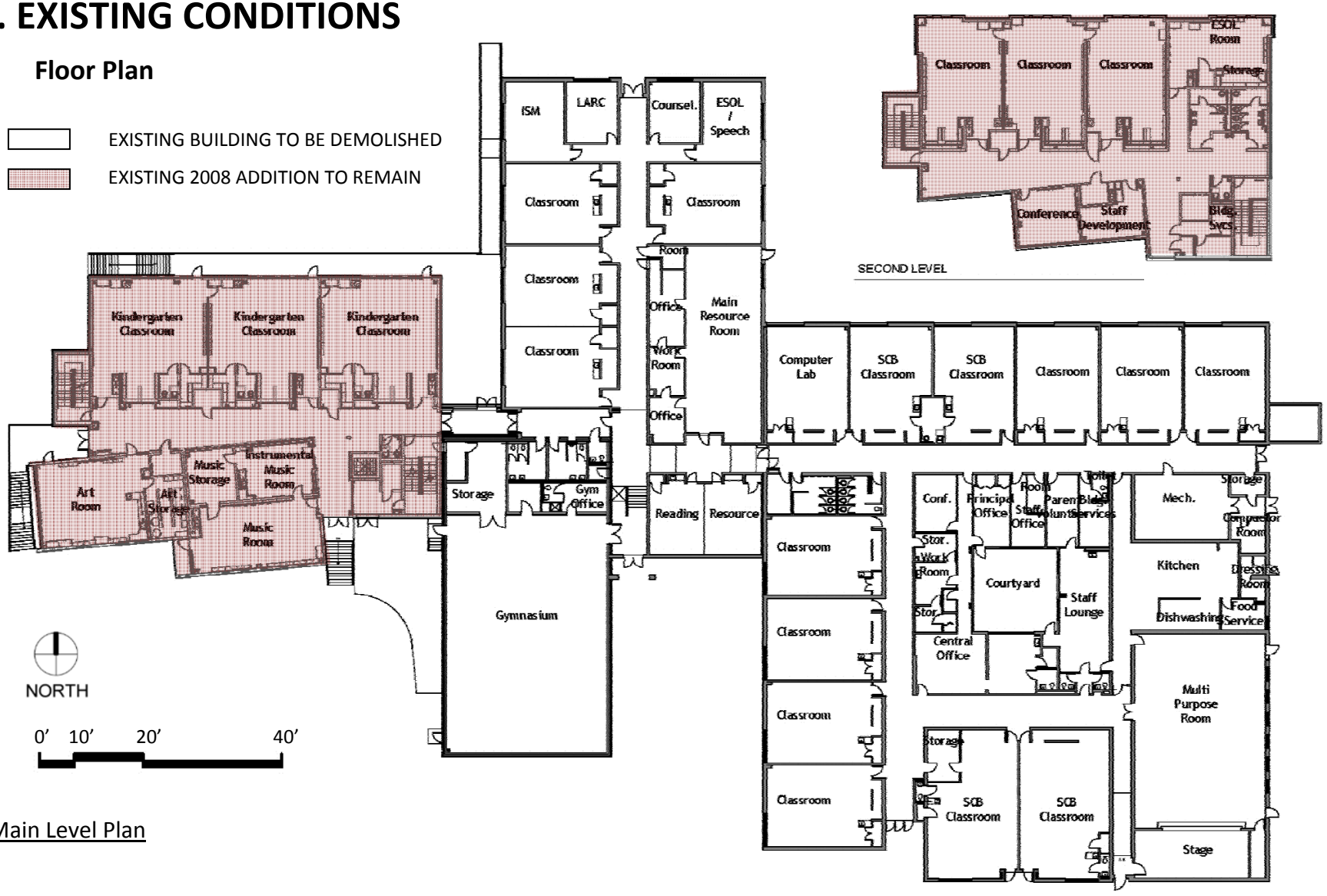
IV. EXISTING CONDITIONS

Site Plan



IV. EXISTING CONDITIONS

Floor Plan



Main Level Plan

IV. EXISTING CONDITIONS

Existing Conditions Summary

The existing Luxmanor Elementary School facility is situated on a 6.5 acre parcel at 6201 Tilden Lane, Rockville MD 20852. The site is bounded to the South by Tilden Lane, to the East and West by a neighborhood of single family homes, and to the North by MNCPPC Luxmanor Neighborhood Park.

The site is generally flat with the higher elevation being the first floor elevation of the school. The site slopes downhill and away from the school. The western boundary of the school is lower than the eastern and ranges from 330 at the front (southwest) corner to 320 at the rear corner (northwest). The playground equipment and some play courts are constructed on this level. The neighborhood park encompasses a lower terraced level which accommodates the ball fields. This change in terrace levels is around 10 feet. Currently the only way to travel from one level to the other is via an external stair.

There are three curb cuts that provide access to the school and the 53 (3 ADA) designated parking spaces for vehicles and a dedicated bus loop. The southeastern curb cut is used as the entrance to the bus drop off and to the loading dock and trash area that is located along the eastern side of the school. The central curb cut is used as a bus and staff parking exit only. The southwestern curb cut is used as the entrance/exit to the student drop off and also for parking.

The existing structure is constructed of non-combustible materials. The exterior walls are masonry with brick veneer. The original 1966 building does not have a cavity or insulation within its exterior masonry walls. The 1988 addition does a cavity and 1-1/2" rigid insulation. Neither the original building nor the 1988 addition has roof insulation which meets current building code standards. The structural system is a combination of load bearing masonry walls, steel framing, steel roof joists, and concrete slabs-on-grade. The original building and the 1988 addition is not sprinklered; a sprinkler service was installed in the 2008 addition. The school's interior finishes are worn and are at the end of their useful life

Refer to Appendix C –Existing Conditions Survey for more information.

V. DESCRIPTION OF OPTIONS

General

Three options were developed in response to the MCPS educational specifications for Luxmanor Elementary School. Each option addresses the desired physical and instructional improvements to the school, and satisfies the educational specification requirements to varying degrees of success.

Common Design Elements for Options 1, 2 & 3

SITE

- Car and bus traffic is separated.
- Parking for 80 cars is provided.
- Bus loop that accommodates 8 large and 4 small busses is provided.
- The student drop-off loop is routed through the main parking lot to maximize queuing.
- There is one main entrance to the building, adjacent to both car and bus drop-off loops.
- Gymnasium will have easy access to play areas and ball fields.
- Layout of existing ball fields will remain unchanged.

ARCHITECTURAL

- A welcoming and easily identifiable main entry is provided
- The school is separated into two zones: the public areas (gymnasium and multipurpose rooms), and the academic areas.
    - Note: Separation is not easily achieved for Option 3
- Classrooms are placed to maximize daylight and views.
- Areas for student queuing both (indoors and outdoors) are provided.
- Clustered play areas are provided for supervision purposes.
- Kindergarten has “at-grade” access to the outside.
- The majority of instructional support spaces are placed closer to the younger grades like pre-K, Kindergarten, and 1st grade
- Toilets will be provided within public area for after-hours use,

V. DESCRIPTION OF OPTIONS

Mechanical

HVAC SYSTEM

The entire facility will be served with a two-pipe geothermal heat pump system. The geothermal borehole field will be located under the athletic fields. Heat pump loop water will be circulated through base-mounted pumps operating in a lead/lag type arrangement. The heat pump loop headers, associated pumps, and expansion tank will be located in a new mechanical room.

The heat pump units and piping in the 2009 wing will be connected to the new geothermal heat pump loop piping. Units and piping were originally designed to allow this connection to be made. The DDC controls on the units will need to be reprogramed to operate on this new piping loop. The cooling tower, boilers, and pumps installed in 2009 to service this wing will be removed and turned over to MCPS for use on future projects.

All classrooms will be served with vertical heat pump units located in mechanical closets; heat pump loop piping will be extended from the mechanical room.

Ventilation air to the classrooms will be supplied through an energy recovery unit (100% outdoor air, geothermal heat pump) mounted on the roof. The unit will supply conditioned outdoor air directly to the classrooms and exhaust through air devices mounted low on the walls. Exhaust air systems from the energy recovery unit will also serve toilet and storage rooms.

Three roof-mounted, single-zone geothermal heat pump units will serve the Gymnasium, Multi-Purpose Room and Media Center.

Another roof-mounted, single-zone geothermal heat pump will also serve the Administration Area. Each room or zone in the area will be served through a variable refrigerant flow (VRF) terminal controlled through a room thermostat.

Electric heat will be provided at entrances, stairs, toilet rooms, etc.

PLUMBING SYSTEMS

The existing 2009 domestic water service will be extended into the new portion of the building and a new electric water heater will be provided. Domestic water piping will be extended from the extended service to points of service throughout the new facility.

Plumbing fixtures will comply with ADA requirements and utilize water conservation features. All systems will be provided in accordance with Washington Suburban Sanitary Commission (WSSC) plumbing code requirements.

V. DESCRIPTION OF OPTIONS

FIRE PROTECTION SYSTEMS

The existing fire service located in the 2009 classroom wing is adequately sized to serve the new facility and will remain in-place. Additional sprinkler zones will be added with piping extended to serve the new addition. The extension and required modifications to the existing system will be provided in accordance with National Fire Protection Association (NFPA) requirements.

AUTOMATIC TEMPERATURE CONTROLS

The new 2009 direct digital control (DDC) system will be extended to monitor and control the new HVAC equipment serving the entire facility. The existing temperature control system presently serving the remaining classroom wing will be modified as required and interfaced with the new DDC system control sequences.

ENERGY MANAGEMENT STATEMENT

A primary factor in the design of the mechanical and electrical systems needs to be energy conservation. The facility will be designed to meet ASHRAE 90.1 requirements and BOCA and Montgomery County Energy Conservation Codes. The design should also incorporate recommendations from the publication “Energy Efficient Design for New Buildings” published jointly by ANSI/ASHRAE/IES.

V. DESCRIPTION OF OPTIONS

Electrical

The electrical systems required for the revitalization / expansion will be similar for the different revitalization / expansion concepts being proposed for Luxmanor Elementary School. Existing electrical, lighting, communications, security, and fire alarm systems within the 2009 addition will remain. Existing electrical, lighting, communications, security, and fire alarm systems within the 1989 addition and 1966 original building will be removed. Electrical, lighting, communications, security, and fire alarm systems for the revitalization / expansion of the 1989 addition and 1966 original building will be new.

POWER DISTRIBUTION

Switchboard 1 located in the 1966 original building will be removed, as well as associated electrical equipment served from Switchboard 1.

It is proposed that the existing 3P-1000A main circuit breaker in the existing to remain 2000A main distribution switchboard (currently serving Switchboard 1 in the 1966 original building) be used to serve electrical equipment for the revitalization / expansion of the 1989 addition and 1966 original building.

New electrical closets will be located throughout the school for the revitalization / expansion and will have electrical equipment to serve the revitalization / expansion. One of the new electrical closets will include a new 1000-ampere, 120/208-volt distribution panel served from the existing 2000A main distribution switchboard. This distribution panel will serve the electrical loads for the revitalization / expansion, including the new kitchen panelboard.

Electrical equipment in electrical rooms will consist of new 120/208-volt panelboards for mechanical, lighting, general receptacle, computer, and generator standby loads. New computer panelboards will be fed from K-rated dry-type transformers and will serve computer receptacles in the classrooms of the revitalization / expansion.

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

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

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

V. DESCRIPTION OF OPTIONS

GENERATOR POWER

The current MCPS standard is to provide emergency power for emergency/life safety systems and standby power for heat trace on heat pump water supply and return piping to dedicated outdoor air systems (DOAS) units and rooftop units on the roof in order to keep the pipes from freezing. The existing 85-kW generator 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 revitalization / expansion.

Standby panelboards connected to generator power will be placed in electrical closets to serve teacher station receptacles, telecom room receptacles, ATC/EMS panel(s), elevator cab, sumps pumps, smoke dampers, and heat trace for rooftop units.

The current MCPS standard also requires generator standby power to the freezer and cooler in the kitchen. The existing 85-kW generator does not have the capacity to serve these loads. A larger or additional generator will be required to accommodate the freezer and cooler in the kitchen.

LIGHTING

Lighting in the 2009 building addition will remain and be reused. Lighting controls in the 2009 building addition will need to be upgraded to meet lighting control requirements in ASHRAE Standard 90.1-2010.

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

Linear fluorescent type lighting fixtures that do not require dimming with utilize 32-watt, 3500K, T8 lamps and programmed-start electronic ballasts.

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

V. DESCRIPTION OF OPTIONS

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

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

DATA AND VOICE SYSTEMS

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

The main telecommunications room will be connected to the existing to remain Tel/Data room located on the second floor of the 2009 building addition via fiber optic cable.

INTERCOM AND SOUND SYSTEMS

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

Call switches and ceiling-mounted speakers will be provided in classrooms, gymnasium, multipurpose room, selected offices, and support spaces. Ceiling-mounted public address speakers will be provided in corridors and large toilet rooms. Exterior building-mounted speakers will be provided near the front entrance, bus loop, and playground areas. The existing call switches and ceiling-mounted speakers in the 2009 addition will remain and be connected to the new head-end console.

The gymnasium and multipurpose room will have sound reinforcement systems per MCPS standards. The music rooms are part of the 2009 addition and one of the music rooms has a sound reinforcement system that will remain.

V. DESCRIPTION OF OPTIONS

INSTRUCTIONAL/CLASSROOM TECHNOLOGY

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

Security System

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

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

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

Fire Alarm System

The existing fire alarm control panel with voice evacuation by Fire-Lite Alarms, located in the main electrical room of the 2009 building addition, will remain and be utilized to serve fire alarm devices for the revitalization / expansion of the 1989 addition and 1966 original building.

The fire alarm annunciator with graphic display will be located in the vestibule of the main entrance. The graphic display will show the fire alarm zones. Zoning will follow the sprinkler zones, with separate zones for smoke detectors, heat detectors, manual pull stations, and water flow devices.

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

V. DESCRIPTION OF OPTIONS

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

V. DESCRIPTION OF OPTIONS

Option 1 (Preferred) - Description

Option 1 proposes revitalization / expansion by demolishing the entire existing building (except the 2008 addition), and providing a new 2-story school building on the site. Because the revitalization / expansion requires additional site amenities, the new building is positioned so that it provides an efficient footprint while preserving a majority of the site's most memorable feature – the trees. Advantages of this option also include good separation of community use spaces, efficient play area supervision, and good grade clustering.

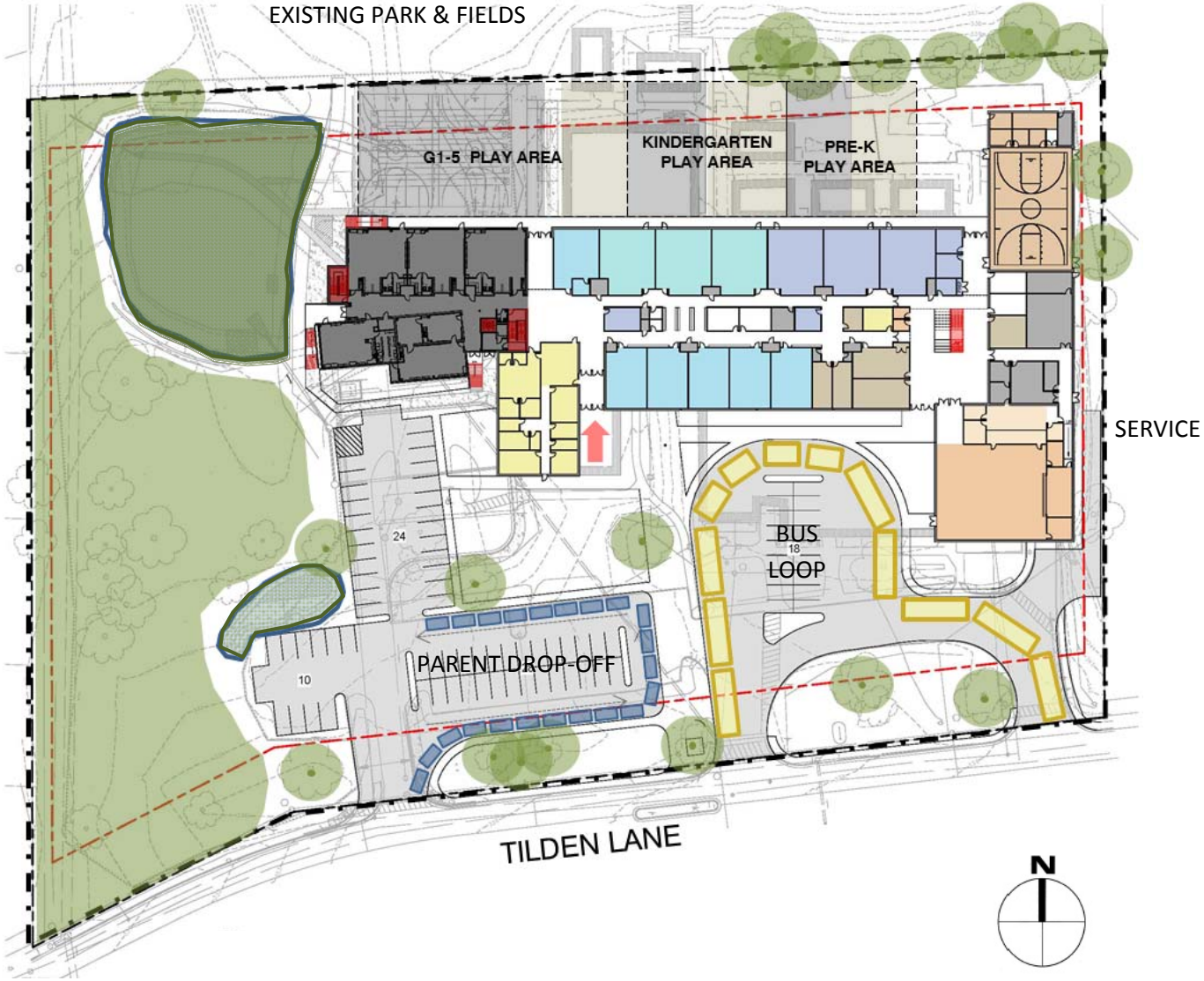
The 2-story building stretches east to west, and is connected with a central spine. Grades pre-K-1 and Special Education are located on the first floor with direct access to their play areas. The second floor has Grades 2 through 5, with a Media Center centrally located. A double-height lobby spaces terminates the central spine on the east side and provides access to the active group functions like the gymnasium and multipurpose rooms. It may also serve as a pre-function or gallery space for student art and the class photographs.

Busses will have a separate loop and drop-off area. Cars will be directed through a new parking lot where they can either park or queue in front of the school thereby facilitating a more orderly pick-up and drop-off.

V. DESCRIPTION OF OPTIONS

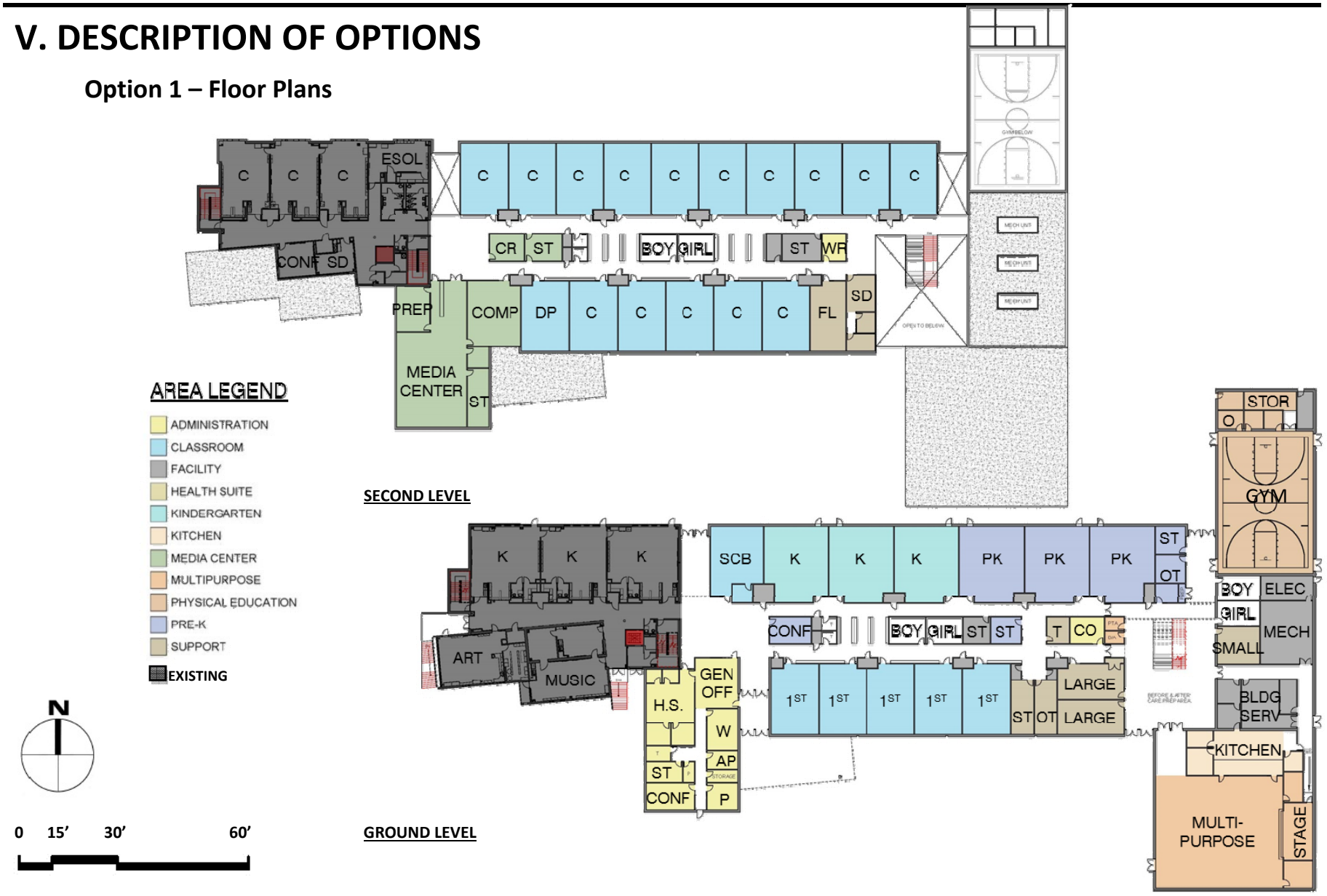
Option 1 – Site Plan

- PARKING – 80 SPACES
- PARENT DROP – 22 CARS
- BUS DROP
  - 8 BUSES (LARGE)
  - 4 BUSES (SMALL)



V. DESCRIPTION OF OPTIONS

Option 1 – Floor Plans



V. DESCRIPTION OF OPTIONS

Option 1 – Advantages & Disadvantages

Advantages:

- Simple, easy way-finding
- Good separation of day / night use (community use)
- Good grade clustering
- Efficient play area supervision
- Inspiring two-story community use space

Disadvantages:

- Long travel distance to existing elevator from eastern most classrooms

V. DESCRIPTION OF OPTIONS

Option 2 - Description

Option 2 proposes revitalization / expansion by demolishing the entire existing building (except the 2008 addition), renovating the existing gymnasium into a new administration suite, and providing a new 2-story school building on the site. Because the revitalization / expansion requires additional site amenities, the new building is positioned so that it provides an efficient footprint while preserving a majority of the site's most memorable feature, the trees. Disadvantages of this option include internal level changes at the main entry (accessibility) and less bus queuing capacity on-site (than in Option 1).

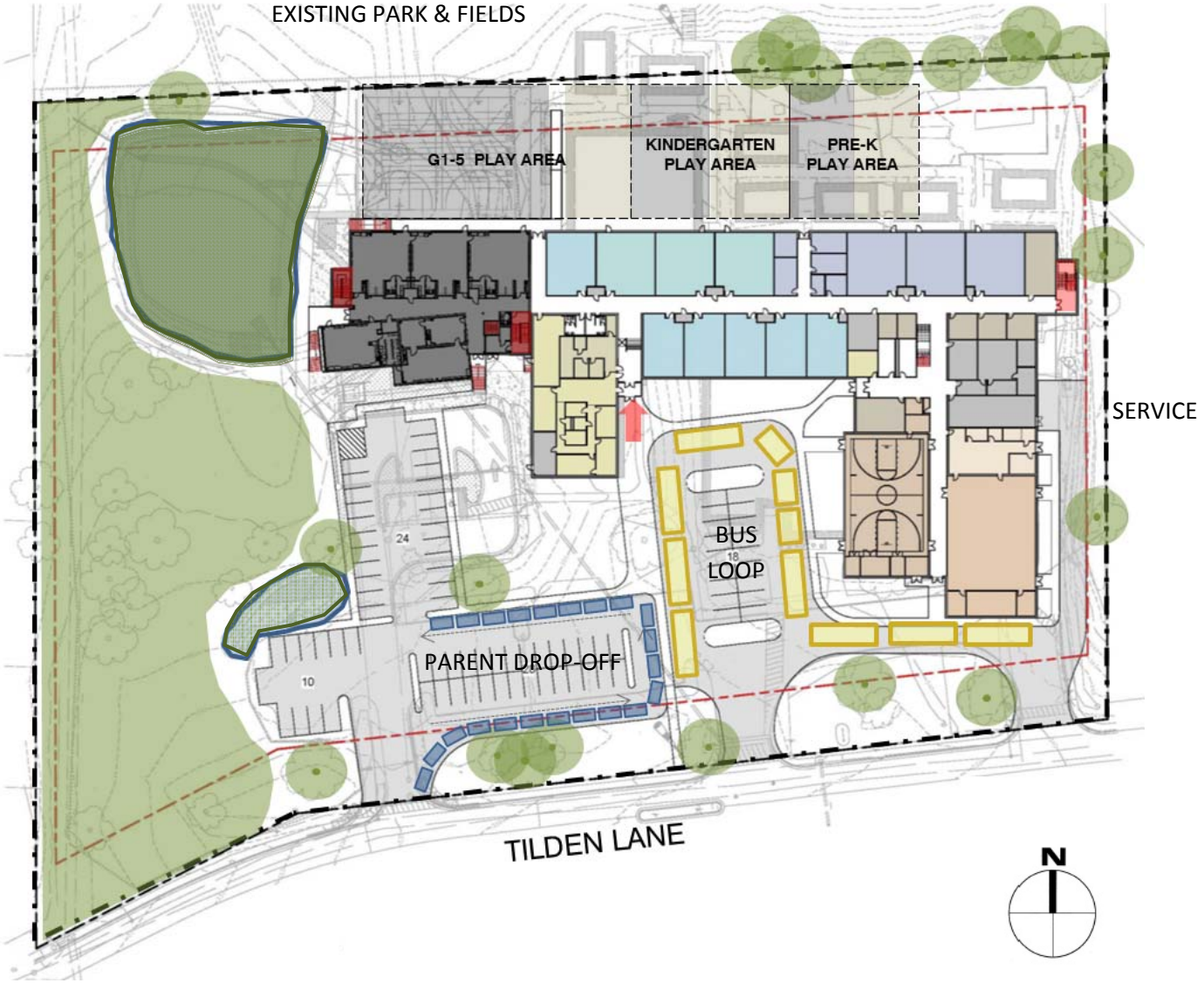
The 2-story building stretches east to west, and is connected with a central spine. Grades pre-K-1 and Special Education are located on the first floor with direct access to their play areas. The second floor has Grades 2 through 5, with the Media Center terminating the central spine to the east. The larger and more active group functions like the gymnasium and multipurpose rooms are grouped together in front of the 2-story bar to the north-east corner of the site.

Busses will have a separate loop and drop-off area. Parent and visitor cars will be directed through a new parking lot where they can either park or queue in front of the school thereby facilitating a more orderly pick-up and drop-off.

V. DESCRIPTION OF OPTIONS

Option 2 – Site Plan

- PARKING – 80 SPACES
- PARENT DROP – 22 CARS
- BUS DROP
  - 8 BUSES (LARGE)
  - 3 BUSES (SMALL)



V. DESCRIPTION OF OPTIONS

Option 2 – Floor Plan

AREA LEGEND

- ADMINISTRATION
- CLASSROOM
- FACILITY
- HEALTH SUITE
- KINDERGARTEN
- KITCHEN
- MEDIA CENTER
- MULTIPURPOSE
- PHYSICAL EDUCATION
- PRE-K
- SUPPORT
- EXISTING

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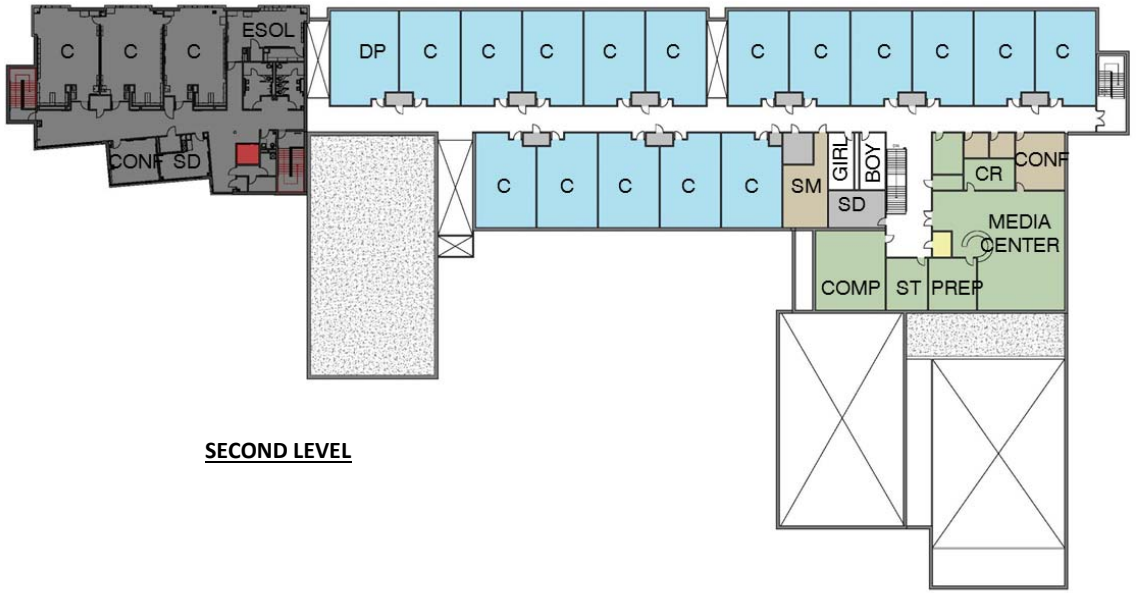


SECOND LEVEL

GROUND LEVEL

V. DESCRIPTION OF OPTIONS

Option 2 – Advantages & Disadvantages

Advantages:

- Good separation of day / night use (community use)
- Efficient play area supervision

Disadvantages:

- The internal level change at main entry (accessibility).
- The Media Center not centrally located.
- There is less bus queuing capacity on-site compared to Option 1.
- There is greater travel distance to the existing elevator from the easternmost classrooms.

V. DESCRIPTION OF OPTIONS

Option 3 - Description

Option 3 proposes revitalization / expansion by demolishing the entire existing 1966 building, maintaining the 2008 addition, renovating the existing 1988 addition into a new administration suite and media center, and providing a new 3-story school building on the site. Disadvantages of this option include internal level changes at the main entry (accessibility), Grade 1 located on second floor, complicated community use separation, reduced play area and bus queuing capacity on-site (compared to Option 1). An additional elevator is also required to serve the third floor.

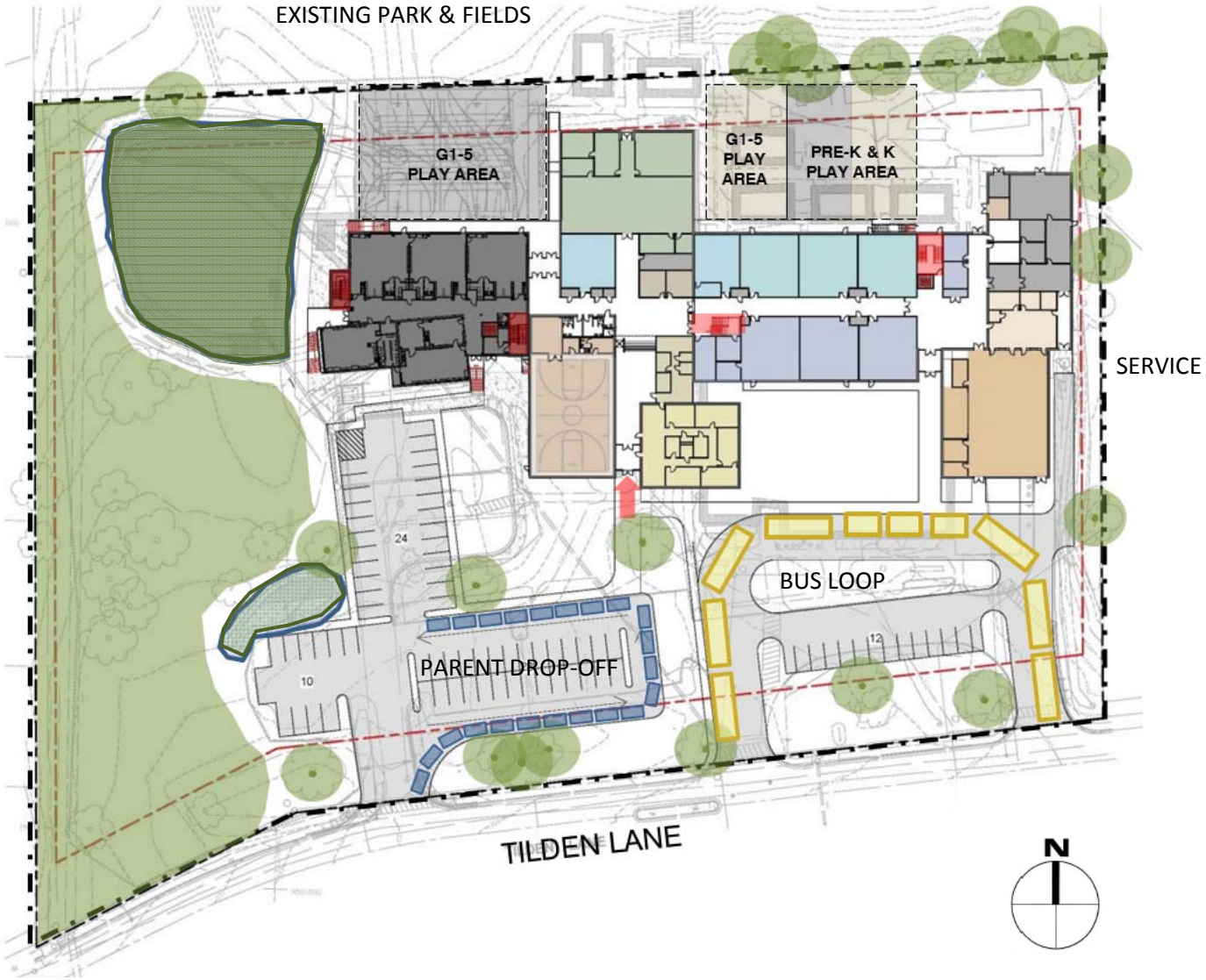
The 2-story building stretches east to west, and is connected with a central spine. Grades pre-K-1 and Special Education are located on the first floor with direct access to their play areas. The second floor has Grades 1 - 5, with Grade 1 requiring a separate dedicated exterior stair for access to the play areas. The larger and more active group functions like the gymnasium and multipurpose rooms are separated and located on either side of the 3-story classroom building.

Busses will have a separate loop and drop-off area. Parent and visitor cars will be directed through a new parking lot where they can either park or queue in front of the school thereby facilitating a more orderly pick-up and drop-off.

V. DESCRIPTION OF OPTIONS

Option 3 – Site Plan

- PARKING – 80 SPACES
- PARENT DROP – 22 CARS
- BUS DROP
  - 7 BUSES (LARGE)
  - 3 BUSES (SMALL)



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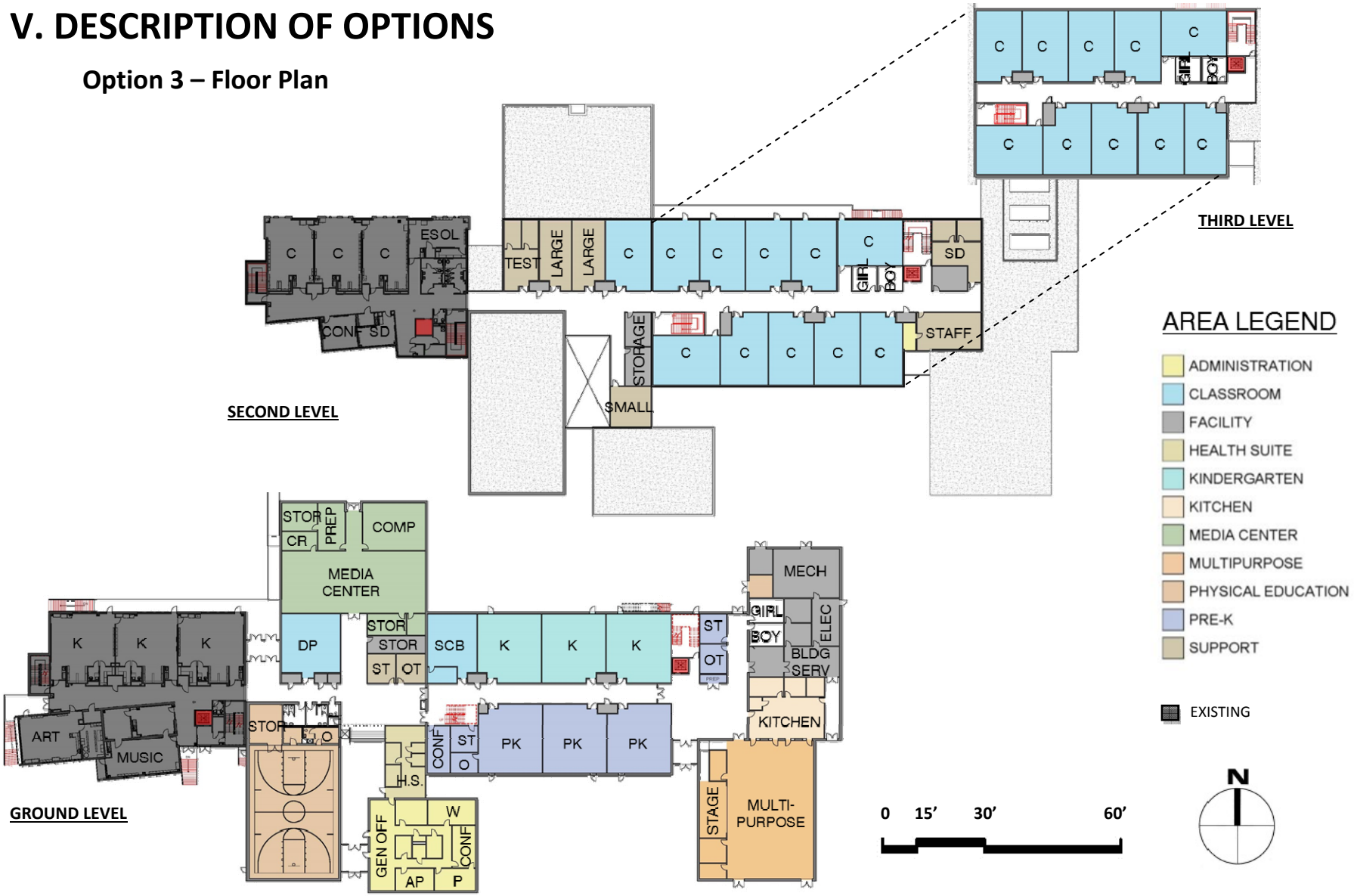
V. DESCRIPTION OF OPTIONS

Option 3 – Floor Plan



V. DESCRIPTION OF OPTIONS

Option 3 – Advantages & Disadvantages

Advantages:

- Reuse / repurpose existing gymnasium and portion of existing 1-story wing

Disadvantages:

- Internal level change at main entry (accessibility)
- First grade located on second floor
- Complicated separation of day / night (community use)
- Reduced hard surface and mulched play areas (compared to Options 1 & 2)
- Reduced bus queuing capacity on-site (compared to Option 1)
- Additional elevator required to serve third floor

Discussion of Options

The estimates for this comparison are based on current construction market conditions for both building and site.

In Option 3 the approach is to save as much of the building and provide a major 3-story addition. It does not provide all of the educational specification required outdoor play areas, or good separation of community spaces. Grade 1 students are also located on the second level and require an additional stair exterior stair be constructed to provide direct access to the play areas from these spaces. Therefore, the design team does not recommend Option 3.

Although Option 2 is the least costly option, it does not satisfy most of the requirements identified by the feasibility study participants. This option requires the destruction of the existing gymnasium to renovate it into the new administration suite. Handicap accessibility remains an issue at the main entry because of grade adjacent to the existing entrance to remain; the existing vertical lift will remain. Therefore, the design team does not recommend Option 2.

Option 1 meets all of the requirements identified while preserving the most trees on the site. This option is most sustainable and functional approach of the three. Therefore, in accordance with the thoughts of the feasibility study participants, the design team recommends that the project moves forward with Option 1 as described in Section V.

END OF REPORT

APPENDIX A: SPACE ALLOCATION SUMMARY

When this project is complete, the following spaces are to be provided.
Capacity after revitalization / expansion will be 745 with a 745 core capacity.

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
Classrooms				
Kindergarten	**3**	1,300		**3,900**
Standard	**21**	900		**18,900**
SCB Special Education Classroom Education	**1**	900		**900**
Grooming Room	1	100		**100**
Dual purpose Room	1	1,000		**1,000**
Prekindergarten Collaboration Suite				
Prekindergarten Collaboration Classroom	**3**	1,300		**3,900**
Toy Storage	1	200		**200**
Parent Group and Conference Room	1	300		**300**
Speech Language Room	1	250		**250**
Motor Therapy Room	1	250		**250**

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
Prep Area	1	50		**50**
Office	1	100		**100**
<u>Support Rooms</u>				
Large Instructional Support Room	2	600		**1,200**
Small Instructional Support Room	1	450		**450**
Speech/Language Room	1	250		**250**
Therapy/Support Room	1	250		**250**
Testing/Conference Room	1	150		**150**
Support Staff Offices	2	150		**300**
Interventions Support Room	1	300		**300**
Special Education RT Office	1	150		**150**
<u>Media Center</u>				
Main Resource Area	1	2,100		**2,100**
Materials Preparation/Office Area	1	400		**400**

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
Media Storage	1	350		**350**
Textbook Storage	1	200		**200**
Control Room and Storage	1	250		**250**
Telecommunication Equipment Closet	1	150		**150**
Telecommunication Closet	3	80		**240**
Computer Laboratory	1	900		**900**
Physical Education				
Gymnasium	1	3,700		**3,700**
Office	1	150		**150**
Storage	1	250		**250**
Storage	2	100		**200**
Outside Storage	1	150		**150**
Multipurpose Room	1	3,700		**3,700**
Chair Storage	1	200		**200**

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
Table Storage	1	200		**200**
Platform	1	450		**450**
Before/After Care Prep Area	1	30		**30**
Before/After Care Storage	1	100		**100**
Kitchen				
Serving Area	1	300		**300**
Walk-in Cooler/Freezer	1	155		**155**
Dry Storage	1	192		**192**
Office	1	100		**100**
Toilet Room	1	70		**70**
Preparation Area	1	555		**555**
Administration				
General Office	1	500		**500**
Workroom	1	350		**350**

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
Principal's Office	1	250		**250**
Assistant Principal's Office	1	150		**150**
Conference	1	300		**300**
Telephone Booth	1	50		**50**
Storage	1	100		**100**
Record Room	1	100		**100**
Toilet Room	1	50		**50**
2nd Floor Workroom	1	75		**75**
Counseling Area				
Counselor's Office	1		250	**250**
Itinerant Staff Office	1		150	**150**
Staff Development Area				
Staff Development Office	1	100		**100**
Reading Specialist Office	1	100		**100**
Training/Conference Room	1	450		**450**

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
Health Services Suite				
Waiting Area	1	100		**100**
Treatment/Medication Area	1	120		**120**
Office/Health Assessment Room	1	100		**100**
Health Assessment/Isolation Room	1	100		**100**
Rest Areas	1	200		**200**
Toilet Room	1	50		**50**
Storage Area	1	40		**40**
Staff Lounge	1	700		**700**
Building Service Facilities				
Building Services Office	1	150		**150**
Locker/Shower Area	1	150		**150**
Compactor/Trash Room	1	150		**150**
General Storage and Receiving	1	550		**550**

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
General Storage	3	250		**750**
Building Services Outdoor Storage	1	175		**175**
-				
Book Storage	1	300		**300**
PTA Storage	1	150		**150**
Total	**28**			**54,752**
Spaces Built as Part of the Addition in 2008 that Will Remain After Revitalization / Expansion				
Kindergarten	**3**	1,300		**3,900**
Standard	**3**	900		**2,700**
Art	1	1,100		**1,100**
Music	1	1,050		**1,050**
Instrumental Music Room	1	450		**450**
Small Instructional Support Room	1	335	Reuse Conference Room	**335**
Small Instructional Support Room	1	450		**450**

Facility	#	Net Sq. Ft.	Descrpition	Total Net Sq. Ft.
Instructional Data Assistant Office	1	150	Reuse Staff Development Office	**150**
Total	**34**			**64,887**

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Luxmanor Elementary School Educational Specifications

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APPENDIX B: EDUCATIONAL SPECIFICATIONS

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APPENDIX B: EDUCATIONAL SPECIFICATIONS

INTRODUCTION

☐ This document describes the facilities that are needed for the Luxmanor Elementary School revitalization / expansion 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 745 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 additional program requirements for the school.

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

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

☐ For all new schools and revitalizations / expansions, 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

GENERAL PLANNING CONSIDERATIONS

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

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

- ☐ The building is to be accessible to the disabled within the meaning of the latest edition of the Americans with Disabilities Act and to conform to all the latest requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board. (The regulation can be found at http://www.access-board.gov/adaag/html/adaag.htm). In addition to the ADAAG, the *Maryland Accessibility Code* (COMAR.05.02.02) revised in 2002 also is required for public schools. (The regulation can be found at http://mdcodes.umbc.edu/dhcd2/Title05.pdf)

- ☐ The facility is to reflect an appealing visual, acoustic, and thermal environment and is to be properly furnished and equipped. Well chosen colors and textures are to be used. Lighting must meet current guidelines and provide adequate levels.

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

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

- ☐ The first impression of a building is important. The main entrance to the school should have a clear and inviting identity, and the entrance area should be designed and landscaped to emphasize its importance. A covered walkway from the bus loading area to the front door is desirable. The design of the main lobby area needs to convey a feeling of warmth and welcome. The inclusion of a lighted showcase in which children's work can be displayed is recommended.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

- ☐ The design of the building and grounds must provide for a secure environment for students and staff. Isolated areas should be minimized and natural surveillance encouraged by eliminating visual barriers.

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

- ☐ Water coolers should be provided throughout the school.

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

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

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

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

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

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

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

- ☐ Zoning the plant for heating and air-conditioning should be related to after-hours use of various areas such as offices, gymnasium, multipurpose room, and the instructional media center. Appropriate location of parking, corridor barriers, and toilet rooms is necessary for after-hours use. Some classrooms nearby the multipurpose room should be zoned for after hour use as well.

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

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

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

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

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

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

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 pre-kindergarten 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 DOC. Computer/technology wiring must be in accordance with MSDE/MCPS guidelines.

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- ☐ Every classroom must have computer outlets for five student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the February 2002 revision of the MSDE *Maryland Public School Standards for Telecommunications Distribution Systems*.
- ☐ The main teaching wall layout should be in accordance to MCPS Facilities Guide.
- ☐ A sink with a drinking fountain must be provided, with cabinets above and below.
- ☐ In a non class-size reduction school, the built-in student wardrobe area must provide 28 individual compartments to store students' belongings. The architect is to refer to the MCPS Facility Guideline Specifications for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.
- ☐ In a 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 MCPS Facility Guideline Specifications for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.
- ☐ A total of 20 feet of tackboard and 10 feet of magnetic whiteboard should be installed at eye-level height for small children, with tack stripping along walls for display of student work.
- ☐ Each room must have a toilet room that is accessible from within the room and easily accessible from outside. The toilet room will contain a standard height toilet, a sink with child-height mirror, and soap and towel dispensers that are accessible to small children. The light switch should automatically turn on the vent fan.
- ☐ Each classroom should be equipped with window blinds per the MCPS design guidelines.
- ☐ Battery operated clocks will be installed.
- ☐ All classrooms should be equipped with a handicapped accessible sink with drinking bubbler.
- ☐ A full-length mirror should be installed.

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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 DOC. Computer/technology wiring must be in accordance with DOC/MSDE/OCTO guidelines.
- ☐ Every classroom must have computer outlets for 5 student workstations and 1 teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE *Maryland Public School Standards for Telecommunications Distribution System*.
- ☐ The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ Thirty built-in individual compartments in the wardrobe area for storing student personal property are required. The architect should refer to the MCPS Facility Guideline Specifications for a typical cubby design for grades K-1 and grades 2-5. Lockers in the hallway may be used in place of the classroom cubbies.
- ☐ If lockers are designed for storing individual student property, the architect should design the facility with 700 lockers 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.
- ☐ 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.

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

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Special Education Classroom

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

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

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Art Room

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

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

The window wall should have the following:

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

The teaching wall should have the following:

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

The wall near the entrance should have the following:

- ☐ Three sinks should be provided. Faucets should be accessible to students and positioned to prevent splashes onto floor.
  - ☐ One teacher sink (36" high)
  - ☐ One sink located on a peninsula (30"-32" high). Peninsula is to be no longer than 3 feet.
  - ☐ One ADA accessible sink (30"-32").
- ☐ Sinks and sink area should also include:
- ☐ Removable plaster traps
- ☐ Closed cabinets below and above

- ☐ Conveniently located towel and soap dispensers
- ☐ At least 9 feet of counter space (includes 1 ½ feet of counter space on both sides of the sinks) with rounded corners
- ☐ Hot and cold water faucets with bubbler
- ☐ A 5- to 7-foot open space is needed for drying rack(s) along one wall.
- ☐ Approximately 30 smock hooks in 3 feet of staggered tiers, beginning 2 feet from the floor, spaced 4 inches apart, up to 48 inches high. (Optional in rooms where one end of drying rack(s) that measure 44 inches wide and 24 inches deep is accessible, since hooks can be installed on pegboard ends.)

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

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

Kiln Area

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

☐ Kilns may be located in the far end of the storeroom with built-in hood above and metal shelving 12 inches to 18 inches deep on walls adjacent to the kiln area. See notes above for additional kiln information.

Art Storeroom

☐ The storeroom must have a 6-foot wide, 30-inch tall, and 34-inch deep worktable immediately inside the entrance to the storeroom with built-in adjustable shelves below and 14-inch deep wall hung shelving above. This table will accommodate a 30-inch square paper cutter and storage of large art reproductions and papers below, in 3 banks of shelving units 8 inches on center, 20-inches wide (inside width).

☐ One or two 6-foot tall 20-inch wide paper storage shelf section(s), 24 inches deep with shelves 8 inches on center to accommodate 18" x 24" paper.

☐ Seven foot tall open shelving, 18 inches deep, should be provided along remaining walls where space permits. Twelve to fourteen inch deep sections are acceptable for some sections where 18-inch deep shelves won't fit.

☐ Storeroom door is to be lockable, and 2 coat hooks are to be mounted behind the door.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Music Suite

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

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

Music Room

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

- ☐ This room must be acoustically treated.
- ☐ Doors into the music room and stage platform must be wide enough to accommodate the passage of a piano.

Instrumental Music Room

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

Dual Purpose Room

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Support Rooms

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

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 MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ Each classroom must include a minimum of 50 linear feet of built-in adjustable shelving for books.
- ☐ Space for a big book rack should with an incline to display the book open and also for storage beneath for space to lay the books flat should be provided.

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

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 MCPS Facility Guideline Specifications 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 MCPS Facility Guideline Specifications.
- ☐ This classroom should be equipped with a handicapped accessible sink with drinking bubbler. Cabinets should be provided above and below the counter area.
- ☐ Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- ☐ Each classroom should be equipped with a retractable projection screen (7' x 7'). The projection screen should not be mounted near any emergency lighting tracks. All areas of the screen should be illuminated and readable when the lights are dimmed.
- ☐ Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- ☐ Battery operated clocks will be installed. The clock should not be mounted behind the projection screen.

Speech/Language Room

- ☐ This room requires a whiteboard, tack board, open and closed lockable storage, open shelving, and a lockable teacher wardrobe.
- ☐ Room for a teacher's desk, lockable file cabinet, and table to work with small groups of students is required.
- ☐ The speech/language room should be wired for access to one computer workstation each.
- ☐ The speech room must be located on the first floor and be acoustically treated.
- ☐ The speech room needs a 4' x 4' mirror mounted to the wall to supplement verbal skills training.
- ☐ The speech room requires a sink with counter space.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Occupational Therapy/Physical Therapy (OT/PT) Room

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

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

Testing/Conference Room

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

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Instructional Data Assistant Office

☐ This room is required for a data assistant who conducts assessments, updates individual student test scores, and provides remediation of students' skills.

☐ This room houses one computer with printer and card reader and must be lockable and secure.

☐ This room requires some built-in casework with shelves and doors, a small lockable teacher's wardrobe, whiteboards, and video, voice, data outlets, and space for file cabinets.

Support Staff Offices

☐ Office space is needed for permanent as well as itinerant support staff (curriculum coordinator, team coordinator, social worker, psychologist, auditory and vision specialists, and psychiatrist).

☐ A teacher's wardrobe should be provided for itinerant staff use.

☐ Video, voice, and data outlets should be provided.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Instructional Media Center

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

☐ The architect should refer to the MSDE document, *Facilities Guidelines for Library Media Programs, 1998* as a guide for media center design.

☐ Staff in the Department of Educational Media and Technology must approve specific design.

☐ The media center is to be central to the instructional program of the school.

☐ The total media complex is to be enclosed and lockable.

☐ The media center is to accommodate multiple arrangements and uses as functions change. It should be acoustically designed for multiple activities. Furniture and shelving should have casters for easy moving, to divide one area from another, and create traffic patterns.

☐ A complete media center is to include the following areas that are described in the following sections:

- Study and Research Area
- Informal Reading Area
- Instructional Area
- Production and Group Project Area
- Administrative Area

Main Resource Area

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

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

Study and Research Area

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

Informal Reading Area

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

- ☐ The architect may want to define this area by architecture and/or accent carpeting.
- ☐ Picture book shelving also may help define this area.

Instructional Area

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

Production and Group Project Area

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Administrative Area

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

Materials Preparation/Office Area

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

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

Media and Textbook Storage

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

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

☐ Textbook storage provides for storage of textbooks, workbooks, and classroom materials.

Control Room/Storage Area

☐ A support room should be located adjacent to the control room so the room can serve the dual function of a support space and TV studio.

☐ The support room used as a TV studio should have adequate electrical outlets and acoustical treatment.

☐ See studio specifications for media center communication labs available from the MCPS Facility Guideline Specifications.

Telecommunication Equipment Closet

☐ This room is to be located in or near the instructional media center.

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

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Shelving Requirements

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

☐ The shelving should be interchangeable within standard upright wall units in accordance with MCPS specifications (maximum height and island shelving requirements are available from the MCPS Facility Guideline Specifications).
Low shelving is desirable for sight and safety reasons when extra shelving is needed.

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

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Computer Laboratory

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Physical Education

The gymnasium has two major purposes:

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

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

Gymnasium

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

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

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

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

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

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

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

☐ No ledges or sills should be created over 6' in height that would make it difficult to retrieve a ball.

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

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

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

Physical Education Office

The following items are required in the physical education office:

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

- ☐ A small closet with shelves should be designed in this office.

Storage Rooms

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

Lobby Area

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Multipurpose Room and Platform

Spatial Needs
Multipurpose Room
Platform
Chair Storage
Table Storage

Multipurpose Room

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

- ☐ Each side of the risers at the multipurpose room floor level should be equipped with CCTV/data/voice/modem/electrical receptacles.
- ☐ Lighting, windows, fire alarm box, clock, and ceiling must be protected to prevent damage by balls.
- ☐ Outdoor play areas should be accessible from the multipurpose room. Children should not have to cross driveways or parking lots to access the play areas.
- ☐ An audio loop system should be provided for hearing impaired students; guidelines are available through the Division of Construction.
- ☐ An independent sound system should be provided in the multipurpose room.
- ☐ A call button to the main office should be provided.

Platform

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

Chair and Table Storage

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Food Services

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

Serving Area

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

Walk-in Cooler/Freezer

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

Dry Storage

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Manager's Office

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

Toilet Room

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

Preparation Area

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

- ☐ A mobile warmer to accommodate Arlington baskets is needed.
- ☐ Two utility carts are required.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Administration suite

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

☐

☐ The administration suite must be located with good access from the main entrance of the school and visual oversight of the main entrance and bus drop-off area.

☐ The suite must be a natural first stop for visitors to the school and must, therefore, have direct corridor access. A security vestibule must be designed so that all visitors must enter the general office to check in before entering the school.

☐ Spaces need to be arranged for student and visitor flow and for efficient use by office staff.

☐ The general office is to be treated as the center of the administration suite with direct access to the principal's office, the workroom, and the health suite.

☐ A coat closet is to be provided for office staff and visitors.

☐ The Administration suite should be carpeted.

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

General Office

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

Workroom

- ☐ The location of mailboxes should not create congestion by impeding the smooth flow of traffic in the general office and hallways.
- ☐ Cabinetry appropriate for storing a variety of office and school supplies should be designed along one wall of the workroom.
- ☐ A portion of countertop is to be more than 30 inch wide to accommodate a large paper cutter.
- ☐ Space adequate for a large copying machine with necessary electric service and ventilation is required.
- ☐ A sink is needed in the workroom.
- ☐ There should be direct access to a corridor from the workroom.
- ☐ The workroom should be treated acoustically to keep machine and work noises at low levels.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Command Center

- ☐ An interior room in the school needs to be designated as the command center for Code Red/Code Blue emergencies. In many schools, the workroom in the administration suite may serve this purpose. The room cannot be on an outside wall.
- ☐ The room designated as the command center must have all data and communication equipment including data, cable, phone, and public address (PA) system.
- ☐ The PA console should be located in the room that is designated as the command center.
- ☐ Window coverings such as mini blinds or roller shades must be provided for all windows and doors to the command center.
- ☐ In secondary schools, the security camera monitors should be located in this area.
- ☐ The space designated as the Command Center must be large enough to accommodate up to six staff persons.
- ☐ Storage space is needed for the Code Red/Code Blue emergency kit.

Principal's Office

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Assistant Principal's Office

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

Conference Room

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

Counselor's Office

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

Telephone Booth

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

Storage and Records Rooms

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

2nd Floor Workroom

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Staff Development Area

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

Staff Development Office

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

Reading Specialist Office

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Training/Conference Room

- ☐ This room will be used for staff training needs.
- ☐ This room should include ample shelving for training materials.
- ☐ The room should be able to comfortably accommodate up to 12 participants seated around a conference table.
- ☐ A whiteboard and tack board should be installed.
- ☐ The wiring for an overhead LCD projector should be provided.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Health Services Suite

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

☐ The Health Services Suite should be in complete compliance with COMAR 13A.05.05.10A.

☐ The health suite must meet accessibility requirements of the ADA, and at a minimum, include spaces for waiting, examination and treatment, storage, resting, a separate room for private consultation and for use as the school health services professional's office, a toilet room, and lockable cabinets for storing health records and medications.

☐ A designated school health services professional must be involved in the planning of the health services suite.

☐ The architect should refer to MSDE document, *School Health Services,* June 2002 for specific utility information.

☐ The suite should be designed to provide easy visual supervision of all the spaces by the health services professional. The suite should be laid out so that an additional workstation for a health professional can be positioned near the treatment and waiting areas.

☐ In addition to access to the general office, the health services suite also must have a window into the general office so that office staff may monitor the room when heath staff is unavailable.

☐ The health room also must have a door to the corridor.

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

Waiting Area

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

Treatment/Medication Area

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Office/Health Assessment Room

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

Health Assessment/Isolation Room

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

Rest Area

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

Toilet Room

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

Storage Room

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

Staff Lounge

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Building Service Facilities

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

Building Service Office

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

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

Locker/Shower Area

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

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

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

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

Compactor/Can Wash/Trash Room

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

Recycling Room

- ☐ The recycling room should be located next to the trash room. This room will be used for the sorting of recycled items.
- ☐ Space for a recycling dumpster for cardboard is needed outside of the recycling room (approximately 8'x8').
- ☐ This room needs to be completely separate from the kitchen spaces with no common walls.
- ☐ Trash trucks must have access to this room.

- ☐ The room should be heated and have adequate interior lighting, floor drainage, and easily cleanable surfaces.
- ☐ Hot and cold water should be available for flushing and cleaning.
- ☐ The room should be designed to be pest free and well ventilated.
- ☐ Floors should be sloped so that wash down stays within the room and goes down the drain.
- ☐ A roll-up door for trash transfer to trucks, steam cleaning equipment, and trash collection containers are needed.
- ☐ Ramp should allow trashcans to be rolled to the dock.

General Storage and Receiving Area

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

General Storage

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Building Service Outdoor Storage Room

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

Building Service Closets

- ☐ At a minimum, there should be a building service closet for each 19,000 gross square of the facility. In addition, there should be a building service closet on each floor and each wing of the facility.
- ☐ The closets should be a minimum of 25 sq. ft.
- ☐ The building service closet must accommodate a minimum of one utility cart.
- ☐ The closet requires shelving for cleaning supplies and a mop/broom holder is required.
- ☐ The closet requires a floor mop sink with hot and cold running water and a floor drain.
  Where feasible, closet doors should swing outward in order to maximize the storage area and provide easier access to items within the closets.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Site Requirements

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

Driveway and Service Drive

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

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

Physical Education Site Requirements

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

Softball Fields

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

Soccer

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

Paved Play Areas

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

Kindergarten Paved Play Area

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

Playground Equipment Areas (mulched areas)

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

Kindergarten Play Area (mulched area)

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

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Prekindergarten Play Areas

☐ If the school has a prekindergarten, Head Start, or Preschool Education Program, then a separate and fenced outdoor play is required.

☐ This area must be adjacent to the classrooms with access directly from the classrooms.

☐ If the school does not have a prekindergarten program than the outdoor play area should be master planned so that it can be added on at a later time.
The prekindergarten play area should include a 40'x40' paved play area and a 40'x40' mulched area. The architect will consult with the MCPS staff on the design of the playground equipment.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

Additional Program Requirements

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

Preschool Education Program (PEP) Suite

Spatial Needs
PEP Classroom
Toy Storage
Parent Group and Conference Room
Speech Room
Motor Therapy Room
Kitchenette

PEP Classroom

☐ Program space for Preschool Education Program (PEP) classes is needed and should be located adjacent to each other in the primary classroom wing.

☐ Each classroom must have an outside door or be directly accessible to the outside and convenient to the main entrance of the school building, to the bus loading area, and to a parent drop-off area.

☐ No architectural barriers should exist between PEP classrooms and the bus loading/parent drop-off areas.

☐ Built-in benches should be designed against the wall of the bus entry for waiting children.

☐ The shape of the rooms should be rectangular with an open floor plan that is not intruded upon by other rooms/storage.

- ☐ Space for three computers must be designated in each classroom.
- ☐ A separate and fenced outdoor play area should be designed adjacent to these classrooms.
- ☐ Each room must have a toilet room which is accessible from within the room only and be furnished with following:
  - Child level toilet and sink
  - Adult level toilet and sink (private stall)
  - Changing table—2' 6" high with shallow shelving above.
- ☐ A 50 square foot observation room with doors into the classrooms and to the corridor should be designed in each classroom. Whenever possible, the observation rooms should be adjacent with a folding wall so the space can be used for conferencing. The observation rooms should have one wall facing into each classroom with a one-way mirror, and should have some open and lockable storage.
- ☐ The school's therapy/support room can be located within the PEP suite. The therapy/support room must have therapy hooks installed in the ceiling.
- ☐ A built-in student wardrobe for 15 individual compartments to store student's belongings should be located near a door.
- ☐ An area should be designated for placement of a 12' by 15' area rug over vinyl composite tile (VCT).
- ☐ Storage is needed to accommodate 24- by 36-inch paper and to store kindergarten size blocks.
- ☐ Thirty feet of tackboard and 10 feet of magnetic whiteboard should be installed.
- ☐ A child height sink with drinking fountain and an adult height sink must be provided, with cabinets and a mirror above. The sink area should include a moveable water table for measurement/volume activities. Faucets should be to the rear of the sinks with the hot faucet the furthest from reach. Counter space is to be provided near sink for preparing snacks.
- ☐ A full-length mirror should be installed.
- ☐ A lockable teacher's wardrobe closet must be provided.

☐ Therapy hooks are to be installed in the ceiling of each classroom.

Toy Storage

☐ The toy storage room should include adjustable shelving and a door to the outside

Parent Group and Conference

☐ The conference room needs built-in cabinets, shelving, countertops, whiteboard, telephone line, and sufficient electrical outlets.

Speech Room

☐ The speech room should be treated acoustically for reverberation and isolation.

☐ A wall mirror should be provided.
Open and secure shelving should be provided in this room.

Office

☐ Video, voice, and data outlets should be provided.

☐ This office needs a whiteboard, tackboard, closet, and telephone.

Motor Therapy Room

☐ This room must have whiteboard that is mounted two feet off the floor.

☐ A tack board, open and closed lockable storage, open shelving, and a lockable teacher wardrobe are required.

☐ A sink with counter space is required in this room.

☐ Room for a teacher's desk, lockable file cabinet, and assorted sized furniture with adjustable legs should be provided.

☐ This room should be wired for access to one computer workstation each.

☐ The room requires a ceiling mounted hook for a swing.

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

Kitchenette

☐ The Kitchenette should include the following items:

- Sink
- Refrigerator
- Microwave
- washer and dryer
- Cabinet and counter space
- Dishwasher
- Door to the main corridor

APPENDIX B: EDUCATIONAL SPECIFICATIONS

School Community Based Program (SCB)

- ☐ A standard academic classroom should be provided.
- ☐ This classroom should be designed with a teacher's wardrobe and a wardrobe to store the belongings for three paraeducators.
- ☐ A kitchenette with accessible sink, refrigerator, and washer/dryer and counter space should be provided.
- ☐ A grooming room that includes a grooming table and shower should be accessible from within the classroom.
  This classroom must be located on the first floor and near the front entrance.

APPENDIX C: EXISTING CONDITIONS SURVEY

Civil

Luxmanor Elementary School is located at 6201 Tilden Lane in Rockville, Maryland. Luxmanor E.S. sits on a 6.5 Acre tract of land that is surrounded by a neighborhood of single family homes and the 6.55 MNCPPC Luxmanor Neighborhood Park adjacent to the rear of the school (north side). The school is bounded on the east and west by the back/side yards of single-family homes. All site access for student drop-off, busses, staff/visitor parking, deliveries, and park maintenance is from Tilden Lane which borders the school on the south.

SITE FEATURES

The elementary school building generally encompasses the center of the rectangular site, with the east side (original school) of the building being closer to the property line then on the west. A two story classroom addition was built in 2008 on the west side of the building such that a 1988 addition is located between the original school and the 2008 addition. The 2008 addition is buffered by mature forest between the homeowners on Danville Drive and the school.

Luxmanor Neighborhood Park contains a full size multi use field (soccer, lacrosse, soccer) and two backstops for softball/baseball. Access to the park occurs via a path in the woods (over WSSC easements) or through a driveway provided as part of the 2009 addition along the western side of the school.

Two full-size basketball courts were provided along the north side of the 2009 addition and abut the property line that separates the school and park site. To the north of the main existing school building are mulched play areas and one small asphalt play area in the northeast corner.

The site is generally flat with the higher elevation being the first floor elevation of the existing school. The site slopes downhill and away from the school. The western boundary of the school is lower than the eastern and ranges from 330 at the front (southwest) corner to 320 at the rear corner (northwest). Both the northeast and southeast corner of the site are around 340, and midway back along the eastern border is a small hill at about 347. The school building has several levels with the main first floor elevation of 342.3, the 2009 addition at 340.97, and the gym at 336.32.

APPENDIX C: EXISTING CONDITIONS SURVEY

ZONING

- Zone R-200, the building height must not exceed 50 feet to roof peak
- Front Setback = 40'-0"
- Rear Setback = 30'-0"
- Side Setback = 12'-0"

CODE EVALUATION

The existing structure is constructed of non-combustible materials. The exterior walls are masonry with brick veneer. The original 1966 building does not have a cavity or insulation within its exterior masonry walls. The 1988 addition does a cavity and 1-1/2" rigid insulation. Neither the original building nor the 1988 addition has roof insulation which meets current building code standards. The original 1966 building and the 1988 addition (43,500gsf) are not sprinklered; sprinkler service was installed in the 2008 addition (20,262gsf). A two-hour rated sire separation wall was provided between the 2008 addition and the existing building.

TRAFFIC AND PARKING

There are three curb cuts that provide access to the school and the 53 (3 ADA) designated parking spaces for vehicles and a dedicated bus loop. The southeastern curb cut is used as the entrance to the bus drop off and to the loading dock and trash area that is located along the eastern side of the school. The central curb cut is used as a bus and staff parking exit only. The southwestern curb cut is used as the entrance/exit to the student drop off and also for parking.

WATER AND SEWER ADEQUACY

The site is located in the WSSC Grid 215NW06. Water is supplied to the building by an 8" line that connects to a 6" in main in Tilden Lane (building connection is in the new addition). Two fire hydrants, connected to this 8" line, are located in the parent drop off and in the main parking lot. Although fire flow tests for the 2008 addition were adequate, WSSC initially hesitated in allowing the new 6" line because the 6" main in the street was rather old. WSSC, after further reviewing data, allowed the onsite connection but required it be upsized to an 8" line.

The site is served by two 6" sanitary sewers, one that drains the new addition and another one (feed by two laterals) that drains the rest of the school. Both of the lines exit the south side (front) of the school and connect to an 8" main in Tilden Lane.

APPENDIX C: EXISTING CONDITIONS SURVEY

STORMWATER MANAGEMENT (SWM)

SWM was provided for most of the site as part of the 2008 Addition project. The site contains three existing SWM facilities. An infiltration trench treats 0.76 acres of land which includes most of the existing parking lot. Over 600 Linear feet of 48" CMP is located beneath the basketball courts. This storage facility was designed to handle a future revitalization / expansion to the building, as well as the 2008 addition. Both the 48" CMP facility and the infiltration trench sit upstream of SWM pond. This pond was retrofitted (originally it was an infiltration basin) in 2008 and provides both water quality and quantity benefits for 5.76 acres of land.

SWM regulations have changed since 2008 and now environmental site design (ESD) is required. SWM will be provided to meet County and State regulations via environmental site design (ESD) to the maximum extent practicable.

TREE PROTECTION/FOREST CONSERVATION

The Maryland-National Capital Park & Planning Commission will require an updated Natural Resource Inventory Forest Stand Delineation. As part of the 2009 Addition, A NRIFSD (420072760) was approved on July 12, 2007 for both the school and park property.

APPENDIX C: EXISTING CONDITIONS SURVEY

Architectural

Luxmanor Elementary School was originally built in 1967 and expanded in 1988 providing a new library, gymnasium and classrooms. The original 1967 building is one-story with a single floor elevation. The 1988 addition has a lower floor elevation accessed by ramp. The gymnasium floor is even lower and is accessed by a stair or lift. A two-story addition was built in 2008, located on the west edge of the existing school, and included classrooms, kindergartens, art and music rooms, offices and new toilet rooms for students and faculty. Most existing ramps, toilets, hardware sets, hand and guar-rails and existing signage (with the exception of the 2008 addition) do not meet the requirements of the Americans with Disabilities Act.

The original building and 1988 addition exterior is primarily brick and concrete masonry with aluminum fasica. The painted concrete block is cracked and spalled in numerous locations. The finish on the aluminum coping has deteriorated in many locations. The brick is generally in good condition, with some areas of cracking due to expansion. This was observed most noticeably on the North elevation. No expansion joints in the concrete block were observed. Windows are aluminum frames with single glazed units within the original building and double pane units within the 1988 addition. Sealant around the windows has failed. Along the east side of the building, four relocatable classrooms are being utilized. The original building does not have a cavity or insulation within its exterior masonry walls. Neither the original building nor the 1988 addition are sprinklered.

The school's interior finishes are worn and are at the end of their useful life. The ceiling heights in corridors are just above the eight feet; ceiling tiles are stained and in need of replacement. Interior doors are primarily wood, with original hardware and are in poor condition. Much of the hardware is not compliant with current accessibility codes. The building interior is primarily masonry walls with some gypsum partitions. Floors are a combination of vinyl composition tile and terrazzo. Classroom ceilings are approximately 10 feet high and are tight to the bottom of the roof joists. Some classrooms have folding partitions between them. The corridor adjacent to the original multipurpose room has been converted to a storage area. None of the toilet rooms within he original building or 1988 addition are ADA accessible.

APPENDIX C: EXISTING CONDITIONS SURVEY

Structural

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

The roof system is open-web bar joists supported by steel beams and masonry walls. From visual observations, the existing building structure appears to be built according to the existing drawings with the exceptions indicated below. Areas of significant structural distress or deteriorations were not found.

Based on field observations of the area mentioned above and review of the existing drawings, CMJ found the following:

- Gymnasium (options 2 or 3): To the best of CMJ's knowledge and belief, it is CMJ's professional opinion that there are no evidences to suggest that the portions exposed to view were not built per the contract documents.
- Media Center Area (option 3): Per contract documents this is a two-bay condition framed with open-web joists bearing on masonry walls.
    - Bay #1 is 35'-0" long and per contract documents the open web joists are 24K6 at 5'-0" center to center, with 20K9 double joists at the mechanical unit location. The as-built is 20K9 at 5'-0" center to center, with 20k9 double joists at the mechanical unit location.
    - Bay #2 is 44'-2" long and per contract documents the open web joists are 28K9 at 5'-0" center to center. The as-built is according to the contract documents with the exception of the right bearing condition. The right bearing was modified by bolting and angle to the wall in order to provide additional bearing to these joists. At least one joist bearing condition was not repaired. (See pictures #1 and #2 on SK-2).
- The snow live load on the roof of the existing structure next to the proposed addition will increase due to the snow drift.

- At the gymnasium area only the portion between the new high roof and the first existing joist needs to be reinforced by adding a MC18x42.
- At the media center area only the portion between the new high roof and the first existing joist needs to be reinforced by adding a MC13x35.

APPENDIX C: EXISTING CONDITIONS SURVEY

Mechanical

GENERAL

The age of the mechanical systems in the building vary from 24 to 47 years old (equipment installed 1966-1989). The equipment has been well maintained, and in most cases, is still functioning satisfactorily. The following is a detailed description of the existing systems.

HEATING SYSTEM

Two fire tube hot water boilers were installed in the building, it appears, in 1989. The boilers operate on natural gas fuel. The gross output capacity for each boiler is 1,855 mbh. Both boilers are functioning adequately to satisfy the existing building not including the recent addition. However, when the temperature is very cold outside, both boilers may need to be put in operation to satisfy the total demand. The boilers are close to reaching their expected life of 35 to 40 years old. The heating water is distributed to the building through two pumps (lead and standby). All pumps appear to be original to the 1966 construction.

COOLING SYSTEM

In 1989 and 1997 the majority of the cooling system was installed. All equipment is direct expansion (DX) type. The following is a breakdown of the type of equipment and the area served.

- Classrooms: Thru-the-wall heat pump units and window type air conditioners.
- Administration area: Served by air-handling units installed with condensing units on the roof.
- Library: Served by single-zone rooftop air-handling units.
- Computer rooms: Served by a ductless split air-conditioning unit.
- Multipurpose Room: Served by air-handling units installed with condensing units on the roof.
- Kitchen: Not air-conditioned.
- Kindergarten classrooms: Served by window air conditioners.

APPENDIX C: EXISTING CONDITIONS SURVEY

HVAC SYSTEMS

The majority of the classrooms is served by their original fan coil units with window air conditioning units or packaged heat pump units. These units provide heating and ventilation to the classrooms. The outside air quantities do not meet present day codes.

The Administration area is heated with miscellaneous heating elements at the exterior wall. Ventilation and cooling is through ducted air-handling units located above the ceiling. It is not adequate for proper ventilation.

The Library area is heated by a small air-handling unit located above the ceiling of the Work Room area. A ducted air system serves the Library space.

The Multipurpose Room is served by two air-handling units located on the Stage. These units provide both heating and cooling to the space utilizing the existing ductwork for distribution.

The Kitchen area is heated with a propeller unit heater. There is no dedicated make-up air system for the kitchen hood.

CONTROL SYSTEM

The existing control system for the building is pneumatic. The old single stage air compressor and refrigerated air dryer appear to have been installed in 1989. The 2009 wing is connected back to MCPS central control center with a new DDC system for that equipment. The remainder of the school has pneumatic controls with central occupied/unoccupied DDC scheduling.

APPENDIX C: EXISTING CONDITIONS SURVEY

PLUMBING SYSTEM

The building is served by a 6-inch fire/water service that enters the 2009 wing. A separate 3-inch domestic water main is serving the existing school and can be reused.

The domestic hot water is generator by an 80-gallon gas-fired domestic water heater that is roughly 6 years old. The remainder of the piping system is original, including the domestic hot water circulating pump.

Based on the age of the building, tests should be run to determine if lead solder was used when the piping system was installed. Consideration should be given to replacing the piping if the lead is leaching into the water system.

Plumbing fixtures all appear to be original. There are a variety of water closets used; some tank type and others flush valve type. Wall-hung lavatories were used in toilet rooms. The toilet rooms do not meet the Americans with Disability Act (ADA) requirements.

FIRE PROTECTION SYSTEM

There is no sprinkler system in the existing building. A sprinkler service was installed in the 2009 addition that can be extended to serve the new revitalized / expanded school.

APPENDIX C: EXISTING CONDITIONS SURVEY

Electrical

GENERAL

The electrical equipment within the 2009 building addition is in good condition. The electrical equipment that currently exists within the 1989 addition and 1966 original building is in generally fair working condition. The following is a detailed description of the existing electrical, lighting, communications, security, and fire alarm systems.

POWER DISTRIBUTION

The school's electrical service is fed from a Pepco utility pole along Tilden Lane in front of the school. A primary utility feeder is run underground in direct-buried conduit from this utility pole to the primary section of a pad-mounted Pepco utility transformer located outside of the main electrical room on the southwest corner of the school. Secondary service feeders then run underground in a 12-way concrete-encased ductbank from the secondary section of the Pepco utility transformer to the CT cabinet of the main distribution switchboard located in the main electrical room within the 2009 building addition.

The main distribution switchboard in the main electrical room of the 2009 building addition is by General Electric, rated at 120/208 volts, 3-phase, 4-wire, with a 2000-ampere bus. The switchboard has a CT cabinet and five main circuit breakers serving Switchboard 1 in the 1966 original building (3P-1000A circuit breaker), Distribution Panel DP2 (3P-800A circuit breaker), Panel BR1 (3P-400A circuit breaker), ATS-1 (3P-100A circuit breaker), and ATS-2 for optional standby loads (3P-200A circuit breaker).

Switchboard 1 is rated at 120/208 volts, 3-phase, 4-wire, with a 1000-ampere bus, which has a demand of 720 amperes. Switchboard 1 is part of the 1966 original building and serves electrical loads in the 1966 original building and 1989 building addition.

GENERATOR POWER

There is an outdoor generator located outside of the main electrical room of the 2009 building addition, rated at 85-kW, 120/208V, 3-phase, 4-wire, fueled by propane gas. The generator serves a 100-ampere automatic transfer switch ATS-1 for emergency/life-safety loads and ATS-2 for optional standby loads located in the main electrical room. The generator and automatic transfer switches are by Generac.

APPENDIX C: EXISTING CONDITIONS SURVEY

LIGHTING

Lighting fixtures using T8 linear fluorescent lamps are used throughout the school. Lighting in the 2009 building addition is designed per MCPS electrical standards.

DATA AND VOICE WIRING SYSTEM

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

INTERCOM AND SOUND SYSTEMS

The school intercom system has the capability to perform select local calls to classrooms or paging throughout the school. Each classroom has a call switch and ceiling speaker(s). Ceiling speakers are also located throughout the corridors.

The music room in the 2009 building addition has a sound reinforcement system.

SECURITY SYSTEM

The security system consists of an intrusion detection system with keypads in the main office, and motion sensors in the corridors and classrooms. There is a door access control card reader and video surveillance camera at the main entrance.

FIRE ALARM SYSTEM

The fire alarm system for the entire school was upgraded during the 2009 building addition. The fire alarm control panel with voice evacuation is by Fire-Lite Alarms. The fire alarm annunciator panel with graphic display is located in the main lobby. Fire alarm devices include manual pull stations, ceiling-mounted smoke detectors in the 1966 original building (that is not sprinklered), duct-type smoke detectors, magnetic door holders, monitoring modules for sprinkler flow and valve monitoring tamper switches in the 2009 building addition, and audible and visual notification devices. Fire alarm ceiling-mounted combination speaker/strobes are located in the classrooms. Fire alarm wall-mounted strobes and ceiling-mounted fire alarm speakers are located in the corridors.

APPENDIX B: EDUCATIONAL SPECIFICATIONS

APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

GENERAL SITE INFORMATION

SIZE OF SITE

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

SITE FEATURES

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

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

Wisteria Entry Drive

Playfield Stairs & Existing Portables

TRAFFIC AND PARKING

There are two curb cuts that provide access to the school and the 80 (4 ADA) parking spaces. A topographical survey has not been provided as of April 2012 so ADA grades have not been checked for walkways and ADA parking, however; the main lot of 76 spaces does not have any assigned ADA spaces at this time. Busses access the site from the south where they come up the steep grade and precede counterclockwise around the traffic circle to then drop off children. The traffic circle has a large grass island and rather narrow lanes so if one bus is dropping students off in front of the school, other busses must wait behind that bus. It was observed that during morning rush hours, a maximum 3 busses typically drop off students at one time in front of the school. Additional busses then stack up on the steep driveway and onto Bent Willow Court.

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

The loading dock and trash area is located along the western side of the school (past the 4 ADA spaces at the Southwest corner of the school.

Parent Drop-off Walk

Building Entry

WATER AND SEWER ADEQUACY

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

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

STORMWATER MANAGEMENT

There are no existing SWM treatment facilities on site. There are 3 main storm drain lines that collect water from the impervious areas of the site. In the northeast corner, a 15" RCP exits the site just south of the Wisteria Drive Entrance. In the central southern part of the site, an 18" RCP exits the site just east of the bus loop driveway. In the western part of the site, a 15" RCP exits the site. All three exit points are into publicly owned closed storm drain systems. SWM would be provided via green roofs, porous paving and other environmental site design (ESD) facilities such as biofilters for areas with the new Limits of Disturbance (LOD).

TREE PROTECTION/FOREST CONSERVATION

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

ARCHITECTURAL

The building exterior is primarily brick and stucco with aluminum fasica and stucco soffit. The stucco is cracked and spalled in numerous locations. The finish on the aluminum coping has deteriorated in many locations. The brick is generally in good condition, with some areas of cracking due to expansion. This was observed most noticeably on the South elevation. No expansion joints in the brick were observed. Windows are aluminum frames and single glazed. Sealant around the windows has failed. The window sills are brick and have deteriorated. An original cast stone coping at the roof parapet remains and is covered by an aluminum coping that

was added later. Some areas of the cast stone are exposed and cracking and open joints were observed. Along the East wall of the building, a

portion of the floor slab is cantilevered. The concrete is spalling and rebar is exposed and rusted. In addition, this detail does not provide a thermal break at the floor slab. The brick boiler chimney mortar has degraded and the cast stone cap is spalled.

The building entry is located on the main level adjacent to the administrative suite. The original gymnasium with stage, locker rooms, sixth grade classrooms, media center, and music classrooms are located on this level. A non-ADA compliant ramp connects the main level to two lower levels. A seventh and eighth grade classroom wing is located on a level mid way between the main level and lowest level. This area contains standard classrooms and support spaces. The lower level contains the cafeteria, kitchen, and computer labs. A gymnasium addition was added in 1981 and is accessed via a corridor and stair connected to the main level. The gymnasium addition includes a full size gym, offices, and toilet rooms.

The building interior is primarily masonry walls with some gypsum partitions. Ceilings are acoustical tile. Floors are a combination of resilient asbestos tile and terrazzo. Ceramic tile base in the lobby and corridors is broken throughout. Classroom ceilings are approximately 10 feet high and are tight to the bottom of the roof joists. Some classrooms have folding partitions between them. Interior doors are wood and the door hardware is not accessible. Also, many doors do not have proper ADA clearance. Lockers are located in the corridors and are 10 inches wide. The original gymnasium has a wood floor, steel joists, and a Tectum deck. Bleachers and a stage are located in this gymnasium. The Band Room is adjacent to the gymnasium and has water damage on one wall. Also, locker rooms and toilets are adjacent to the gymnasium. The showers have been converted to storage areas. None of the toilet rooms are ADA accessible. The gymnasium addition is masonry bearing wall with steel joists and a rubber floor. The height from the floor to the bottom of structure is 20 feet. Acoustical block in the gym has chipped and cracked. The cafeteria ceiling is 9 feet six inches above the floor providing a very low ceiling and poor acoustics in this area. The cafeteria doors are in poor condition. There is no room for new ductwork without lowering the ceilings below acceptable levels.

STRUCTURAL

The existing school is primarily steel framed with load-bearing masonry walls. The ground floors are 5” thick slab on grade. The second floor framing for the two story portion is framed with a composite floor system (steel beams and 4” thick concrete slab connected with metal studs).

The roof system is open-web bar joists supported by steel beams and masonry bearing walls. From visual observations, the existing building structure appears to be built according to the existing drawings. Areas of significant structural distress or deteriorations were not found.

MECHANICAL AND ELECTRICAL SYSTEMS

General

William H. Farquhar Middle School was originally constructed in 1968 with an addition built in 1981. In 2000, the boilers were replaced and in 2002 several fan coil units and unit ventilators were replaced but the piping was reused. The present school is 116,300 square feet. If a revitalization / expansion is considered, then much of the mechanical and plumbing piping and equipment will need to be replaced. Some of the mechanical systems in this building are over 40 years old and need replacement. If it is decided to replace the school in the next few years, the systems should suffice until a new school is completed. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

Heating and Cooling Systems

Two steel boilers produce heating water for the building. These boilers were installed during the 2000 renovation and appear to be in good working condition. The boiler manufacturer is Superior Boiler Works, Inc. (Model 13-5-625) and the boilers are of the fire tube type design with a built-in base. This equipment has a gross output rating of 4,184 mbh per boiler. While the existing boilers are functioning adequately to satisfy the existing school, there does not appear to be enough surplus capacity to support any large addition proposed for this school. The existing boilers were sized to handle 50 btu/hr per square foot based on the industry standard of each boiler being sized for two-thirds of the load as a back-up arrangement in case one boiler fails. The 50 btu/hr/sf is about right for a building that was constructed in 1968. Currently, each boiler is provided with one low-water cut-off. There is no

automatic low-water cut-off backup provided. Flues from each boiler connect together into one flue that connects in a masonry stack. Each gas-fired boiler-burner is manufactured by Gordon Piatt. (Note: There is an oil pump on the burner but it is not connected to any piping.) The Gordon Piatt Company is no longer in business and parts for burners are difficult to acquire. The combustion air openings are open louvers around the door to the exterior. The present combustion air arrangement does not comply with the current International Mechanical Code (IMC).

Heating water is supplied to the building through the two-pipe chilled/heating water pumps. The system is equipped with an air separator, shot feeder, and an air-charged expansion tank. It is anticipated that the existing expansion tank capacity is not capable of supporting any planned building additions. The existing tank could be replaced with a diaphragm type sized for the new system size. It was also noted that all valves in the boiler room were gate type valves which can be difficult to shut off as they get older.

Located outside is a Trane (Series RTAA) air-cooled chiller. The capacity appears to be 120 tons which is too small for a building of this size. The chiller uses R-22 refrigerant which is being phased out in the next couple of years. The chilled water piping is above grade from the chiller to the boiler room where the pumps are located. The chilled/heating pumps in the boiler room are arranged to allow flow through the chillers and the boilers in conjunction with the building piping loop.

In addition to the chilled water, several direct expansion (DX) type cooling systems exist within the building. These DX systems serve the computer lab, administration area, and several air-handling units that supply conditioned air to the building. These spaces typically require cooling operation at times when chilled water is not available.

HVAC Systems

The heating, ventilating, and air conditioning (HVAC) systems vary slightly throughout the building. The following is a breakdown of the various spaces and their associated HVAC system.

- Typical Classroom: Classrooms are heated and cooled through fan coil units and until ventilators connected to the building two-pipe chilled/heating piping system. Some of the unit ventilators have a direct outdoor air connection through a louver mounted in the exterior wall. The fan coil units are circulating type only with no outside air connection.

- There are roof-mounted air-handling units that provide conditioned outside air to the classrooms served by fan coil units. These units also condition interior spaces that have no exterior wall connects.

- There are four rooftop units by Innovent that are equipped with energy recovery that now provide conditioned air to the building. The units are equipped with gas burners to handle the additional heat needed to satisfy room conditions.

- The original gymnasium is conditioned by a heating only air-handling unit in the outside mechanical room. The unit appears to be one of the original 1968 units.

- The new gymnasium is conditioned by a heating only air-handling unit located above the ceiling and accessed by a catwalk.

- The Administration and Media areas are each served by a rooftop unit with heating coils and DX cooling.

- The Stage and Cafeteria are served by heating and cooling air-handling units located in mechanical rooms on each side of the stage.

- The MDF Room that houses all the data equipment does not have a separate cooling system which is needed for this room to function at peak performance.

- Many of the exhaust fans on the roof appear to be original to the building (over 40 years old) and need to be replaced.

EXISTING CONDITIONS SURVEY

Control System

The existing control system for the school is a pneumatic control system. Major valves, dampers and sensor components are provided with pneumatic operation. Building control is interfaced with the central MCPS energy management control system for occupied/unoccupied settings. A duplex type air compressor system complete with a horizontal storage tank is located within the boiler room and serves the building's pneumatic control components. Air supplied from this compressor system is fed through a refrigerated dryer system. Both the air compressor and refrigerated dryer systems appear to be in good working condition.

Plumbing Systems

Domestic water heater is a gas-fired PVI (Model 1000P-300A-TP) with a 300 gallon storage tank and a 800,000 btu/hr gas output burner. It looks like the heater may have been installed when the boilers were replaced. A domestic hot water circulation pump maintains a continuous hot water flow throughout the building. The system is not equipped with an expansion tank or mixing valve, which is typically provided on today's new systems.

Plumbing fixtures appear to be in fair condition and were installed as part of the original construction and the 1981 addition. The water closets are floor-mounted, urinals are wall-hung, and the lavatories are individual wall-hung type. The school is not equipped with plumbing fixtures needed to meet the Americans with Disabilities Act (ADA) requirements. The modifications made several years ago do not meet today's standards.

The building is supplied with a natural gas service by Washington Gas which serves the boilers, kitchen, and domestic hot water. The emergency generator uses L.P. gas (propane) stored in a steel tank sitting next to the generator. This arrangement was required by past code requirements. The new code does not require bottled gas and natural gas can be used.

In the boiler room is a duplex sump pump with one submersible pump and one pump with motor above the floor. The system is working but does not look dependable.

Fire Protection System

The building is currently not sprinklered. It is assumed that there is adequate water supply in the road to satisfy the needs of the school. There are fire hydrants on site indicating that a 4- or 6-inch water main is available. If flow and pressure is adequate then the sprinkler system can connect directly to the street main. If supply quantity is not adequate then the sprinkler system will need to be supplied with an underground storage tank.

ELECTRICAL

Power Distribution

- The school is fed from a PEPCO underground transformer vault located next to the building. The service is 4,000-amp, 120/208-volt, three-phase through a switchboard with a CT section, a main breaker, and two distribution sections. An 800A panelboard has been added to the end of the switchboard. The switchboard was manufactured by Federal Pacific Company around 1967 and is well beyond the end of its useful life. The 800 panelboard is a Siemens panelboard dated 2007.

- The panelboards in most of the building are from around 1967 and have reached the end of their normal expected life.

- Classrooms in the school typically lack adequate receptacles for computers.

Emergency Power

- Emergency power is provided to the school from a 35 Kw, propane gas, Onan generator. The generator is located in the Boiler Room. The generator serves an automatic transfer switch in the main electrical room, which in turn serves the emergency power panelboard and all emergency loads.

- The emergency panel feeds emergency and exit lights and the fire alarm system.

EXISTING CONDITIONS SURVEY

Lighting

- Fluorescent lighting is used throughout the school. Classrooms generally have surface-mounted or pendant fixtures with wraparound lenses. Some lenses are missing or broken exposing the lamps. Cafeteria and Corridor lighting is also surface-mounted fluorescent lights. Recessed Lighting is found in some offices, the auxiliary gyms, and in the classrooms in the newer addition. The main gym has high bay metal halide fixtures. The stage in the main gym has bars of connector strips for stage lighting and industrial type fluorescent lights for general lighting. The dimming systems is an antiquated patch cord system with a more recent 12 channel dimmer panel mounted adjacent to it.

Fire Alarm System

- The fire alarm system is a low-voltage addressable system by Silent Knight. This system is expandable There is also a Radionics communicator. This equipment is all located in the main electrical room.

- There are no speakers for voice evacuation. The school is lacking the visual devices required by ADA and other aspects of the system fail to meet the current NFPA criteria for fire alarm systems.

Intercom System

- The school intercom is a Rauland Telecenter system located in the Main Office. It has the capability to perform selected local calls to classrooms or paging throughout the school. Each classroom has a speaker and a call switch. Expandability of the system is very limited.

- A separate local sound system is located on the stage of the Gymnasium. Column speakers are located in the gymnasium.

Telephone System

- The telephone system is a separate key system for telephones in the main office. The telephone service is located in the Boiler Room.

Cable TV System

- The school has TV outlets in every classroom as part of combination voice, data, and video outlets. The outlets are wired back to an equipment rack located in the Main Wire Closet adjacent to the Media Center.

Security System

- The school has a security system throughout. Keypads are used to arm and disarm the system. Wall-mounted Magnum Alert keypads are located in the main office. Motion detectors in corridors and some classrooms are used to activate the system. Corridors also have CCTV cameras.

Data Wiring System

- A Cat 5 wiring system has been installed throughout the school. This system provides connectivity for the Computer Rooms, Media Center, offices and classrooms. Each typical classroom has two multioutlet boxes, one at each end of the room. The hub equipment is located in the Main Wire Closet near the Media Center. The rack equipment includes switches and patch panel equipment. A separate cabinet houses Dell servers.

APPENDIX D: EXISTING CONDITIONS PHOTOGRAPHS

Site – Main Entry

Site – Parking / Bus Loop

Site – Loading / Service Area

Site – Relocatable Classrooms

APPENDIX D: EXISTING CONDITIONS PHOTOGRAPHS

Site – North/West Façade from Play Area

Site – Typical Classroom Window Opening

Site – 1988 Addition (North Façade)

Site – 1988 & 2008 Addition (North Façade)

APPENDIX D: EXISTING CONDITIONS PHOTOGRAPHS

Site – 2008 Addition (North Façade)

Site – 2008 Addition (West Service Entry)

Site – 2008 Addition (South Facade)

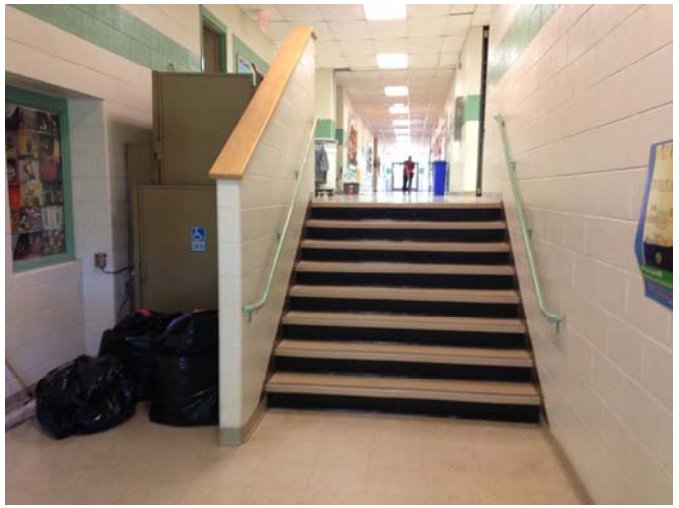
Site – 1988 Addition (Gymnasium Façade)

APPENDIX D: EXISTING CONDITIONS PHOTOGRAPHS

Site – 1988 Addition (South Façade)

Interior – Main Entry

Interior – Typical Classroom



Interior - Gymnasium Entry Corridor