MEADOW HALL ELEMENTARY SCHOOL ADDITION
Feasibility Study

Prepared for
Montgomery County Public Schools

by

Delmar Architects, P.A.
Olney, MD

October 2013

Meadow Hall Elementary School
Addition

951 Twinbrook Parkway
Rockville, Maryland 20851

Montgomery County Board of Education

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Mr. Ray Marhamati	Project Manager, Division of Construction
Ms. Julie Morris	Facility Planner, Division of Long-range Planning

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I. INTRODUCTION

This feasibility study was conducted for Montgomery County Public Schools (MCPS) by Delmar Architects, P.A. Meadow Hall Elementary School is located at 951 Twinbrook Parkway, Rockville, Maryland 20851. The work was performed under the direction of the MCPS Department of Facilities Management, Division of Construction.

FEASIBILITY STUDY PARTICIPANTS:

The Feasibility Study participants reviewed and provided input on the design concepts for the proposed classroom addition to Meadow Hall Elementary School. The feasibility includes several options for locating the addition on the school site. The meetings occurred on February 4, February 20 and March 11, 2013. The proposed design options are a result of the participants' suggestions and guidance during the feasibility study process.

Mr. Cabell Lloyd	**Principal**	**Meadow Hall Elementary School**
Ms. Regina DeCarlo	**Parent**	**Meadow Hall Elementary School**
Ms. Emily Decoster	**Parent**	**Meadow Hall Elementary School**
Ms. Carol Gangnath	**Parent**	**Meadow Hall Elementary School**
Ms. Christina Ginsberg	**Community**	**Meadow Hall Elementary School**
Ms. Rachel Hellman	**Staff**	**Meadow Hall Elementary School**
Ms. Teresa Hortin	**Parent**	**Meadow Hall Elementary School**
Mr. Chuck Iliff	**Parent**	**Meadow Hall Elementary School**
Ms. Trish Iliff	**Parent**	**Meadow Hall Elementary School**
Mr. Gavyn Johnson–Dean	**After School Care**	**Meadow Hall Elementary School**
Mr. James Keller	**Parent**	**Meadow Hall Elementary School**
Ms. Pam Kleindienst	**Parent**	**Meadow Hall Elementary School**
Ms. Olga Leigh	**Parent**	**Meadow Hall Elementary School**
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Ms. Julie Morris	**Facility Planner**	**Division of Long-range Planning - MCPS**
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Mr. Michael Shpur	**Architect**	**Division of Construction - MCPS**
Ms. Julie Tanen	**Staff**	**Meadow Hall Elementary School**
Ms. Kate Teusterstock	**Parent**	**Meadow Hall Elementary School**
Mr. Dan Tucci	**Assistant Principal**	**Meadow Hall Elementary School**
Ms. Olive White	**Staff**	**Meadow Hall Elementary School**
Mr. Peter Whitmore	**Staff**	**Meadow Hall Elementary School**

II. EXECUTIVE SUMMARY

A. PURPOSE

This feasibility study develops design alternatives and related costs for the Meadow Hall Elementary School Addition. Three design alternatives are analyzed in consideration of the Educational Specification, objectives of the school and community, physical limitations of the existing building, and site, and applicable codes and regulations.

B. HISTORY

Meadow Hall Elementary School is located at 951 Twinbrook Parkway, Rockville, Maryland, within the Rockville Cluster. The original building was constructed in 1957. Classroom Additions were built in 1958 and 1967. An addition and modernization occurred in 1994 and a gymnasium was added in 2008. Currently, student enrollment is 426 and the state rated capacity is 414 in grades K to 5. The addition will increase the capacity to 563. The existing structure contains 61,964 gross square feet. The existing site is 8.37 acres in size.

C. METHODOLOGY

Evaluation of the existing school was conducted by the Design Team of architects and engineers to determine the modifications and ramifications involved in planning an addition which will comply with the Educational Specifications and Summary of Space Requirements, dated February 12, 2013.

The methodology employed included a thorough review of all data and drawings that were available with respect to existing building and site conditions, visits to the site to conduct an existing conditions survey, meetings with the Feasibility Study Participants and MCPS staff, incorporation of review comments and objectives of the Educational Specifications and the development of alternatives in response to the educational program and existing conditions.

II. EXECUTIVE SUMMARY (Continued)

D. SUMMARY

Meadow Hall Elementary School is a two-story structure that is "T" shaped in plan. Classrooms are located in the wings of the "T" and the instructional media center is at the intersection of the "T". The front portion of the building contains the administrative suite and the multi-purpose room. At the right end of the building is the Gym.

The existing structure is constructed of non-combustible materials and the building is sprinklered. The building is conventional masonry and steel frame construction. Exterior walls and interior partitions are primarily masonry and drywall. The structural system is a combination of masonry bearing walls, steel framing with steel roof joists, and concrete floor slabs on grade.

The site is bordered on the southwest side by Twinbrook Parkway, on the southeast by the Broome Facility, on the northeast by Rock Creek Regional Park and by a church on the northwest side. Site topography varies from an elevation of 326.00 at the south corner to 350.00 at the north corner of the side. The Main entrance of the school is level with Twinbrook Parkway at an elevation of approximately 348.00. Currently, the site accommodates 64 parking spaces. All feasibility study options propose adding parking spaces off of what is currently an access fire lane on the northwest side of the site. Stormwater management improvements and modifications will be required to accommodate the addition and site modifications.

Three options that meet the program requirements, along with their corresponding cost estimates, are presented in the executive summary of this report.

II. EXECUTIVE SUMMARY (Continued)

E. COMMON DESIGN ELEMENTS

All three options have the following common elements:

- Adherence to the educational specifications.
- Added parking.
- Creating a security vestibule at the main entrance.

II. EXECUTIVE SUMMARY (Continued)

F. UNIQUE ELEMENTS OF OPTION I: (Preferred)

OPTION I – ADVANTAGES

- The addition is two-stories with the smallest footprint
- The small footprint conserves space on the site.
- The classroom grouping works well with grade levels.
- The addition can be built without disrupting the existing building.
- The addition forms a corridor circulation loop.

OPTION I – DISADVANTAGES

- The two-story addition requires two stairs and an elevator.
- A partially single loaded corridor exists until the future classrooms are built.

Option I – Total Cost: $10,205,000

II. EXECUTIVE SUMMARY (Continued)

G. UNIQUE ELEMENTS OF OPTION II:

OPTION II – ADVANTAGES

- Three connections to the existing corridors are provided.
- The addition is one-story. No stairs or elevator is required.
- The classroom groupings work well with grade levels.
- The future classroom addition is easily added to an existing corridor

OPTION II – DISADVANTAGES

- The one-story addition has a larger footprint.
- The windows at the existing art room receive less light.

Option II – Total Cost: $8,965,000

II. EXECUTIVE SUMMARY (Continued)

H. UNIQUE ELEMENTS OF OPTION III:

OPTION III – ADVANTAGES

- The addition is one-story. No stairs or elevator is required.
- No renovation of the existing building is required

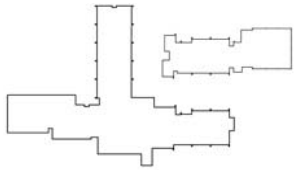
OPTION III – DISADVANTAGES

- The footprint of the one-story addition takes the most land area.
- The future classroom addition requires a new corridor.

Option III – Total Cost: $8,297,000

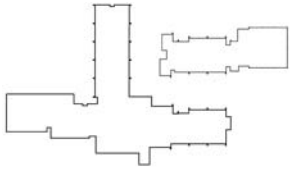
II. Executive Summary (Continued)

I. Comparative Analysis

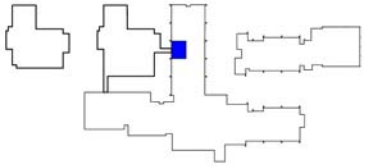


EXISTING BUILDING

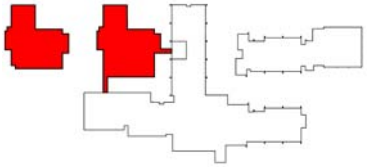
Existing Building = 61,964 SF



OPTION I – DEMOLITION
TOTAL = 0 SF



OPTION I - RENOVATION
TOTAL = 1000 SF

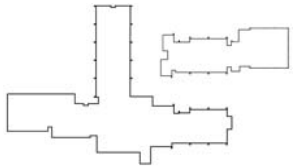


OPTION I – NEW CONSTRUCTION
FIRST FLOOR = 14,000 SF
SECOND FLOOR = 11,455 SF

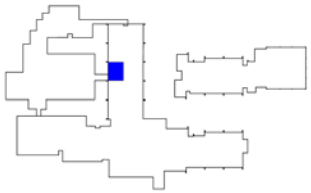
OPTION I

Existing Building	=	61,964 SF
Area of addition	=	25,455 SF
Total Building Area	=	87,419 SF

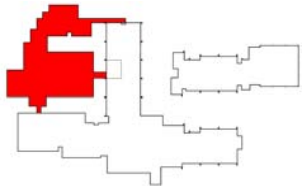
Addition		Actual
Net Assignable SF	=	14,250 SF
Addition Efficiency	=	55.98%



OPTION II – DEMOLITION
TOTAL = 0 SF



OPTION II - RENOVATION
TOTAL= 1,000 SF

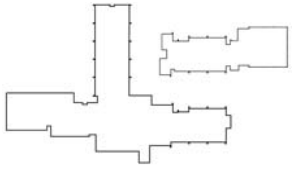


OPTION II – NEW CONSTRUCTION
FIRST FLOOR = 22,720 SF

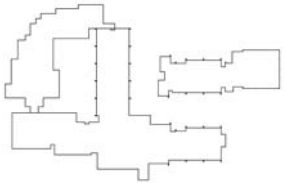
OPTION II

Existing Building	=	61,964 SF
Area of addition	=	22,720 SF
Total Building Area	=	84,684 SF

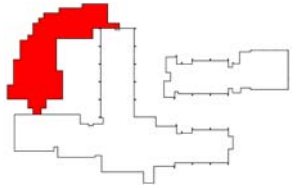
Addition		Actual
Net Assignable SF	=	14,250 SF
Addition Efficiency	=	62.72%



OPTION III – DEMOLITION
TOTAL = 0 SF



OPTION III - RENOVATION
TOTAL= 0 SF



OPTION III – NEW CONSTRUCTION
FIRST FLOOR = 21,952 SF

OPTION III

Existing Building	=	61,964 SF
Area of addition	=	21,952 SF
Total Building Area	=	83,916 SF

Addition		Actual
Net Assignable SF	=	14,250 SF
Addition Efficiency	=	64.91%

II. Executive Summary (Continued)

Description of Options
Summary Table and Cost Comparison

Square Footage:

	Option 1 (Preferred)	Option 2	Option 3	
Existing	61,964	61,964	61,964	
New Construction	25,455	22,720	21,952	
Modernization	0	0	0	
Renovation	1000	1000	0	
Demoltion (Total)	0	0	0	
Existing to Remain	61,964	61,964	61,964	
Total Gross Square Feet	87,419	84,684	83,916	
Total Cost	$10,205,000	$8,965,000	$8,297,000	

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

CONSTRUCTION COST	8,276
CONTINGENCY & RELATED COSTS	959
PLANNING COSTS	970
TOTALS:	**10,205**

The cost estimate in this feasibility is based on current construction market conditions for both building and site.

II. EXECUTIVE SUMMARY (Continued)

J. CONCLUSIONS AND RECOMMENDATIONS

Consistency with MCPS standards, program requirements, and concerns of the school principal and staff, the PTA and the community are the primary factors in making a recommendation.

In accordance with the consensus of the Feasibility Study participants and MCPS staff, it is recommended that Option I, as depicted herein, and its associated site improvements be implemented. The overall function of the building and site is improved and all MCPS Program requirements are fulfilled.

III. SCOPE METHODOLOGY AND GOALS

A. SCOPE AND INTENT

The purpose of this Feasibility Study is to evaluate several alternatives for the addition to Meadow Hall Elementary School in order to provide Montgomery County Public Schools with sufficient data to determine the necessary scheduling and funding. Cost estimates for each alternative are developed as a basis for consideration in the decision making process. Delmar Architects, P.A., an architectural firm practicing in Montgomery County, Maryland for fifty-four years, was selected to conduct the Study.

Presently, the school enrollment is 426 in grades Kindergarten to fifth. The addition will increase the capacity of the school to 563. In each scheme a future classroom addition has been master-planned. The existing school is a two-story structure containing approximately 61,964 gross square feet on a site of 8.37 acres in size located in Rockville, Maryland.

The scope of work includes an evaluation of the existing building and site with respect to the needs of the Educational Specification and applicable codes and regulations. The objective of the evaluation is to determine the feasibility of the existing building and design alternatives to provide a physical plant that is conducive to the instructional philosophy, visions and goals of the school and the community. In addition to collecting and reviewing available data, the design team participated in a series of feasibility study work sessions with the school administration, MCPS staff and community representatives. As each design alternative was presented and reviewed by the Feasibility Study Participants, comments were recorded and alternative schemes were revised accordingly. The final three options are presented herein with Option I recommended as the preferred scheme.

III. SCOPE METHODOLOGY AND GOALS (Continued)

B. METHODOLOGY

This Feasibility Study was developed with the following methodology:

- Review of available data and drawings of the existing facilities.
- Kick-off meeting with participants of the Feasibility Study.
- Four work sessions with the Feasibility Study participants, which included members of the school staff, the PTA, the Community and MCPS staff.
- Establishment of the needs, goals and objectives.
- Development of review comments and the final options.
- Designation of Option I as the preferred scheme by the Feasibility Study participants.

III. SCOPE METHODOLOGY AND GOALS (Continued)

The following are the primary goals and objectives established by the principal, staff and the Feasibility Study Participants to be addressed by the A/E design team and the MCPS staff.

A. SITE GOALS AND OBJECTIVES

The modifications to the site shall:

- evaluate the play areas on site for better utilization
- increase the number of parking spaces.

B. BUILDING GOALS AND OBJECTIVES

The addition and renovation shall:

- enlarge the building to provide instructional support space per the MCPS Educational Specifications with as little as possible impact on the already developed areas of the site.
- provide natural lighting to as many occupied rooms as possible.
- create a security vestibule for security so that the main office has control over the main entrance.
- add space for a Prekindergarten program.

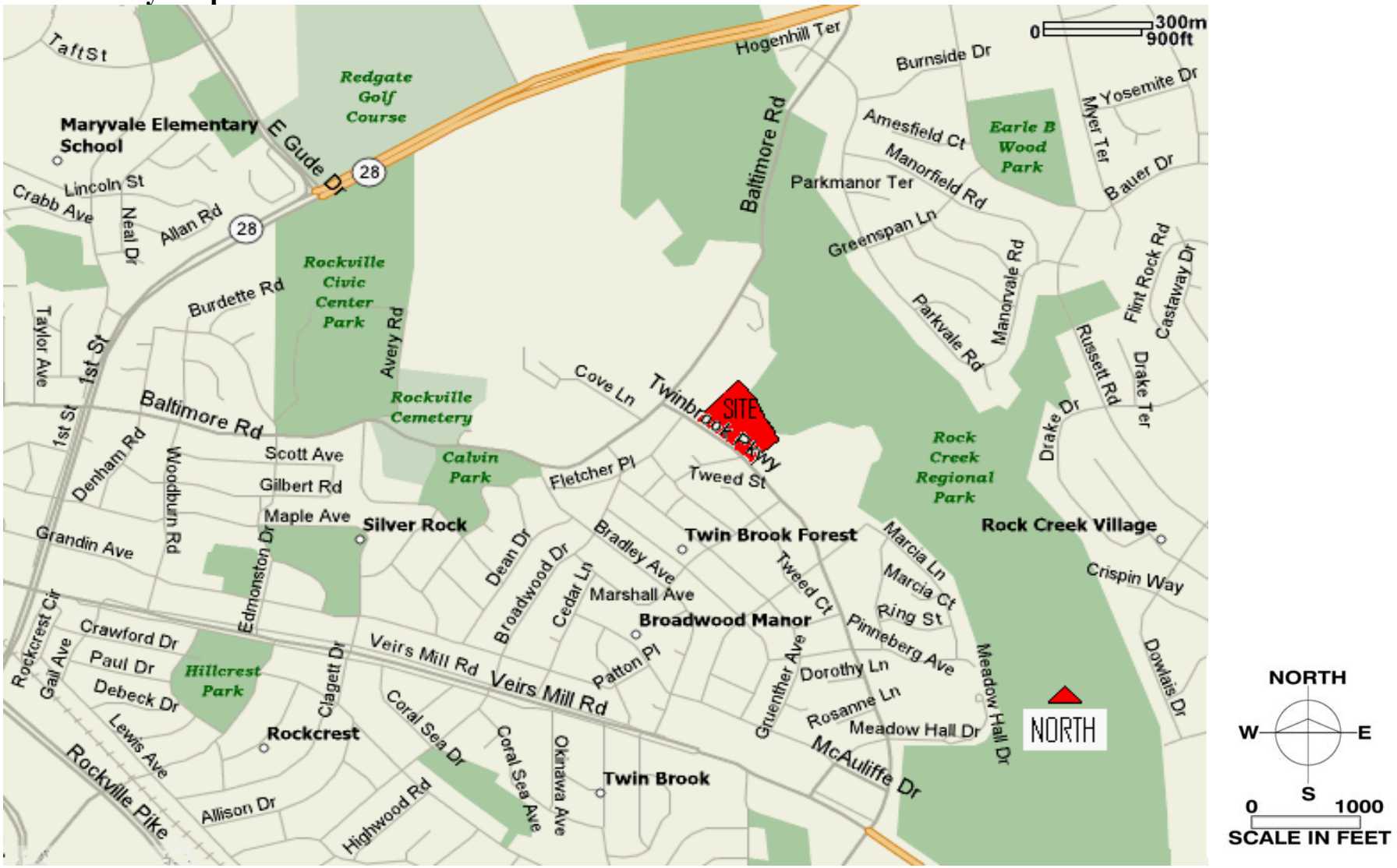
Added Classrooms

Summary of Added Classrooms:

Standard Classroom	7
Prekindergarten	1
Kindergarten	2
Dual Purpose	1
Instrumental Music	1
Total Classrooms:	**12**

IV. EXISTING CONDITIONS

Vicinity Map

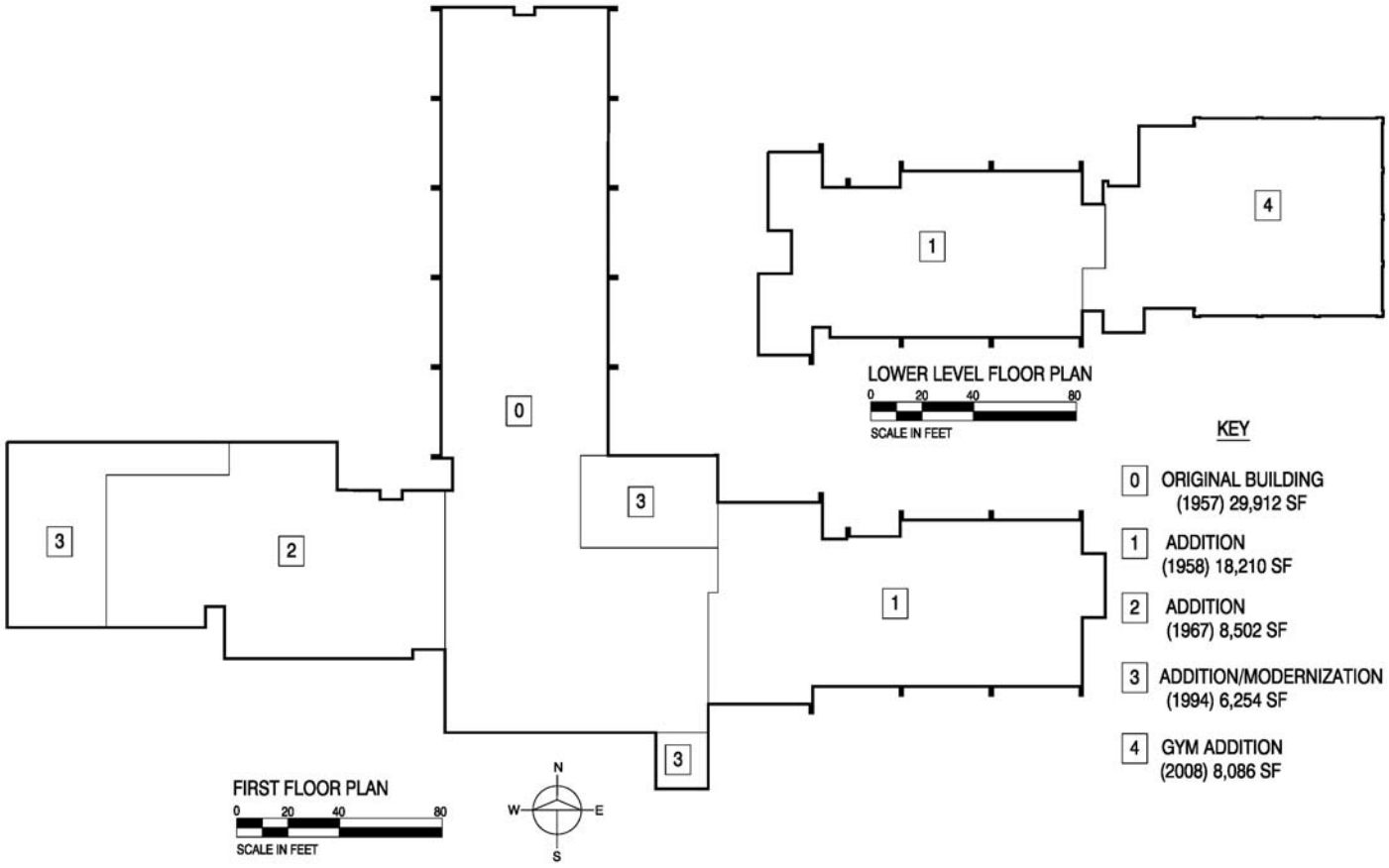


IV. EXISTING CONDITIONS (Continued)

Site Plan

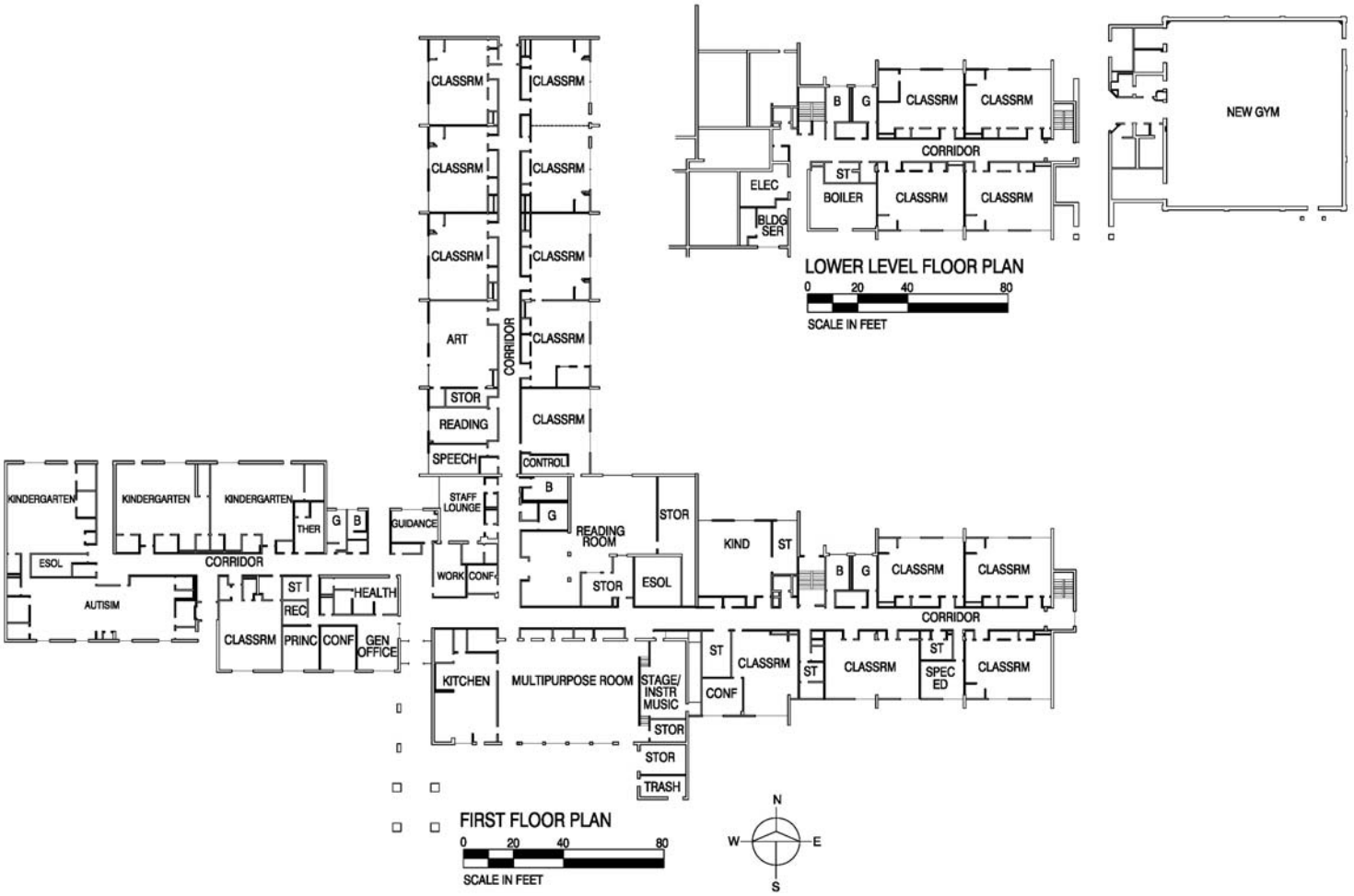
IV. EXISTING CONDITIONS (Continued)

Building History Diagram



IV. EXISTING CONDITIONS (Continued)

Existing Floor Plan



IV. EXISTING CONDITIONS (Continued)

A. GENERAL

Meadow Hall Elementary School is located on a 8.37 acre site at 951 Twinbrook Parkway, Rockville, Maryland 20851 in the Rockville Cluster.

B. EXISTING SITE

The site is bordered on the southwest side by Twinbrook Parkway, on the southeast by the Broome facility, on the northeast by Rock Creek Regional Park and by a church on the northwest side. Site topography varies from an elevation of 326.00 at the south corner to 350.00 at the north corner of the side. The Main entrance of the school is level with Twinbrook Parkway at an elevation of approximately 348.00. Currently, the site accommodates 64 parking spaces. All feasibility study options propose adding parking spaces off of what is currently an access fire lane on the northwest side of the site. Stormwater management improvements and modifications will be required to accommodate the addition and site modifications.

C. EXISTING BUILDING

Meadow Hall Elementary School is a two-story structure that is "T" shaped in plan. Classrooms are located in the wings of the "T" and the instructional media center is at the intersection of the "T". The front portion of the building contains the administration suite and the multi-purpose room. At the right end of the building, on a lower classroom level, is the Gym.

The existing structure is constructed of non-combustible materials and is totally sprinklered. The building is conventional masonry and steel frame construction. Exterior walls and interior partitions are primarily masonry and drywall. The structural system is a combination of masonry bearing walls, steel framing with steel roof joists, and concrete floor slabs on grade.

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IV. EXISTING CONDITIONS (Continued)

D. HEATING VENTILATION AND AIR CONDITIONING SYSTEMS

Meadow Hall Elementary School was originally constructed in 1957. Classroom Additions were built in 1958 and 1967. An addition and modernization occurred in 1994. A new gym was added in 2008. During the 1994 modernization all of the school's original mechanical equipment was replaced, including classroom unit ventilator systems and rooftop units supporting other building areas. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

Heating and Cooling Systems

Centralized heating and cooling systems are provided within the existing school. A 2-pipe system is used to distribute heated and chilled water throughout the building. Two 1004 MBH gas fired boilers provide heated water. An 83.6 ton outdoor air cooled reciprocating chiller provides chilled water. Heated and chilled water are pumped through the Mechanical systems, including self-contained unit ventilators, packaged rooftop units and packaged indoor units. These systems are described in more detail in the HVAC Systems section below.

HVAC Systems

The heating, ventilating, and air conditioning (HVAC) systems are similar throughout the existing building. Most systems were installed in 1994 and appear to be in good working condition. The following is a breakdown of the various spaces and their associated HVAC system:

- Typical Classroom: Classrooms are heated and cooled through self-contained unit ventilators; each unit ventilator has a direct outdoor air connection through a louver mounted in the exterior wall. An exhaust register is provided for each classroom to maintain proper room pressurization. Exhaust air from several classrooms is ducted to a fan located on the roof. The existing unit ventilators were installed in 1994 and appear to be in good working condition.

- Cafeteria: A packaged indoor air handling unit with a 2-pipe coil cooling and heating serves the cafeteria and stage areas. Supply air for these spaces is distributed by overhead air devices located throughout the area. An exterior louver provides fresh air to this unit. Rooftop exhaust fans are interlocked with the air handler. One large return air grille, installed low and in the stage area, returns airflow back to the indoor unit. This indoor unit was installed in 1994 and appears to be in good working condition.

IV. EXISTING CONDITIONS (Continued)

HVAC Systems, Continued

- Kitchen: A packaged rooftop air conditioning unit with a 2 pipe duct heating coil serves the kitchen and serving line areas. This unit appears to be in good working condition and was installed in 1994. The dry food storage room is currently provided with year-round space conditioning through a ductless split system located within the space.

- Media Center: A packaged rooftop unit air conditioning unit with a 2 pipe duct heating coil serves the media center and media center support spaces. This unit appears to be in good working condition and was installed as part of the 1994 modernization.

- Gymnasium: A heating and ventilating unit with gas heat serves the gymnasium area. This unit was installed in 2008 when the new gymnasium was constructed.

- Administration and Health Suite: A packaged rooftop air conditioning unit with a 2 pipe duct heating coil serves the administration and health suite area. This unit appears to be in good working condition and was installed in 1994.

- Art and Art Storage Rooms: The art storage room is currently equipped with one kiln. Local exhaust for this kiln is removed through an overhead hood located above the kiln equipment.

- Building Exhaust Systems: Roof-mounted fans remove exhaust air throughout the building. These fans and associated roof curbs appear to be in fair to good condition.

Control System

The existing control system consists of packaged electric controls associated with each piece of equipment. Rooftop units are provided with the equipment manufacturer's wall-mounted thermostats, installed within a clear plastic guard. Self-contained unit ventilators are also provided with the equipment manufacturer's wall-mounted thermostats, and provided without guards. The building is currently not equipped with direct digital control components, including a network interface with the central Montgomery County Public Schools (MCPS) energy management control system for occupied/unoccupied settings and other energy management routines.

IV. EXISTING CONDITIONS (Continued)

E. PLUMBING AND FIRE PROTECTION

Plumbing

The building is supported from the WSSC water system through a 6-inch combination fire and water service, entering the building within a water service room adjacent to the cafeteria area. A 4-inch domestic water main extends from this service to support the building's domestic water requirements. A backflow preventer is provided at the domestic water service entrance. It is anticipated that enough surplus capacity exists for the 4-inch domestic cold water main, and an increase in the cold water service pipe size will not be required.

Domestic hot water is generated by a packaged 90-gallon gas water heater. The heater was installed in 1994 and appears to be in fair working condition. A domestic hot water circulation pump maintains a continuous hot water flow throughout the building. The system is not equipped with an expansion tank or mixing valve, which is typically provided on today's new systems. It is anticipated that minimal surplus capacity exists for this water heater. An additional hot water heater will be required to serve the addition.

Plumbing fixtures appear to be in fair condition and are original to the building. The water closets are floor-mounted, urinals are wall-hung, and the lavatories are individual wall-hung type. The school is equipped with plumbing fixtures that may not comply with all aspects of the Americans with Disabilities Act (ADA) requirements.

Fire Protection

The building is currently provided with sprinkler coverage throughout. Located within the boiler room, a 6-inch fire line extends from the incoming service and is provided with a 6-inch double-check type backflow preventer. This fire line serves two distinct zone valve assemblies, each located within the water service room. Sprinkler mains extend from each zone valve assembly and serve sprinkler heads located throughout their respective zone. Sprinkler system components appear in good condition. The existing 6-inch fire service appears adequately sized to support any planned additions to the school.

IV. EXISTING CONDITIONS (Continued)

F. ELECTRICAL

Power Distribution

The existing service switchboard is not adequate to serve the new construction. The existing demand load may be low enough to allow for the capacity needed for the new addition, however, the size and age of the main switchboard will not allow additional breakers to be added. It is proposed to maintain the existing switchboard in the main electrical room. The switchboard may be tapped to feed a new breaker. This breaker can be located in the main electrical room where it can be within the code-required 25 feet for a bus tap. The new breaker would serve a distribution panelboard located in a closet in the new addition. This panelboard would then serve lighting panelboards and dry type transformers for receptacle and computer power panelboards.

A new electrical closet will be required in the new addition for the branch circuit panelboards and dry-type transformers.

The panelboards and associated feeders located throughout the existing building will remain. New 277/480-volt panelboards will serve lighting and mechanical loads in the new addition. A K-rated dry-type transformer in the electrical closet in the addition will feed the 120/208-volt panelboard for computer power in the new addition. Designated receptacles in all new classrooms will be connected to the computer power panelboards.

General receptacles in the addition will be connected to a new "normal" 120/208-volt panelboard that is fed from a standard dry type transformer. New conduits will be concealed in new walls. Where existing walls remain, surface metal raceway will be used to conceal wiring.

Emergency Power

The current MCPS standard is to provide standby power for the heating system to keep the building from freezing. The existing building generator system does not provide this capacity. The existing generator can be used to serve the life safety emergency lighting and fire alarm system for the addition. A larger generator will be required to accommodate both the life safety and the heating loads of the addition. If a new generator is provided, it could also be sized large enough to serve the heating loads in the existing building. A second automatic transfer switch will need to be added to serve the heating loads if they are included.

IV. EXISTING CONDITIONS (Continued)

Lighting

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

G. FIRE ALARM

The existing fire alarm control panels will remain. A new addressable fire alarm system will be provided for the addition. The new and old panels will be interconnected. Initiation devices and notification devices will be located to meet code requirements

H. INTERCOM, SOUND, VOICE, DATA, VIDEO AND SECURITY SYSTEMS

Intercom and Sound Systems

New intercom devices will be provided throughout the addition including call switches and speakers. The existing Telecenter head-end console will be upgraded to increase the capacity for the new spaces.

Voice, Data, and Video Systems

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

Security System

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

V. DESCRIPTION OF OPTIONS

A. GENERAL

Three options were developed in response to the MCPS Educational Specifications and the review comments of the Feasibility Study Participants for the addition to Meadow Hall Elementary School. Option I proposes a two-story addition on the back left side of the building that connects the back corridor with a front corridor while creating a courtyard. Option II proposes a one-story addition in the back left side of the building with three connections to the existing corridors. Option III proposes a one-story addition in the back left side of the building with two connections to the existing corridors. A future master-planned classroom addition is shown in each option. All three options contain all spaces required by the educational program.

B. COMMON DESIGN ELEMENTS

Stormwater Management

Water quantity and quality control will need to be provided with environmentally sensitive design consisting of bio-retention areas. Bio-retention areas will have plantings that hold and filter the water that they collect, then slowly release the water into the storm drain system.

Playfields

The existing Softball field will remain. One paved play are will be relocated to make room for the addition.

V. DESCRIPTION OF OPTIONS (Continued)

HVAC System

Mechanical Systems

A similar mechanical solution is recommended for supporting the three proposed floor plan options. Since a majority of the building's mechanical equipment was replaced in 1994, MCPS does not plan to replace the existing systems at this time.

The addition would be provided with new mechanical systems. A variable refrigerant flow (VRF) system with an energy recovery type air-cooled condensing unit would provide heating and cooling for classroom areas. Indoor units for classroom areas would consist of vertical upflow air-handling units, located in support closet areas adjacent to the classroom served. Doors for support closets would be from the corridor for maintenance access. Offices and other support spaces would be provided with cassette units installed at the ceiling. Individual branch controllers would be provided at each indoor unit, allowing independent heating or cooling operation for each zone, as well as simultaneous heating and cooling system operation. This arrangement also provides flexibility in converting the new addition system to a geothermal water-source heat pump unit system, should a future renovation to the existing building be provided. The air-cooled condensing unit could be converted to a water-cooled system, and connected to the ground-source geothermal piping loop under this future renovation.

Conditioned outdoor ventilation air would be supplied by a rooftop dedicated outdoor air system, complete with DX cooling, electric heating, and an enthalpy type energy recovery wheel. Airflow supplied from this unit will be dehumidified, conditioned, and delivered directly to each space at a room neutral temperature. Toilet rooms, storage rooms, and other heating-only areas will utilize electric wall heaters. Controls for the new addition will be direct digital controls (DDC). A new energy management system is required to support these DDC components, since the existing building is not networked to the existing MCPS central energy management system. This type of system provides the most sustainable and energy efficient solution and delivers the most flexibility at the lowest cost for both current and future needs.

V. DESCRIPTION OF OPTIONS (Continued)

Plumbing Systems

The existing cold water piping system can be extended to support the new addition. Based on the proximity and capacity of the existing water heater, a new electric water heater is recommended for supporting the addition. New plumbing fixtures will be designed to meet the Americans with Disabilities Act (ADA) and will utilize water conservation features. Floor-mounted water closets will utilize dual-flush type valves, capable of providing either 1.6 or 1.0 gallons per flush. Urinals will be wall-hung and provided with pint flush valves. Wall-hung cast-iron lavatories will utilize self-closing faucets that supply 0.5 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 System

The present fire protection system for the existing school building will be extended to handle the new addition. Based on firewall separation requirements, a new sprinkler zone is anticipated for the addition. New zone valve components would be located adjacent to the existing devices within the existing boiler room. Also, any air-handling unit or dedicated outdoor air system supplying 2,000 cubic feet per minute (CFM) or more of airflow will be equipped with smoke detectors in both the supply and return air ductwork.

V. DESCRIPTION OF OPTIONS (Continued)

Electrical Systems

Power Distribution

The existing service switchboard is not adequate to serve the new construction. The existing demand load may be low enough to allow for the capacity needed for the new addition, however, the size and age of the main switchboard will not allow additional breakers to be added. It is proposed to maintain the existing switchboard in the main electrical room. The switchboard may be tapped to feed a new breaker. This breaker can be located in the main electrical room where it can be within the code-required 25 feet for a bus tap. The new breaker would serve a distribution panelboard located in a closet in the new addition. This panelboard would then serve lighting panelboards and dry type transformers for receptacle and computer power panelboards.

A new electrical closet will be required in the new addition for the branch circuit panelboards and dry-type transformers.

The panelboards and associated feeders located throughout the existing building will remain. New 277/480-volt panelboards will serve lighting and mechanical loads in the new addition. A K-rated dry-type transformer in the electrical closet in the addition will feed the 120/208-volt panelboard for computer power in the new addition. Designated receptacles in all new classrooms will be connected to the computer power panelboards.

General receptacles in the addition will be connected to a new "normal" 120/208-volt panelboard that is fed from a standard dry type transformer. New conduits will be concealed in new walls. Where existing walls remain, surface metal raceway will be used to conceal wiring.

Emergency Power

The current MCPS standard is to provide standby power for the heating system to keep the building from freezing. The existing building generator system does not provide this capacity. The existing generator can be used to serve the life safety emergency lighting and fire alarm system for the addition. A larger generator will be required to accommodate both the life safety and the heating loads of the addition. If a new generator is provided, it could also be sized large enough to serve the heating loads in the existing building. A second automatic transfer switch will need to be added to serve the heating loads if they are included.

V. DESCRIPTION OF OPTIONS (Continued)

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

Fire Alarm System
The existing fire alarm control panels will remain. A new addressable fire alarm system will be provided for the addition. The new and old panels will be interconnected. Initiation devices and notification devices will be located to meet code requirements.

Intercom and Sound Systems
New intercom devices will be provided throughout the addition including call switches and speakers. The existing Telecenter head-end console will be upgraded to increase the capacity for the new spaces.

Voice, Data, and Video Systems
The existing voice, data, and video cabling system will be expanded to the new addition. The number of outlets in each room will comply with MCPS and Maryland State requirements. A new telecommunications closet will be required in the addition to serve the new classrooms.

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

V. DESCRIPTION OF OPTIONS (Continued)

C. OPTION I (Preferred) - DESCRIPTION

In Option I a two-story addition is proposed on the back left side of the building that connects the back corridor with one of the front corridors while creating another courtyard. A future master-planned classroom addition is located on the west side.

SITE ACCESS, CIRCULATION AND PARKING

1. **Parking**
   A total of 79 parking spaces are provided by adding 15 additional parking spaces off the fire lane. Access to parking, and student drop-off remains entirely separate from the bus loop.

2. **Bus Loop**
   The bus loop remains as is.

3. **Student Drop-Off**
   The drop-off area remains as is.

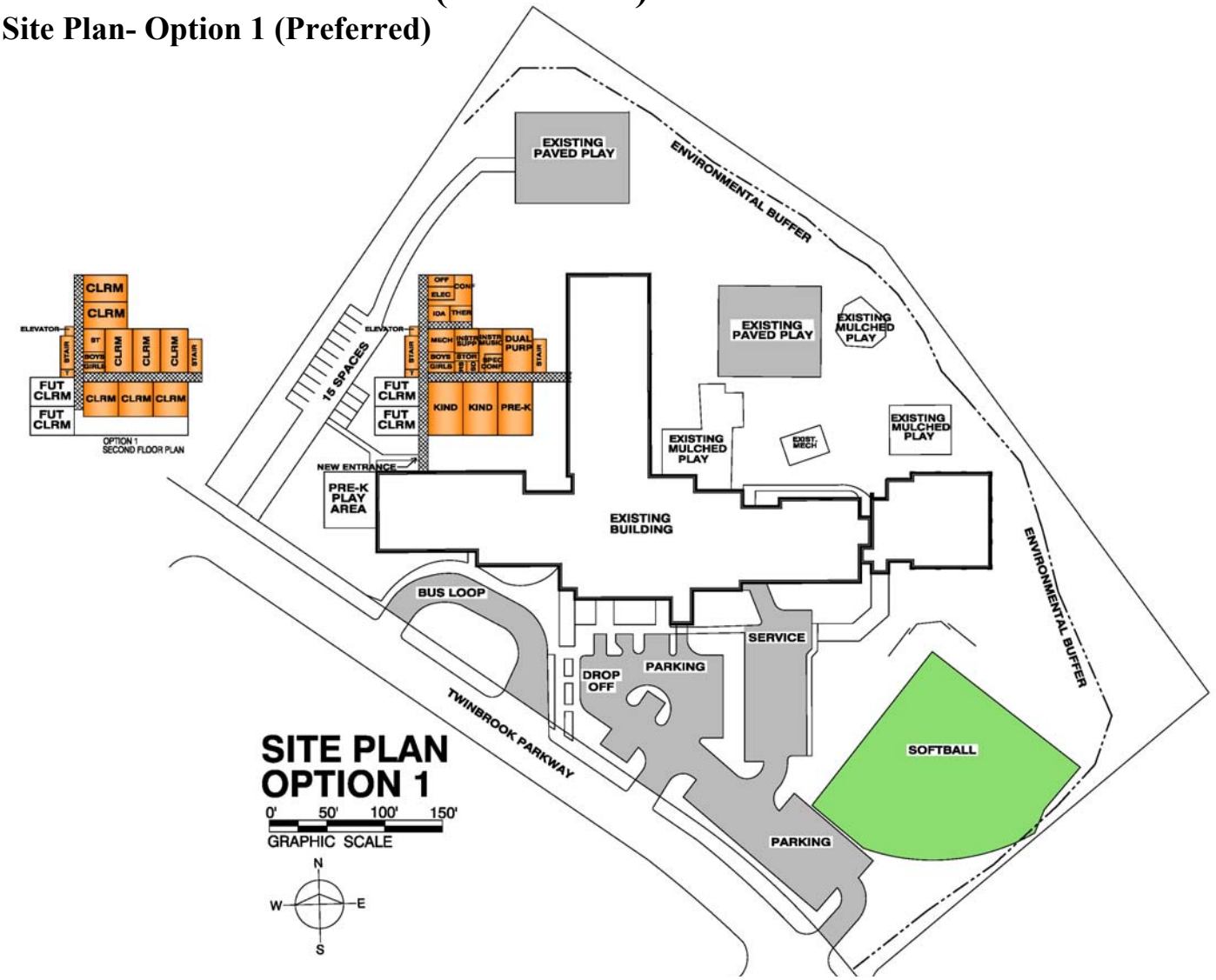
4. **Service Access**
   Building service remains as is and is accessed through the drop-off area.

5. **Site Amenities**
   Existing play areas will remain. The addition will displace one paved play area. A new paved pre-kindergarten playground will be provided. A storm water management system will be provided in compliance with governmental regulations.

6. **Building**
   Option I provides a new two-story addition that connects the rear corridor to a front corridor creating a loop corridor circulation system. The space between the new addition and the existing building becomes an open courtyard to provide natural light and ventilation to the rooms surrounding it.

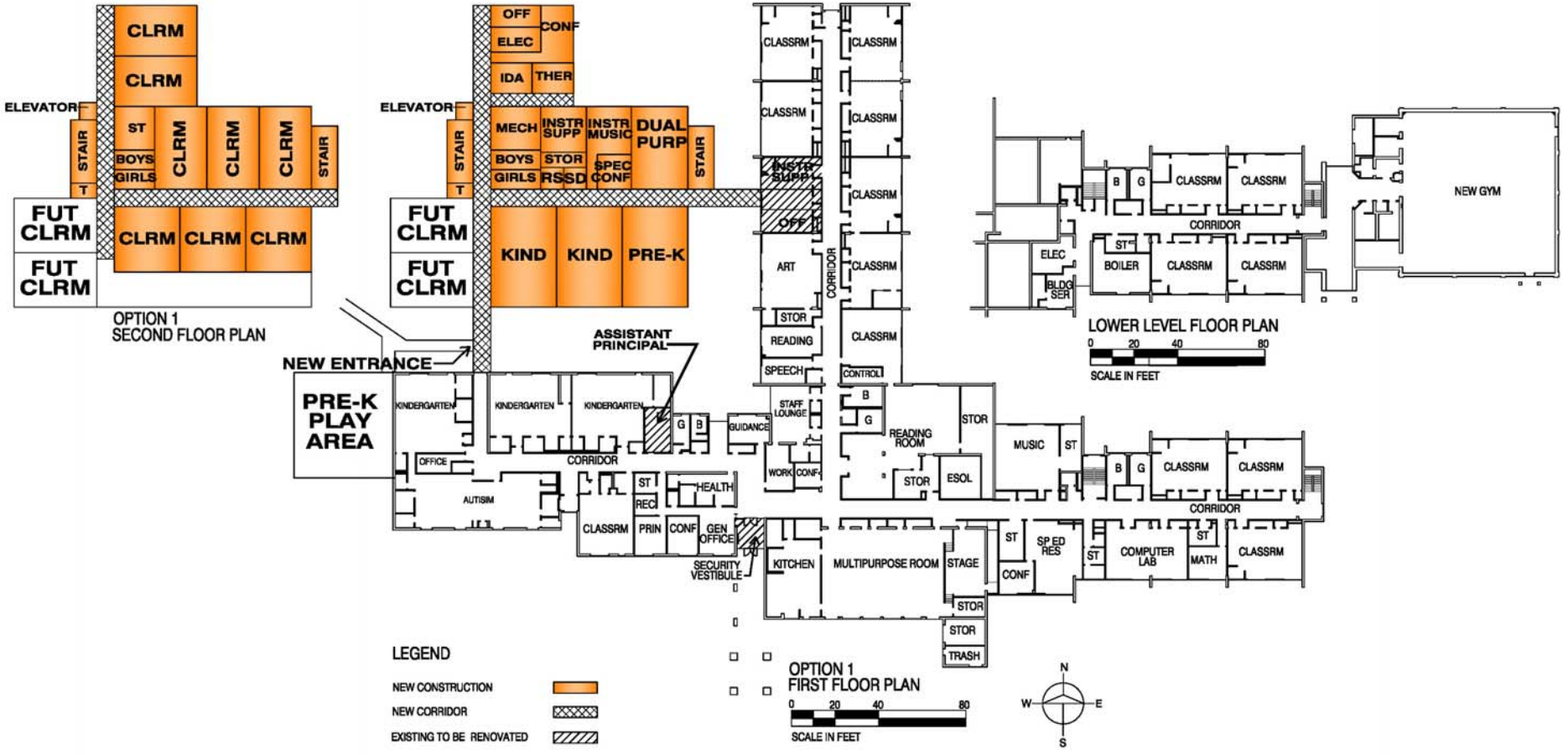
V. DESCRIPTION OF OPTIONS (Continued)

Proposed Site Plan- Option 1 (Preferred)



V. DESCRIPTION OF OPTIONS (Continued)

Proposed Floor Plan- Option 1 (Preferred)



V. DESCRIPTION OF OPTIONS (Continued)

C. OPTION I ADVANTAGES AND DISADVANTAGES

OPTION I – ADVANTAGES

- The addition is two-stories with the smallest footprint
- The small footprint conserves space on the site.
- The classroom grouping works well with grade levels.
- The addition can be built without disrupting the existing building.
- The addition forms a corridor circulation loop.

OPTION I – DISADVANTAGES

- The two-story addition requires two stairs and an elevator.
- A partially single loaded corridor exists until the future classrooms are built.

V. DESCRIPTION OF OPTIONS (Continued)

D. OPTION II - DESCRIPTION

Option II consists of a one-story addition in the back left of the building. A future master-planned classroom addition is shown in each option.

SITE ACCESS, CIRCULATION AND PARKING

1. **Parking**
   A total of 79 parking spaces are provided. Access to parking, and parent drop-off is entirely separate from the bus loop.

2. **Bus Loop**
   The bus loop remains as is.

3. **Student Drop-Off**
   The drop-off area remains as is.

4. **Service Access**
   Building service remains as is and is accessed through the drop-off. Service vehicles will not be allowed during peak morning and evening arrivals and departures.

5. **Site Amenities**
   Existing play areas will remain. The addition will displace one paved play area. A new paved pre-kindergarten playground will be provided. A storm water management system will be provided in compliance with governmental regulations.

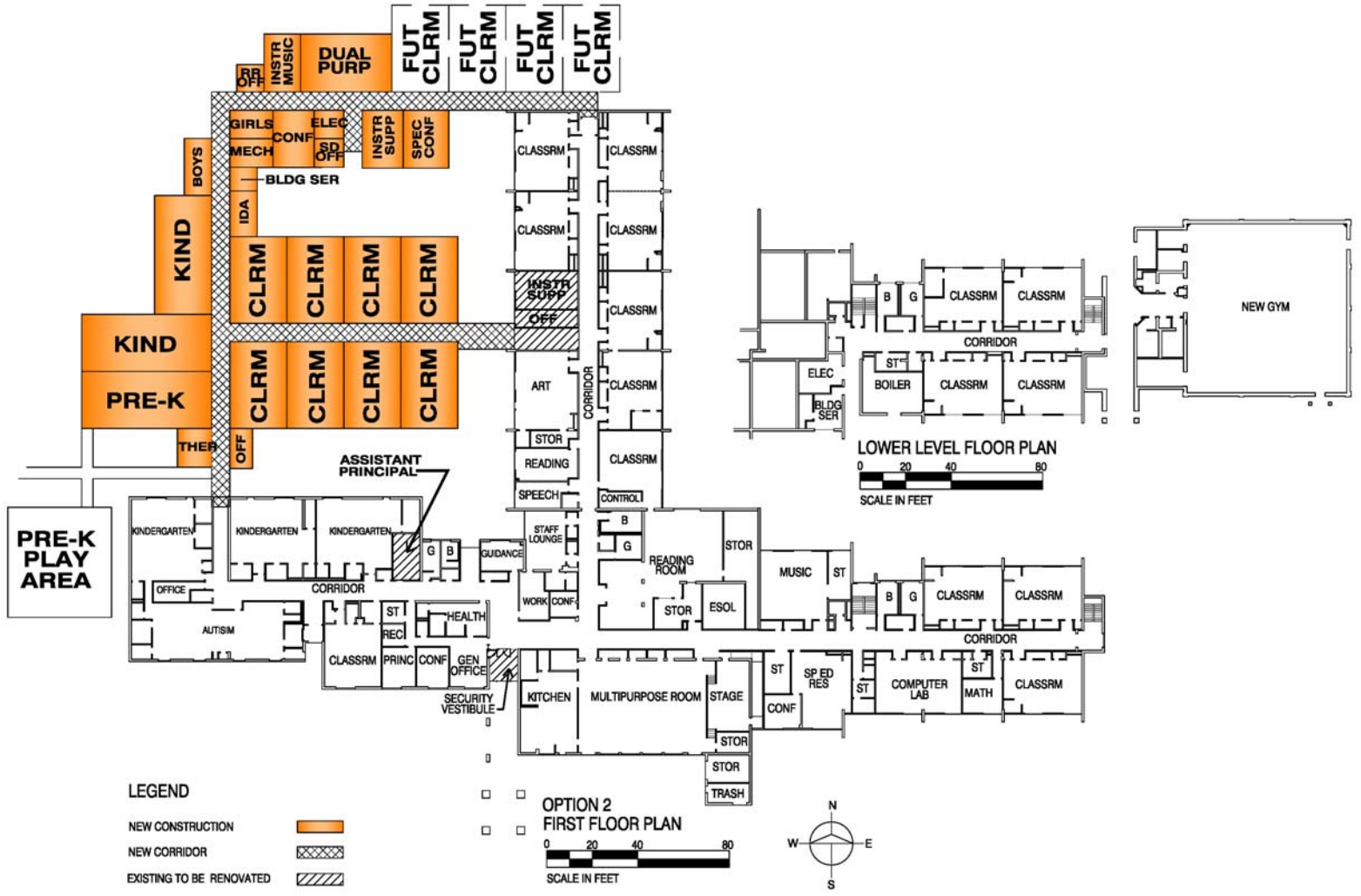
6. **Building**
   Option II consists of a one-story addition in the back left of the building that connects to the existing corridors in three places. One connection is at the front corridor and two are at the back corridor.

V. DESCRIPTION OF OPTIONS (Continued)

Proposed Site Plan – Option II

V. DESCRIPTION OF OPTIONS (Continued)

Proposed Floor Plan - Option II



V. DESCRIPTION OF OPTIONS (Continued)

D. OPTION II ADVANTAGES AND DISADVANTAGES

OPTION II – ADVANTAGES

- Three connections to the existing corridors are provided.
- The addition is one-story. No stairs or elevator is required.
- The classroom groupings work well with grade levels.
- The future classroom addition is easily added to an existing corridor

OPTION II – DISADVANTAGES

- The one-story addition has a larger footprint.
- The windows at the existing art room receive less light.

V. DESCRIPTION OF OPTIONS (Continued)

E. OPTION III - DESCRIPTION

Option III proposes a one-story addition at the back left of the building. A future master-planned classroom addition is shown in each option.

SITE ACCESS, CIRCULATION AND PARKING

1. **Parking**
   A total of 79 parking spaces are provided. Access to parking, and parent drop-off is entirely separate from the bus loop.

2. **Bus Loop**
   The bus loop remains as is.

3. **Student Drop-Off**
   The drop-off area remains as is.

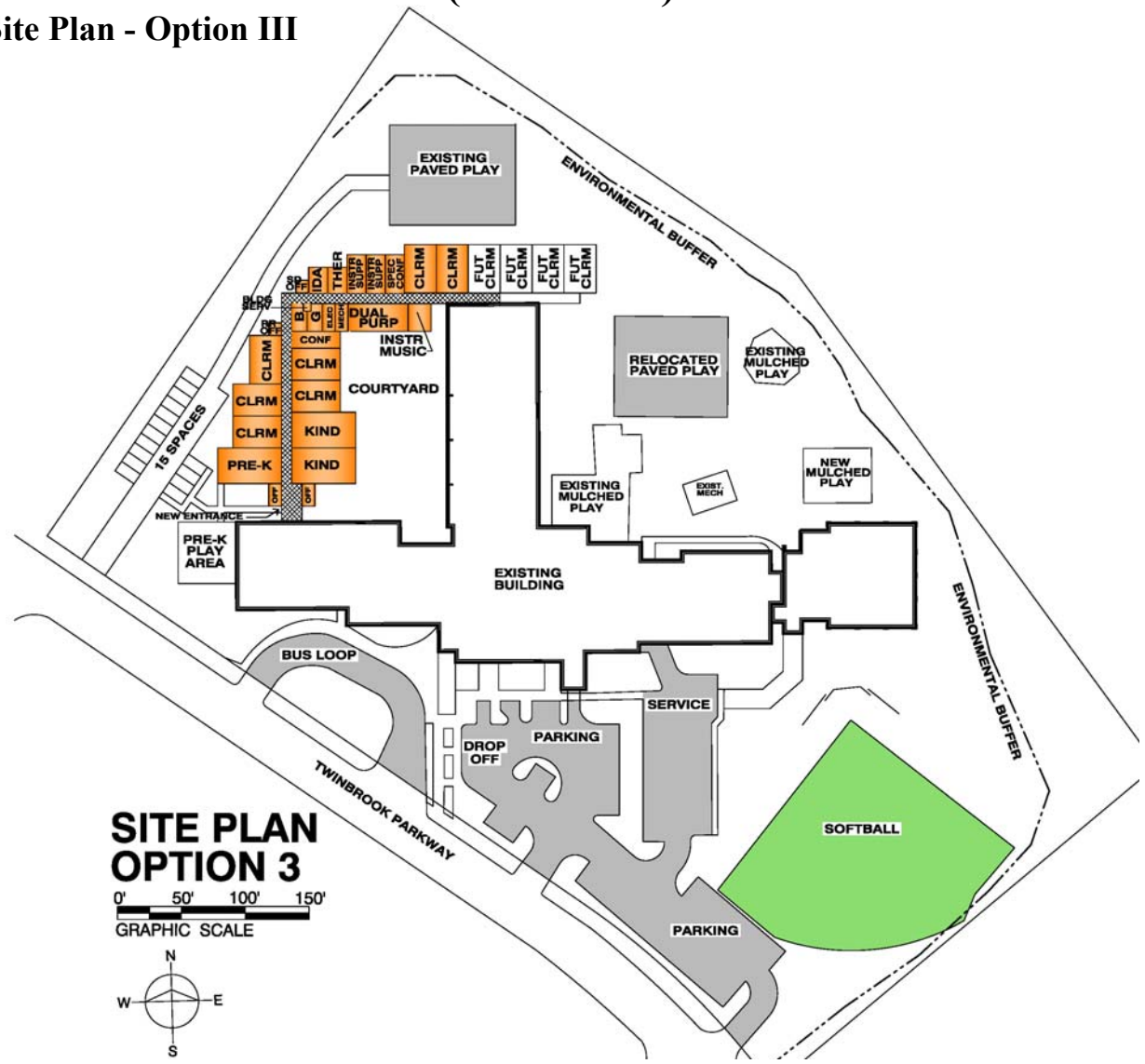
4. **Service Access**
   Building service remains as is accessed through the drop-off area. Service vehicles will not be allowed during peak morning and afternoon arrivals and departures.

5. **Site Amenities**
   Existing play areas will remain. The addition will displace one paved play area. A new paved pre-kindergarten playground will be provided. A storm water management system will be provided in compliance with governmental regulations.

6. **Building**
   Option III consists of a one-story addition in the back left of the building that connects to the existing corridors in two places. One connection is at the front corridor and one is at the back corridor.

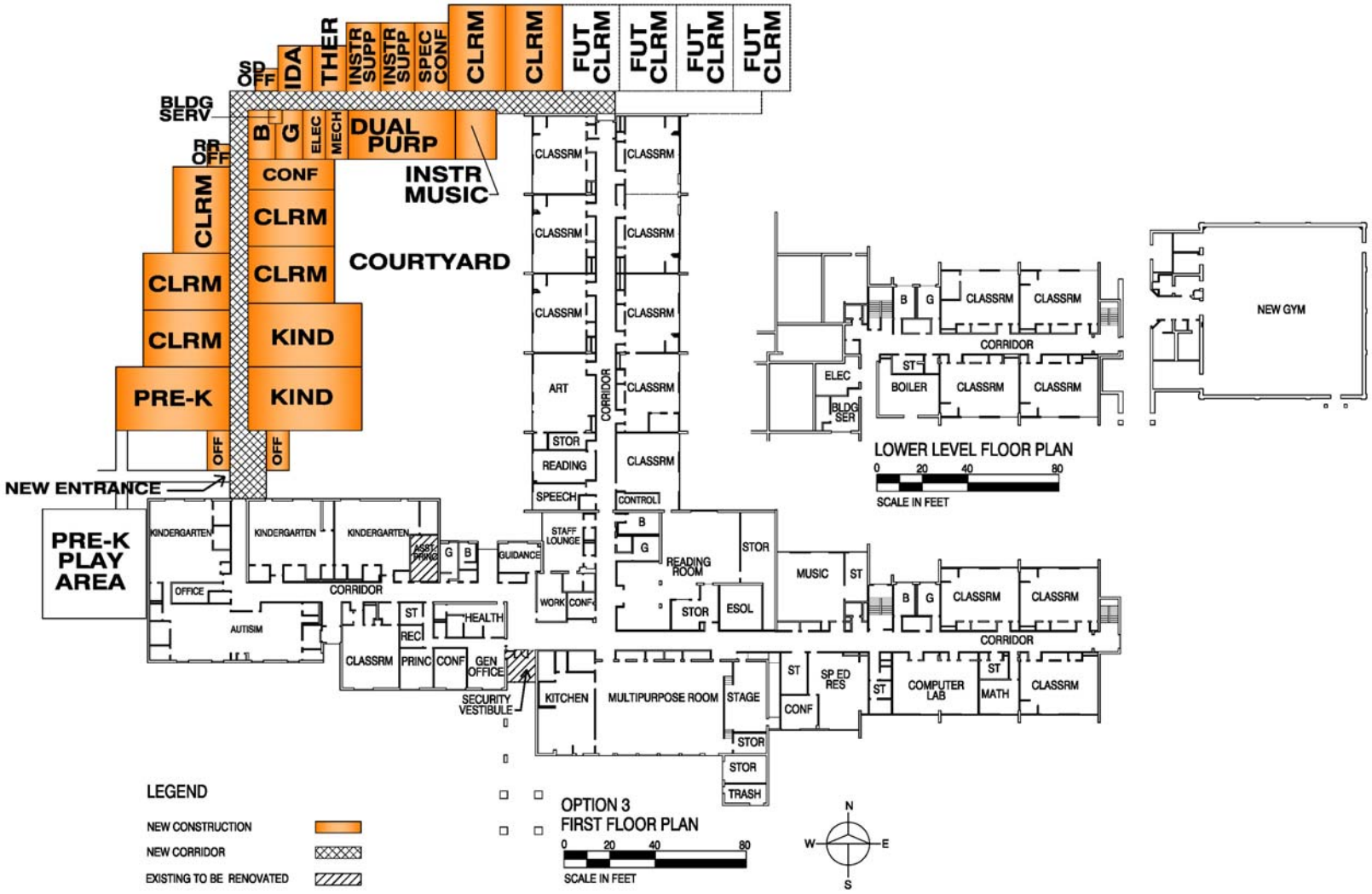
V. DESCRIPTION OF OPTIONS (Continued)

Proposed Site Plan - Option III



V. DESCRIPTION OF OPTIONS (Continued)

Proposed Floor Plan - Option III



V. DESCRIPTION OF OPTIONS (Continued)

E. OPTION III ADVANTAGES AND DISADVANTAGES

OPTION III – ADVANTAGES

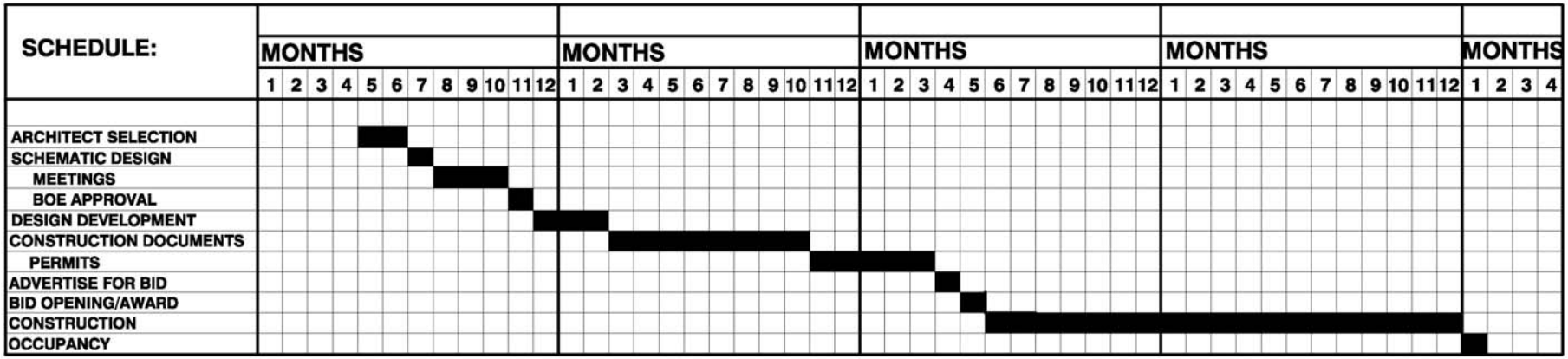
- The addition is one-story. No stairs or elevator is required.
- No renovation of the existing building is required

OPTION III – DISADVANTAGES

- The footprint of the one-story addition takes the most land area.
- The future classroom addition requires a new corridor

VI. PROPOSED PROJECT IMPLEMENTATION SCHEDULE

MEADOW HALL ELEMENTARY SCHOOL ADDITION



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VII. APPENDICES

Appendix A - Space Allocation Summary

Appendix B - Educational Specifications

Appendix C - Existing Conditions, Survey and code analysis

Appendix D - Existing Photos

APPENDIX A - Space Allocation Summary

Meadow Hall Elementary School Addition
Square Foot Summary

When this project is complete, the following spaces are to be provided:

Capacity after the addition will be 563.

Updated 2/12/13

Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Classrooms				
Prekindergarten	**1**	Includes 250 s.f. storage	1300	**1300**
Kindergarten	**2**	Includes 250 s.f. storage	1300	**2600**
Standard	**7**	Includes 150 s.f. storage	900	**6300**
Dual purpose Room	1		1000	**1000**
Instrumental Music Room	1		450	**450**
Support Rooms				
Small Instructional Support Room	2		450	**900**
Special Education Conference Room	1		250	**250**
Therapy/Support Room	1		250	**250**
Instructional Data Assistant Office	1		250	**250**
Support Staff Offices (AP)	2		150	**300**
Staff Development Area				
Staff Development Office	1		100	**100**
Reading Specialist Office	1		100	**100**
Training/Conference Room	1		450	**450**
Total	**10**			**14250**

APPENDIX B - Educational Specifications

Meadow Hall
Elementary School Addition

Educational Specifications
Feasibility Study

October 3, 2012
Updated February 12, 2013

MCPS

Montgomery County Public Schools
Rockville, Maryland 20850

Table of Contents

Introduction

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

☐ The program capacity for this school will be 563. The school needs a four-classroom master-planned addition to bring the program school up to its master-planned capacity. The architect should show the location for the future classroom addition.

☐ The educational specifications are divided into three sections.

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

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

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

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

General Planning Considerations

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

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

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

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

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

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

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

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

- ☐ Water coolers should be provided throughout the school.

- ☐ Every teaching station, support space, and core area must be wired for computer, CCTV, and telephone, along with adequate electrical supply in compliance with Maryland Sate design guidelines for Technology in Schools and the MCPS Office of the Chief Technology Office

- ☐ (OCTO) guidelines. Facilities must be adaptable to accommodate rapid development in high technology and its equipment since educational program and organization in this field are dynamic. Space and power supply must be flexible to meet these changing needs.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- ☐ Metal adjustable shelving is to be provided in all building storage closets.

- ☐ All plan reviews will be coordinated through the Division of Construction.

- ☐ Special consideration must be given to energy conservation including total life-cycle costs. The current Maryland State Department of General Service (DGS) requirements will be applied as design criteria. Life-cycle cost accounting in accordance with DGS criteria is required.

- ☐ Per COMAR 23.03.02: Regulation .29, all school projects that include replacing or upgrading the electrical system should be designed and constructed sot that a designated public shelter area can be fully powered in the event of an emergency.

Description of Facilities

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

Prekindergarten/Kindergarten Classroom

- ☐ If the school has a Head Start program, the classroom should be designed as a prekindergarten/kindergarten classroom.

- ☐ Each room should allow flexibility in creation of activity areas and to provide for individualized instruction through arrangement of the "centers" approach.

- ☐ An area should be designated for placement of a 12’ by 15’ area rug over the finished floor.

- ☐ A 100 square foot walk-in storage closet and 150 square feet of general storage (casework throughout the classroom) is needed.

- ☐ When possible there should be interconnecting interior doors between all kindergarten and pre-kindergarten rooms.

- ☐ All prekindergarten rooms should have an outside door or be directly accessible to the outside and convenient to the main entrance of the school building.

- ☐ The prekindergarten classrooms must have direct access to the prekindergarten play areas. See the Site Requirements section for a description of play areas. The computers should not be located next to a whiteboard where magnets might damage the hardware and software. Glare from the windows on the computer screens should be eliminated as much as possible. Security for the computers should be planned in consultation with the DOC. Computer/technology wiring must be in accordance with MSDE/MCPS guidelines.

- ☐ Every classroom must have computer outlets for five student Every classroom must have computer outlets for five student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the February 2002 revision of the MSDE *Maryland Public School Standards for Telecommunications Distribution Systems*.

- ☐ The main teaching wall layout should be in accordance to DOC Facilities Guide.

- ☐ A sink with a drinking fountain must be provided, with cabinets above and below.

- ☐ In a non class-size reduction school, the built-in student wardrobe area must provide 28 individual compartments to store students' belongings. The architect is to refer to the MCPS Facility Guideline Specifications for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.

- ☐ In a class-size reduction school, the built-in student wardrobe area must provide 24 individual compartments to store students' belongings. The architect is to refer to the MCPS Facility Guideline Specifications for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.

- ☐ A total of 20 feet of tackboard and 10 feet of magnetic whiteboard should be installed at eye-level height for small children, with tack stripping along walls for display of student work.

- ☐ Each room must have a toilet room that is accessible from within the room and easily accessible from outside. The toilet room will contain a standard height toilet, a sink with child-height mirror, and soap and towel dispensers that are accessible to small children. The light switch should automatically turn on the vent fan.

- ☐ Each classroom should be equipped with window blinds per the MCPS design guidelines.

- ☐ Battery operated clocks will be installed.

- ☐ All classrooms should be equipped with a handicapped accessible sink with drinking bubbler.

☐ A full-length mirror should be installed.

Standard Classroom

☐ Each room must have an open classroom area with moveable furniture.

☐ 150 square feet of casework storage is needed in the classroom.

☐ When possible there should be interconnecting interior doors between all classrooms.

☐ The computers should not be located next to a whiteboard where magnets might damage the hardware and software. Glare from the windows on the computer screens should also be eliminated as much as possible. Security for the computers should be planned in consultation with the MCPS Division of Construction (DOC). Computer/technology wiring must be in accordance with DOC/MSDE/OCTO standards.

☐ Every classroom must have computer outlets for 5 student workstations and 1 teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE *Maryland Public School Standards for Telecommunications Distribution System*.

☐ The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.

☐ Thirty built-in individual compartments in the wardrobe area for storing student personal property are required. The architect should refer to the MCPS Facility Guideline Specifications for a typical cubby design for grades K-1 and grades 2-5. Lockers in the hallway may be used in place of the classroom cubbies.

☐ If lockers are designed for storing individual student property, the architect should design the facility with 700 lockers if the core capacity is 640 and 815 lockers if the core capacity is 740.

☐ All classrooms should be equipped with a handicapped accessible sink with drinking bubbler.

- ☐ A storage area is needed to hold at least two science kits (approximate 27" x 17" x 12" each) and one math kit in each classroom.

- ☐ General storage space must be built in and must accommodate 24- by 36-inch paper and a 4-drawer file cabinet. Each classroom must include 48 linear feet of built-in adjustable shelving.

- ☐ A small lockable teacher's wardrobe must be provided, as per DOC construction standards.

- ☐ Designated shelf space, not near a window, for an aquarium/terrarium with nearby electrical outlet, is desirable.

- ☐ Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.

- ☐ Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector

- ☐ Battery operated clocks will be installed.

- ☐ Shelving or cabinetry should be provided in every teaching station for the VCR and television. A school may choose to place the television and VCR on a cart. Appropriate CCTV receptacles and a duplex outlet should be provided nearby for the operation of the TV and VCR. Placement of the TV should be to maximize student viewing and not be unduly influenced by exterior or interior extraneous light.

- ☐ A school may consider reducing the size of each classroom to create small break-out rooms in the school. The number and design of these breakout rooms may be determined by school and MCPS staff.

Instrumental Music Room

- ☐ A secure closet area is needed adjacent to the room for large instrument storage.

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

- ☐ The Instrumental Music Room must be soundproofed.

- ☐ Doors into the instrumental music room must be wide enough to accommodate the passage of a piano.

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Dual Purpose Room

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

Support Rooms

Spatial Needs
Small Instructional Support Room
Special Education Conference Room
Occupational Therapy/Physical Therapy (OT/PT) Room
Instructional Data Assistant Office
Support Staff Offices (two)

Small Instructional Support Room

- ☐ Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- ☐ Every classroom must have computer outlets for two or three student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE *Maryland Public School Standards for Telecommunications Distribution System*.

- ☐ Approximately 10 to 15 linear feet of magnetic marker board and 10 to 15 linear feet of tack board, both with tack strips and map rails above the boards, should be installed in each classroom. Marker boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ Each classroom must include built-in adjustable shelving under the windows.
- ☐ A small lockable teacher's wardrobe must be provided, as per MCPS Facility Guideline Specifications.
- ☐ This classroom should be equipped with a handicapped accessible sink with drinking bubbler. Cabinets should be provided above and below the counter area.
- ☐ Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- ☐ Each classroom should be equipped with a retractable projection screen (7' x 7'). The projection screen should not be mounted near any emergency lighting tracks. All areas of the screen should be illuminated and readable when the lights are dimmed.
- ☐ Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- ☐ Battery operated clocks will be installed. The clock should not be mounted behind the projection screen.

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Special Education Conference Room

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

Occupational Therapy/Physical Therapy (OT/PT) Room

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

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

Instructional Data Assistant Office

- ☐ This room is required for a data assistant who conducts assessments, updates individual student test scores, and provides remediation of students' skills.
- ☐ This room houses one computer with printer and card reader and must be lockable and secure.
- ☐ This room requires some built-in casework with shelves and doors, a small lockable teacher’s wardrobe, whiteboards, and video, voice, data outlets, nd space for file cabinets.

Support Staff Offices

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

- ☐ A teacher's wardrobe should be provided for itinerant staff use.
- ☐ Video, voice, and data outlets should be provided.

Staff Development Area

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

Staff Development Office

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

Reading Specialist Office

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

Training/Conference Room

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

Site Requirements

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

- ☐ Space for buses to load at one time is needed. The number of buses will be reviewed during the design phase in consultation with the Department of Transportation.

- ☐ Bike racks should be provided near the building.

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

Driveway and Service Drive

- ☐ The architect/engineer should refer to the MCPS Facility Guideline Specifications when designing the driveway, bus loop, service drives, etc.

- ☐ Bus traffic should be separated from car traffic at all times, when possible. Bus loading zones should be able to accommodate the entire student body.

- ☐ A student drop off area should be provided and must be separate from the bus loop area.

- ☐ All driveways must be arranged so that children do not cross them to get to the play areas.

- ☐ Care for safety of students must be exercised in developing the driveways including use of safety rails in the bus loading area.

- ☐ Pedestrian access to the school facilities should be designed to make the best use of community right-of-ways and avoid crossing of loading zone areas.

- ☐ The site must comply with the most current ADA or COMAR regulations, whichever is most stringent.

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

- ☐ Driveway aprons are to be perpendicular to the centerline of the street; and if there is an intersecting street on the opposite side from the proposed driveways, the driveway apron should line up with the intersecting street.

- ☐ Driveways should be located so that vehicle headlights do not project into adjacent homes.

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- ☐ Driveways should be located so that vehicle headlights do not project into adjacent homes.
- ☐ A service drive is required to service the kitchen, boiler room, and general delivery area. The architect should refer to the MCPS Facilities Guide.
- ☐ Site access must be provided to comply with fire protection and storm water management regulations.

Parking

- ☐ Ideally, a minimum of 80 parking spaces should be designed initially for a school with regular staffing allocations, with future expansion possible. At schools with class-size reduction, 100 parking spaces should be provided.
- ☐ The parking area should be designed to maximize safety and minimize speed.

- ☐ Adequate lighting should be provided.
- ☐ Parking area should have two exits.
- ☐ Guardrails or bollards are to be installed to protect fields and play areas.

Landscaping

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

Physical Education Site Requirements

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

Softball Fields

- ☐ Two softball fields should be provided with the following design requirements:
- ☐ 250' radius, with a soccer field superimposed should be provided if possible. See below for the soccer field dimensions.
- ☐ The site size will determine the number and dimension of the softball fields.

- ☐ Softball fields should have metal benches protected by fencing for each team's use.
- ☐ The fencing and benches should not interfere with soccer field usage.
- ☐ The softball backstops (2) shall be in diagonal corners of the field or in corners on the same side. See the diagram in the Division of Construction Facilities Guide.
- ☐ Softball infields are not skinned for elementary schools. However, one field may be skinned if it does not significantly impact the soccer playing area.

Soccer

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

Paved Play Areas

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

Kindergarten Paved Play Area

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

Playground Equipment Areas (mulched areas)

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

Kindergarten Play Area (mulched area)

- ☐ A mulched kindergarten play area of 40' x 60' should be located adjacent to the kindergarten paved play area described in the physical education section for playground equipment. The size and shape of the play area will be developed during the design process in consultation with MCPS staff.
- ☐ The area shall be level bare ground, unseeded, and no sod. MCPS will provide equipment dimensions for this area.

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

Prekindergarten Play Areas

- ☐ If the school has a prekindergarten, Head Start, or Preschool Education Program, then a separate and fenced outdoor play is required.
- ☐ This area must be adjacent to the classrooms with access directly from the classrooms.
- ☐ If the school does not have a prekindergarten program than the outdoor play area should be master planned so that it can be added on at a later time.
- ☐ The prekindergarten play area should include a 40'x40' paved play area and a 40'x40' mulched area. The architect will consult with the MCPS staff on the design of the playground equipment.

Additional Program Requirements for Meadow Hall Elementary School

- ☐ It is desirable to better utilize the field at the front right side of the site.
- ☐ A determination as to whether this project will include an Add-Alternate for a Linkages to Learning School Based Health Center will be made in May 2013.
- ☐ A Prekindergarten program will be added to this school at the completion of construction.
- ☐ Inviting landscaping and artwork are desirable.

APPENDIX C: Existing Conditions Survey & Code Analysis

A. BUILDING/GENERAL

Meadow Hall Elementary School is constructed of non-combustible materials and is sprinklered. The building is conventional masonry and steel frame construction. Exterior walls and interior partitions are primarily masonry and drywall. The structural system is a combination of masonry bearing walls, steel framing with steel roof joists, and concrete floor slabs on grade. The windows are insulated thermal broken aluminum and are in good condition.

B. SITE

The site generally is in good condition with good drainage except for the front right portion of the site. The front right portion of the site is a softball field that sits 25 feet below the main building. This softball field has poor drainage. When the addition is built a new drainage system for this area will be designed. .

C. STRUCTURAL SYSTEMS

The existing structure is in good condition. No unusual cracks in the masonry were observed.

D. HEATING VENTILATION AND AIR CONDITIONING SYSTEMS

Meadow Hall Elementary School was originally constructed in 1957. Classroom Additions were built in 1958 and 1967. An addition and modernization occurred in 1994. A new gym was added in 2008. During the 1994 modernization all of the school's original mechanical equipment was replaced, including classroom unit ventilator systems and rooftop units supporting other building areas. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

Heating and Cooling Systems

Centralized heating and cooling systems are provided within the existing school. A 2-pipe system is used to distribute heated and chilled water throughout the building. Two 1004 MBH gas fired boilers provide heated water. An 83.6 ton outdoor air cooled reciprocating chiller provides chilled water. Heated and chilled water are pumped through the Mechanical systems, including self-contained unit ventilators, packaged rooftop units and packaged indoor units. These systems are described in more detail in the HVAC Systems section below.

APPENDIX C: Existing Conditions Survey & Code Analysis (Continued)

HVAC Systems

The heating, ventilating, and air conditioning (HVAC) systems are similar throughout the existing building. Most systems were installed in 1994 and appear to be in good working condition. The following is a breakdown of the various spaces and their associated HVAC system:

- Typical Classroom: Classrooms are heated and cooled through self-contained 2 pipe unit ventilators; each unit ventilator has a direct outdoor air connection through a louver mounted in the exterior wall. An exhaust register is provided for each classroom to maintain proper room pressurization. Exhaust air from several classrooms is ducted to a fan located at the roof. The existing unit ventilators were installed in 1994 and appear to be in good working condition.

- Cafeteria: A packaged indoor unit with a 2 pipe coil cooling and heating serves the cafeteria and stage areas. Supply air for these spaces is distributed by overhead air devices located throughout the area. An exterior louver provides fresh air to this unit. Rooftop exhaust fans are interlocked with the air handler. One large return air grille, installed low and in the stage area, returns airflow back to the indoor unit. This indoor unit was installed in 1994 and appears to be in good working condition.

- Kitchen: A packaged rooftop air conditioning unit with a 2 pipe duct heating coil serves the kitchen and serving line areas. This unit appears to be in good working condition and was installed in 1994. The dry food storage room is currently provided with year-round space conditioning through a ductless split system located within the space.

- Media Center: A packaged rooftop unit air conditioning unit with a 2 pipe duct heating coil serves the media center and media center support spaces. This unit appears to be in good working condition and was installed as part of the 1994 modernization.

- Gymnasium: A heating and ventilating unit with gas heat serves the gymnasium area. This unit was installed in 2008 when the new gymnasium was constructed.

- Administration and Health Suite: A packaged rooftop air conditioning unit with a 2 pipe duct heating coil serves the administration and health suite area. This unit appears to be in good working condition and was installed in 1994.

APPENDIX D: Project Photographs

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