

NEELSVILLE MIDDLE SCHOOL

Addition Feasibility Study

Prepared for
Montgomery County Public Schools

by
Hord Coplan Macht
Baltimore, Maryland
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NEELSVILLE MIDDLE SCHOOL

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I. INTRODUCTION

This addition feasibility study was conducted for Montgomery County Public Schools (MCPS) by the architectural firm Hord Coplan Macht, Inc. Neelsville Middle School is located at 11700 Neelsville Church Road, Germantown, Maryland and is part of the Clarksburg and Watkins Mill clusters. The feasibility study work was performed under the direction of the MCPS Department of Facilities Management, Division of Construction.

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INTRODUCTION

NEELSVILLE MIDDLE SCHOOL

The Feasibility Study reviewed, revised, and approved the design concepts presented for the Addition to Neelsville Middle School. The meetings occurred on September 15, 2015; September 30, 2015; and October 13, 2015. The proposed designs resulted from the feasibility study participant's recommendations, suggestions, and guidance during the course of the Feasibility Study.

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INTRODUCTION

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INTRODUCTION

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INTRODUCTION

FEASIBILITY STUDY PARTICIPANTS (CONTINUED)

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II. EXECUTIVE SUMMARY

Purpose

The purpose of this feasibility study is to explore alternatives for adding classrooms, an additional gymnasium, and affiliated support spaces to Neelsville Middle School that satisfy the requirements of the Educational Specifications set forth for the project. Furthermore, the study provides specific recommendations to Montgomery County Public Schools (MCPS) for implementation. When completed, the expanded facility will have a capacity of 1,200 students with core spaces designed to accommodate 1,200 students.

History

Neelsville Middle School is located at 11700 Neelsville Church Road, Germantown, Maryland. The school is a member of the Clarksburg and Watkins Mill clusters. The original structure was built in 1981. The school has undergone life safety upgrades in 2002, a cooling tower replacement in 2005 and an energy recovery unit replacement in 2008. Various mechanical and electrical upgrades along with classroom modifications and the enclosure of the cafeteria have occurred over the last few years. Presently, the school capacity is 922 students and the enrollment is 911 students in grades 6 through 8. The existing building is approximately 128,130 gross square feet. There is an Infants & Toddlers Program facility also on the school site which is 6,500 gross square feet. The existing site is 29.19 acres.

Methodology

The existing school has been evaluated by a design team of architects and engineers to determine modifications required to modernize the facility to comply with the requirements of the Neelsville Middle School Educational Specifications, dated July 28, 2015 (see Appendix A). The study is based on:

- Three Work Sessions with the Feasibility Study Participants;
- Analysis of the existing physical plant;
- Review of the construction documents for the existing facility, as provided by MCPS;
- Review of the Educational Specifications provided by MCPS; and
- Research conducted by the design team.

EXECUTIVE SUMMARY

Overview

The site for Neelsville Middle School is semi-rectangular with the longest sides being the north/south and is situated on 29.19 acres. It is surrounded by a neighborhood of single family homes on the east and northeast sides, a church to the northwest, commercial development along MD 355 to the west and townhouses along Germantown Road to the south. Neelsville Church Road borders the north side and Shakespeare Boulevard to the east. The site topography has varying sloped and level areas with the building and parking located at the eastern part of the site. The ball fields are located at the lower western part of the site. A modular building sits in front of the northwest corner of the school and is the location of one of Montgomery County Public Schools' Infants and Toddlers programs. A shared parking lot for the school and for Infants and Toddlers is located in front of the existing building at the northeast corner of the site.

Access (both pedestrian and vehicular) to the site occurs on the north side from Neelsville Church Road where one curb cut provides access to the entire site. The parking lot entry/exit and the bus loop entry/exit are shared. There are 157 parking spaces (including 4 accessible spaces) in the three bays of parking in front of the school and 14 parking spaces behind the school in the loading area. The bus loop is too small to accommodate the required number of buses and having a shared entry with the parking lot creates poor vehicular circulation and congestion. Due to limited queuing space, buses and parent vehicles also line up along Neelsville Church Road.

The school building encompasses the center of the property. It was constructed in 1981. In 2005, the Infants and Toddlers modular building was located between the school and the north side of the site. The western half of the site is an open area with the soccer (one large) and 3 softball fields along with 4 basketball and 4 tennis courts at the northwest corner. The building faces the northern portion of the site with most of the parking and all vehicular access located between the building and the curb cut to the north. The eastern side and southeastern corner of the site are heavily forested with no access through the forest.

The existing school building is a two-story structure. There are significant elevation differences across the school property, with the main floor of the school situated at elevation 602 at the front entrance and elevation 588 at the backside (western) exit that leads to stairs that go to the fields. The general elevation of the ball fields is approximately 574, 28' lower than the main floor elevation of the school. The parking lot and bus loop are relatively flat with grades ranging from 607 to 598 as you travel from east to west across the site.

EXECUTIVE SUMMARY

Overview (continued)

The Infants and Toddlers modular is a stand-alone building and is not connected to the school. It is located north west of the school and is accessed from the main parking lot.

The existing school structure is steel framed with interior steel columns and exterior load-bearing masonry walls. The roof deck consists of 1½" thick metal deck. The building's second floor slab consists of ¾" lightweight concrete on a 1½" composite metal deck and the ground floor consists of a 5" thick concrete slab on grade. The roof structure is supported by steel joists, beams, interior columns and exterior load bearing masonry walls. The second floor is supported by composite steel beams, girders, interior columns and exterior load bearing masonry walls. The structure is supported on a spread footing foundation.

A majority of the major mechanical equipment within the school has been replaced since the school's original construction, including the cooling tower, dedicated outdoor air system, and heat pump units throughout the school. Two electric boilers heat water for the building and there is a boiler/cooling tower heat pump distribution system, with a pair of heat pump loop water piping mains, routed throughout the building. A two-cell forced-draft cooling tower is located at the rooftop level. In addition to the building heat pump loop, direct expansion (DX) type cooling is also provided for the building's dedicated outdoor air system systems and select ductless split system units are located throughout the school.

Electrically, the school is fed from two transformers located on the south side of the southwest corner of the school, adjacent to the main electrical room. Secondary service feeders run in underground conduits from the secondary of the utility transformers to the CT cabinets of main switchboards, located in the main electrical room. There is an indoor generator located near the main electrical room. Fluorescent lighting is primarily used throughout the school.

Three building plan options were developed in response to the MCPS Educational Specifications for Neelsville Middle School with input from the feasibility study participants. Each option addresses the desired physical and instructional improvements to the school, and satisfies the Educational Specification requirements. All options require a phased occupancy of the school so that students remain in the building and classes continue during construction. The three building plans options include a two story addition to the main entry of the building. Cost estimates for each option are presented in the Description of Options section of the report. The preferred option by the feasibility study participants was Option 1.

EXECUTIVE SUMMARY

OPTION ONE

Option One provides a two-story building addition along the front face of the existing building. The addition is placed between the existing building and the existing parking lot (taking a portion of the existing parking). This addition includes new classrooms, science labs, instructional support spaces, a new administrative suite, and creates a new main entry/secure vestibule. The addition connects to the existing building by way of two new corridors. It is organized around a “main street” corridor which connects to the main entry with the one-story administration area to the west of “main street” and the two-story classroom wing to the east. The secondary corridor connects the new classroom wing to the existing building’s classroom wing. The addition is oriented with the academic spaces facing north/south for optimal daylighting orientation. Two courtyards are located between the existing building and the new addition to maintain natural light to the classrooms of the existing building. Some minor interior renovations are made in the existing building at the connection of the addition which includes widening of a corridor to alleviate existing congestion. Another portion of addition is placed to the north of the existing gymnasium on the main level at the current location of the Infants and Toddlers modular building. This addition includes a second gymnasium and added athletic support spaces. The Infants and Toddlers program is relocated to the southeast corner of the existing building’s lower level. The classrooms that are displaced from this area are included in the classroom addition at the front of the building. The existing ramp that connects the upper level to the lower level is removed. A floor is added at the ramp location to provide a new art room on the main level and a location for expansion of the cafeteria on the lower level. The existing administration space is renovated for expansion of the guidance department. Parking spaces that are displaced by the classroom addition at the front of the school will be replaced with a row of added parking on the north side of the parking lot.

Option One (Preferred):

Construction Cost Estimate	\$18,984,000
Project Planning Cost	\$ 2,158,000
Site Improvements/ Utilities	\$ 3,455,000
Total	\$24,597,000

EXECUTIVE SUMMARY

OPTION TWO

Option Two provides a two-story building addition along the front face of the existing building. The addition is placed between the existing building and the existing parking lot (taking a portion of the existing parking). This addition includes new classrooms, science labs, instructional support spaces, new administrative suite, and creates a new main entry/secure vestibule. The addition connects to the existing building by way of two corridors. It is organized around a “main street” corridor which connects to the main entry with the one-story administration area to the west of “main street” and the two-story classroom wing to the east. The secondary corridor connects the new classroom wing to the existing building’s classroom wing. The addition is oriented with the academic spaces facing north/south for optimal daylighting orientation. Two courtyards are located between the existing building and the new addition to maintain natural light to the classrooms of the existing building. Some minor interior renovations are made in the existing building at the connection of the addition which includes widening of a corridor to alleviate existing congestion. Another portion of addition is placed to the north of the existing gymnasium on the main level at the current location of the Infants and Toddlers modular building. This addition includes space for the Infants and Toddlers program, a second gymnasium and added athletic support spaces. The Infants and Toddlers modular building is removed from the site. The existing ramp that connects the upper level to the lower level is removed. A floor is added at the ramp location to provide a new art room on the main level and a location for expansion of the cafeteria on the lower level. The existing administration space is renovated for expansion of the guidance department. Parking spaces that are displaced by the classroom addition at the front of the school will be replaced with a row of added parking on the north side of the parking lot.

Option Two:

Construction Cost Estimate	\$23,377,000
Project Planning Cost	\$ 2,158,000
Site Improvements/ Utilities	\$ 3,455,000
Total	\$28,990,000

EXECUTIVE SUMMARY

OPTION THREE

Option Three provides a two-story building addition along the front face of the existing building. The addition is placed between the existing building and the existing parking lot (taking a portion of the existing parking). This addition includes new classrooms, science labs, instructional support spaces, new administrative suite, and creates a new main entry/secure vestibule. The addition connects to the existing building by way of two corridors. A “main street” corridor is to the far west side of the addition and connects the new main entry to the existing main lobby. The two-story wing to the east of the “main street” houses administration and classrooms. The secondary corridor connects the administration and classroom areas to the existing building’s classroom wing. The addition is oriented with the academic spaces facing north/south for optimal daylighting orientation. A courtyard is located between the existing building and the new addition to maintain natural light to the classrooms of the existing building. Very minimal interior renovations are made in the existing building at the connection to the addition. The existing Infants and Toddlers modular building will remain. An athletic addition is placed adjacent to the locker rooms on the west side of the building’s lower level. The placement of this addition will impact one the baseball fields. The existing ramp that connects the upper level to the lower level is removed. A floor is added at the ramp location to provide a new location for the art room on the main level and a location for expansion of the cafeteria on the lower level. The existing administration space is renovated for a new staff lounge and some additional guidance spaces. The existing guidance suite remains and therefore is split. Parking spaces that are displaced by the classroom addition at the front of the school will be replaced with a row of added parking on the north side of the parking lot.

Option Three:

Construction Cost Estimate	\$16,749,000
Project Planning Cost	\$ 2,158,000
Site Improvements/ Utilities	\$ 3,455,000
Total	\$22,362,000

EXECUTIVE SUMMARY

COST ANALYSIS

Presented below is a tabulation of areas and costs associated with each recommended option for additions and alterations of Neelsville Middle School. These recommended options provide the best solutions to the site, educational program, and facility development goals. The estimates are based on the current market and reflect current Montgomery County Public School construction costs.

Cost Analysis – Neelsville Middle School Addition

Square Footage		Option 1	Option 2	Option 3
Existing		131,432	131,432	131,432
New Construction		49,218	49,500	46,544
Renovation		20,798	13,616	7,212
Total Gross		180,650	180,932	177,976
Removal of Modular Building		6,500	6,500	0
PDF/ FEASIBILITY STUDY COST OUTLINE				
Construction Cost Estimate		\$18,984,000	-	-
Project Planning Cost		\$2,158,000	-	-
Site Improvements/Utilities		\$3,455,000	-	-
Total Cost in FY 2017 Dollars		\$24,597,000	\$28,990,000	\$22,362,000
Notes:				
1. The cost estimate in this feasibility study is based on FY 2016 state allowable reimbursement rates for both building and site costs. The estimates will be revised to reflect market conditions and prevailing construction costs when the project is included in the Capital Improvement Program request for architectural and construction funding.				
2. This cost estimate does not include furniture and equipment.				

CONCLUSIONS AND RECOMMENDATIONS

In accordance with the opinions of the feasibility study participants and MCPS, Hord Coplan Macht recommends that Option 1, as fully described in Section V, be implemented for the Renovation/Addition to Neelsville Middle School. This recommendation is consistent with MCPS standards, and addresses the interests and concerns of the principal, school staff and community as represented by the feasibility study participants.

III. PROJECT SCOPE, METHODOLOGY AND GOALS

Scope And Intent

Neelsville Middle School is scheduled to be improved and expanded to meet current specifications relative to educational programs, instructional philosophy, and program space allocations. The additions to the existing facility will meet current energy, ADA, federal, and local life safety codes. When completed, the facility will have a capacity of 1,200, with core spaces designed for 1,200 students.

The intent of this feasibility study is to explore alternatives for an addition(s) that includes classrooms, gymnasium, relocated Infants and Toddlers program, and associated instructional support spaces to the existing facility. The alternatives accommodate and meet the educational requirements of student enrollment, satisfy the staff and community concerns, and contribute to a safe, cost effective and energy efficient facility to meet the needs of a 21st century school.

The scope of work includes a survey of the existing physical plant and evaluation of the existing mechanical, electrical, and plumbing systems. The A/E design team analyzed the educational specifications and developed three distinct site and building concepts addressing the criteria for building improvements. The feasibility study participants reviewed the progression of these concepts throughout the entire process. Their comments and suggestions were discussed and evaluated, and influenced the development of all of the options being considered. The final concepts are presented in this report as Options One, Two, and Three.

Methodology

The existing school has been evaluated by a design team of architects and engineers to determine modifications required to modernize the facility to comply with the requirements of the Neelsville Middle School Educational Specifications, dated July 28, 2015 (see Appendix A). The study is based on:

- Three Work Sessions with the Feasibility Study Participants and MCPS staff;
- Analysis of the existing physical plant;
- Review of the construction documents for the existing facility, as provided by MCPS;
- Review of the Educational Specifications provided by MCPS; and
- Research conducted by the design team.

PROJECT SCOPE, METHODOLOGY AND GOALS

GOALS AND OBJECTIVES

In satisfying the requirements of the educational specifications, the following are the primary goals and objectives established by the feasibility study participants to be addressed by the A/E team and staff of MCPS.

New Building Image:

- Provide a new face to the existing building
- The addition should meet the needs and context of the community
- The addition should conceal the large rooftop equipment at the front of the building

Improve Circulation:

- Congestion within the school should be reduced by improving circulation and straightening corridors
- The placement of the addition and how it connects to the existing building should not create excess congestion

Improve Safety, Security and Visibility:

- Create a secure vestibule connecting to the main office for direct supervision of the main entry doors & front of building
- The addition should allow for access to after-hours parts of the school be locked off from classroom wings
- Improve visibility by providing straight corridors and glazing between classroom & corridor

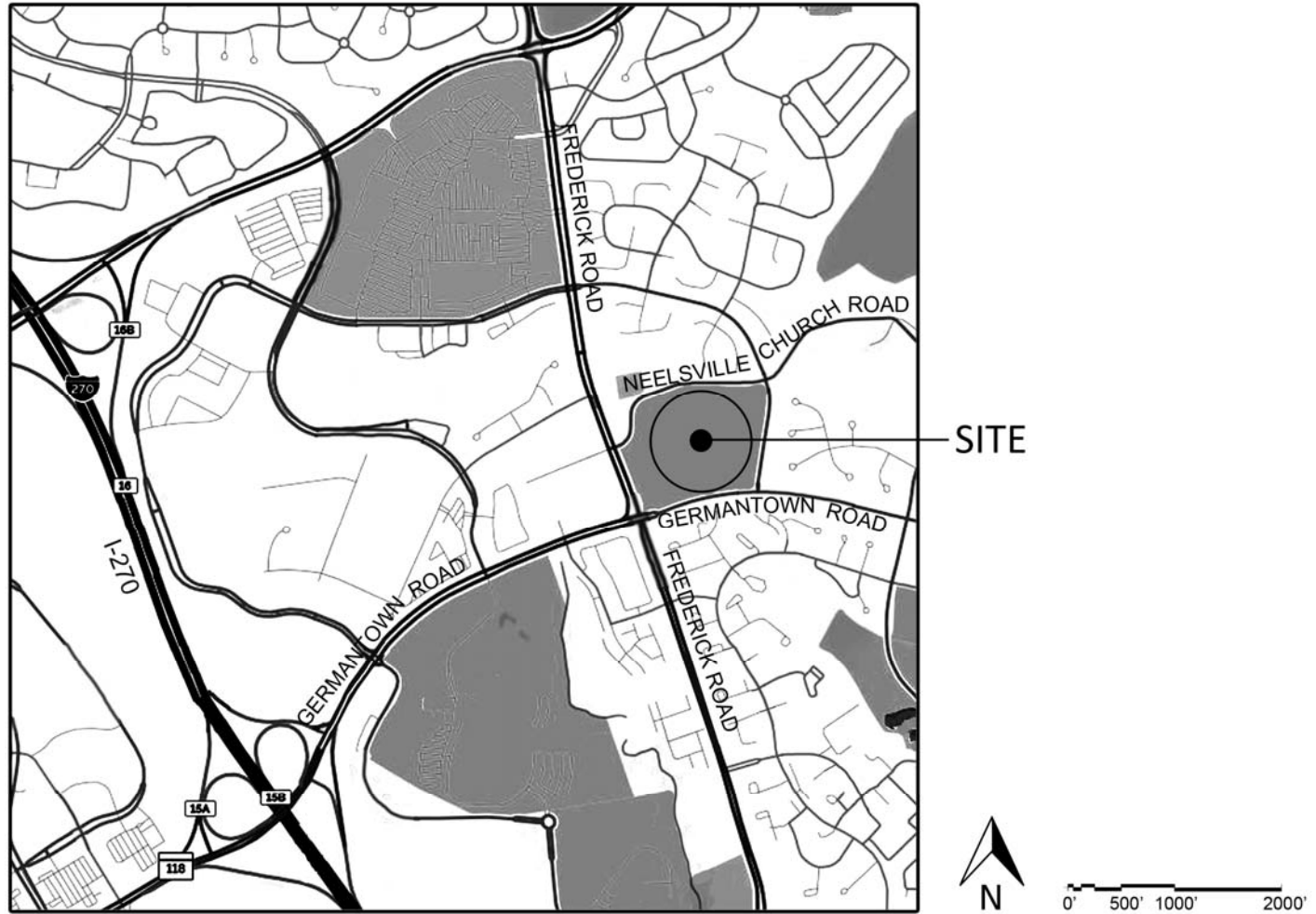
Maximize Natural Light:

- Provide natural light to all new spaces in the addition
- Do not block existing windows with the placement of the addition through the implementation of courtyards
- In renovated spaces, provide skylights to bring natural light into existing corridors

Repurpose Entry Ramp:

- Improve the efficiency of the building by repurposing the ramp at the main entry to be used for classroom space on the main level and cafeteria expansion on the lower level
- In lieu of the ramp, provide an elevator to connect the levels of the existing building

IV. EXISTING CONDITIONS



VICINITY MAP

EXISTING CONDITIONS

EXISTING CONDITIONS SUMMARY

The site for Neelsville Middle School is semi-rectangular with the longest sides being the north/south and is situated on 29.19 acres. It is surrounded by a neighborhood of single family homes on the east and northeast sides, a church to the northwest, commercial development along MD 355 to the west and townhouses along Germantown Road to the south. Neelsville Church Road borders the north side and Shakespeare Boulevard to the east. The site topography has varying sloped and level areas with the building and parking located on the eastern part of the site. The ball fields are located at the lower western part of the site. A modular building sits in front of the northwest corner of the school and is the location of one of Montgomery County Public Schools' Infants and Toddlers programs. A shared parking lot for the school and for Infants and Toddlers is located in front of the existing building at the northeast corner of the site.

Access (both pedestrian and vehicular) to the site occurs on the north side from Neelsville Church Road where one curb cut provides access to the entire site. The parking lot entry/exit and the bus loop entry/exit are shared. There are 157 parking spaces (including 4 accessible spaces) in the three bays of parking in front of the school and 14 parking spaces behind the school in the loading area. The bus loop is too small to accommodate the required number of buses and having a shared entry with the parking lot creates poor vehicular circulation and congestion. Due to limited queuing space, buses and parent vehicles also line up along Neelsville Church Road.

The school building encompasses the center of the property. It was constructed in 1981. In 2005 the Infants and Toddlers modular building was located between the school and the north side of the site. The western half of the site is an open area with the soccer (one large) and 3 softball fields along with 4 basketball and 4 tennis courts at the northwest corner. The building faces the northern portion of the site with most of the parking and all vehicular access located between the building and the curb cut to the north. The eastern side and southeastern corner of the site are heavily forested with no access through the forest.

The existing school building is a two-story structure. There are significant elevation differences across the school property, with the main floor of the school situated at elevation 602 at the front entrance and elevation 588 at the backside (western) exit that leads to stairs that go to the fields. The general elevation of the ball fields is approximately 574, 28' lower than the main floor elevation of the school. The parking lot and bus loop are relatively flat with grades ranging from 607 to 598 as you travel from east to west across the site.

The Infants and Toddlers modular is a stand-alone building and is not connected to the school. It is located north west of the school and is accessed from the main parking lot.

EXISTING CONDITIONS

EXISTING CONDITIONS SUMMARY (CONTINUED)

The school building exterior is primarily brick with limited areas of metal panels. The roof is a low-slope built-up system with aluminum fascia and some areas with stucco soffit. Windows are aluminum frames with brick window sills. The building entry is located on the main level. Across the lobby from the front doors is the administrative suite. The gymnasium with stage, classrooms, and media center are located on this level. A non-ADA compliant ramp connects the main level to the lower level. The ramp terminates at a conversation pit on the lower level, adjacent to the cafeteria. The lower level contains additional classrooms, the cafeteria, kitchen, athletic locker rooms, music classrooms, and technology education classrooms. A locker commons is located on the lower level. The lower level has at grade access and includes a loading area adjacent to the kitchen. The building interior is primarily masonry walls with some gypsum board partitions. Ceilings are acoustical tile and floors are resilient tile with some limited areas of carpet. The gymnasium has a wood floor, steel joists, and a Tectum deck. Bleachers and a stage are located in the gymnasium. Lockers have been added to some corridors.

The existing school building structure is steel framed with interior steel columns and exterior load-bearing masonry walls. The roof deck consists of 1½" thick metal deck. The building's second floor slab consists of 3¼" lightweight concrete on a 1½" composite metal deck and the ground floor consists of a 5" thick concrete slab on grade. The roof structure is supported by steel joists, beams, interior columns and exterior load bearing masonry walls. The second floor is supported by composite steel beams, girders, interior columns and exterior load bearing masonry walls. The structure is supported on a spread footing foundation.

A majority of the major mechanical equipment within the school has been replaced since the school's original construction, including the cooling tower, dedicated outdoor air system, and heat pump units throughout the school. Two electric boilers heat water for the building and there is a boiler/cooling tower heat pump distribution system, with a pair of heat pump loop water piping mains, routed throughout the building. A two-cell forced-draft cooling tower is located at the rooftop level. In addition to the building heat pump loop, direct expansion (DX) type cooling is also provided for the building's dedicated outdoor air system systems and select ductless split system units located throughout the school.

Electrically, the school is fed from two transformers located on the south side of the southwest corner of the school, adjacent to the main electrical room. Secondary service feeders run in underground conduits from the secondary of the utility transformers to the CT cabinets of main switchboards, located in the main electrical room. There is an indoor generator located near the main electrical room. Fluorescent lighting is primarily used throughout the school.

V. DESCRIPTION OF OPTIONS

Three building plan options were developed in response to the MCPS Educational Specifications for Neelsville Middle School with input from the feasibility study participants. Each option addresses the desired physical and instructional improvements to the school, and satisfies the Educational Specification requirements. The options are briefly described as follows:

OPTION ONE

Option One provides a two-story administration and classroom addition along the front face of the existing building and an athletics addition to the north of the existing gymnasium. A new main entry and secure vestibule are created. Interior renovations are made in the existing building in order to alleviate existing congestion. Other interior renovations are made to the administration and guidance suites and the existing ramp that connects the upper and lower levels is removed. The Infants and Toddlers modular building is removed from the site and the program is relocated to the southeast corner of the existing building's lower level, providing the program with a dedicated entrance and parking.

OPTION TWO

Option Two provides a two-story administration and classroom addition along the front face of the existing building. Another addition includes athletics and the Infants and Toddlers Program and is located to the north of the existing gymnasium. A new main entry and secure vestibule are created. Interior renovations are made in the existing building in order to alleviate existing congestion. Other interior renovations are made to the administration and guidance suites and the existing ramp that connects the upper and lower levels is removed. The Infants and Toddlers modular building is removed from the site.

OPTION THREE

Option Three provides a two-story administration and classroom addition along the front face of the existing building. An athletic addition is placed adjacent to the locker rooms on the west side of the building's lower level. A new main entry and secure vestibule are created. Minimal interior renovations are made in the existing building at the connection to the additions. Other interior renovations are made to the administration suite and the existing ramp that connects the upper and lower levels is removed. The existing Infants and Toddlers modular building is to remain.

DESCRIPTION OF OPTIONS

GENERAL:

Three options have been developed in response to the MCPS Educational Specifications for Neelsville Middle School. Each option proposes a two-story administration/classroom addition at the front face of the building with a new main entrance. Though all options also propose an athletics addition off of the existing gymnasium, each approaches the athletics addition differently. In Option One, the athletics addition includes a second gymnasium and support spaces only, and the displacement of the existing Infants and Toddlers program is moved to the lower level of the existing building. In Option Two, the athletics addition includes a second gymnasium, support spaces and the displaced program of the Infants and Toddlers building. In Option Three, the athletics addition is off of the west side of the locker rooms at the lower level and the existing Infants and Toddlers building remains. All of the building elements required by the educational specifications are addressed in each option.

SITE DESIGN:

Generally, all three building options result in similar site design. All three options will require that the parking lot be reconfigured and some parking spaces will be lost. In addition, the storm drain main line and a portion of the waterline (that serves the fire hydrant) will have to be relocated. The only difference is that in Option Three, the Infant and Toddler building remains where as in Options One and Two, the Infants and Toddler building is removed and a new addition will be built in that footprint. Options One and Two would require several hundred feet more of storm drain to be relocated than Option Three.

Storm Water Management will have to be provided for all of the new impervious area as well as some of the existing. Retrofitting the existing dry pond (turning it into a submerged gravel wetland or a wet pond) would be an option if ownership of that land can be determined. It is possible that MCDOT owns that land now through some type of land transfer. However, retrofitting the pond may still be the best option. Green roofs, permeable pavers, and biofiltration would be other Environmental Site Design options to treat Storm Water Management.

DESCRIPTION OF OPTIONS

BUILDING DESIGN:

All building options for the Neelsville Middle School addition and renovation will be highly sustainable consisting of standard classrooms, science labs, instructional support areas, special education rooms, a second gymnasium, fitness/weight room, health classroom, multimedia production room, cafeteria expansion, administrative spaces, exterior courtyards, and parking revisions. The classrooms will be grouped with team workrooms. Administration (including guidance and the health room) will be centrally located and adjacent to the main building entry for ease of security and supervision. Multiple building levels will be served by stairs and elevators that will be provided in the addition and added to the existing building to provide accessibility between the floor levels.

STRUCTURAL SYSTEM:

Roof Structure:

The typical roof structure will be comprised of galvanized, 1½" deep, wide-ribbed steel deck supported by an open-web, K series steel joists at 5'-0" o.c. spanning between structural steel beams and columns. Rooftop mechanical equipment, which cannot be placed within the building, located over a new classroom corridor or other roof areas, will be supported by a steel platform or structural steel framing with concrete housekeeping pads. New entrance canopy structures will be comprised of metal roof deck supported by structural steel beams. This structure will be supported by steel pipe columns.

Second And Third Floor:

Second floor structure will consist of 3" concrete on a composite floor deck supported by composite steel beams at 8' to 9' on center; spanning between composite steel girders and columns.

First Floor:

The first floor area of the proposed addition located at the low grade areas will consist of 3" concrete on a composite floor deck supported by composite steel beams at 8' to 9' on center spanning between composite steel girders and columns. The remaining first floor construction will be a 5" thick concrete slab-on-grade. The slab will be thickened to 6" at the heavily loaded floors such as mechanical rooms. The slab will be haunched to a thickness of 12" below masonry partition walls exceeding 6 inches. Concrete retaining walls will be provided at the area where finish grade will be below the proposed first floor level.

DESCRIPTION OF OPTIONS

Lateral Stability:

Wind and seismic loads will be resisted by moment resisting frames or braced frames.

Foundation:

We anticipate a shallow spread footing foundation system, which is consistent with the existing building. The new additions will abut the existing building, and will require new foundations adjacent to the existing building foundations. Additional deeper foundation walls will likely be required at the juncture of the additions with the existing building. The allowable soil bearing pressure, conditions and seismic site class will be determined by a geotechnical investigation. As a result of the irregular volume layout and length of the school facility, building expansion joints are required. The building expansion joints will run between existing and new buildings.

Floor In-Fill At The Existing Ramp Area:

The floor structure at the framed floor will consist of 3" concrete on a composite floor deck supported by composite steel beams at 8' to 9' on center spanning between composite steel girders and columns. New interior columns will be supported by a new spread footing and existing footings.

MECHANICAL SYSTEMS:

A similar mechanical solution is recommended for the three proposed architectural addition and renovation concepts. Areas of renovation within the existing school will continue to be supplied by the existing heat pump loop infrastructure and dedicated outdoor air system. However, the schools existing heat pump loop infrastructure (including the existing boiler and cooling tower systems) does not appear to have surplus capacity to support the overall size of the planned building additions. Therefore, mechanical systems that operate independently of the existing heat pump loop infrastructure are recommended within the proposed building additions.

DESCRIPTION OF OPTIONS

Based on the information listed above, the use of variable refrigerant flow (VRF) systems, complete with air-cooled energy recovery type condensing units, is recommended for space conditioning within the proposed administration and classroom building addition area. One VRF system would be dedicated administration area and the other VRF system would be dedicated to the classroom areas located at the two floor levels of the addition. Indoor terminals for both systems would consist of ceiling-mounted units located within the classroom or office served. Individual branch controllers would be provided for each indoor unit, allowing independent heating or cooling operation for each zone, as well as energy efficient simultaneous heating and cooling operation.

Conditioned outdoor air for the proposed administration and classroom building addition would be supplied by a pair of rooftop dedicated outdoor air systems, complete with direct expansion (DX) cooling, enthalpy wheel energy recovery devices, and either gas-fired or electric heating components. The use of gas-fired heating is recommended; however it will require a new gas service be provided to the school. The details of this new gas service are described within the Plumbing Systems sections of this study. One dedicated outdoor air system would support the administration area, with the other dedicated outdoor air system supporting the classroom areas. Airflow supplied from these units would be dehumidified, conditioned, and delivered directly to each space at a room neutral temperature.

Space conditioning for the Infants and Toddlers program area would be accomplished through an air-cooled VRF system, similar to the systems being proposed for the administration and classroom building addition areas. The use of a standalone mechanical system is recommended, as this program area typically requires year-round operation. The VRF system approach is recommended whether the Infant and Toddler program is contained within the building addition (Option 2) or as a renovation area within the existing school (Option 1). Conditioned outdoor air would be supplied from a rooftop dedicated outdoor air system, similar to the administration and classroom building addition areas.

Ventilation and space conditioning for the second gymnasium and health classroom areas would be accomplished through a pair of single-zone packaged rooftop units, complete with DX cooling and either gas-fired or electric heating. Unit supply and return fans would be provided with variable frequency drives, reducing space airflow during periods of reduced room cooling demands.

Perimeter toilet rooms, storage rooms, and other heating-only areas throughout all building addition areas would utilize electric resistance heaters for general space conditioning during the winter months.

DESCRIPTION OF OPTIONS

Areas of renovation throughout the existing school (excluding the Infants and Toddlers program area indicated under Option 1) will continue to be supported by the schools existing heat pump distribution loop and dedicated outdoor air system. The existing heat pump units within the renovation areas will be relocated and/or replaced to accommodate the revised architectural floor plan. In addition, the existing above-ceiling conditioned air and exhaust air ductwork within the renovation areas will be replaced to accommodate the revised architectural floor plan.

Manufacturer's packaged control components would be provided for the new VRF systems, dedicated outdoor air systems, and rooftop units, with these control components interfaced to the existing HI Solutions building automation system. Building control components should be interfaced with the central MCPS energy management control system for occupied/unoccupied settings and general system operation.

It should be noted that the proposed VRF and dedicated outdoor air system approach reduces mechanical floor area requirements within the proposed building addition. In addition, the proposed mechanical system provides the most sustainable and energy efficient solution available, while delivering a high level of flexibility at the lowest cost for both current and future needs.

PLUMBING SYSTEMS:

The existing domestic cold water piping main would be extended and modified to support the proposed building addition areas. In addition, a new electric water heater, thermostatic mixing valve, circulation pump, and expansion tank are recommended for providing hot water within the proposed building addition areas. It is anticipated that these new domestic water infrastructure systems would be located within the administration and classroom addition area, as these areas would pose the greatest domestic hot water demand.

The existing domestic water, sanitary, and vent piping systems within the renovated building areas would be modified to support the revised architectural floor plan and new plumbing fixture locations.

The addition of a new Washington Gas service is recommended. As noted within the existing conditions section of this study, the school is currently not provided with a gas service, requiring the use of electric heating throughout. The new gas service would extend from the existing 12" gas main located at Shakespeare Boulevard and be sized to accommodate both the gas-fired requirements of the proposed building additions, along with the future gas demands of the school's existing boiler systems.

DESCRIPTION OF OPTIONS

New plumbing fixtures would be designed to meet the Americans with Disabilities Act (ADA) and will utilize water conservation features. Floor-mounted water closets would utilize dual-flush type valves, capable of providing either 1.6 or 1.0 gallons per flush. Urinals would be wall-hung and provided with pint flush valves. Wall-hung cast-iron lavatories would utilize self-closing faucets that supply 0.5 gallons per minute. The water consumption figures noted are equal to or less than what is required by both current plumbing code and LEED water conservation requirements.

FIRE PROTECTION SYSTEMS:

The existing fire protection system for the school would be extended to support the proposed building addition areas. New zone valves would extend from the existing above-ceiling fire main, with sprinkler piping extending from the zone valves provided at each floor level to support the proposed building addition.

The existing sprinkler piping and associated sprinkler heads associated with the renovated building areas would be modified to support the revised architectural floor plan arrangement.

Dedicated outdoor air and rooftop unit systems supplying 2,000 cubic feet per minute (CFM) or more of airflow would be equipped with smoke detectors in both the supply and return air ductwork

ELECTRICAL:

Power Distribution:

The existing electrical equipment in the school will remain and will be utilized to serve the proposed building additions. The existing main switchboard has two 2500-ampere main service bolted pressure switches, each serving respective 2000-ampere distribution sections. Therefore, the existing main switchboards have the capacity to serve the proposed building additions. It needs to be determined if Pepco will be required to increase the size of the utility transformers and secondary feeders.

There appears to be a 1200A space in the middle of Section 1 of Switchboard #1, and a 1200A space at the bottom of Section 2 of Switchboard #1. The main switchboards are by General Electric, AV-Line Switchboard, and are no longer made. Due to the age the existing main switchboards, spare parts that are UL Listed to be installed in these switchboards are not readily available.

DESCRIPTION OF OPTIONS

The bus of the main switchboards will need to be tapped and certified by the Nationally Recognized Testing Laboratory (NRTL) in order to serve a new distribution panel, enclosed circuit breaker, and/or enclosed fused switch to serve the new building additions.

Options 1 and 2 will remove the existing modular "Infants and Toddlers" building. Therefore, the existing 400A fused switch serving the modular "Infants and Toddlers" building in one of the distribution sections of Switchboard #2 can be utilized to serve loads in one of the building additions.

The existing panelboards and associated feeders located throughout the existing building will remain. Existing panelboards rated at 277/480 volts currently serving existing lighting loads may be used serve new lighting, if there are spare circuit breakers. Existing panelboards serving existing mechanical loads may be able to serve mechanical loads in the proposed building additions, depending on available spare circuit breakers, the size of each existing mechanical panelboard, and the size of the new mechanical loads. New 277/480-volt panelboards will be provided where required to accommodate new lighting and/or mechanical loads.

General receptacles in the proposed building additions will be connected to new receptacle branch circuit panelboards. New computer branch circuit panelboards will serve designated receptacles for computer loads in new classrooms, instructional areas, and other rooms of the proposed building additions where required. Existing receptacle panelboards may be utilized if there are spare circuit breakers to add new circuits.

Electrical closets will be provided in the proposed building additions. New receptacle panelboards (via new step-down dry-type transformers) and new computer panelboards (via UL K-13 rated step-down dry-type transformers) will be provided where required to accommodate new receptacle loads.

Panelboards will have a copper bus structure. Panelboards will be sized with approximately 25% spare capacity and 25% spare breaker space. Computer panelboards will have a 200 percent rated neutral bus to account for harmonic distortion. A three-phase surge protective device (SPD) will be connected to (and mounted adjacent to) each respective computer panel.

General receptacles will be ivory with ivory faceplates. Computer receptacles will be gray with gray faceplates.

New conduits will be concealed in new walls. Where existing walls remain, surface metal raceway will be used to conceal wiring.

DESCRIPTION OF OPTIONS

MEMA Emergency Public Shelter Requirement:

The Maryland Emergency Management Agency (MEMA) may designate Neelsville Middle School as an emergency public shelter. Considering that recent projects for MCPS have been designated as emergency public shelters, it is likely that Neelsville Middle School will also be designated as an emergency public shelter. There is no space in the main electrical room to add or modify electrical equipment to support the electrical requirements for a MEMA emergency public shelter. Electrical equipment for MEMA will need to be located in a dedicated electrical room.

Electrical equipment for the MEMA emergency public shelter will include an outdoor 1200A generator docking station (equal to Trystar GDS) with multiple cam-lock connectors per phase. MEMA electrical equipment will also include a 1200A, 277/480V switchboard, a step-down transformer, and 120/208V distribution panelboard. The MEMA switchboard will have two key-interlocked main circuit breakers and a circuit breaker distribution section.

MEMA electrical equipment will be used to serve electrical loads in the gymnasium, cafeteria, kitchen, health suite, as well as mechanical loads required to support these spaces. These spaces will be designated by MEMA to be used as an emergency public shelter with the electrical loads connected to a temporary portable generator. Therefore, panelboards and branch circuits serving the existing gymnasium, cafeteria, kitchen, and health suite will then need to be reconnected to MEMA electrical equipment.

Generator Power:

The current MCPS standard is to provide emergency power for life safety systems, as well as standby power for the heating system in order to keep the building from freezing. The existing 30-kW generator does not have the capacity to serve both life safety loads and heating system loads of the proposed building additions.

Existing Panel EMH connected to the existing generator via automatic transfer switch can be used to serve life safety emergency lighting for the proposed building additions. A larger generator will be required to accommodate both the life safety loads and heating system loads of the proposed building additions. It is recommended that only new life safety emergency lighting loads in the proposed building additions be connected to the existing generator. Due to the age of Existing Panel EMH, this panelboard will need to be replaced in order to accommodate new emergency lighting circuits.

DESCRIPTION OF OPTIONS

Current codes require that life-safety and standby generator loads be served from separate panelboards. Therefore, if new standby loads are required, a second "standby" automatic transfer switch (ATS) and standby panelboards and transformer would need to be provided.

Lighting:

It is recommended that LED lighting be used, in lieu of fluorescent lighting, for the proposed building additions and renovated spaces.

MCPS standard classroom lighting will be provided in the classrooms. This will consist of pendant-mounted LED luminaires with electronic LED drivers. Lighting controls in classrooms will include lighting room controllers to control luminaires, occupancy sensors, and multiple levels of lighting. Emergency lighting will be automatically switched ON during a power outage.

Lensed type recessed-mounted luminaires will be provided in work rooms, corridors, toilet rooms, storage rooms, and support spaces. Offices, conference rooms, health classroom, and large staff office area will have either lensed type recessed-mounted luminaires or pendant-mounted luminaires. The 2nd gymnasium and fitness/weight room will have LED high-bay luminaires and vandal-resistant luminaires with wire guards above egress doors. Mechanical rooms, electrical rooms, and rooms with open ceilings will have industrial-type luminaires. Stairs will have wall-mounted luminaires.

Exterior building-mounted perimeter security lighting will be full cut-off dark-sky compliant LED luminaires, equal to Invue ENC series.

Occupancy sensors in classrooms, instructional spaces, offices, conference rooms, work rooms, storage rooms, support spaces, individual toilets, and 2nd gymnasium will be set to "vacancy" mode, meaning that lighting in these spaces will need to be manually turned ON via local lighting control station.

Occupancy sensors in corridors, stairs, and group toilets will be set to "occupancy" mode, meaning that lighting in these spaces will be automatically turned ON when occupied. Ceiling-mounted occupancy sensors in corridors will be spaced between 32 and 36 feet apart and control every 100-foot section of corridor.

Automatic daylight controls (daylight photocell/sensor that automatically dims lighting when there is sufficient daylight in a space) for daylight harvesting will be utilized only where required per 2015 International Energy Conservation Code (IECC). Daylight harvesting will be required in rooms where there is more than 150 watts of general lighting within sidelight daylight zones.

DESCRIPTION OF OPTIONS

Lighting levels will be designed in accordance with the recommendations of the Illuminating Engineering Society of North America (IESNA), with the exception of an average of 40 foot-candles in classrooms. Lighting controls will meet the requirements of the 2015 International Energy Conservation Code (IECC). The lighting power density shall not exceed 0.87 watts per square foot per Table C405.4.2(1) of the 2015 IECC.

Data And Voice Systems:

The existing voice and data systems will be expanded to the proposed building additions and renovated spaces. A new telecom room will be required in the proposed building addition with the new main office area.

The telecommunications infrastructure will include outlet boxes, conduits and raceways, and conduit sleeves through walls and floors for the installation of the data and voice cabling. The number of telecom outlets in each room will comply with MCPS design standards and Maryland Public School Standards for Telecommunications Distribution Systems.

Intercom And Sound Systems:

Intercommunications devices will be provided in the proposed building additions. This will include call switches and ceiling-mounted speakers in classrooms, instructional spaces, offices, and support spaces, and speakers in the corridors, large toilet rooms, and large storage rooms. Exterior building-mounted speakers will be provided where required.

Since the existing Rauland Telecenter intercom head-end rack is located in the existing main office area, and the proposed concepts will relocate the main office area to one of the proposed building additions, it is recommended that a new intercommunications/public address system head-end be provided in the new main office area. Existing public address cabling will need to be intercepted and extended to the new head-end location.

The proposed 2nd gymnasium and fitness/weight room will each have a sound reinforcement system, complete with two wall-mounted powered speakers, audio outlet with stereo input jacks, associated cabling, and 12-channel desktop mixer in each room.

Instructional/Classroom Technology:

Classrooms in the proposed building additions will be equipped with dedicated computer receptacles connected to "clean power" computer panelboards. An additional computer receptacle will be located at the front of the classroom off-center of the teaching wall for Promethean smart boards.

DESCRIPTION OF OPTIONS

Security Systems:

The existing security systems will be expanded for the proposed building additions. Intrusion detection will include motion detectors/sensors, glass break detectors/sensors, and door contacts on exterior doors. Video surveillance will include dome cameras in the corridors and building exterior.

Fire Alarm System:

The existing fire alarm control panel with voice evacuation (Fire-Lite Alarms, Model MS-9200UDLS with ACC-25/50 Audio Command Center) in the main electrical room will remain and be reused to serve fire alarm devices in the proposed building additions. A new fire alarm annunciator graphic panel showing the proposed building additions and paging microphone will be installed at the new main entrance.

Initiation devices include smoke detectors and manual pull stations. Smoke detectors will be installed at the FACP, smoke dampers, mechanical ducts where required, and at locations of magnetic door holders, which are located at fire doors for corridors and stairs. Manual pull stations will be located at the main entrance. Manual pull stations will not be installed at each exterior egress door per agreement with MCPS and Montgomery County Fire Marshal.

Notification devices include fire alarm combination speaker/strobe devices and fire alarm speakers. Ceiling-mounted fire alarm combination speaker/strobe devices will be installed in classrooms, instructional spaces, corridors, offices, group toilet rooms, and large storage rooms. Ceiling-mounted fire alarm speakers will be installed in corridors and stairs. 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.

DESCRIPTION OF OPTIONS

OPTION ONE

Option One provides a two-story building addition along the front face of the existing building. The addition is placed between the existing building and the existing parking lot (taking a portion of the existing parking). This addition includes new classrooms, science labs, instructional support spaces and administration, and creates a new main entry/secure vestibule. The addition connects to the existing building by way of two corridors. It is organized around a “main street” corridor which connects to the main entry with the one-story administration area to the west of “main street” and the two-story classroom wing to the east. The secondary corridor connects the new classroom wing to the existing building’s classroom wing. The addition is oriented with the academic spaces facing north/south for optimal daylighting orientation. Two courtyards are located between the existing building and the new addition to maintain natural light to the classrooms of the existing building. Some minor interior renovations are made in the existing building at the connection of the addition which includes widening of a corridor to alleviate existing congestion. Another portion of addition is placed to the north of the existing gymnasium on the main level at the current location of the Infants and Toddlers modular building. This addition includes a second gymnasium and added athletic support spaces. The Infants and Toddlers modular building is removed from the site and the program is relocated to the southeast corner of the existing building’s lower level. This relocation of Infants and Toddlers includes a dedicated entrance and dedicated parking adjacent to the entry. The classrooms that are displaced from this area by the Infants and Toddlers program are included in the classroom addition at the front of the building. The existing ramp is removed and a floor is added in its place to provide a new location for the art room on the main level and the cafeteria on the lower level. The existing administration space is renovated for expansion of the guidance department. The existing guidance department location is renovated to become a new weight/fitness room. Parking spaces that are displaced by the classroom addition at the front of the school will be replaced with a row of added parking on the north side of the parking lot. Total quantity of parking spaces will meet the MCPS standard for middle school parking lots.

DESCRIPTION OF OPTIONS

OPTION ONE - PROS & CONS

Pros:

- Provides a new image for the existing building
- Large rooftop units are concealed
- Provides a secure and safe vestibule with enhanced supervision
- Good solar orientation
- Existing ramp is repurposed for use of classroom space and cafeteria expansion
- Reduced congestion by improved circulation and simplified corridors
- Removal of existing Infants and Toddlers modular building
- Infants and Toddlers has dedicated entry in existing school building

Cons:

- Parking is displaced by location of addition

DESCRIPTION OF OPTIONS

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DESCRIPTION OF OPTIONS

OPTION TWO

Option Two provides a two-story building addition along the front face of the existing building. The addition is placed between the existing building and the existing parking lot (taking a portion of the existing parking). This addition includes new classrooms, science labs, instructional support spaces and administration, and creates a new main entry/secure vestibule. The addition connects to the existing building by way of two corridors. It is organized around a “main street” corridor which connects to the main entry with the one-story administration area to the west of “main street” and the two-story classroom wing to the east. The secondary corridor connects the new classroom wing to the existing building’s classroom wing. The addition is oriented with the academic spaces facing north/south for optimal daylighting orientation. Two courtyards are located between the existing building and the new addition to maintain natural light to the classrooms of the existing building. Some minor interior renovations are made in the existing building at the connection of the addition which includes widening of a corridor to alleviate existing congestion. Another portion of addition is placed to the north of the existing gymnasium on the main level at the current location of the Infants and Toddlers modular building. This addition includes space for the Infants and Toddlers program, a second gymnasium and added athletic support spaces. The Infants and Toddlers modular building is removed from the site. The existing ramp is removed and a floor is added in its place to provide a new location for the art room on the main level and a location for expansion of the cafeteria on the lower level. The existing administration space is renovated for expansion of the guidance department. The existing guidance department location is renovated to become a new weight/fitness room. Parking spaces that are displaced by the classroom addition at the front of the school will be replaced with a row of added parking on the north side of the parking lot. Total quantity of parking spaces will meet the MCPS standard for middle school parking lots.

DESCRIPTION OF OPTIONS

OPTION TWO - PROS & CONS

Pros:

- Provides a new image for the existing building
- Large rooftop units are concealed
- Provides a secure and safe vestibule with enhanced supervision
- Good solar orientation
- Existing ramp is repurposed for use of classroom space and cafeteria expansion
- Reduced congestion by improved circulation and simplified corridors
- Removal of existing Infants and Toddlers modular building
- Infants and Toddlers has dedicated entry at athletics addition

Cons:

- Parking is displaced by location of addition
- Infants and Toddlers building must be moved to another location on site temporarily while new addition is constructed

DESCRIPTION OF OPTIONS

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DESCRIPTION OF OPTIONS

OPTION THREE

Option Three provides a two-story building addition along the front face of the existing building. The addition is placed between the existing building and the existing parking lot (taking a portion of the existing parking). This addition includes new classrooms, science labs, instructional support spaces and administration, and creates a new main entry/secure vestibule. The addition connects to the existing building by way of two corridors. A “main street” corridor is to the far west side of the addition and connects the new main entry to the existing main lobby. The two-story wing to the east of the “main street” houses administration and classrooms. The secondary corridor connects the administration and classroom areas to the existing building’s classroom wing. The addition is oriented with the academic spaces facing north/south for optimal daylighting orientation. A courtyard is located between the existing building and the new addition to maintain natural light to the classrooms of the existing building. Very minimal interior renovations are made in the existing building at the connection to the addition. The existing Infants and Toddlers modular building is to remain. An athletic addition is placed adjacent to the locker rooms on the west side of the building’s lower level. The placement of this addition will impact one the baseball fields. The existing ramp is removed and a floor is added in its place to provide a new location for the art room on the main level and a location for expansion of the cafeteria on the lower level. The existing administration space is renovated for a new staff lounge and some additional guidance spaces. The existing guidance suite remains and, therefore, is split. Parking spaces that are displaced by the classroom addition at the front of the school will be replaced with a row of added parking on the north side of the parking lot. Total quantity of parking spaces will meet the MCPS standard for middle school parking lots.

DESCRIPTION OF OPTIONS

OPTION THREE - PROS & CONS

Pros:

- Provides a new image for the existing building
- Large rooftop units are concealed
- Provides a secure and safe vestibule with enhanced supervision
- Good solar orientation of addition building plan
- Existing ramp is repurposed for use of classroom space and cafeteria expansion

Cons:

- Parking is displaced by location of addition
- Infants and Toddlers modular building remains in place and is an unfavorable image for the front of the school
- Congestion is not improved due to minimal interior renovation of corridors
- Guidance offices are separated (Existing Guidance Suite remains and additional rooms are located across the corridor)
- Health classroom is separated from athletics wing of building

DESCRIPTION OF OPTIONS

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VI. RECOMMENDATIONS

In accordance with the opinions of the feasibility study participants and MCPS, Hord Coplan Macht recommends that Option 1, as fully described in Section V, be implemented for the Renovation/Addition to Neelsville Middle School. This recommendation is consistent with MCPS standards, and addresses the interests and concerns of the principal, school staff and community as represented by the feasibility study participants.

VII. PROJECT IMPLEMENTATION SCHEDULE

OVERALL PROJECT SCHEDULE	YEAR 1												YEAR 2												YEAR 3												YEAR 4												YEAR 5											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Feasibility Study																																																												
Schematic Design																																																												
Committee Meetings																																																												
BOE Approval																																																												
CM Selection																																																												
Design Development																																																												
Construction Documents																																																												
Permitting																																																												
Advertise for Bid																																																												
Bid Opening & Negotiation																																																												
Building Construction																																																												
Occupancy																																																												

APPENDIX A: EDUCATIONAL SPECIFICATIONS

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EDUCATIONAL SPECIFICATIONS

INTRODUCTION

- This document describes the facilities that are needed for the Neelsville Middle School educational program. The descriptions provide the architect with useful guidelines and are used by staff representatives when reviewing drawings and specifications for the facility.
- The program capacity for this school will be 1200 with a master-planned (core) capacity for 1200.
- The educational specifications are divided into three sections.
 - The first section, the space summary, lists the type of spaces and square footage required when the project is complete.
 - The second section describes the general design, location, and specific requirements for each type of space in accordance with Montgomery County Public Schools (MCPS) standards.
 - The third section identifies any additional program requirements for the school that were identified by the feasibility study participants.
- The architect should show the location for modular 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 modular 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.
- This project is to provide the facilities to meet the educational specifications for a Grades 6–8 middle school program. Middle school organization assumes teams of about 125-150 students per team. The middle school philosophy of teams of teachers and students should foster an atmosphere of cohesiveness by grade level. The design of the building should make it possible for sixth, seventh, and eighth graders, to be separated from each other for their academic classes. Flexibility of design should be provided to accommodate changing educational programs.
- For all new schools and modernizations, the project will be designed for LEED Silver certification by the United States Green Building Council (USGBC) under the LEED for Schools guidelines. If this project is a classroom addition, the certification requirement applies only if the addition doubles the existing building footprint. If this project is a building renovation, the certification requirement applies only if the renovation alters more than fifty percent of the existing building gross floor area.

EDUCATIONAL SPECIFICATIONS

NEELSVILLE MIDDLE SCHOOL SQUARE FOOT SUMMARY

When this project is complete, the following spaces are to be provided:
Capacity after modernization will be 1200 with a core of 1200.

Facility	#	Net Sq. Ft.	Total Net Sq. Ft.
Standard Classroom	6	900	5400
<u>Science</u>			
Laboratory	2	1500	3000
Preparation Room	2	250	500
Chemical Storage	1	250	250
<u>Instructional Support Areas</u>			
Team Workroom	3	300	900
ESOL Team Room	1	300	300
ESOL Storage	1	150	150
PYD Offices	2	150	300
PYD Conference Room	1	300	300
<u>Special and Alternative Education</u>			
Resource Room	1	800	600
Speech & Language Support Room	1	250	250
Occupational Therapy/Physical Therapy Room	1	250	250

EDUCATIONAL SPECIFICATIONS

Facility	#	Net Sq. Ft.	Total Net Sq. Ft.
<u>Music Suite</u>			
Instrumental Music Room	1	1900	0
General Music/Choral Room	1	1000	0
General/Choral Storage	1	250	0
Music Office	1	150	0
Practice Rooms	2	64	0
<u>Visual Arts Suite</u>			
Art Room	1	1300	1300
Storage	1	350	350
Kiln Room	1	150	150
<u>Multipurpose Technology Laboratory</u>			
Multipurpose Technology Laboratory	1	1500	0
Computer Technology Laboratory	1	900	0
Preparation Room	1	300	0
<u>Physical Education</u>			
Gymnasium (Equals 2 teaching stations)	1	6800	0
2nd Gymnasium	1	3200	3200
Fitness/Weight Room	1	1600	1600
Auxiliary Gym	1	1600	0
Health Classroom	1	1800	1800

EDUCATIONAL SPECIFICATIONS

Facility	#	Net Sq. Ft.	Total Net Sq. Ft.
Locker Rooms	2	1650	0
Storage Rooms	2	100	0
Toilet Rooms	2	150	0
Shower/Drying Rooms	2	250	0
Laundry Room	1	150	0
Offices	2	300	0
Common Planning Area	1	200	200
General Storage	1	650	0
General Storage	1	650	650
2nd Gymnasium Storage	1	300	300
ICB Storage	1	100	100
<u>Computer Support</u>			
IT Support Specialist Room	1	150	150
Telecommunication Closet	2	80	160
<u>Library Media Center</u>			
Multimedia Production Room	1	950	950
<u>Student Activities</u>			
School Store	1	200	200
Student Government Storage Closet	1	100	100

EDUCATIONAL SPECIFICATIONS

Facility	#	Net Sq. Ft.	Total Net Sq. Ft.
<u>Administration Suite</u>			
General Office	1	700	0
Principal's Office	1	250	0
Assistant Principal's Office	3	150	0
Assistant Support Specialist Office	1	150	150
Administrative Secretary's Office	1	150	150
Workroom	1	500	500
Storage	1	100	100
Conference Room	1	300	300
Copier Workroom	1	200	0
Student Support Center	1	400	400
Financial Secretary's Office	1	150	150
Staff Development Office	1	200	200
Security Office	1	150	0
Test Room	1	150	0
<u>Guidance Suite</u>			
Counselor's Office	4	150	0
Counselor's Office	1	150	150
Waiting Room	1	250	0
Conference Room	1	300	0
Records Room	1	125	0
Itinerant Staff Office	1	150	150

EDUCATIONAL SPECIFICATIONS

Facility	#	Net Sq. Ft.	Total Net Sq. Ft.
<u>Health Suite</u>			
Waiting Room	1	100	0
Treatment/Medication Area	1	125	0
Office/Health Assessment Room	1	100	0
Health Assessment/Isolation Room	1	100	0
Rest Area	2	100	0
Toilet Room	2	50	0
Storage	1	40	0
<u>Staff Facilities</u>			
Staff Room (Repurpose Existing Lounge)	1	1150	1150
Telephone Room	1	50	50
<u>Student Dining</u>			
Student Dining (Expansion to 6000 sf)	1	Add 1800	1800
Storage	1	300	300
Chair Storage	1	400	400
<u>Building Service Facilities</u>			
Plant Equipment Operator Office	1	75	75
Total Teaching Stations and Net Sq. Ft.	13		27835

EDUCATIONAL SPECIFICATIONS

The following should be designed as an Add Alternate if the preferred location of the addition impacts the existing modular building.

Infants and Toddlers Program	#	Net Sq. Ft.	Total Net Sq. Ft.
Reception Area		200	200
Coordinator's Office	1	250	250
Conference Room	1	450	450
Classroom (Includes 150 s.f. of storage)	1	900	900
Therapy Room	1	250	250
Staff Workroom	1	200	200
Staff Lounge	1	350	350
Telephone Room	1	50	50
Storage Room	1	250	250
Testing Storage Room	1	150	150
Waiting/Observation Room	1	150	150
Large Staff Office Area	1	2500	2500
Small Staff Office Area	1	250	250
Total			5950

EDUCATIONAL SPECIFICATIONS

GENERAL PLANNING CONSIDERATIONS

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

- The architect is expected to become thoroughly familiar with all national, state and local fire safety, life safety, and health code regulations and to follow applicable rules of the State Interagency Committee on School Construction.
- The building is to be accessible to the disabled within the meaning of the latest edition of the Americans with Disabilities Act and to conform to all the latest requirements of the *Americans with Disabilities Act Standards for Accessible Design*. (The regulation can be found at www.ada.gov/2010ADASTandards_index.htm)
- In addition to the ADAAG, the *Maryland Accessibility Code* (COMAR.05.02.02) also is required for public schools. (The regulation can be found at <http://mdcodes2.umbc.edu/dhcd/access.htm>)
- The facility is to reflect an appealing visual, acoustic, and thermal environment and is to be properly furnished and equipped. Well-chosen colors and textures are to be used. Lighting must meet current standards and provide adequate levels.
- High quality materials are to be used in the construction. The architect should refer to the MCPS Design Guidelines.
- The 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 entry foyer needs to convey a feeling of warmth and welcome.
- A location for an LCD screen and appropriate electrical and data outlets should be incorporated into the wall design of the administrative office or main entrance of the school.
- The inclusion of lighted showcases to display student work should be provided in the corridors of the main entrance, art, multipurpose laboratories, gymnasium, and in each grade level area. They should be recessed into the wall with access from within a room and have an electric outlet.

EDUCATIONAL SPECIFICATIONS

- Every teaching station, support space, and core area must be wired for computer, CCTV, and telephone, along with adequate electrical supply in compliance with Maryland State design guidelines for Technology in Schools and the MCPS Office of the Chief Technology Office (OCTO) guidelines. Facilities must be adaptable to accommodate rapid development in high technology and its equipment since educational program and organization in this field are dynamic. Space and power supply must be flexible to meet these changing needs.
- 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. For maximum instructional flexibility, large special instruction areas such as those provided for general music and multipurpose laboratories should be designed to allow easy conversion of some or all of the space for other kinds of instruction in the future.
- 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.
- 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.
- 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.
- For security purposes, all doors into classrooms, conference rooms, offices etc. must have a sidelight window with shades. If a sidelight is not possible, then the door requires a vision panel.
- 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.
- Bathrooms should be located throughout the building. Bathrooms should be central to the classrooms, with some provided for each grade level area. Student bathrooms also must be located near the cafeteria and main gym.
- Adult bathrooms must be provided on all levels convenient to instructional areas and must conform to the latest code requirements.

EDUCATIONAL SPECIFICATIONS

- The architect must design all athletic/physical education facilities to reflect equitable facilities for boys and girls based on Title IX requirements.
- The room numbering system should be logical and understandable.

- Blinds capable of darkening to be used in instructional areas, including seminar and conference type spaces, with complete darkening in all science rooms should be provided.

- The location of whiteboards and tackboards should relate to classroom seating and windows. The location of bulletin boards and showcases should relate to team groupings and administrative areas.

- The number of lockers in the corridor should be equal to the core capacity plus 10% of the core capacity.

- Landscaping is to be included. Planting is to include screen planting and that needed for erosion control. Plantings for sidewalks, and wooded and flowered areas, are to be situated to enable the physical education program to be carried on without undue disturbance to the classrooms. Other landscaping to support energy conservation and to relate the building to the site with aesthetic appeal must be included. Note: Landscaping must be minimal, tasteful and allow for easy maintenance.

- 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 student occupied spaces must be able to be supervised from the corridor or an adjacent space.

- 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.

- 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.

EDUCATIONAL SPECIFICATIONS

- Metal adjustable shelving is to be provided in all building storage closets.
- All plan reviews will be coordinated through the DOC.
- 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 23.03.02.29, *Emergency Power Generation*, all school projects that include replacing or upgrading the electrical system should be designed and constructed so that a designated public shelter area can be fully powered in the event of an emergency.

EDUCATIONAL SPECIFICATIONS

TECHNOLOGY FRAMEWORK

The latest technology should be integrated into every aspect of building. The architect should consult with the Office of Strategic Technology and Accountability (OCTO) and the Division of Construction (DOC) for the latest technology requirements. The architect must at a minimum plan for the following elements.

- Through the use of wireless access, local area and wide area computer and video networks, students should have access to each other, to schools throughout the county with similar capabilities, and to universities and government institutions throughout the world.
- Multiple outlets should be added in all common areas of the school to provide areas for charging mobile devices.
- Each classroom is to have one dedicated 20 amp electrical circuit for a charging mobile laptop cart.
- Each classroom will have a promethean board at the teaching wall and CNO for the teacher's computer.
- Computer network outlets (CNOs) consisting of a flush mounted standard electrical box with 1 1/2" conduit to the ceiling space overhead should be located in all classrooms, offices, and other work locations according to the following general rules:
 - one CNO per office, staff office, planning room, etc. adjacent to telephone outlet
 - Two CNOs for student use located 3' apart along the back or side wall in each classroom.
 - Multiple CNOs in media center at circulation desk, reference areas, etc.
 - One CNO at each science lab workstation
 - All other areas such as the stage, bookstore, dining room, etc., where computers might be used.
- The number and location of telecommunication closets required to support the building-wide computer network is dependent on the size and geometry of the building. The layout of the telecommunication closets will be determined during the design phase of the project.
- Provisions for high-resolution fiber optic cable for television must be included in the design of all teaching stations.

EDUCATIONAL SPECIFICATIONS

DESCRIPTION OF FACILITIES

The following is an approach to the design of new and modernized schools. Please refer to the summary of spaces 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 allowed.

STANDARD CLASSROOMS

- Classrooms should be arranged to support the grade level team organization for middle schools. Each grade's area of the building also will have two or three science laboratories and various instructional support spaces.
- Each classroom should be designed to support flexible furniture arrangements that will support a variety of teaching and learning models.
- A lockable teacher's closet is to be provided for general supply storage, personal storage, and wardrobe.
- Every classroom must have computer outlets for two student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE *Maryland Public School Standards for Telecommunications Distribution System*.
- Book storage should be located along the window wall with half of the cabinets equipped with hinged, lockable doors. A minimum of 60 linear feet should be provided for book storage.
- Each classroom should have between 48 and 60 feet of whiteboard. The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- Map rails and tack rails are to be placed above all whiteboards. One flag holder attachment is to be placed on all map rails with four to six map holders.
- Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- Battery operated clocks will be installed.

EDUCATIONAL SPECIFICATIONS

SCIENCE LABORATORIES

Spatial Needs
Laboratory
Preparation Room
Chemical Storage

- Science laboratories should be designed in pairs, within team areas, with a preparation room preferably between pairs of labs.
- If the science labs are on separate floors of the building, they should be located near an elevator.
- The teaching wall should be on one of the long walls of the laboratory.
- Space should be designated in the laboratory to charge 2-3 laptop carts.
- The architect also should refer to the MSDE document, *Science Facilities Design Guidelines, 1994* when designing the science laboratories.
- These rooms serve as a lecture/laboratory space and should be equipped with the basic equipment as listed below.
- Each science lab should have two exits.
- Seven student lab stations should be provided in an island, trough style design, with hot and cold water, electricity, and gas are to be provided.
- One mobile bench (dry sink type) should be located under windows in each lab to facilitate work with plants.
- A three by five foot demonstration table should be located at the front of the room, but should not block the student view of the Promethean board. This demonstration table should be equipped with a stone sink, hot and cold running water, gas, and electricity.
- Twenty-four feet of whiteboard and adequate tackboard are required. Wiring for a promethean board should be provided in the center of the whiteboard.

EDUCATIONAL SPECIFICATIONS

- Two four foot project cabinets and two four foot storage cabinets, all lockable, are to be located in each room.
- All rooms are to be capable of complete darkening.
- One installed fume hood with full utilities (water, sink, gas, and light) is needed in each laboratory that fits in a cabinet (24" x 36"). A pass-through fume hood, shared with the prep room may be considered.
- A safety station is to be installed, with shower, automatic shut-off eyewash, and drain with a sloped floor, and should accommodate persons with disabilities. The shower and eyewash should have a spring loaded mechanism.
- The safety station should be located fifteen to twenty feet away from the fume hood.
- Each room should be wired for tie-in to the school computer network at each lab station.
- There should be a master cutoff switch for gas, water, and electric in each room. The master cutoff switch should be strategically located so that it is not overly accessible to students, and should not be located near the exit door of the classroom. The cut-offs should operate electrically (as panic buttons) with a visible light indicator for gas and electric.
- In accordance with ADA guidelines, at least one science lab station in each laboratory should be made accessible to individuals with disabilities.
- Cabinetry for storage of laboratory equipment and microscopes should be provided in all of the labs.
- A sanitizing goggle cabinet, with 36 goggles, should be provided for all labs.
- A teacher's wardrobe should be provided.
- A location should be identified for a file cabinet.
- Locks with a common key are to be provided on drawers in special areas and the teacher demonstration table.
- Two pull-down electrical outlet fixtures should be provided in each lab: one in the center, one in the rear.

EDUCATIONAL SPECIFICATIONS

PREPARATION ROOMS

- These rooms are to facilitate the preparation of student projects and short-term storage of projects, as well as to provide general storage.
- Each room is to contain adjustable locked storage and counter facilities, electrical hookup and space for a refrigerator.
- Easy accessibility to the science rooms is important and is a required for visual control of the rooms from adjacent rooms.
- These rooms should contain sinks equipped with hot and cold running water and a floor drain and workbenches equipped with electrical and gas outlets.
- Space and utilities should be provided in each prep room for a dishwasher.
- Emergency shut-off and telephone should be located in the chemical storage and prep room only.

CHEMICAL STORAGE ROOM

- This storage room should be located adjacent to the 7th and 8th grade science labs and must meet code requirements for chemical storage including:
 - The chemistry storage room requires a steel flammable storage cabinet, with outside power vent, and an acid cabinet.
 - This room should be located adjacent to the chemistry prep room.
 - This room must have a 24-hour, 365 day per year exhaust system vented directly to the outside in compliance with the latest applicable codes.
 - Sturdy, wood, and chemical resistant shelves with safety anti-roll lips on each shelf to prevent accidental roll-off.

EDUCATIONAL SPECIFICATIONS

INSTRUCTIONAL SUPPORT ROOMS

Spatial Needs
Team Workroom
Interdisciplinary Textbook Storage Room
Departmental Textbook Storage Room
Foreign Language Textbook Storage Room
Instructional Data Analyst Room
Developmental Reading Room
ESOL Classrooms
PYD Offices
PYD Conference Room

TEAM WORKROOM

- Two team workrooms are to be provided for each grade level, providing space in each for teacher desks or a large conference table.
- These rooms should be located next to each other and have an interconnecting door and a 4' x 6' window with blinds between one another.
- A telephone will be located in these rooms.
- Storage and open/closed bookshelves to store teaching supplies and instructional materials should be provided.
- A work counter with sink and electric outlets is needed.
- Three feet of tackboard and four feet of whiteboard are required.
- Wiring for four computers in each team room is required.

EDUCATIONAL SPECIFICATIONS

INTERDISCIPLINARY TEXTBOOK STORAGE ROOM

- An interdisciplinary textbook storage room is to be provided for each grade level and is to be easily accessible from the classrooms and the team workroom and should have adjustable built-in shelving.
- These rooms must have adequate HVAC and lighting for flexible use by staff as office space.
- Secure storage for computers should be provided within this space and should include adequate electric power for recharging battery powered laptop computers.

DEPARTMENTAL TEXTBOOK STORAGE ROOM

- Three departmental textbook storage areas are to be provided with the same requirements as the interdisciplinary textbook storage rooms.

FOREIGN LANGUAGE TEXTBOOK STORAGE ROOM

- A foreign language textbook storage room must be centrally located for foreign language materials.
- It needs to have adequate HVAC for flexible use as office space for staff.

INSTRUCTIONAL DATA ASSISTANT ROOM

- Secure storage for school-wide records and materials should be included.
- The room should be wired for a computer with printer.
- This room needs a telephone.
- A tackboard should be installed.
- This room should be located near the Testing Room.

EDUCATIONAL SPECIFICATIONS

DEVELOPMENTAL READING ROOM

- The developmental reading room should be centrally located.
- This classroom needs 15 computer stations along two walls.
- A standard teaching wall should be provided per MCPS Facility Guideline Specifications.
- Tables for 20 students should be provided in this classroom.
- Storage should be provided under the windows.
- Two 4' tackboards should be provided in this classroom.

ESOL CLASSROOMS

- The ESOL classrooms should be located in the academic areas of the building and be designed with the same requirements as a regular classroom.

POSITIVE YOUTH DEVELOPMENT OFFICES

- These offices should be designed similarly to other offices within the building.
- The offices should be located near the PYD conference room.

POSITIVE YOUTH DEVELOPMENT CONFERENCE ROOM

- This room will serve small intervention groups of approximately ten students at a time.
- This conference room should be designed similarly to other conference rooms within the building.
- The room should be located in a quieter part of the building.

EDUCATIONAL SPECIFICATIONS

SPECIAL EDUCATION FACILITIES

Spatial Needs
Special Education Classrooms
Team Workroom
Resource Room
Speech and Language Support Room
Occupational Therapy/ Physical Therapy Room
Storage (textbooks and instructional materials)
File Space (Secured)

SPECIAL EDUCATION CLASSROOMS

- The special education classrooms should be located in the academic areas of the building and be designed with the same requirements as regular classrooms.
- See the Additional Program Requirements section for specific special education programs at this school.

TEAM WORKROOM

- The team workroom should be designed exactly like the team rooms in the regular education areas but should be located adjacent to the support suite.

RESOURCE ROOM

- The special education resource room needs open shelving, counter space, and closed storage.
- The room should be designed similar to a standard classroom.
- It should be located in association with the academic classrooms.

EDUCATIONAL SPECIFICATIONS

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.
- The speech room requires a sink with counter space.

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, with a 6 foot diameter clear space for hanging swings and other suspended equipment.
- 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.

EDUCATIONAL SPECIFICATIONS

MUSIC SUITE

Spatial Needs
Instrumental Music Room (with approximately 400 sq. ft. of perimeter storage)
General/ Choral Music Room
General/ Choral Storage Room
Music Office
Practice Rooms

- The music area should be at the same level as the stage, if possible, to facilitate the movement of equipment from the music rooms to the stage.
- Each room is to be acoustically isolated from the rest of the school and the general/choral and instrumental areas separated by an acoustical barrier or wall with a Sound Transmission Classification (STC) of 50 or more.
- Listening is an important skill related to music education, and thus the need for quiet ventilation. Therefore, noise criterion (NC) levels of lighting and ventilating systems must not exceed NC 25 for the large rehearsal rooms and NC 30 for the practice rooms
- Both music rooms must have access to all computer technology including the LAN, and be equipped for a multimedia station.
- A water fountain should be located in the choral and instrumental music room.

INSTRUMENTAL MUSIC

- The instrumental music room must have a level floor.
- The specified 1,900 square feet is a minimum requirement and must not be reduced to accommodate other design needs.
- 400 square feet of the instrumental music room should accommodate Wenger type instrument storage for assorted size instruments around the perimeter walls of the room. The room depth may be varied if it will provide better acoustics.

EDUCATIONAL SPECIFICATIONS

- Acoustical treatment and carpeting is needed so that the room is sound engineered for a band with maximum size of 80 members and a decibel level in the safe range, keeping in mind that the typical band produces decibels in the 100-120 range.
- A 16-foot ceiling is necessary to obtain proper volume.
- No supporting pillars or fabric folding doors are to be used in the room.
- An outside entrance should be near, but not in, the music suite if possible.
- Approximately 80 square feet should be devoted to an acoustically treated room located in the rear and side area that can double as two practice rooms and for percussion storage. A four-foot door and security lock should be provided so that heavy equipment may be rolled out for rehearsals and rolled back into the room for night storage.
- A standard teaching wall should be provided per MCPS Facility Guideline Specifications.
- Bookcases and a music folder cabinet should be included on one side of the room. The band music folder cabinet should be horizontally slotted with 150 slots to hold 14" x 12" folders with facilities for numbering each compartment.
- Two microphones should be hung from retractable ceiling mounted fixtures for use with recording equipment.
- A sink with countertop is needed for cleaning instruments.

GENERAL/CHORAL MUSIC ROOM

- The general/choral music room is to have a ceiling of approximately 16 feet.
- The dimensions should be approximately 38' x 27'.
- The entrance should be a double-entry door.

EDUCATIONAL SPECIFICATIONS

- The room is to seat approximately 70 students and be on one level.
- A standard teaching wall should be provided per MCPS Facility Guideline Specifications.
- Heavy-duty ceiling tiles should be used to assure maximum loss in sound transmission. Acoustical treatment is to provide a sound transmission loss of at least 50 decibels and a reverberation time of between 1.2 and 1.6 seconds.
- Adequate ventilation is needed.
- A music folder cabinet, horizontally slotted, with locking doors, with at least 100 horizontal compartments (15 inches high, 2 inches wide), and with facilities for numbering each compartment is required.

GENERAL/CHORAL STORAGE ROOM

- The general/choral storage room should be adjacent to and have access from both the general/choral room and the instrumental music room.
- Cabinetry must be adequate to store 20 electronic keyboards and 32 guitars in spaces 6 inches high, 40 inches deep, and 16 inches wide.
- The room should be arranged so that a portion of it may be used as a practice room with a piano, as a storage area for choral music file cabinets, and for storage for drums, etc.
- Maximum-security doors with upgraded locks are to be provided.
- A four-foot door is required.

MUSIC OFFICE

- The music office must be located between the instrumental and the general/choral room with windows to allow for supervision into both classrooms.
- A telephone is to be provided.
- Cabinetry is to be provided for storage.

EDUCATIONAL SPECIFICATIONS

PRACTICE ROOMS

- These rooms need to be acoustically treated for isolation and reverberation.
- Rubber seals for sound proofing and thick solid doors to reduce sound transmission should be used.
- The doors need windows to allow for supervision.
- These rooms should be located with easy access to both the instrumental and choral rooms.

EDUCATIONAL SPECIFICATIONS

VISUAL ARTS SUITE

Spatial Needs
Art Room
Storage
Kiln Room

The visual arts suite should be designed with outside doors to an art courtyard from the teaching station, if possible, and with the storage/office and kiln room adjacent to the classroom.

ART ROOM

- The room is to have adequate natural and artificial lighting and views as well as access to the outdoors.
- Ceiling track lights are to be provided with six to ten spotlights.
- Cabinetry and wall colors should be neutral.
- The design of the room must allow for placement of the art tables with adequate space between the tables for good circulation.
- Entrance doors must clear 36 inches.
- A lighted display case should be located in the hall outside the art room.
- An 8' W x 8'H tackboard with open space below for drying racks should be provided.
- Tackboards should be provided on the walls, as much as possible.
- A 4-6' wide bank of cubbies (height may vary) to accommodate 32 student backpacks and notebooks should be provided.

EDUCATIONAL SPECIFICATIONS

- Three large stainless steel sinks (18" x 40" x 14") should be provided in the room. Each sink will have solid waste traps, two drains, two lever-controlled hot and cold faucets, adequate approximately 3' of counter space for storage on either side of the sinks, and wall cabinets above (if sinks are not on an island). One sink needs to be ADA accessible. The counters should be made of a
- A standard teaching wall should be provided per MCPS Facility Guideline Specifications.
- Additional tackboard should be provided to ceiling and on the sides as space permits.
- Open space should be provided near the sink for potters' wheels.
- Ample electrical outlets, approximately every 4' should be provided.
- Open and closed shelves are to be provided for storage of art projects, flammable materials, and reference books.
- Open space is to be provided in the art room for three banks of flat files cabinets (stacked) and two drying racks. 5-drawer flat file units are 40 ¾"W x 15 3/8"H x 28 3/8"D x 2" drawer depth. (NIC)
- Blackout shades are to be included on windows.

STORAGE ROOM

- This room should be designed with windows to the art room.
- As much open 24" deep shelving as possible should be provided in this room.
- Space should be provided for a teacher's wardrobe and a filing cabinet.
- Immediately inside the entrance, a worktable 6-feet wide, 30 inches tall, 34 inches deep should be provided with built-in adjustable shelves below and 14-inch deep wall hung shelves 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).
- The storage room door should be lockable.

EDUCATIONAL SPECIFICATIONS

KILN ROOM

- This room should be equipped with space and utilities for 2 kilns (to be included) and an exhaust fan hood.
- As much 18" deep, tall, adjustable metal shelving should be provided.
- A 36"W x24"D spray booth with exhaust and cabinets below should be provided.
- A small worktable with shelves above and below is needed.

EDUCATIONAL SPECIFICATIONS

MULTI-PURPOSE TECHNOLOGY

Spatial Needs
Multipurpose Technology Laboratory
Computer Technology Laboratory
Preparation Room

- Sufficient lighting to create shadow-less work surfaces.
- Ample electrical service and receptacles to accommodate computers, machines, and portable electric tools. Sufficient service shall be provided to accommodate flexibility within the studio with tabletop machinery and overhead pull-down receptacles, providing for machines and portable electric hand tools.
- If floor receptacles are provided, they shall be flush.
- Hallway walls should include interior glass for viewing into the laboratory.
- Windows starting 36" from the floor should be provided between all of the rooms in this suite.

MULTIPURPOSE TECHNOLOGY LABORATORY

- Electrical and data outlets should be provided on the teaching wall for a Promethean Board.
- Adequate ventilation system to remove airborne dust is required.
- Floor covering shall be non-slip tile.
- Three emergency control switches. One switch in the lab, one just outside the lab and the third located in the teacher's office with a key to restore power.
- The room requires whiteboard and tack board.
- This laboratory requires a wash-up sink.

EDUCATIONAL SPECIFICATIONS

- Shelving should be provided around the perimeter of the room for student project storage. The shelving can be located below workbenches and overhead if there are no tools being used in that area.
- Small tabletop machinery shall be installed along the perimeter of the laboratory. The height of these counters should be 24".

COMPUTER TECHNOLOGY LABORATORY

- This room should be location adjacent to the Multipurpose Technology Laboratory.
- 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.

EDUCATIONAL SPECIFICATIONS

PREPARATION ROOM

- The preparation room should be located next to the Multipurpose Technology Laboratory.
- The door and wall should have windows into the Multipurpose Technology Laboratory to allow for supervision by the staff.
- One side of the room should be designed have a counter with wall and base cabinets.
- Storage area will be equipped with steel shelves and cabinets capable of storing a variety of instructional materials, supplies, special tools, equipment, and student projects.
- A small lumber rack is necessary for storage of lengths of lumber and metal.

EDUCATIONAL SPECIFICATIONS

MULTI-PURPOSE LABORATORY

Spatial Needs
Multipurpose Laboratory
Storage Room

- This space will be designed for flexible use by art, family and consumer science, and other elective courses.
- The design should include full computer access so that the space could be used as a computer laboratory.
- The teaching wall should be designed according MCPS Facility Guideline Specifications.
- Perimeter counters should be provided along one or two walls of the laboratory with wall and base cabinets.
- Adequate electrical service and receptacles to accommodate computers, small and large appliances, and other electric machines are essential.
- Access from the laboratory to the storage room is needed.
- A kitchen area should have three kitchen units, (to be placed along one or two adjoining walls) each containing the following:
 - Eight feet of countertop space including a stainless steel sink;
 - Lockable base and wall storage with hinged doors, with a minimum amount of drawer space (2 drawers per kitchen);
 - Wall oven;
 - Ample electrical outlets along the counter to be used for small appliances and induction type stoves;
 - Hot and cold water;
 - One of the kitchens should be ADA accessible;
 - One safety eyewash station should be provided in the lab; and
 - Space for two residential refrigerators, accessible to the kitchens should be provided.

EDUCATIONAL SPECIFICATIONS

STORAGE ROOM

- The storage room should have the following:
 - Lockable door with access to the teaching station;
 - The room is to be equipped with metal shelving secured to the perimeter walls;
 - Space and electrical and plumbing requirements should be designed for a heavy-duty washer and wall-vented dryer;
 - Perimeter counters should be adjacent to the washer/dryer and be a minimum of 24" deep;
 - Space for one residential refrigerator and one residential freezer; and
 - A sink.

EDUCATIONAL SPECIFICATIONS

PHYSICAL EDUCATION

Spatial Needs	#	Sq. Ft.	Total
Gymnasium (equals 2 teaching stations)	1	6800	6800
2nd Gymnasium	1	3200	3200
Fitness/Weight Room	1	1600	1600
Auxiliary Gym	1	1600	1600
Health Classroom	1	1800	1800
Locker Rooms	2	1650	3300
Storage Rooms	2	100	200
Toilet Rooms	2	150	300
2nd Gym Storage Room	1	300	300
Shower/Drying Rooms	2	250	500
Laundry Room	1	150	150
Offices	2	300	600
Common Planning Area	1	200	200
General Storage	2	650	1300
Outdoor Storage	1	200	200
ICB Storage	2	100	200

- Major entrance doors to the gymnasiums and locker rooms should be double doors with no center posts. Non-glazed doors throughout the entire area are preferred.
- Doors should be forty-eight inches wide.
- Storage closets should have no center posts and should be able to be held open to allow for easy movement of equipment.
- If design allows, operable windows in the gymnasium should be provided.

EDUCATIONAL SPECIFICATIONS

GYMNASIUM

- The gymnasium is to have a wooden floor.
- The gymnasium requires fiberglass electrically operated folding bleachers to seat one-third of the maximum projected enrollment along one long side, leaving an area of 65 by 100 feet when folded.
- A 27-foot clear ceiling is required.
- An electrically operated folding partition with pass-through door is to be installed with convenient controls. The folding wall should fold to the bleacher side.
- Fixed equipment will include the following:
 - Climbing ropes (2 with knots, 2 without knots)
 - High bar with floor plates
 - Insertion type (Senoh only) floor plates for volleyball and badminton game standards and gymnastic equipment (Senoh only) red aluminum combination uprights that work for both volleyball and badminton, therefore only requiring one size of poles and one size of sleeves. Each side of the gymnasium should be designed for four badminton/volleyball courts for a total of eight small courts.
 - Wooden rings with hoist and safety straps
 - Floor plates for uneven bars
 - Scoreboard
 - A clock with cage at each end of the gymnasium
 - Archery net, the full width of the gymnasium, with hoist on non-bleacher side

EDUCATIONAL SPECIFICATIONS

- Six basketball baskets, with safety straps. Four should be cross-court. The two end baskets should have rectangular glass backboards and hydraulic rims. All baskets should be motorized and adjustable with key. There should be no doors under the basketball goals.
- Wall safety padding must be mounted under each basket.
- Provisions for reducing glare should be considered.
- Shielded metal halide lighting should be provided.
- Acoustics should be addressed.
- It is particularly important that ventilation function equally and quietly on both sides of the folding partition.
- All switches, fire alarms, etc. should be located in corners, covered with wire boxes, and be duplicated on each side of the folding partition.
- Each wall of the gymnasium should have four sets of electrical outlets.
- Painting and creative artistic wall graphics should be provided.
- The gymnasium should be equipped with acoustical deck, computer and cable hookups and sound system.
- A location should be identified for a Promethean Board including the appropriate power and wiring.
- A 4' whiteboard should be provided on both side of the folding partition wall.
- A recessed water fountain should be provided outside each end of the gymnasium or integrated into an alcove within the gymnasium.
- A lobby with display case, bulletin board, and small storage closet should be provided adjacent to the gymnasium.
- Security doors should be provided to close off other parts of the building from the gymnasium/lobby areas.

EDUCATIONAL SPECIFICATIONS

- If the gym opens to the outside, a step-down entrance with concrete landing is needed.
- Emergency lights should be at least 12 feet from the floor.
- MCPS staff will provide gymnasium court markings.
- Plug-in service for score table controls shall be provided in the floor and need to be flush. Controls must be accessible when bleachers are in the open position.
- Attention should be given to the design of lighting fixtures so that they will not be damaged by indoor ball sports.

2ND GYMNASIUM

- The 2nd gymnasium is to have a wooden floor.
- A 27-foot clear ceiling is required.
- Fixed equipment will include the following:
 - Insertion type (Senoh only) floor plates for volleyball and badminton game standards and gymnastic equipment (Senoh only) red aluminum combination uprights that work for both volleyball and badminton, therefore only requiring one size of poles and one size of sleeves. There should be four smaller badminton/volleyball courts in this gym.
 - A clock with cage at each end of the gymnasium
 - Two end baskets should be motorized and adjustable with key. There should be no doors under the basketball goals.
 - Wall safety padding must be mounted under each basket.
 - Provisions for reducing glare should be considered.

EDUCATIONAL SPECIFICATIONS

- Shielded metal halide lighting should be provided.
- Acoustics should be addressed.
- All switches, fire alarms, etc. should be located in corners; covered with wire boxes each wall of the gymnasium should have four sets of electrical outlets.
- Painting and creative artistic wall graphics should be provided.
- A 4' whiteboard should be provided in this gymnasium.
- The gymnasium should be equipped with acoustical deck, computer and cable hookups and sound system.
- A location should be identified for a Promethean Board including the appropriate power and wiring.
- A recessed water fountain should be provided outside each end of the gymnasium or integrated into an alcove within the gymnasium.
- Security doors should be provided to close off other parts of the building from the gymnasium/lobby areas.
- If the gym opens to the outside, a step-down entrance with concrete landing is needed.
- Emergency lights should be at least 12 feet from the floor.
- MCPS staff will provide gymnasium court markings.
- Attention should be given to the design of lighting fixtures so that they will not be damaged by indoor ball sports.

FITNESS/WEIGHT ROOM

- The fitness/weight room should be located adjacent to the gymnasium area and the lockers rooms and have sixteen-foot ceilings.
- Direct access to the corridor is desired.

EDUCATIONAL SPECIFICATIONS

- Projections, posts, or other hazards are to be avoided.
- An electric deodorizer system and an excellent ventilation system must be provided.
- This room requires rubberized, resilient floor for weight training.
- 6'x12' mirror should be mounted on one wall of the weight room.
- A climbing wall should be installed along the other long wall of this room (need to confirm length of the wall)
- Pull-up chin-up bars and pegboard (6'x3') should be in this room.
- Electric outlets should be located on all four walls.
- A small recessed lockable closet with shelving should be provided.
- A small 6' x 4' tack board and whiteboard are to be installed.
- Colored acoustical panels, auxiliary stereo sound system, audio and computer hookups and clocks with cages should be provided in this room.
- Wall graphics are to be specified by MCPS staff.
- Light switches are to be keyed.

AUXILIARY GYMNASIUM

- The auxiliary gymnasium should be located adjacent to the gymnasium area and the lockers rooms and have sixteen-foot ceilings.
- Direct access to the corridor is desired.
- Projections, posts, or other hazards are to be avoided.

EDUCATIONAL SPECIFICATIONS

- Sheet vinyl flooring should be provided. (Need to look at flooring type for aerobics and scooter and other multipurpose space. Scooter games is popular in this space)
- The room should be able to accommodate mats for wrestling and other fitness activities.
- Colored acoustical panels, auxiliary stereo sound system, audio and computer hookups and clocks with cages should be provided in this room.
- An electric deodorizer system and an excellent ventilation system must be provided.
- Electrical outlets should be provided around the room.
- MCPS staff will provide paint colors and wall graphic layout.
- A sound system with the control panel should be installed in the storage closet.
- Light switches are to be keyed.
- A keyed electric hoist system must be installed to move and store wrestling mats.
- A water cooler must be located in the hallway near this room.
- A small white board (4' x 6') and tackboard (4' x 6') should be installed.
- A battery operated clock with protective cover should be installed approximately 9' high.

GENERAL STORAGE ROOM

- The general storage room should be located in the gymnasium and needs to have the same ceiling height as the gymnasium. The general storage also needs to be easily accessible from the auxiliary gymnasiums and second gymnasium.
- Mats, gymnastic equipment, and other physical education materials and equipment need to be accommodated.
- A small intramural athletic coordinator storage closet is needed near the gym (separate key).

EDUCATIONAL SPECIFICATIONS

- Two doors, each four feet wide and seven feet high with no thresholds or center mullions and heavy-duty hardware are required for the interior storage rooms.
- An outside storage area requires double doors that need to be seven feet high.
- All storage areas should include shelves, bins, pegs, and pulley system for storing goals.

ICB STORAGE

- These storage rooms are for use by community groups and should be in or near the main gymnasium and 2nd gymnasium.
- It should include shelving on one wall as well as space for badminton and volleyball uprights.
- This room needs to be keyed separately.

LOCKER ROOMS

- The locker rooms need to meet the following requirements:
 - Interior double door entrances with maze to block vision into space must be designed.
 - The locker rooms need an outside exit for use by physical education classes. This exit door must be keyed for re-entry by classes.
 - A "step-down" with concrete landing should be planned.
 - Some shelves should be provided near the entrance to the locker room for student books.
 - Male and female locker rooms should be adjacent and located on the same floor so that the Physical Education Offices can have a connecting door and common connected planning room.
 - Locker space should handle a total of 1,440 lockers evenly divided between male and female locker rooms. All lockers are to have padlocks and be 3 tiered 12" x 12" x 24". Locker rows should be situated for maximum supervision from the PE office area and be no higher than six feet.
 - Several lockers with key-entry are needed for ADA accommodations.

EDUCATIONAL SPECIFICATIONS

- The locker rooms are to be well ventilated and include a deodorizer system.
- Clocks, tackboard, PA, and a water cooler must be provided in each locker room.
- Benches used for dressing purposes are to be secured to the floor with a single bench between locker rows.
- Full-length mirrors are to be provided on the ends of each locker bank with convenient electrical outlets.
- The locker room should reflect school colors.
- Storage within the locker area is to be near the office and should accommodate various physical education supplies, equipment, and furnishings. Shelving with bins and hooks will be specified later. Shelving must have lip to keep balls from falling.
- A hose bib should be located in each locker area. Appropriate drainage of the locker area is required.
- The floor surface must be a non-skid surface but smooth enough for thorough cleaning. VCT/rough surface tile is preferred.
- Toilet rooms are to be located in each locker area and are to contain lavatories, water closets, and/or urinals.
- Mirrors are to be installed over sinks.

SHOWER/DRYING/TOWEL ROOM

- The shower area should be well ventilated and free from hazardous projections.
- Each shower room is to have three individual showers and one handicapped accessible shower, with modesty panels, a nonskid floor surface and recessed soap dishes.
- A central lockable cut-off valve for the showers must be provided in each locker room.
- The drying room, with nearby towel storage, should be located between the shower room and locker room and have wall hooks and a nonskid floor surface, preferably tile.

EDUCATIONAL SPECIFICATIONS

LAUNDRY ROOM

- A laundry area with floor drain for a commercial washer and dryer and laundry tub should be included with shelving for towel storage.
- This room should be located between or with easy access from both locker rooms.

OFFICES

- The offices need to be centrally located with access to both male and female locker rooms, have windows with blinds for effective supervision of the appropriate locker room and have VCT floors.
- Each office requires a separate shower, toilet, sink, mirror with shelf over sink that is large enough to use as changing areas for the physical education staff.
- Six full-length lockers and a full-length mirror also should be provided.
- Storage is required for the offices.
- The offices need to be air-conditioned.
- Each office requires space for four desks with appropriate telephone, electrical and computer outlets and tackboards.
- A clock should be provided in each office.
- Each office is to be separated from the other office by a common planning room with access to both the common planning area and the hallway to the gymnasium.

EDUCATIONAL SPECIFICATIONS

COMMON PLANNING ROOM

- The common planning room requires access from both PE offices and the hallway.
- This space needs to be designed with locking kitchen type casework, counter with cabinets above and below, clock, phone, computer outlet, tackboard, and whiteboard.
- The space should be large enough to allow for a small conference table with six to eight chairs.

HEALTH CLASSROOM

- The health classroom should be designed with the same specifications as all academic classrooms.
- This classroom needs to be located in close proximity to the physical education suite since the health and physical education teacher may be the same person and may have to supervise the locker room.

EDUCATIONAL SPECIFICATIONS

COMPUTER SUPPORT

Spatial Needs
Storage Room/ Office Area
Telecommunication Equipment Closets
Telecommunication Closets

□ A secure storage room/office area is provided for storage of software and instructional materials. The combination storage room/office area is to be located near one of the computer laboratories and to be wired for building-wide network access. This room may house multiple file servers.

EDUCATIONAL SPECIFICATIONS

INSTRUCTIONAL MEDIA CENTER (IMC)

Spatial Needs
Reading Room
Listening Viewing Project Area
Direct Instructional Area
Workroom/ Materials Preparation
Office
Technology Information Access Center (on-line)
Storage, Media General (main floor)
IT Systems Specialist Room
Storage (upper/other floor)

ADMINISTRATIVE AREA

- The circulation desk needs to be near the entrance but not so close that it interferes with the security system.

- Aesthetically pleasing low barriers need to be provided on both sides of the security system entrance. The circulation desk should be designed to incorporate these features:
 - at least two workstations capable of supporting the automated circulation systems;
 - a book/materials return slot and chute with a movable book return truck built in;
 - shelving units with sliding doors;
 - a storage area for book return carts;
 - built-in file cabinets drawers;
 - supplies drawers;
 - a writing area unit;

EDUCATIONAL SPECIFICATIONS

- an area for a laser printer and supplies.
- The IMC is to be planned as an integral feature of the school, centrally located within the instructional center of the school. It must be easily accessible from the outside and should be located on the main or first floor of the building.
- The front height of the circulation desk should not exceed 39".
- The workroom and media production areas are to be located directly in back of the circulation desk but separated by a wall with windows and a door.
- The office areas should be close to the circulation desk and provide for visual contact with the general reading resource area and the security system.
 - The office is set aside for use by media center staff for administrative duties, teacher conferences, and office routines. It is to be located adjacent to the preparation area and the reading (resource) area and is to contain a three shelve storage unit, six feet in length, with a counter top above the shelving unit. Space is needed for a desk and a computer workstation. A lockable storage cabinet should be provided.

INFORMAL READING AREA

- The reading room provides for the circulation desk, displays, area for the reading and browsing of newspapers, magazines, fiction, and nonfiction materials.
- Lighting should be over the stack aisles and aligned for easy reading of books and titles.
- Shelving and shelves must be wooden with 1200 linear feet for print material and 220 linear feet for non-print material.
- At least one additional unobstructed CCTV receptacle (44" above finished floor) with electrical outlet must be provided.
- Comfortable seating should be provided for students to read.
- A small informal reading area near the current magazines should be provided.

EDUCATIONAL SPECIFICATIONS

INSTRUCTIONAL AREA

- A special configuration for directed instruction and independent workstations to house 15 computers and applicable networked printers should be provided.
- Two projection screens should be installed in the main reading room for group presentations including traditional and technologically delivered instruction.
- A CCTV receptacle, computer networking (LAN) access and whiteboard with tack strips above it should be provide in the area that will be used for classroom type instruction.
- Zone lighting with independent switches should be provided so that audiovisual equipment may be used in the instructional area without affecting the circulation and book stack areas.

STUDY AND RESEARCH AREA

- In addition to the usual electrical outlets on perimeter walls under bookshelves, there should be at least two double outlet plugs in the floor or in columns or "towers" of the main reading room area to provide flexibility in placement of the computers that will serve as the catalog system.
- Space should be allocated for at least four computer workstations and a networked printer to access the catalog system.
- Five computer workstations are needed for directed instruction in the use of on-line systems and data retrieval. It should provide visual access to screening LCD displays or rear screen projection. All workstations in the configuration should be capable of viewing the display.
- Two small group work areas that will allow for students to be visually supervised, but work independently on multimedia/telecommunication projects. This area may be closed off and made without interfering with the security system.
- The on-line information retrieval area (a designated section of the Reading Room) is to be used to conduct on-line computer searches of the DIALOG system and other databases and for instruction in the use of this retrieval method.

EDUCATIONAL SPECIFICATIONS

PRODUCTION AND GROUP PROJECT AREA

- The workroom media production area provides for the preparation of several types of instructional materials, such as transparencies, slides, and charts.
- It is to contain a sink, cabinet, and ample worktops for student and teacher use.
- This area also provides for ordering, receiving, and processing of all materials and equipment.
- Shelving, cabinets and counter spaces are required.
- One unit of the cabinet should be able to contain large prints and supplies. Counter space should be designed for two workstations for file servers and one additional workstation for administrative functions.
- Entrance from the corridor and the IMC is needed.
- A lockable teacher wardrobe should be provided.
- At least one three-foot section of base cabinets should not have overhead wall cabinets.
- Tackboard should be placed above the countertop.
- Counter space with electric outlets above the countertop for repair work should be included.

STORAGE

- Storage is to be adjacent to the workroom and preparation room and is to be furnished with shelving and cabinetry appropriate for storing various instructional materials and equipment, including recorders, record players, projectors, and other electronic learning aids.
- An exit to the corridor near the elevator is needed.
- Storage on the upper/other floor is to have upgraded lighting and ventilation for future possible expansion to become a 2nd workroom.

EDUCATIONAL SPECIFICATIONS

IT SUPPORT SPECIALIST ROOM

- A room is needed in or near the IMC for the IT Support Specialist.
- This room should have multiple data and electrical outlets and space for the specialist to work on computers.

MULTIMEDIA PRODUCTION ROOM

- This room should be located adjacent to the Media Center and will be used for staged video taping and other multimedia activities.
- One wall should be designed to accommodate six editing stations.
- A chromakey green screen or green painted wall should be installed on one of the walls for video and photography use.
- This room does not require any special lighting for video production.

EDUCATIONAL SPECIFICATIONS

STUDENT ACTIVITIES FACILITIES

Spatial Needs
School Store
Student Government Storage Closet

- These rooms need direct access to a corridor and are to be near the cafeteria and/or gymnasium.
- Flow of student traffic to and from the area is an important consideration.

SCHOOL STORE

- The school store should be located near the gymnasium.
- It needs a counter, shelving and display areas.
- Special consideration is to be given to security and to accessibility so as not to block the corridor during heavy usage.
- A storage area should be located adjacent to the student store.
- A corridor showcase for display should be included.

EDUCATIONAL SPECIFICATIONS

ADMINISTRATION SUITE

Spatial Needs
General Office
Principal's Office
Assistant Principal's Office
Assistant School Administrator Office
Administrative Secretary's Office
Workroom/ Storage/ Toilet Area
Storage
Conference Room
Copier Workroom
In-school Suspension Room
Financial Secretary Office
Staff Development Office
Security Office
Testing Room

GENERAL OFFICE

- The administrative 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 attendance secretary should have a window to the corridor.
- The general office is to have easy access to toilet rooms, phone room, and coat closet.

EDUCATIONAL SPECIFICATIONS

PRINCIPAL'S OFFICE

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

ASSISTANT PRINCIPAL/ASSISTANT SCHOOL ADMINISTRATOR OFFICE

- A student waiting area close to these offices should be provided.
- Each office should be planned for an L-shaped desk, computer, phone, file cabinets, and a small round table with four chairs for small group meetings.

ADMINISTRATIVE SECRETARY'S OFFICE

- The administrative secretary's office should be located adjacent to the principal's office and close to the general office.
- The office should be designed with a window to the general office to allow for supervision of the space by the administrative secretary.
- This office should be planned for an L-shaped desk, computer, phone, file cabinets, and chairs to serve as a waiting area.

WORKROOM

- The workroom contains cabinetry with sink, shelving, and workspace, including electrical outlets suitable for preparing various releases and for copying and other types of paper work.
- A sink cabinet and space for full size refrigerator and dishwasher are to be located in this room.

EDUCATIONAL SPECIFICATIONS

- Staff mailboxes are to be readily accessible but not visible from the main entrance and are to contain 100 boxes at least 12 inches wide plus five additional boxes that are somewhat larger.
- The workroom is to have a space and outlet for a small copier machine.
- Offices, workroom, storage, and toilet rooms are to serve the general office employees.
- The storage room is to relate well with the workroom and need not be directly accessible to the corridor.
- A coat closet, phone room and men's and women's toilet rooms for administrative office staff and visitors should be included.

CONFERENCE ROOM

- The conference room is to be located in relationship to the principal's and assistant principals' offices and be directly accessible to the corridor.
- The conference room is to have a whiteboard installed and computer and phone outlets.

COPIER WORKROOM

- The copier workroom is for staff use and convenient for teacher use.
- It should not be located in the media center.
- This room requires storage cabinets, shelving, and lockable cabinets for paper, ink, and fuser oil.
- Proper ventilation is required in this room.

IN-SCHOOL SUSPENSION ROOM

- The in-school suspension room should be located adjacent to the main office suite.

EDUCATIONAL SPECIFICATIONS

FINANCIAL ASSISTANT'S OFFICE

- This office should be located in the administrative suite.
- The office needs space for a desk and file cabinet, and requires tackboard and wiring for a computer.

STAFF DEVELOPMENT OFFICE

- The staff development office should be centrally located and near the administrative suite.
- This office needs a space for a desk, file cabinet, and round table with chairs.
- The office also needs whiteboard, tackboard, closet, and video, voice and data outlets.

SCHOOL SECURITY OFFICE

- This office should accommodate up to 4 staff persons and should be located directly off a main corridor.
- Space is needed for a table and chairs to meet with students.
- This office must have lockers and secure storage.
- This office suite must accommodate the cameras and accompanying communication equipment for a visual monitoring system.

TESTING ROOM

- 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.

EDUCATIONAL SPECIFICATIONS

COMMAND CENTER

- An interior room in the school needs to be designated as the command center for shelter in place/lock down emergencies. In many schools, the workroom in the administration suite may serve this purpose. The room cannot be on an outside wall.
- The room designated as the command center must have all data and communication equipment including 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 shelter in place/lock down emergency kit.

EDUCATIONAL SPECIFICATIONS

GUIDANCE SUITE

Spatial Needs
Counselor's Office
Waiting Area
Conference Room
Records Room
Itinerant Staff Office

- The guidance suite should be separate from the administration suite, but easily accessible from the main entrance.
- The suite consists of a waiting area with space for the secretary, seating for visitors, storage for office supplies and a coat closet, the conference room, the records room and counselors' offices.
- These spaces must have window walls, doors with windows, and be designed so that students can find them easily and feel free to drop in between classes.
- The waiting area must be wired for the secretary's desk and not be designed as part of the corridor/hallway to the main office.
- Mini blinds must be provided on all windows within in the suite to provide privacy when required.

COUNSELOR'S OFFICE

- Counselor's offices should be provided at the rate of one per every 250 students.
- Each office should be planned for the counselor's desk with computer, phone, file cabinets, and a small round table with four chairs for small group counseling.

EDUCATIONAL SPECIFICATIONS

CONFERENCE ROOM

- The conference room is to be accessible from the waiting area and corridor.
- The conference room should seat 12-15 people.
- The room requires a whiteboard and computer and phone outlets.

ITINERANT STAFF OFFICE

- This room needs space for a teacher's desk file cabinet and computer and phone outlets.
- This room needs a space to administer tests to students including a student computer workstation.
- This room also may be used to accommodate post-test conferences with teachers and/or parents.

RECORDS ROOM

- The records room is to accommodate shelving, files, and other record cabinets for use by both administrative and guidance personnel.
- It must, therefore, relate to both areas, yet be designed to afford security of private records and files.
- It should be located in the guidance suite.

EDUCATIONAL SPECIFICATIONS

HEALTH SERVICES SUITE

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

- The Health Services Suites should be in complete compliance with COMAR 13A.05.05.10A.
- The architect should refer to MSDE document, *School Health Services*, June 2002 for specific utility information.
- 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.
- The health suite is to be located near the administrative area, preferably adjoining, with direct access to a main corridor for emergency access and egress.
- A bulletin board is to be installed just outside of the door to the health suite.
- A designated school health services professional must be involved in the planning of the health services suite.
- The suite should be designed to provide easy visual supervision of all the spaces by the health services professional.
- The health services suite must have a window into the general office so that office staff may monitor the room when health staff is unavailable.
- The health room must also have a door to the corridor.

EDUCATIONAL SPECIFICATIONS

- Ventilation is important throughout the health suite.
- A window to the outside, if possible, is preferred.
- 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 and lockable file cabinets for storing health records. A portion of these cabinets must be lockable to store medications, medical supplies, and equipment.
- Student traffic is to be kept close to the door, with cross traffic minimized, and good supervision of the room from within as well as from the general office area is to be provided.
- Two doors to the suite are required to move students through waiting and treatment areas during a mass procedure. One door is normally kept closed.

WAITING AREA

- The waiting area is to have space for up to ten chairs.
- A small tackboard should be provided in the waiting area to display health care and other information of importance to students and staff.
- A pamphlet rack, and a 24-inch x 48-inch table, should be provided.
- Two telephone jacks are to be installed in the waiting area.

EDUCATIONAL SPECIFICATIONS

TREATMENT/MEDICATION AREA

- This area should be adjacent to the waiting area and toilet room 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 36-inch high countertop, and a small residential style refrigerator/freezer to store medical supplies and foods.
- The freezer should have an icemaker.
- The treatment area also requires a computer.
- This area also needs a scale, floor lamp, and an area for two chairs.

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.

EDUCATIONAL SPECIFICATIONS

REST AREA

- This area should not be fully contained rooms but rather areas that can provide privacy for each cot with a draw curtain on a ceiling track.
- The rest area needs space for four cots, and one bedside cabinet.
- Separate areas for male and female students should be provided in the rest area.
- In the rest area, supplementary power ventilation capable of 20 changes per hour is to be provided, with control by means of a separate switch within the health suite.

TOILET ROOMS

- Two separate ADA toilets should be provided.

STORAGE ROOM

- The storage area is to have space sufficient for a four drawer locked file cabinet, a wardrobe for coats, and a wheelchair, and a space for forms and supplies.
- A minimum of 12 linear feet of wall and base cabinets should be provided.

EDUCATIONAL SPECIFICATIONS

STAFF FACILITIES

Spatial Needs
Staff Room
Telephone Room

STAFF ROOM

- The staff room provides teachers with a place to rest, plan, study, and think together.
- The staff room 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).
- Toilet rooms associated with the staff room are to be provided for both men and women and should be located in a corridor just outside of staff room.
- A phone booth is required.
- Acoustical treatment is important.
- This area should have exterior windows and door to outside staff patio if design allows.
- Computer access should be provided.

TELEPHONE ROOM

- A small, enclosed room with countertop and space for one chair is needed for a telephone.
- This space needs to be accessible to staff with disabilities.

EDUCATIONAL SPECIFICATIONS

CAFETERIA

Spatial Needs
Student Dining Area
Stage
Storage
Chair Storage

STUDENT DINING

- The student dining area should be capable of seating one third of the student body at cafeteria tables or one half in rows of chairs.
- Acoustics, ventilation, and color are important considerations in the cafeteria.
- A public address system should be built-in.
- An LCD monitor should be included in the dining area.
- Tackboard is to be placed near the entrance.
- Care is to be exercised in the location of windows in relationship to the location of tables and chairs.
- Trash from the dining area must not flow through the kitchen.
- Student toilet rooms must be located near the cafeteria and have good sound absorption.
- Outside access from the cafeteria to a paved area should be considered in the design of the student dining area.
- There must be a water fountain in the cafeteria.
- A listening assistance device for the hearing impaired should be included in the cafeteria.
- Security gates are to deny access to other parts of the building from the cafeteria/stage/lobby areas.

EDUCATIONAL SPECIFICATIONS

- An outside entrance to the cafeteria for easy access in the evening and an outside eating area with permanent trash cans (preferably a courtyard) are desirable.
- Consideration should be given to the use of electronic menu boards.

STAGE

- The stage should be three feet high from the floor of the cafeteria.
- The stage should include closed storage for an upright piano and some storage for costumes and flats if possible.
- The stage and backstage areas must be accessible to individuals with disabilities and be accessible from corridors and the cafeteria.
- The stage space must have adequate exhaust ventilation and lighting for other uses.
- The stage should be equipped with stage curtains and a stage sound and lighting system.
- A whiteboard, tackboard, and data for a promethean board should be included along the back wall of the stage.
- A large electric pull down screen should be designed in front of the stage and behind the short curtain to be used for assemblies.
- Electrical and microphone outlet should be provided at the front wall of the stage house.
- Floor outlet should be located in the cafeteria, approximately 15-20', or as appropriate, for use of a projector on the screen.

CHAIR STORAGE

- Storage for 1,200 chairs on racks and for stage equipment needs to be provided
- Forty-eight inch doors are required on the interior storage rooms.

EDUCATIONAL SPECIFICATIONS

KITCHEN

Spatial Needs
Food Preparation
Dry Food Storage
Refrigerator
Freezer
Serving Area
Office
Locker/ Toilet Room
Loading Platform
Receiving Area
Chemical Storage Room

- The kitchen is to have direct access from the loading dock, with a walk-in freezer and walk-in refrigerator.
- Walls and ceilings are to be light in color, smooth, impervious to moisture, easy to wash, and easy to keep in good repair.
- Floors are to be nonresilient, slip resistant, and easy to mop. Quarry tile is preferred.
- Kitchen should be linked to the security monitoring system and school intercom.
- A wall clock at serving line should be provided and should be linked to master control.
- When designing the kitchen and related spaces, special consideration should be made to temperature and humidity control and traffic.
- Control railings may be portable.

SERVING AREA

- The serving area shall consist of four food serving areas that may vary from school to school.
- Serving lines should be secured when not in use.

EDUCATIONAL SPECIFICATIONS

- Supervision is an important consideration in the serving area.
- Unobstructed sight lines are necessary for one staff member to effectively supervise students.
- Control of serving lines should be designed to facilitate rapid serving of food.
- A dedicated circuit for cash registers is required with under floor conduit for intercommunication links.
- Temperature and humidity control and efficient traffic movement throughout are required.
- Natural ventilation should be provided.
- Also of importance are the following:
 - Meeting current health and sanitation codes
 - Providing louvered shelving in the storage rooms
 - Designing trash storage completely separate from kitchen and dock areas
 - Locating the loading and receiving area, with sheltered dock and with access to the storage and preparation areas, separate from other school receiving
 - Considering the relationship and traffic movement within the dining area of the serving line to the remainder of the kitchen area
- Providing acoustical treatment to preparation and serving areas
- Receiving door must be 48" wide, self-closing, with peephole, and doorbell to manager's office.
- All windows must have screens.

EDUCATIONAL SPECIFICATIONS

PREPARATION AREA

- Space needs to be provided for cook, baker, and beverage/salad/sandwich prep areas.
- Trough-type drains at steamers, hand sinks in each prep area with soap and towel dispensers, and automatic wash filtered hood are required.
- Consideration of the utility distribution system is needed.
- Filtered hood with automatic wash above fryers and fire protection system are required.

DRY FOOD STORAGE AREA

- This area must be located adjacent to the prep area and receiving area.
- Door opening must be a minimum of 3'8".
- This area must be air conditioned at all times.
- Mobile shelving and dunnage and key lock for security must be provided.
- This space must be free of roof access ladders or electrical panels.

COOLER/FREEZER STORAGE

- This area should have a common wall, located adjacent to the prep and receiving areas.
- Insulated slab and thickest quarry tile floor is preferred with a minimum of 20 foot candle lighting.
- Roof mount compressors, polymer mobile shelving and dunnage, and sound alarm for temperature monitoring should be included.

CHEMICAL STORAGE ROOM

- This area must be key-locked for security.

EDUCATIONAL SPECIFICATIONS

BUILDING SERVICE FACILITIES

Spatial Needs
Building Service Office
Locker/ Shower Area
Plant Equipment Operator Office
Compactor/ Trash Room
Receiving and Storage 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.
- 10-12 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 is required in this area.

PLANT EQUIPMENT OPERATOR OFFICE

- This office needs to be adjacent to the boiler room.
- The office needs to accommodate a desk and appropriate data wiring for computer and phone.

EDUCATIONAL SPECIFICATIONS

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.

RECEIVING AND STORAGE 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.

EDUCATIONAL SPECIFICATIONS

- Good lighting and easy access to materials being stored are required.
- Electrical outlets, upgraded lighting and ventilation must be provided in all large storage rooms for future flexibility.

BUILDING SERVICE OUTDOOR STORAGE ROOM

- Outdoor storage is to be near the service area and is to be suitable for heavy mowing, snow removal, and other outdoor equipment.
- The dimensions of the outdoor storage area must be able to accommodate two tractors side by side. (Approximately 9' long by 7.5' wide) 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.
- The closet requires a floor mop sink with hot and cold running water and a floor drain.
- A mop/broom holder is required.

EDUCATIONAL SPECIFICATIONS

SITE REQUIREMENTS

- 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 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 must 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.
- Ideally, parking spaces for 125 cars are to be provided. At least half of the parking area should be readily accessible to the gymnasium. Outdoor lighting for all parking areas and entrances must be adequate for safety and crowd control.
- Bike racks should be provided near the building.
- Accessible parking spaces should be located near the main entrance, after hours use, and the playing fields.

EDUCATIONAL SPECIFICATIONS

DRIVEWAY

- 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 fields and play areas.
- 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 Facility Guideline Specifications.
- Care for safety of students must be exercised in developing the driveways including use of safety rails in the bus loading area.

EDUCATIONAL SPECIFICATIONS

SERVICE DRIVE

- The architect should refer to the MCPS Facility Guideline Specifications for design of the service drive.
- The service drive is required for the kitchen, boiler room, shops, and general delivery areas.
- The service drive must be designed so that students do not need to cross the service drive to get to the play fields.

PLAYING FIELDS

- One 400' x 400' playing field is desired for general use.
- One 300' x 300' playing field with two sets of soccer goals should be installed.

SOFTBALL FIELDS

- Four softball fields are required.
- Ideally, 250' minimum radius with backstops are desired—one field should be designed with hood, benches, and safety fences.
- The baseline of the main field should be skinned and infield mix added.

TRACK AND FIELD AREA

- A long jump pit should be provided.
- A short, 60-yard, 6-lane track for short distances and hurdle practice should be designed for track and field instruction. This track should be connected to a walking asphalt path around the perimeter of the fields.
- Several permanent trashcans should be provided in this area.

EDUCATIONAL SPECIFICATIONS

BASKETBALL COURTS

- Three courts fenced with six gooseneck posts with heavy-duty basketball backboards with goals should be installed.
- A three-level chinning bar should be placed near the black top area.

PAVED PLAY AREA

- One paved play area, 55' x 110', with all-weather surface play area should be desirable near the cafeteria and separate from the other physical education areas.

TENNIS COURTS

- Six tennis courts are desirable each with all-weather surfacing.
- One electrical outlet on the outside of the fence of on one court is required.
- Several benches and outside trashcans should be permanently installed.
- A common "rebound" wall contiguous with the tennis courts should be provided.

STORAGE SHED

- A 12' x 16' storage shed should be provided at the far end of the site.
- No electric or water is needed.
- It must be designed with double steel doors with heavy-duty hardware and shelves on one wall.

EDUCATIONAL SPECIFICATIONS

ADDITIONAL PROGRAM REQUIREMENTS FOR NEELSVILLE MS ADDITION

- It is desirable to build an addition that is capable of remaining for a future revitalization/expansion project.
- The addition project will ideally improve security at the main entrance by relocating the main office and adding a secure vestibule.
- At least one option must show minimal renovation to the existing building and no impact to the Infants and Toddlers modular.
- Other options may show existing spaces repurposed to a new use and replacement of those spaces as part of the addition project.
- Additional lockers will be needed in the new corridor areas. The school currently has 1050 lockers and it is desirable to relocate lockers out of the existing corridors.
- Additional toilets are desirable.
- Improved supervision is desirable between the locker rooms and the main gymnasium.
- The financial specialist office, room 205, maybe converted into ESOL space and the financial assistant should be moved to a new office space near the main entrance.
- Keeping science labs together is desirable
- Two computer labs have already been converted to classrooms.
- Improvements to the bus loop should be designed as an Alternate.
- Office space for the Department of Health and Human Services Positive Youth Development (PYD) program space should be located in a quiet area of the building.

EDUCATIONAL SPECIFICATIONS

The following is to be designed as an Add Alternate to the project if the existing modular Infants and Toddlers building is impacted by the proposed addition.

INFANTS AND TODDLERS EDUCATIONAL SPECIFICATIONS

Spatial Needs	Square Footage
Reception Area	200
Coordinator's Office	250
Conference Room	450
Classroom (Includes 150 sf storage)	900
Therapy Room (small classroom)	250
Staff Workroom	200
Staff Lounge	350
Telephone Room	50
Storage Room	250
Testing Storage Room	150
Waiting/Observation Room	150
Staff Group Office Area	2500
Staff Group Office Area	250
TOTAL	5950

The Infants and Toddlers suite must meet all of the following requirements:

- Parking requirement for 70 staff in addition to approximately 10 visitors at a time.
- Convenient access from the parking lot.
- A security vestibule at the main entrance is desirable.

EDUCATIONAL SPECIFICATIONS

- Wireless access is required for the entire suite.
- Ground-level access is needed for families with young children.
- In addition to the spaces above, the suite will also require toilet rooms for staff and for visitors, a server closet, a building service closet, and required mechanical rooms.
- VCT flooring should be used throughout the entire suite.

ENTRANCE/RECEPTION AREA

- Add canopy over entrance.
- Ensure that entrance is ADA compliant for young children.
- Reception area requires one work station for the administrative secretary.

COORDINATOR'S OFFICE

- Provide a standard office with two computer drops. (Furniture layout will be provided by staff)
- Please note that the coordinator's office is being combined with a 100 s.f. program coordinator's office for a total of 250 s.f. These offices can be designed as separate spaces.

CONFERENCE ROOM

- The conference room should accommodate up to 25 people.
- A whiteboard and tackboard should be provided in this room.
- Computers drops should be provided in this room.
- Wall cabinets and shelving are needed in this room.

EDUCATIONAL SPECIFICATIONS

CLASSROOM

- 10 student cubbies should be provided.
- An 8' marker board and 6' tackboard should be provided in this room.
- Two computers drops should be provided in this room.
- A child height (for ages 2-3) ADA sink and a teacher height sink with base and wall cabinets should be provided.
- Storage cabinets should be provided.
- This room requires a ceiling hook.
- A 150 s.f. storage room should be provided with convenient access from the classroom.

THERAPY ROOM

- This room will be used as a small classroom.
- A ceiling hook for a swing is required.
- Marker board and tackboard and some casework storage should be provided in this room.

WORKROOM

- Requires staff mailboxes for 76 staff members.
- Open shelving for forms and wall cabinets should be provided.
- A space for a copier, laminator and paper cutter.
- A tackboard should be provided in this room.

EDUCATIONAL SPECIFICATIONS

STAFF LOUNGE

- The staff room provides staff with a place to rest, plan, study, and think together.
- The staff room 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).
- Toilet rooms associated with the staff room are to be provided for both men and women and should be located in a corridor just outside of staff room.
- A private phone booth is required.
- Acoustical treatment is important.
- Computer access should be provided.
- A small, enclosed room with countertop and space for one chair is needed for a telephone.

STORAGE ROOM

- This storage room needs to be easily accessible from the workroom and will be used to store various supplies.

TESTING STORAGE ROOM

- This room should be easily accessible to staff and to the workroom.
- This room needs to be lockable.
- This room should have a 6' counter with base and wall cabinets along one wall.
- This area needs an area to charge laptop computers.

EDUCATIONAL SPECIFICATIONS

WAITING/OBSERVATION ROOM

- This room needs to be located directly off of the reception area and between the classroom and the therapy room requires one way mirrors into both the classroom and the therapy room.
- This room should be designed with comfortable chairs.

TOILET ROOMS

- These rooms needs space for a changing table (staff will provide dimensions of changing table).
- Toilet rooms must be easily accessible to staff and visitors.

LARGE STAFF OFFICE AREA

- A layout for 74 desks and file cabinets needs to be provided.
- Every two desks require a phone line. Currently, each staff member has a separate CISCO phone number and voice mail. If possible, the staff would like to retain their current phone number.
- Acoustical treatment is desirable.
- General shelving and storage should be provided in the form of wall cabinets and bookshelves.

SMALL STAFF OFFICE AREA

- This is a flexible smaller office area to accommodate shared computer stations or that can be used for small meetings.

APPENDIX B: EXISTING CONDITIONS SURVEY

SITE CHARACTERISTICS

Size Of Site:

Neelsville Middle School is located at 11700 Neelsville Church Road in Germantown, Maryland. The school is situated on 29.19 acres (parcel 220 is a 19.91 acre and parcel 331 is a 9.28 acre parcel) surrounded by a neighborhood of single family homes on the east and northeast sides, a church to the northwest, commercial development along MD 355 to the west and townhouses along Germantown Road to the south. Neelsville Church Road borders the north side and Shakespeare Boulevard to the east. The site is semi-rectangular with longest sides being the north/south. Access (both pedestrian and vehicular) to the site occurs on the north side from Neelsville Church Road where one curb cut provides access to the entire site.

Site Features:

The school building encompasses the center of the property. In 2005 the Infants and Toddlers modular building was located between the school and the north side of the site. The western half of the site is an open area with the soccer (one large) and 3 softball fields along with 4 basketball and 4 tennis courts at the northwest corner. The building faces the northern portion of the site with most of the parking and all vehicular access located between the building and the curb cut to the north. The eastern side and southeastern corner of the site are heavily forested with no access through the forest.

There are significant elevation differences across the school property, with the main floor of the school situated at elevation 602 at the front entrance and elevation 588 at the backside (western) exit that leads to stairs that go to the fields. The parking lot and bus loop are relatively flat with grades ranging from 607 to 598 as you travel from east to west across the site. Outside of the paved areas, there is a steep hill that goes down to an elevation of 588 as the hill wraps around the west and south side of the building. The east side of the school has a hill that takes the rear service drive from 588 back up to 602. The eastern, wooded side of the school ranges from 633 at the northeast corner to 536 at the southeast corner. There are two sets of stairs to access the basketball courts and the ball fields that are lower and sit at elevation 580 to 573. There is also a steep hill separating the open athletic fields from MD 355 (elevation 550) and MD 118 to the south.

EXISTING CONDITIONS SURVEY

Traffic And Parking:

All of the traffic (busses and parents) enters the site in the same location and comes to an intersection with two choices. Vehicles wishing to park take a left into the parking lot. Vehicles dropping off students and busses generally proceed straight with vehicles going slightly to the left and busses to the right of a divided island that runs toward the school. All of the vehicles meet in front of the school where they loop back around through the eastern side of the parking lot and back to the entrance where they exit. There are 157 parking spaces (including 4 accessible spaces) in the three bays of parking in front of the school and 14 parking spaces behind the school in the loading area.

Water And Sewer Adequacy:

The site is located in the WSSC Grid 228NW11 and 12. Water is supplied to the building by an 8" line that connects to the water main in MD 355. The water line enters the southwest corner of the building and into the meter. It appears that the water line is then split in the building with another 8" water line exiting the building that wraps around the south and east side of the building. This 8" line connects to one on site fire hydrant in front of the school. The site is served by an 8" sanitary sewer (also connected to a WSSC sewer main in MD 355) that runs parallel to the water line until it gets close to the building. At this point, the sewer splits with one 6" line traveling to the north along west side of the school (picking up two building connections) and a second 6" line traveling east along the south side of the school (picking up one building connection).

Stormwater Management (SWM):

Some SWM quantity control is achieved through a dry pond built in 1980 that is located northwest of the site. It appears that all of the roof and front parking lot, the basketball courts and the tennis courts drain to this pond via a main storm drain line that travels from east to west across the site. The rear parking lot (south) and the service drive (east) drain via a storm drain to an outfall in the woods to the south of the site. The grass ball fields drain to a perimeter ditch that has a storm drain leading into MD 355. It does not appear any water quality exists for the entire site. Although the dry pond was built by MCPS, the current survey (April 2015) does not indicate that this land is owned by MCPS.

Tree Protection/Forest Conservation:

A Natural Resource Inventory Forest Stand Delineation has not been provided by MCPS as of December 2015. A MCPS consultant will submit a NRIFSD at a later date. Impacts from any future work are not expected to impact the forest.

EXISTING CONDITIONS SURVEY

ARCHITECTURAL

The school building exterior is primarily brick with limited areas of metal panels. The roof is a low-slope built-up system with aluminum fascia and some areas with stucco soffit. Windows are aluminum frames with brick window sills. The exterior is generally good condition.

The building entry is located on the main level. Across the lobby from the front doors is the administrative suite which does not allow direct supervision of the front entry. The gymnasium with stage, classrooms, and media center are located on this level. A non-ADA compliant ramp connects the main level to the lower level. A large skylight is located above the ramp and has leaked in the past. The ramp terminates at a conversation pit on the lower level, adjacent to the cafeteria. The lower level contains additional classrooms, the cafeteria, kitchen, athletic locker rooms, music classrooms, and technology education classrooms. A locker commons is located on the lower level. The lower level has at grade access and includes a loading area adjacent to the kitchen.

The building interior is primarily masonry walls with some gypsum board partitions. Ceilings are acoustical tile and floors are resilient tile with some limited areas of carpet. The gymnasium has a wood floor, steel joists, and a Tectum deck. Bleachers and a stage are located in the gymnasium. Classroom ceilings are approximately 10 feet high. Interior doors are wood and the door hardware is ADA accessible. Lockers have been added to some corridors narrowing the circulation width. Congestion in the corridors was observed, particularly at the corridor located off the main lobby near the ramp. All student traffic is funneled through a double door with astragal to connect to the other side of the school.

STRUCTURAL

The existing school building structure is steel framed with interior steel columns and exterior load-bearing masonry walls. The roof deck consists of 1½" thick metal deck. The second floor slab consists of 3¼" lightweight concrete on a 1½" composite metal deck and the ground floor consists of a 5" thick concrete slab on grade. The building's roof structure is supported by steel joists, beams, interior columns and exterior load bearing masonry walls. The second floor is supported by composite steel beams, girders, interior columns and exterior load bearing masonry walls. The building is supported on a spread footing foundation. It was observed that there is roof leakage around the skylight above the interior ramp area and rust at the roof top mechanical screen wall posts base.

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We found the existing school building structure, other than observations mentioned above, to be in satisfactory condition with minor corrective action anticipated. We recommend that the structural members at the roof leakage area and mechanical screen wall post bases should be further investigated and repaired as necessary.

MECHANICAL SYSTEMS

Neelsville Middle School was originally constructed in 1981, with a subsequent building addition constructed in 2005. It appears that a majority of the major mechanical equipment within the school has been replaced since the school's original construction, including the cooling tower, dedicated outdoor air system, and heat pump units throughout the school. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

Heating And Cooling System:

Two electric boilers produce heating water for the building. Manufactured by CAM Industries (Model 24HW-1), these boilers were installed as part of the original building construction and appear to be in fair working condition. This equipment has a rated output capacity of 300 kW per boiler. While these boilers are functioning adequately to satisfy the existing school, surplus capacity is not available to support the overall size of the addition being proposed without losing standby capacity in the event that one boiler fails.

The school is currently provided with a boiler/cooling tower heat pump distribution system, with a pair of heat pump loop water piping mains routed throughout the building. Loop water is distributed to the building's mechanical equipment through two base-mounted end-suction pumps located within the first floor mechanical room. These pumps are arranged in a lead/lag setup with only one pump operating at any time. Each pump is provided with a variable frequency drive, reducing pump speed during periods of reduced building demand. The heat pump water distribution system is equipped with an air separator, shot feeder, horizontal expansion tank, and a 10,000 gallon loop water storage tank.

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A two-cell forced-draft cooling tower manufactured by BAC is located at the rooftop level and positioned adjacent to mechanical penthouse area. Installed around 2009, this tower is mounted on structural steel dunnage, with vibration isolation provided between the tower base and dunnage. This existing cooling tower does not appear to have surplus capacity to support both the existing building and the overall size of the planned addition. Outdoor condenser water piping is constructed from PVC and is provided without heat trace.

Condenser water is hydraulically decoupled from the heat pump distribution loop through a plate-and-frame heat exchanger, located within the first floor mechanical room. A single base-mounted end-suction pump distributes condenser water between the cooling tower and heat exchanger.

In addition to the building heat pump loop, direct expansion (DX) type cooling is also provided for the building's dedicated outdoor air system systems and select ductless split system units located throughout the school.

Hvac Systems:

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

- **Typical Classroom:** Classrooms are heated and cooled through a series of console type heat pump units, connected to the building's heat pump loop distribution systems. Manufactured by Daikin, these heat pump units were installed in 2014 and appeared to be good working condition. Conditioned ventilation air is ducted from a centralized dedicated outdoor air system to a series of slot diffusers, located within the classroom areas. Excess ventilation from classrooms is removed through ceiling-mounted air devices within each classroom space and exhausted through the dedicated outdoor air system. Manufactured by Innovent (Model E-Laser-2A/SP), this dedicated outdoor air system is located within a mechanical penthouse area, was installed in 2009, and appears to be in good condition. This unit is provided with DX cooling, hot water heating, and a plate-and-frame heat exchanger for preconditioning outdoor air.
- **Locker Room Areas:** The first floor locker room and exercise room areas are served by three indoor constant volume heating-only air-handling units (AHU-4, AHU-5, and AHU-6), located within a crawlspace area located adjacent to the Girl's Locker Room area. These air-handling units are equipped with fans, filters, and duct-mounted electric heating coils. Transfer airflow from the main gymnasium area are supplied to these areas through an air-handling unit (AHU-1), located within a second floor mechanical

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mezzanine located adjacent to the gymnasium. Exhaust airflow from all areas is ducted to a common exhaust fan, located at the first floor. Manufactured by Trane, these air-handling units were installed in 1981 and appeared to be in fair working condition.

- Cafeteria Area: The first floor cafeteria area is provided with space conditioning from an indoor vertical heat pump unit (located within a mechanical room adjacent to the cafeteria) and a series of console heat pump units (positioned near the perimeter of room). Ventilation airflow is supplied from the dedicated outdoor air system and connected to the return air ductwork of the vertical heat pump unit. Manufactured by Daikin, these heat pump units were installed in 2014 and appeared to be good working condition.
- Serving Line and Kitchen Areas: Space conditioning for the kitchen and serving line areas is accomplished through a horizontal heat pump unit, located within an adjacent storage room. Transfer airflow from the adjacent cafeteria area is also provided for the serving line area. The kitchen area is equipped with a commercial type I hood, complete with dedicated exhaust fan and the air-handling unit (AHU-2) with duct-mounted electric heating coil. All components and equipment associated with the kitchen appeared to be in good to fair working condition.
- FACS Lab and Shop Areas: The FACS Lab and Shop Areas are provided with space conditioning through a series of horizontal heat pump units, connected to the building's heat pump loop distribution systems. Manufactured by Daikin, these heat pump units were installed in 2014 and appeared to be good working condition. Ventilation airflow is supplied from the dedicated outdoor air system and connected to the return air ductwork of the vertical heat pump unit.
- Auxiliary Gymnasium: The auxiliary gymnasium area is served by two vertical heat pump units, located within a mechanical mezzanine adjacent to the area served and connected to the building's heat pump loop distribution systems. Manufactured by Daikin, these heat pump units were installed in 2014 and appeared to be good working condition. One heat pump unit is dedicated to the northern portion of the room and one unit is dedicated to the southern portion of the room, accommodating the folding partition within the room. Supply air ductwork is routed exposed within the roof truss area, with a single return register provided for each heat pump unit and installed high within the room. Outdoor airflow is ducted directly to the heat pump unit's return air ductwork, with a supporting outdoor air intake ventilator located at the roof level.
- Main Gymnasium: Similar to the auxiliary gymnasium, the main gymnasium area is served by four vertical heat pump units, located within a mechanical mezzanine adjacent to the gymnasium and connected to the building's heat pump loop distribution systems. Manufactured by Daikin, these heat pump units were installed in 2014 and appeared to be good working condition. Supply air ductwork is routed exposed within the roof truss area, with a single return register provided for each heat pump unit and installed

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high within the room. Outdoor airflow is ducted directly to the heat pump unit's return air ductwork, with a supporting outdoor air intake ventilator located at the roof level.

- **Stage Area (Located Adjacent to Main Gymnasium):** The stage area is served by a single vertical heat pump unit, located within a mechanical mezzanine adjacent to the stage and connected to the building's heat pump loop distribution systems. Manufactured by Daikin, this heat pump unit was installed in 2014 and appeared to be good working condition. Three main supply air ducts extend from this unit, with a single return register installed low at the stage area. Outdoor airflow is ducted directly to the heat pump unit's return air ductwork, with a supporting outdoor air intake ventilator located at the roof level.
- **Administration and Health Suite:** The administration areas are heated and cooled through a series of console type heat pump units, connected to the building's heat pump loop distribution systems. Manufactured by Daikin, these heat pump units were installed in 2014 and appeared to be good working condition. Conditioned ventilation air is ducted from the dedicated outdoor air system to a series of slot diffusers and ceiling-mounted supply registers. Excess ventilation from office areas is removed through ceiling-mounted air devices and exhausted through the dedicated outdoor air system
- **Media Center:** The media center area is served by a single vertical heat pump unit, located within the mechanical penthouse serving the school's dedicated outdoor air system. Manufactured by Daikin, this heat pump unit was installed in 2014 and appeared to be good working condition. Two main supply air ducts extend from this unit, with a plenum-type return air arrangement provided within the media center area. Outdoor airflow is ducted directly to the heat pump unit's return air ductwork, with a supporting outdoor air intake located at the penthouse wall.
- **Building Exhaust Systems:** A combination of roof-mounted and inline fans remove exhaust air throughout the building. These fans were installed as part of the original building construction and appeared to be in good to fair working condition.

Control System:

The existing control system for the school is a combination of direct digital controls (DDC), limited pneumatic controls, and manufacturer's packaged controls. Major valve and damper components are provided with electronic operation and digital controllers, manufactured by either Daikin or HI Solutions. Building control components are interfaced with the central MCPS energy management system for occupied/unoccupied time scheduling and other energy management routines.

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A duplex air compressor system, complete with a horizontal storage tank, is located within the first floor room and serves the building's pneumatic control components located throughout this school. Air supplied from this compressor is fed through a refrigerated dryer system. Both the air compressor and refrigerated dryer appear to be in good working condition during our site visit.

Plumbing System:

The building is served from the county water system through an 8-inch combination fire and water service, entering the building within a water service room located within the main electrical room. A 4-inch domestic water main extends from this service to support the building's domestic water requirements. A water meter is provided at the domestic water service entrance within the water service room; however, no backflow preventer is currently provided. While this may have been acceptable at the time this system was installed, it does not meet current day plumbing code requirements. It is anticipated that limited surplus capacity exists for the 4-inch domestic water main to support the proposed addition.

No Washington Gas service is currently provided to the school. An underground gas storage tank (approximately 500 to 1000-gallons in capacity) is provided for supporting the science lab areas and emergency generator.

Domestic hot water is generated by a packaged 120-gallon electric water heater. Manufactured by A.O. Smith (Model DRE 120 100), this heater was recently installed and appeared to be in excellent condition. A domestic hot water circulation pump is provided for maintaining 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. It is anticipated that minimal surplus capacity exists for this water heater. Depending on the plumbing requirements of the planned addition, an additional hot water heater may be required.

Plumbing fixtures appear to be in fair condition, with floor-mounted water closets, wall-hung urinals, and individual wall-hung lavatories. The school appeared to be provided with plumbing fixtures that meet the Americans with Disabilities Act (ADA) requirements.

Fire Protection System:

The building is currently provided with sprinkler coverage throughout. Located within the water service room, a 4-inch fire line extends from the incoming water service and serves multiple zone valve assemblies located throughout the school. Sprinkler mains extend from each zone valve assembly and serve sprinkler heads located throughout their respective zone. Sprinkler system components appear to be in good condition. The existing 4-inch fire service appears adequately sized to support any planned additions to the school.

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ELECTRICAL SYSTEMS

The current school building was constructed in 1981 with an adjacent modular "Infants and Toddlers" building installed in 2005. The majority of electrical equipment at the school is original to the building and is generally in fair working condition. The following is a description of the existing power distribution, generator power, lighting, communications, security, and fire alarm systems at Neelsville Middle School.

Power Distribution:

The school is fed from two Pepco transformers (731495 7221 and 731495 7322) located on the south side of the southwest corner of the school, adjacent to the main electrical room. Secondary service feeders run in underground conduits from the secondary of the Pepco utility transformers to the CT cabinets of main switchboards, located in the main electrical room. The Pepco meters (YFG02133091400000 and YFD02147610600000) are also located main electrical room, mounted on the wall opposite of the main switchboards.

The main switchboards are by General Electric, AV-Line Switchboard, rated at 277/480 volts, 3-phase, 4-wire, with a two separate distribution sections, each with a 3000-ampere horizontal bus served from separate main service disconnects. The main switchboards consist of eight sections. Four sections are for Switchboard #1 and four sections are for Switchboard #2. Each distribution section has a 2000-ampere vertical bus. From left to right:

- Section 1 is a Switchboard #1, 2000A distribution section with fused switches serving Panel KPH (400A), and Panel HDPC (800A). The 400A fused switch is a General Electric "THFP Panelboard Unit". There is space for a 1200A fused switch in the middle of Section 1.
- Section 2 is a Switchboard #1, 2000A distribution section with fused switches serving Panel HDPA (600A) and Panel HDPBR (1200A). There is space for a 1200A fused switch in the bottom of Section 2.
- Section 3 is Switchboard #1 main service disconnect section with 2500-ampere bolted pressure switch (THPC3625BET1).
- Section 4 is Switchboard #1 CT cabinet section.
- Section 5 is Switchboard #2 CT cabinet section.
- Section 6 is Switchboard #2 main service disconnect section with 2500-ampere bolted pressure switch (THPC3625BET1).

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- Section 7 is a Switchboard #2, 2000A distribution section with fused switches serving Panel HDPE (400A), Panel HDPB (800A), and Panel HMR3 (600A).
- Section 8 is a Switchboard #2, 2000A distribution section with fused switches serving the modular "infants and toddlers" building (400A), Panel HMR1 (600A), and Panel HDPF (600A). The 400A fused switch is a General Electric "THFP Panelboard Unit".

The main electrical room has Panel WH serving water heaters, served from a separate Pepco meter (YDF02142176800000). Panel WH is by General Electric, Type OMP, rated at 480V, 3-phase, 3-wire, 400A bus with 400A, 100A, and 30A fused switches serving water heaters.

One of the main switchboards is tapped via large pullbox located above the main switchboards and serves an 800A fused switch in the main electrical room. The switch, in turn, serves Panel HMR3A in the penthouse. This switch is by Siemens and was installed in 2008.

Generator Power:

There is an indoor generator located near the main electrical room. The generator is by Onan, Model 30SK, rated at 30-kW, 277/480 volts, 3-phase, 4-wire. The generator serves a 100A automatic transfer switch (ATS) by Onan, Model OTUDD-100-4X/1202C, circa 7/28/81. The ATS, in turn, serves Panel EMH, which is used for emergency lighting, and Panel EML via transformer. Panel EMH is by General Electric, Type NHB. The ATS, Panel EMH, Panel EML, and transformer are located in the main electrical room.

Lighting:

Fluorescent lighting is primarily used throughout the school. The media center, cafeteria, kitchen, locker areas, and corridors have 2'x4' recessed fluorescent troffer luminaires (lighting fixtures) with prismatic lens and linear fluorescent lamps. The main entrance lobby has wall mounted Architectural "can" lights. The main electrical room has luminaires with wraparound prismatic lenses and linear fluorescent lamps. The gymnasium has high bay luminaires utilizing metal halide lamps. The gymnasium has a stage with a theatrical light bar in front of the stage and theatrical lights above the stage. Theatrical lights are connected to a dimmer panel (Stage-Brite, 120/208 volts, 3-phase, 4-wire, 125 amperes) on the side of the stage. Exit signs have red lettering.

Classrooms have a light switch near the entrance door. There are no occupancy sensors installed at the school.

There are exterior building-mounted wall pack luminaires. The parking lot has pole-mounted shoebox style luminaires.

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Data And Voice Systems:

The main telecom equipment is located in a room near the media center, which consists of three data racks and a Dell server rack. Rack-mounted data fiber optic distribution enclosure/light interface unit and patch panels are by Superior Modular Products. Electronic data switches are by Cisco. Category 5/5e wiring system is installed throughout the school to provide network connectivity. Each typical classroom has both teacher and student outlets. Wireless access points by Cisco are mounted on the ceilings.

The telephone system is a separate key system for telephones in the school offices. There are Mitel "Inter-Tel" handsets in the main office area.

Intercom System:

The public address/intercom rack is by Rauland, Telecenter, located in the main office area. The system has the capability to perform select local calls to classrooms or paging throughout the school. Each classroom has a ceiling-mounted speaker and a wall-mounted call switch. Ceiling speakers are located throughout the corridors. Horn speakers are mounted on the building exterior. There are Rauland Telecenter administration control station handsets in the main office area.

Video And Audio/Visual Systems:

There are Promethean smart boards in classrooms. Cable TV outlets are located in rooms throughout the school and are being used by the school. There is a flat screen television wall-mounted in the main entrance lobby.

Security Systems:

The intrusion detection system is by Napco (Magnum Alert/Gemini), with a control panel located in the main telecom room. There are four Napco keypads located in the main office area. There are both glass break detectors/sensors and ceiling mounted motion detectors/sensors in the cafeteria. There are ceiling-mounted motion detectors/sensors in the main entrance lobby. There are wall-mounted motion detectors/sensors in corridors.

The video surveillance system consists of ceiling-mounted dome video surveillance cameras by IQeye installed in the corridors of the school.

EXISTING CONDITIONS SURVEY

Fire Alarm System:

The fire alarm system was upgraded in 2012. The addressable fire alarm control panel (FACP), located in the main electrical room, is by Fire-Lite Alarms, Model MS-9200UDLS with ACC-25/50 Audio Command Center for voice evacuation. There is fire alarm annunciator panel (FAAP) with graphic display and indicator lights at the main entrance lobby. Adjacent to the FAAP is a fire alarm system paging microphone. Fire alarm devices include manual pull stations, duct and area smoke detectors, magnetic door holders at fire doors in the corridors, and audible and visual notification devices. Notification devices (speaker/strobes and strobes) are ceiling mounted in the corridors and classrooms. There are ceiling-mounted fire alarm speakers in the cafeteria.

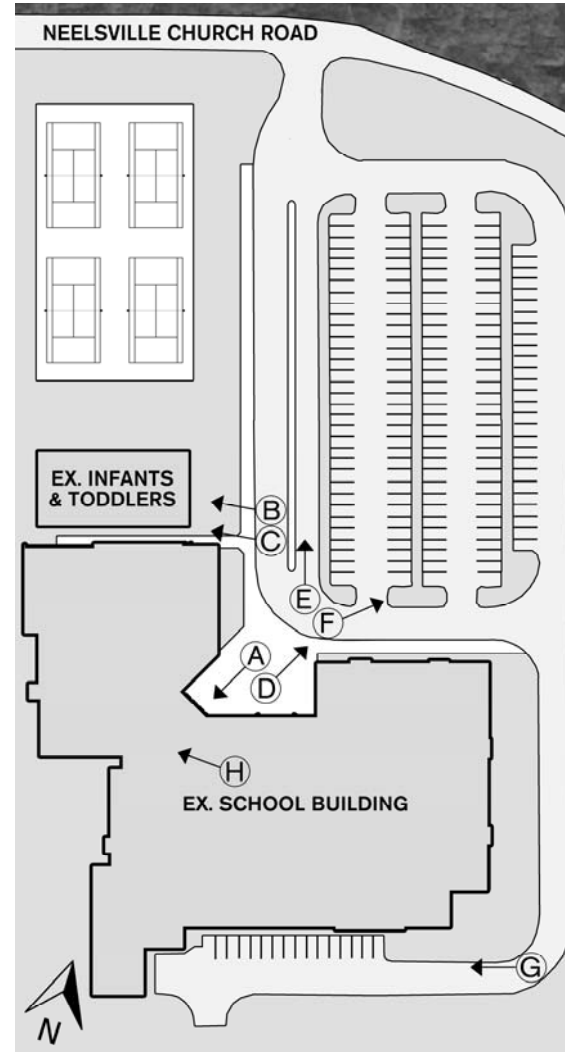
APPENDIX C: PROJECT PHOTOGRAPHS



Figure A- Neelsville Middle School Front Entry



Figure B- Infants and Toddlers building



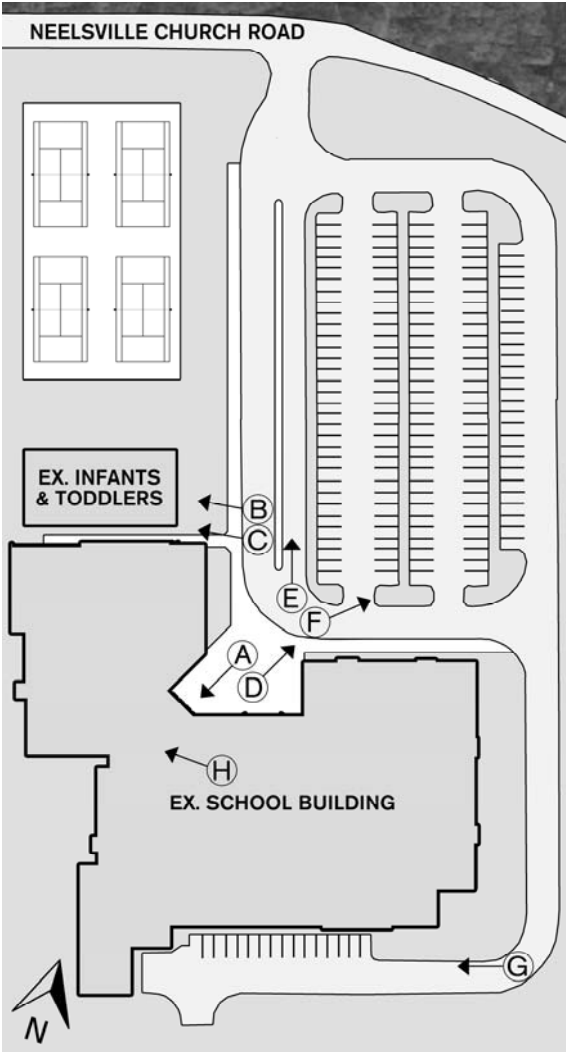
PROJECT PHOTOGRAPHS



Figure C- Circulation between Gymnasium and Infants & Toddlers building



Figure D- Front Entry looking at Bus Loop and Parking Lot.



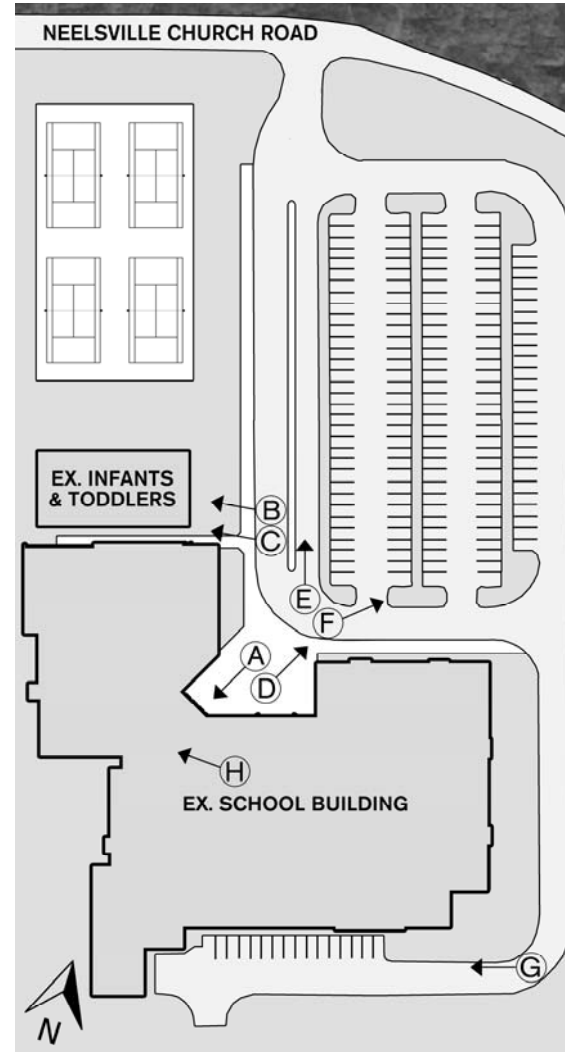
PROJECT PHOTOGRAPHS



Figure E- Bus Loop



Figure F- Parking Lot



PROJECT PHOTOGRAPHS



Figure G- Rear Parking Lot and Service Area



Figure H- Skylight above Ramp

