Strawberry Knoll Elementary School Addition
Feasibility Study

Prepared for
Montgomery County Public Schools

by

Delmar Architects, P.A.
Olney, MD

October 2013

Strawberry Knoll Elementary School
Addition

18820 Strawberry Knoll Road
Gaithersburg, Maryland 20879

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I. INTRODUCTION

This feasibility study was conducted for Montgomery County Public Schools (MCPS) by Delmar Architects, P.A. Strawberry Knoll Elementary School is located at 18820 Strawberry Knoll Road, Gaithersburg, Maryland 20879. The work was performed under the direction of the MCPS Department of Facilities Management's Division of Construction.

FEASIBILITY STUDY PARTICIPANTS:

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II. EXECUTIVE SUMMARY

A. PURPOSE

This feasibility study develops design alternatives and related costs for the Strawberry Knoll 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

Strawberry Knoll Elementary School is located at 18820 Strawberry Knoll Road, Gaithersburg, Maryland, within the Gaithersburg Cluster. The building was constructed in 1988. Currently, student enrollment is 552 in grades pre-K to 5. The addition will increase capacity to 640. The existing structure contains 78,723 gross square feet. The existing site is 15.2 acres.

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 January 25, 2012.

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 limitations.

II. EXECUTIVE SUMMARY (Continued)

D. SUMMARY

Strawberry Knoll Elementary School is a one-story structure with classrooms and an instructional media center arranged around a central courtyard. The front portion of the building contains the gym, administration suite and the multi-purpose room.

The existing structure is constructed of non-combustible materials and is sprinklered. The front portion of 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 two classroom wings on each side of the central courtyard are modular construction.

Site topography varies from an elevation of 490.00 at the southeast side (Strawberry Knoll Drive) to 460.00 at the northwest side. The School sits almost level with Strawberry Knoll Drive at an elevation of approximately 488.00. Currently, the site accommodates 84 parking spaces. Options 1, 2 and 3 propose 100 parking spaces and vehicle circulation that is modified to avoid conflict between vehicle types and pedestrians. 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 under each option.

II. EXECUTIVE SUMMARY (Continued)

E. COMMON DESIGN ELEMENTS

All three options have the following common elements:

- Adherence to the educational specifications.
- Improved access separates bus, car & pedestrian traffic on-site
- Rearrange the main office in order to monitor the main entrance.
- The music and dual-purpose rooms are repurposed in their originally designated locations
- The staff lounge is renovated.

II. EXECUTIVE SUMMARY (Continued)

F. UNIQUE ELEMENTS OF OPTION I: (Preferred)

- The addition creates a loop corridor circulation around a courtyard.
- The kindergarten classrooms are closer to the front of the building.

Option I – Total Cost: $7,255,000

II. EXECUTIVE SUMMARY (Continued)

G. UNIQUE ELEMENTS OF OPTION II:

- The kindergartens are in the back of the building far from the front of the school.
- The future addition can be built without disruption to the school.
- The addition encroaches on the ball field area.

Option II – Total Cost: $7,800,000

II. EXECUTIVE SUMMARY (Continued)

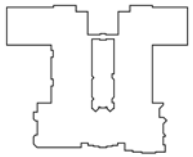
H. UNIQUE ELEMENTS OF OPTION III:

- The back left classroom wing is demolished and replaced with a two-story wing
- An elevator and stairs are needed to connect the two floors.
- The foot print is smaller because the addition is two stories.
- A large number of relocatable classrooms will have to be brought in to replace the demolished classrooms during constructon.

Option III – Total Cost: $13,696,000

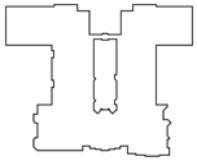
II. Executive Summary (Continued)

I. Comparative Analysis

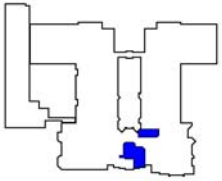


EXISTING BUILDING

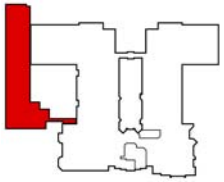
Existing Building = 78,723 SF



OPTION I – DEMOLITION
TOTAL = 0 SF



OPTION I - RENOVATION
TOTAL = 2,607 SF

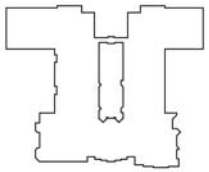


OPTION I – NEW CONSTRUCTION
FIRST FLOOR = 17,119 SF

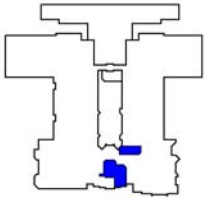
OPTION I

Existing Building	=	78,723 SF
Area of addition	=	17,119 SF
Total Building Area	=	95,842 SF

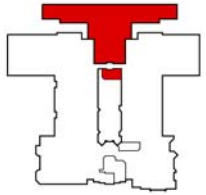
Addition		Actual
Net Assignable SF	=	14,100 SF
Addition Efficiency	=	78.59%



OPTION II – DEMOLITION
TOTAL = 0 SF



OPTION II - RENOVATION
TOTAL= 2,607 SF

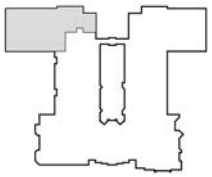


OPTION II – NEW CONSTRUCTION
FIRST FLOOR = 18,601 SF

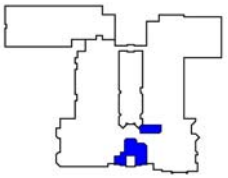
OPTION II

Existing Building	=	78,723 SF
Area of addition	=	18,601 SF
Total Building Area	=	97,324 SF

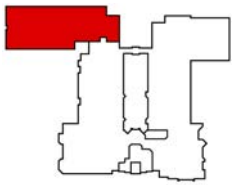
Addition		Actual
Net Assignable SF	=	14,100 SF
Addition Efficiency	=	68.08%



OPTION III – DEMOLITION
TOTAL = 12,521 SF



OPTION III - RENOVATION
TOTAL= 3,080 SF



OPTION III – NEW CONSTRUCTION
FIRST FLOOR = 18,516 SF
SECOND FLOOR = 15,644 SF
TOTAL = 34,160 SF

OPTION III

Existing Building	=	78,723 SF
Area of addition	=	34,160 SF
Total Building Area	=	100,362 SF

Addition		Actual
Net Assignable SF	=	14,100 SF
Addition Efficiency	=	42.27%

II. EXECUTIVE SUMMARY (Continued)

Description of Options
Summary Table and Cost Comparison

Square Footage:

	Option 1 (Preferred)	Option 2	Option 3	
Existing	78,723	78,723	78,723	
New Construction	17,119	18,601	34,160	
Modernization	0	0	0	
Renovation	2,607	2,607	3,080	
Demoltion (Total)	0	0	12,521	
Existing to Remain	76,116	76,116	63,122	
Total Gross Square Feet	95,842	97,324	100,362	
Total Cost	$7,255,000	$7,800,000	$13,696,000	

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

CONSTRUCTION COST ESTIMATE	5,873
PLANNING COST	690
CONTINGENCY AND RELATED COSTS	692
TOTAL COST	**7,255**

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 selecting a preferred option.

In accordance with the consensus of the Feasibility Study Participants and MCPS staff, Option I, as depicted herein, and its associated site improvements have been determined to be the preferred option. The overall function of the building and site is improved and all MCPS Program Requirements are fulfilled.

III. PROJECT SCOPE METHODOLOGY AND GOALS

A. SCOPE AND INTENT

The purpose of this Feasibility Study is to evaluate several alternatives for the addition to Strawberry Knoll 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 to be 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-three years, was selected to conduct the Study.

Presently, the school enrollment is 552 in grades Pre-Kindergarten to 5. The addition will increase the capacity of the school to 640. In each scheme a future classroom addition has been master-planned. The existing school is a one-story structure containing approximately 78,723 gross square feet on a site of 15.152 acres located in Gaithersburg, 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 progress review meetings at the school 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 revised accordingly. The final options are presented herein with Option I recommended as the preferred scheme.

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 members of the Feasibility Study participant.

III. PROJECT SCOPE METHODOLOGY AND GOALS (Continued)

- Four progress meetings 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. PROJECT 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:

- separate bus loading from car traffic.
- increase the number of parking spaces.
- maintain ADA compliant access to the building.

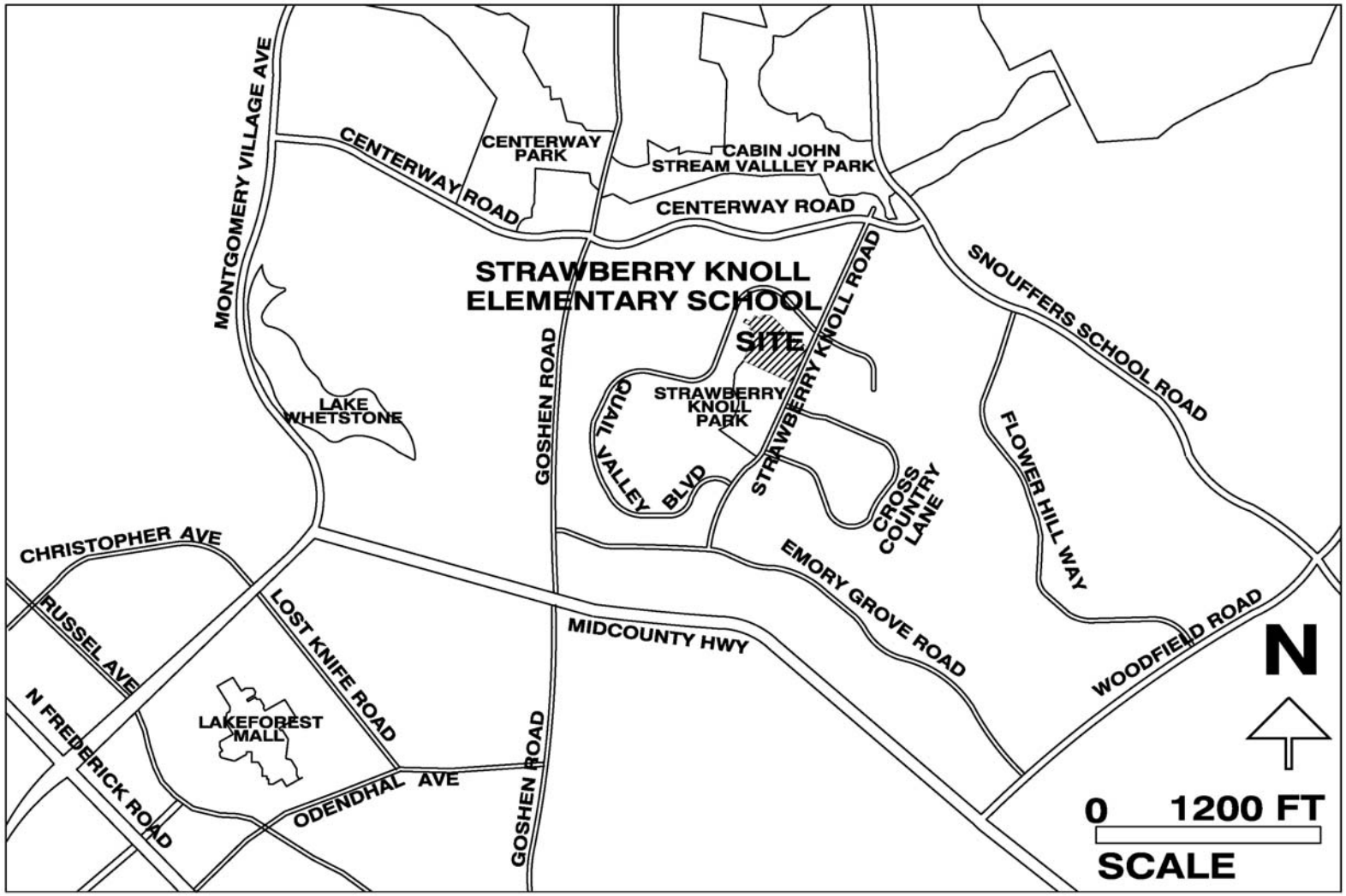
B. BUILDING GOALS AND OBJECTIVES

The addition and renovation shall:

- provide natural lighting to as many occupied rooms as possible.
- rearrange the administrative suite so that the main office has control over the entrance.
- enlarge the building with as little as possible impact on the already developed areas of the site.
- maintain ADA compliant access to the building.

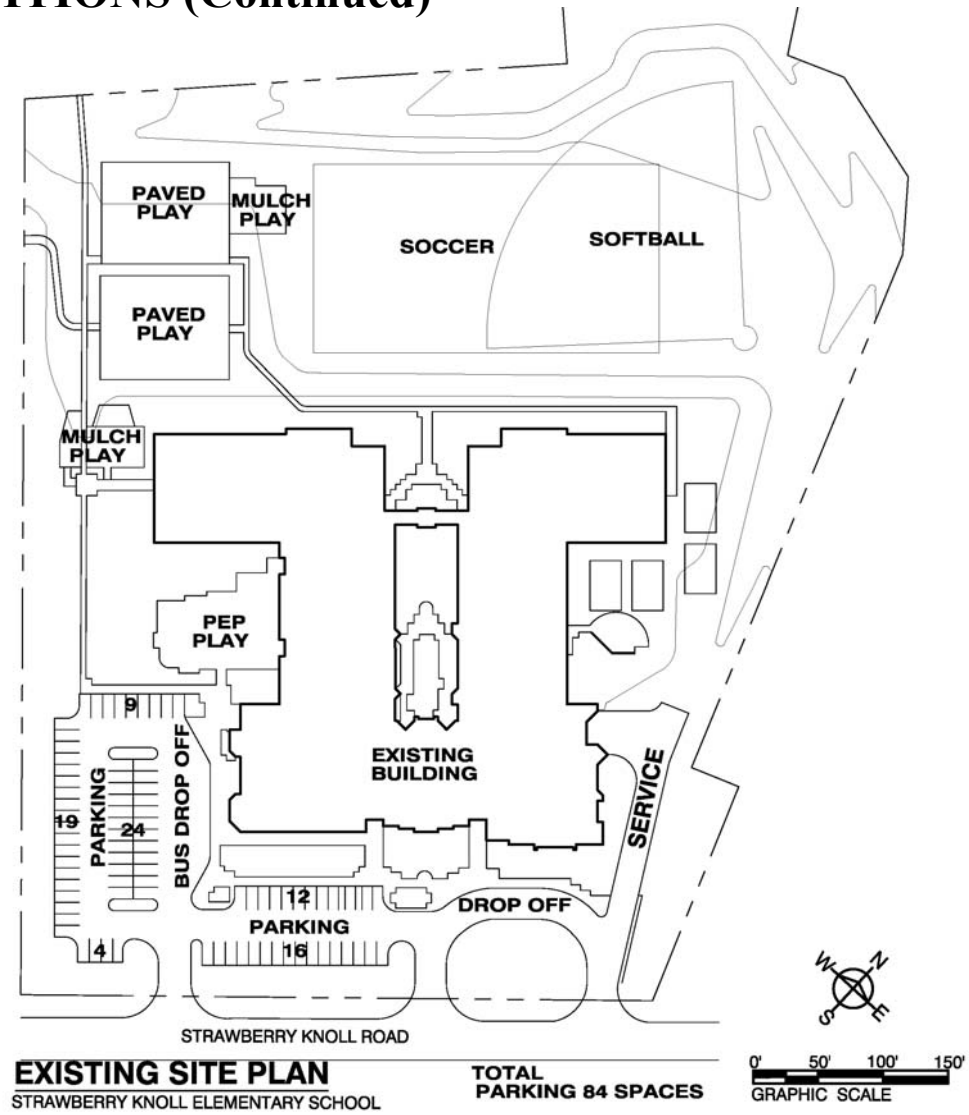
IV. EXISTING CONDITIONS

Vicinity Map



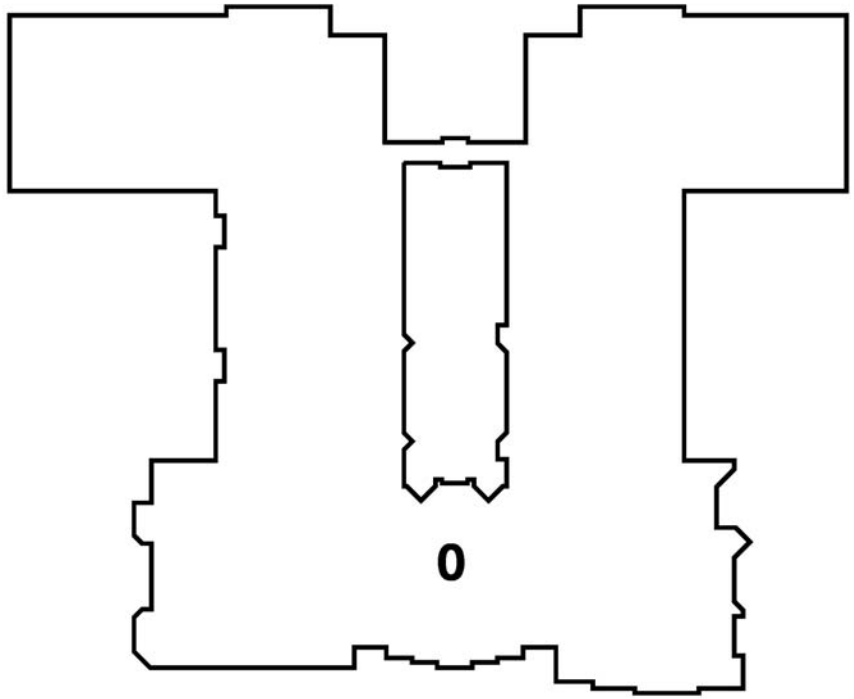
IV. EXISTING CONDITIONS (Continued)

Site Plan



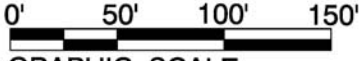
IV. EXISTING CONDITIONS (Continued)

Building History Diagram



MAIN LEVEL FLOOR PLAN

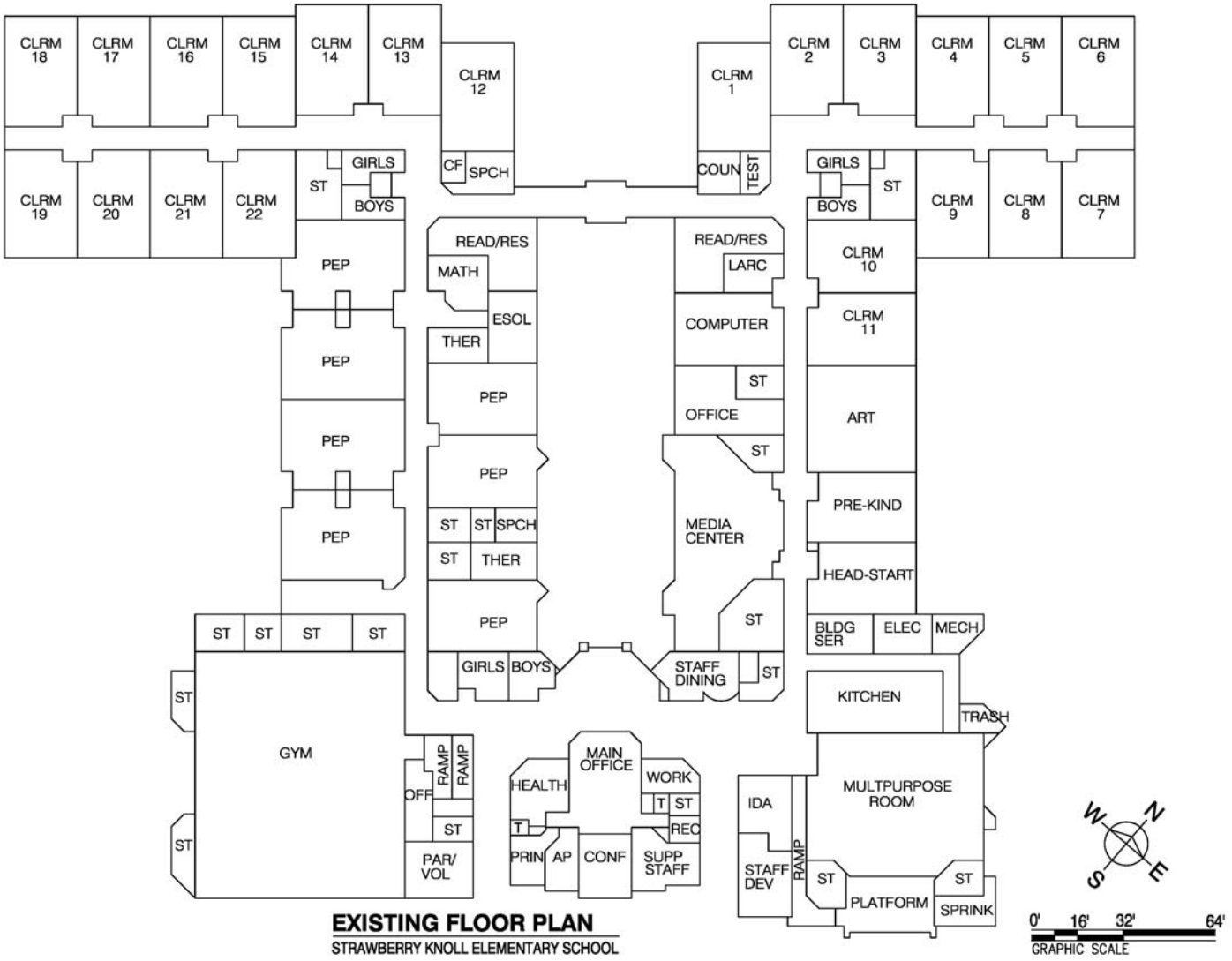
STRAWBERRY KNOLL ELEMENTARY SCHOOL



KEY

0 ORIGINAL BUILDING (1988) 78,723 S.F.

IV. EXISTING CONDITIONS (Continued)



EXISTING FLOOR PLAN
STRAWBERRY KNOLL ELEMENTARY SCHOOL

IV. EXISTING CONDITIONS (Continued)

A. GENERAL

Strawberry Knoll Elementary School is located on a 15.2 acre site at 18820 Strawberry Knoll Road, Gaithersburg, Maryland 20879 in the Gaithersburg Cluster.

B. EXISTING SITE

The school property is bounded on the southeast by Strawberry Knoll Road, on the northeast and northwest by single family homes, and on the southwest by Strawberry Knoll Park. The parent drop-off, parking lot access, service drive and bus loop all occur at the southeast side of the building with three driveways connecting to Strawberry Knoll Road. Presently, bus circulation is not separated from other vehicles.

Site topography varies from an elevation of 490.00 at the southeast side (Strawberry Knoll Drive) to 460.00 at the northwest side. The School sits almost level with Strawberry Knoll Drive at an elevation of approximately 488.00. Currently, the site accommodates 84 parking spaces.

C. EXISTING BUILDING

Strawberry Knoll Elementary School is a one-story structure with classrooms and an instructional media center arranged around a central courtyard. The gym is at the front left of the school. The administration suite is in the front middle of the school. The multi-purpose room is on the front right.

The entire building is constructed of non-combustible materials and is sprinklered. Exterior walls and interior partitions are primarily masonry and drywall. The structural system at the front portion of the building is a combination of masonry bearing walls, steel framing with steel roof joists, and concrete floor slabs on grade. The back portion of the building that houses the classrooms and the media center are factory prefabricated modules consisting of steel frames sitting on concrete piers over a crawlspace. The interior walls of the modular construction are drywall on metal studs. The exterior faces of the modular

IV. EXISTING CONDITIONS (Continued)

construction were originally thin brick veneer installed with adhesive. The thin brick has since been replaced with standard 4" brick veneer. .

D. HEATING VENTILATION AND AIR CONDITIONING SYSTEMS

Strawberry Knoll Elementary School was originally constructed in 1988. It appears that a major portion of the school's original mechanical equipment was replaced 2007, 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 not provided within the existing school. Mechanical systems, including self-contained unit ventilators and packaged rooftop units, are equipped with direct expansion (DX) cooling coils and electric heating coils for satisfying each spaces heating and cooling demands. 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 2007 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, complete with DX cooling and electric heat. 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 2007 and appear to be in good working condition.

- Cafeteria: A packaged rooftop unit with DX cooling and electric heating serves the cafeteria and stage areas. Supply air for these spaces is distributed by overhead air devices located throughout the area. Two large return air grilles, installed

IV. EXISTING CONDITIONS (Continued)

low and adjacent to stage area, return airflow back to the rooftop unit. It is anticipated that this rooftop unit was installed in 2007 and appears to be in good working condition.

HVAC Systems, Continued

- Kitchen: Similar to the cafeteria, a packaged rooftop unit with DX cooling and electric heating serves the kitchen and serving line areas. This unit appears to be in good working condition and was installed in 2007. Major kitchen equipment includes two stacked convection ovens and a two-burner electric range. There is no hood installed above this equipment, which does not meet health code requirements. 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 with DX cooling and electric heating 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 2007 equipment replacement.

- Gymnasium: A heating and ventilating unit with electric heat serves the gymnasium area. The exact age of this unit is unknown; however, discussions with building services personnel indicated no operational concerns with this system. Supply airflow is ducted through an exposed round duct that extends around the perimeter of the gymnasium. A single return air grille is mounted low within the gymnasium. An outdoor air intake louver and companion rooftop exhaust fan with open-ended exhaust duct is located at the roof level for summer operation.

- Computer Lab: A packaged rooftop unit with DX cooling and electric heating serves the computer room and adjacent interior areas (including both the speech and resource rooms). This unit appears to be original to the building and in fair working condition.

- Administration and Health Suite: Two packaged rooftop units with DX cooling and electric heating serve the administration and health suite areas. One unit serves the interior open office area, as well as the adjacent health suite. Perimeter offices and conference room areas are supported by the other rooftop unit system. Both units appear to be in good working condition and were installed in 2007. The health suite area is provided with a switch operated exhaust fan, allowing odors to be purged when needed. However, the exhaust fan bearings appear to be worn or damaged, based on the sound generated when activated.

IV. EXISTING CONDITIONS (Continued)

HVAC Systems, Continued

- Art and Art Storage Rooms: The art storage room is currently equipped with two kilns. Local exhaust for these kilns is removed through an overhead capture hood located above the kiln equipment. This arrangement offers an effective means of providing local exhaust at this equipment. Heating, cooling, and ventilation are accomplished through a self-contained unit ventilator system, similar to the typical classroom areas listed above.

- 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 and appear original to the building. There are select fans that have damage to their external housing; however, the fans appear to still be operation

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.

E. PLUMBING AND FIRE PROTECTION

Plumbing

The building is supported from the county 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 3-inch domestic water main extends from this service to support the building's domestic water requirements. Currently, no backflow preventer is provided at the domestic water service entrance. While this may have been acceptable at the time when this system was installed, it does not meet the current plumbing code requirements. It is anticipated that minimal surplus capacity exists for the 3-inch domestic cold water main. Depending on the plumbing requirements of the planned addition, an increase in the cold water service pipe size may be required.

IV. EXISTING CONDITIONS (Continued)

Plumbing (Continued)

Domestic hot water is generated by a packaged 120-gallon electric water heater. The heater is original to the building 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. 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 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 water service room adjacent to the cafeteria, 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 Strawberry Knoll Elementary School. Option I proposes a one-story addition on the 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 center of the building. Option III proposes demolishing the back left classroom wing and rebuilding a two-story wing in its place. 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 Soccer and Softball fields will remain.

V. DESCRIPTION OF OPTIONS (Continued)

HVAC System

Mechanical Systems

A similar mechanical solution is recommended for supporting the three proposed floor plan options. Renovations within the existing administration and staff lounge areas will require modifications to the existing supply and return air ductwork systems to support the new floor plan. New infrastructure and rooftop unit systems are not anticipated for these existing building renovations. Mechanical system revisions associated with repurposing of the dual purpose and music areas are not anticipated. Since a majority of the building's mechanical equipment was replaced in 2007, MCPS does not plan to replace the existing systems.

The addition would be provided with new mechanical systems, utilizing similar mechanical infrastructure as the existing school. A variable refrigerant flow (VRF) system with an energy recovery type air-cooled condensing unit (or units) 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 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 water service 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 - DESCRIPTION

In Option I a one-story addition is proposed on the 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 shown in each option.

SITE ACCESS, CIRCULATION AND PARKING

1. **Parking**
   A total of 100 parking spaces are provided by reconfiguring the existing parking, drop-off, service drive and bus loop. Access to parking, and student drop-off is entirely separate from the bus loop.

2. **Bus Loop**
   The bus loop is reconfigured to have its own combined entrance and exit off of Strawberry Knoll Road, and allows for staging of up to 9 small sized buses on site.

3. **Student Drop-Off**
   A new drop-off area is created off of the new parking lot in front of the school.

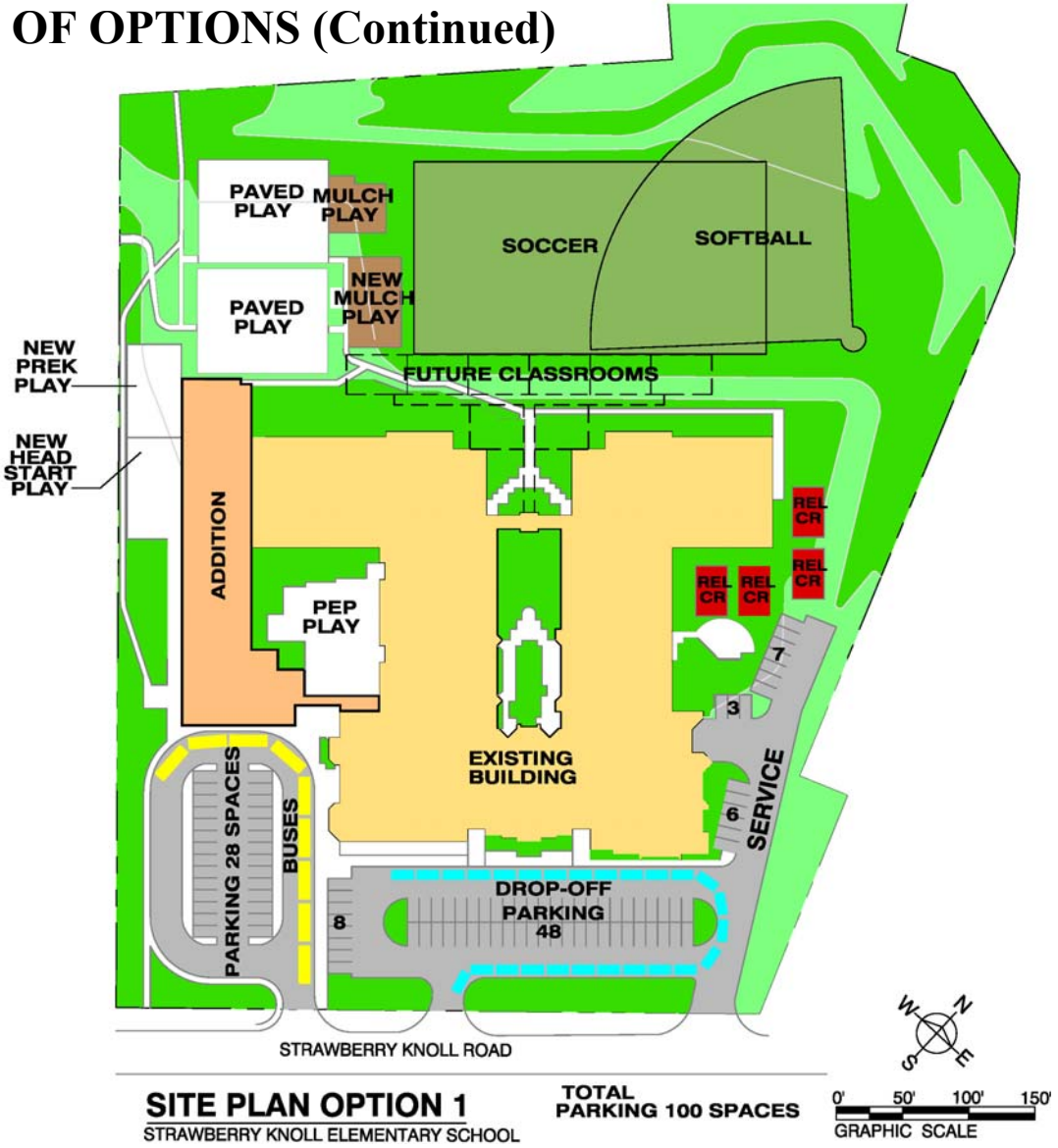
4. **Service Access**
   Building service is accessed through the drop-off area. Service vehicles will not be allowed during peak morning and afternoon arrivals and departures.

5. **Site Amenities**
   Existing play areas will remain. A new pre-kindergarten, head start and PEP playground will be provided. Storm water management systems will be provided in compliance with governmental regulations.

6. **Building**
   Option I provides a new one story "L" shaped 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 become an open courtyard to provide natural light and ventilation to the rooms surrounding it.

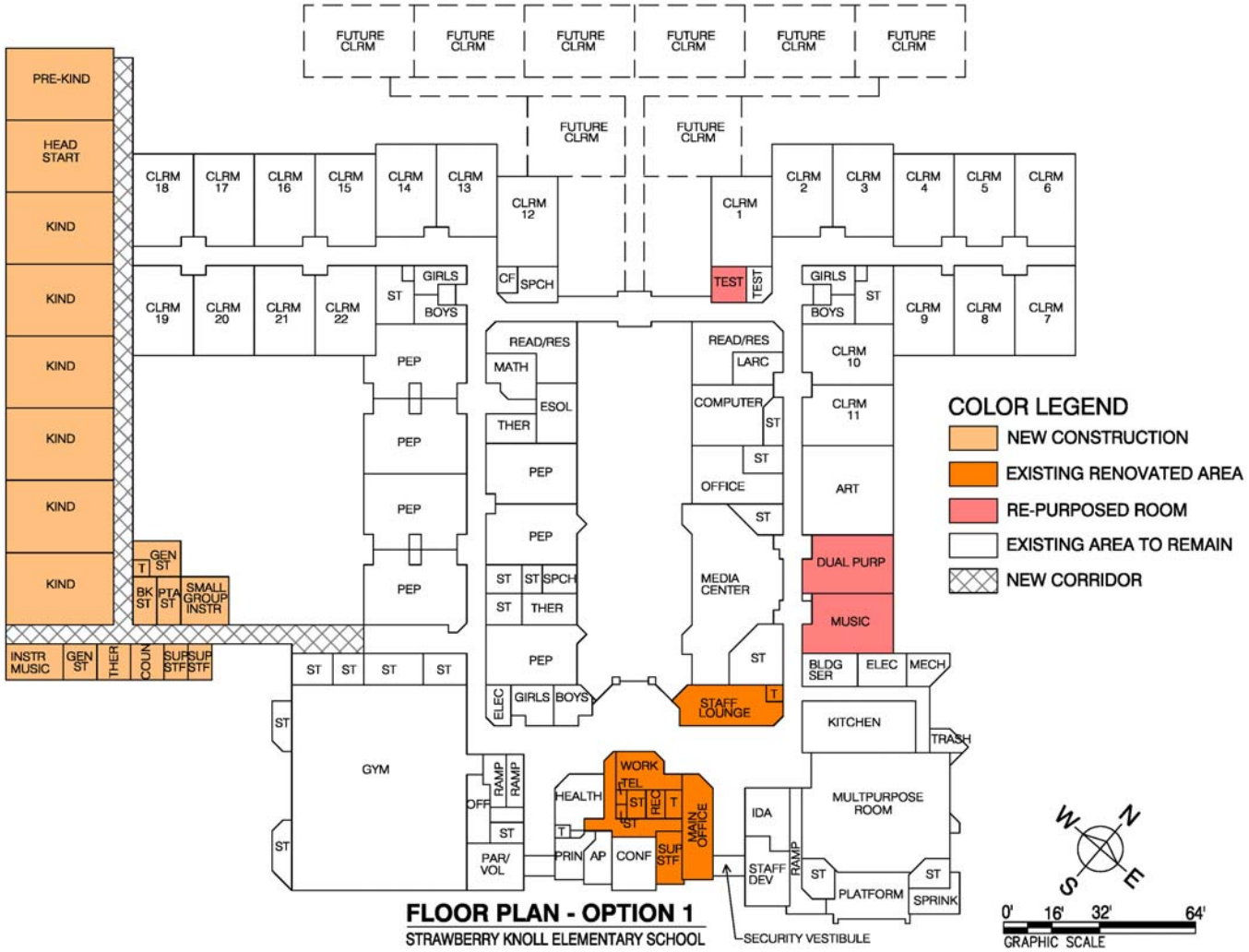
V. DESCRIPTION OF OPTIONS (Continued)

Proposed Site Plan
Option I



V. DESCRIPTION OF OPTIONS (Continued)

Proposed First Floor Plan
Option 1



V. DESCRIPTION OF OPTIONS (Continued)

C. OPTION I ADVANTAGES AND DISADVANTAGES

OPTION I – ADVANTAGES

- No additional relocatable classrooms are needed.
- The addition is one-story. No stairs or elevator are required.
- The kindergartens are near the front of the building.
- The addition can be built without disrupting the existing building.
- The addition is not near any adjacent houses.
- The addition forms another corridor circulation loop.

OPTION I – DISADVANTAGES

- The one-story addition has a larger footprint.

V. DESCRIPTION OF OPTIONS (Continued)

D. OPTION II - DESCRIPTION

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

SITE ACCESS, CIRCULATION AND PARKING

1. **Parking**
   A total of 100 parking spaces are provided. Access to parking, and parent drop-off is entirely separate from the bus loop.

2. **Bus Loop**
   The bus loop is reconfigured to have its own combined entrance and exit off of Strawberry Knoll Road.

3. **Student Drop-Off**
   A new drop-off area is created off of the new parking lot in front of the school.

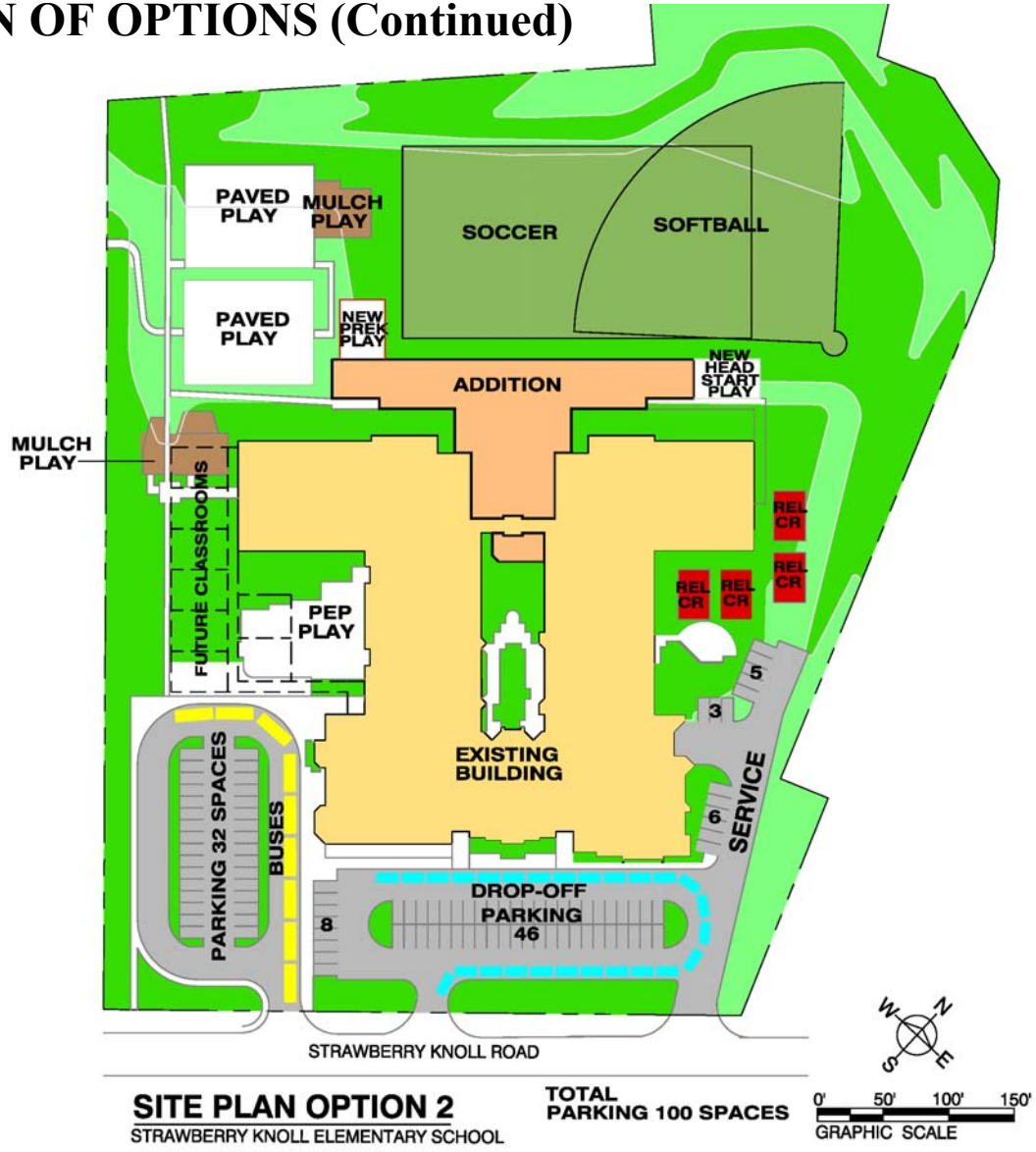
4. **Service Access**
   Building service is accessed through the drop-off. Service vehicles will not be allowed during peak morning and evening arrivals and departures.

5. **Site Amenities**
   Existing play areas will remain. The addition will decrease the size of the existing soccer and softball fields. A new pre-kindergarten, head start and PEP 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 "T" shaped addition in the back middle of the building that connects to an existing corridor at the back of the existing central courtyard.

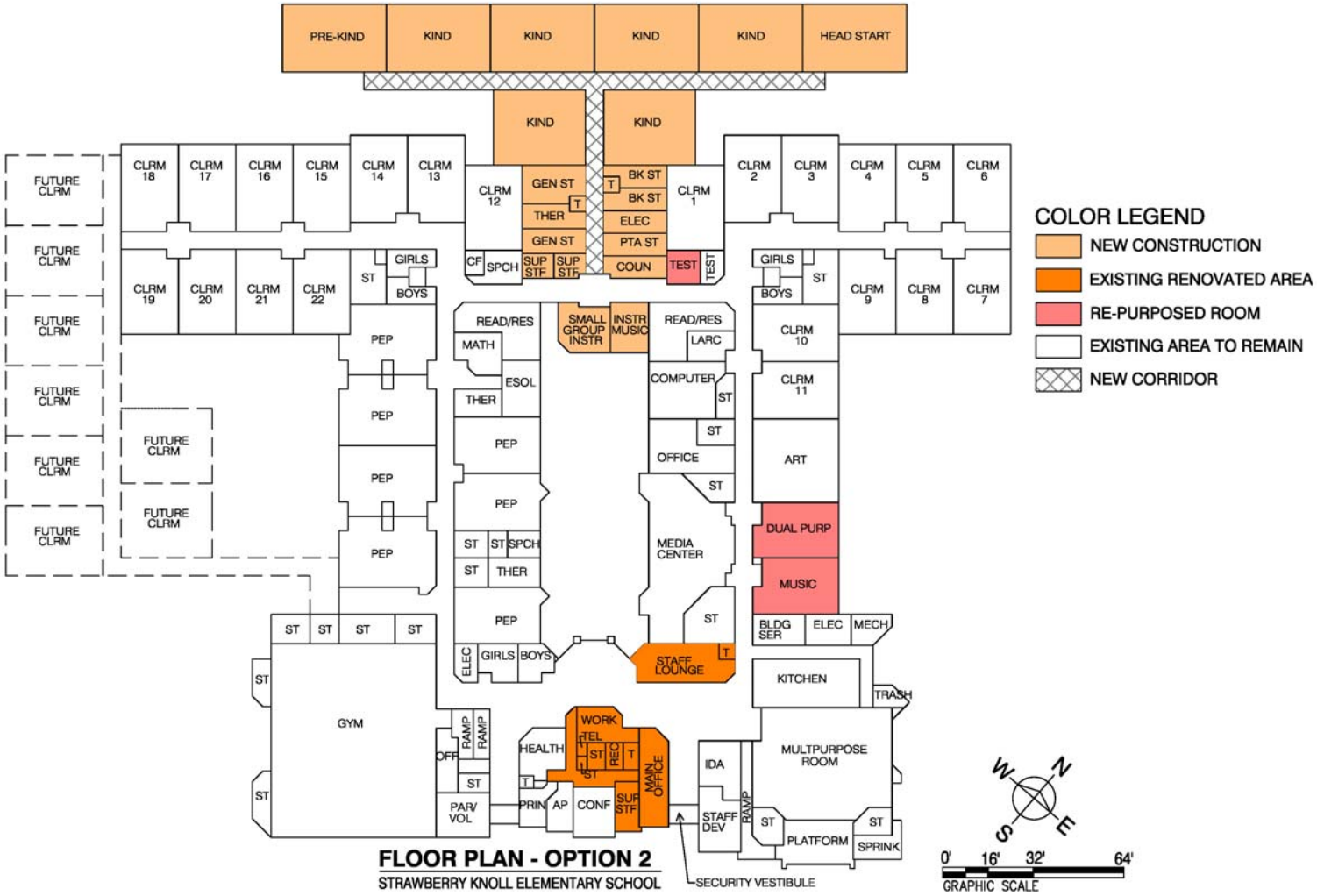
V. DESCRIPTION OF OPTIONS (Continued)

Proposed Site Plan
Option II



V. DESCRIPTION OF OPTIONS (Continued)

Proposed First Floor Plan
Option II



FLOOR PLAN - OPTION 2
STRAWBERRY KNOLL ELEMENTARY SCHOOL

V. DESCRIPTION OF OPTIONS (Continued)

D. OPTION II ADVANTAGES AND DISADVANTAGES

OPTION II – ADVANTAGES

- No relocatable classrooms are needed.
- The addition is one-story. No stairs or elevator are required.
- The addition can be built without disrupting the existing building.
- The addition is not near any adjacent houses.

OPTION II – DISADVANTAGES

- The one-story addition has a larger footprint.
- The kindergartens are in the back of the building.
- The addition encroaches onto the existing playfields.

V. DESCRIPTION OF OPTIONS (Continued)

E. OPTION III - DESCRIPTION

Option III proposes demolishing the back left classroom wing and rebuilding a two-story wing in its place. A future master-planned classroom addition is shown in each option.

SITE ACCESS, CIRCULATION AND PARKING

1. **Parking**
   A total of 100 parking spaces are provided by reconfiguring the existing parking, drop-off, service drive and bus loop. Access to parking, and student drop-off is entirely separate from the bus loop.

2. **Bus Loop**
   The bus loop is reconfigured to have its own combined entrance and exit off of Strawberry Knoll Road, and allows for staging of up to 9 small sized buses on site.

3. **Student Drop-Off**
   A new drop-off area is created off of the new parking lot in front of the school.

4. **Service Access**
   Building service 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. A new pre-kindergarten, head start and PEP playground will be provided. Storm water management systems will be provided in compliance with governmental regulations..

6. **Building**
   Option III proposes demolishing the back left classroom wing and rebuilding a two-story wing in its place. A stair is provided at either end of the addition to provide egress from the second floor. An elevator is also required.

V. DESCRIPTION OF OPTIONS (Continued)

Proposed Site Plan
Option III

V. DESCRIPTION OF OPTIONS (Continued)

Proposed 1st & 2nd Floor Plan
Option III

V. DESCRIPTION OF OPTIONS (Continued)

E. OPTION III ADVANTAGES AND DISADVANTAGES

OPTION III – ADVANTAGES

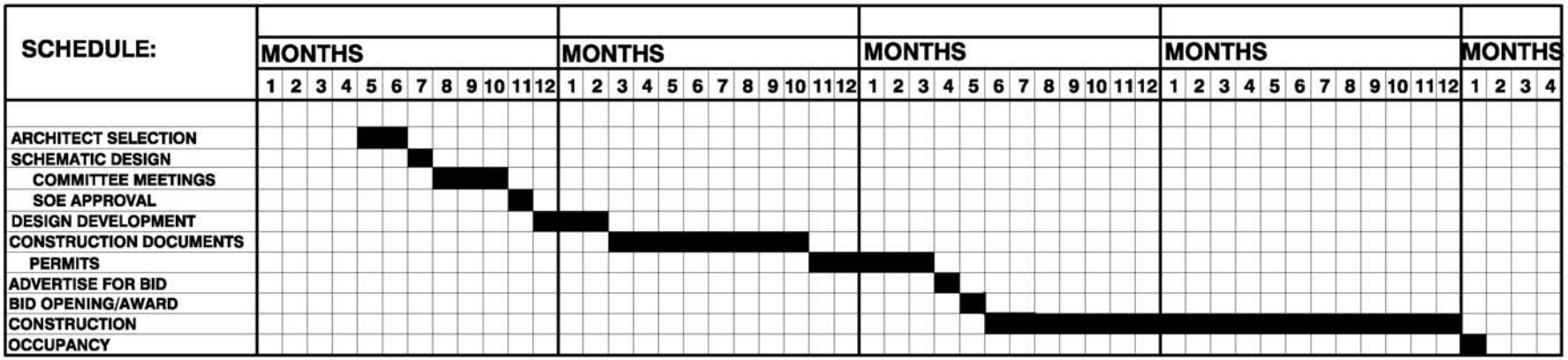
- The footprint of the two-story addition is small.
- The addition is not near any adjacent houses.

OPTION III – DISADVANTAGES

- An elevator and stairs are required.
- Demolishing and rebuilding an existing wing is expensive.
- A large number of relocatable classrooms will be needed to replace the demolished classrooms during constructon.

VI. PROPOSED PROJECT IMPLEMENTATION SCHEDULE

STRAWBERRY KNOLL ELEMENTARY SCHOOL ADDITION



VII. APPENDICES

Appendix A - Space Allocation Summary

Appendix B - Educational Specifications

Appendix C - Project Photographs

APPENDIX A - Addition Space Allocation Summary

Strawberry Knoll Elementary School Addition
Square Foot Summary

When this project is complete, the following spaces are to be provided:
Capacity after the addition will be 640.

Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Classrooms				
Prekindergarten	1	Includes 250 s.f. storage	1300	1300
Head Start	1	Includes 250 s.f. storage	1300	1300
Kindergarten	6	Includes 250 s.f. storage	1300	7800
Dual purpose Room	1	Reuse existing Music Room	1000	1000
Instrumental Music Room	1		400	400
Small Group Instruction	1		450	450
Support Rooms				
Therapy/Support Room	1		250	250
Testing/Conference Room		Use Existing Room 165 (counselor's off)	150	0
Instructional Data Assistant Office	1	Use Existing Instrumental Music	250	0
Support Staff Offices	2		150	300
Counselor's Office	1		250	250
Building Service Facilities				
General Storage	2	250 sq. ft. each	250	500
Book Storage	2		200	400
PTA Storage	1		150	150
Total	9			14100

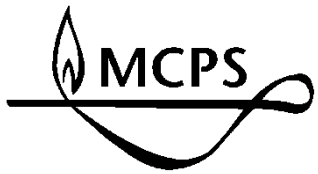
Existing Head Start room to be reused at Music Room once addition is complete.

APPENDIX B - Educational Specifications

Strawberry Knoll Elementary School Addition

Educational Specifications
Feasibility Study

October 31, 2011
Updated January 25, 2012



Montgomery County Public Schools
Rockville, Maryland 20850

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Introduction

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

☐ The program capacity for this school will be 640.

☐ The educational specifications are divided into three sections.

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

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

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

☐ The Head Start 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 MCPS Division of Construction (DOC). Computer/technology wiring must be in accordance with MSDE/MCPS standards.

☐ Every classroom must have computer outlets for five student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the 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.

☐ This is a class-size reduction school and the built-in student wardrobe area must provide 24 individual compartments to store students' belongings. The architect is to refer to the DOC construction standards for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.

☐ A total of 20 feet of 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*.
- ☐ Approximately 30 to 35 linear feet of magnetic white board and 20 to 24 linear feet of tackboard, both with tack strips and map rails above the boards, should be installed in each classroom. White boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the DOC Facilities Guide standards for the main teaching wall layout.
- ☐ Thirty built-in individual compartments in the wardrobe area for storing student personal property are required. The architect should refer to the DOC construction standards for a typical cubby design for grades K-1 and grades 2-5. Lockers in the hallway may be used in place of the classroom cubbies.
- ☐ 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

- ☐ The instrumental music room should ideally be located near the Music room and the Multipurpose 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.
- ☐ This room must be soundproofed.
- ☐ Doors into the instrumental music room must be wide enough to accommodate the passage of a piano.

Dual Purpose Room

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

Support Rooms

Spatial Needs
Occupational Therapy/Physical Therapy (OT/PT) Room
Testing/Conference Room
Instructional Data Assistant Office
Support Staff Offices (two)
Counselor's Office

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 room requires a ceiling mounted hook for a swing.

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

Testing/Conference Room

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

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 both with and without coordinate grids, and video, voice, data outlets, and space for file cabinets.

Support Staff Offices

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

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

Counselor's Office

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

Administration Suite

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

- ☐ The administration suite must be located with good access from the main entrance of the school and visual oversight of the main entrance and bus drop-off area.
- ☐ The suite must be a natural first stop for visitors to the school and must, therefore, have direct corridor access. A security vestibule must be designed so that all visitors must enter the general office to check in before entering the school.
- ☐ Spaces need to be arranged for student and visitor flow and for efficient use by office staff.
- ☐ The general office is to be treated as the center of the administration suite with direct access to the principal's office, the workroom, and the health suite.
- ☐ A coat closet is to be provided for office staff and visitors.
- ☐ The Administration suite should be carpeted.
- ☐ Sufficient electrical outlets are to be provided (where feasible, quadruplex outlets may be utilized) as well as CCTV receptacle for the general office, principal's, and assistant principal's offices.
- ☐ A glass display case should be located in the vestibule of the Administration suite entrance.
- ☐ The administration suite should be designed with separate toilet rooms. If the school chooses, one of these toilet rooms may be located in the principal's office.

General Office

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

Workroom

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

Command Center

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

Principal's Office

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

Assistant Principal's Office

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

Conference Room

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

Telephone Booth

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

Storage and Records Rooms

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

Staff Lounge

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

Building Service Facilities and Storage

{PRIVATE }Spatial needs
General Storage
Book Storage
PTA Storage

General Storage

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

Book Storage

- ☐ The architect should work with the school with regard to their specific storage needs. Flexible shelving is required.

Parent/ PTA Room

- ☐ This room should be located near the main entrance to the school.
- ☐ This room should include locking cabinets and open shelving.
- ☐ The room will be used as both a work area and for storage

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 Facilities Guide when designing the driveway, bus loop, service drives, etc.

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

Parking

- ☐ 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

☐ The PEP and Autism students arrive by bus and need to be dropped off near their classrooms. There are two large busses and 11 special education busses currently serving the school.

APPENDIX C: Existing Conditions Survey & Code Analysis

A. GENERAL

Strawberry Knoll Elementary School is a one-story structure with classrooms and an instructional media center arranged around a central courtyard. The front portion of the building contains the gym, administration suite and the multi-purpose room.

The entire structure is constructed of non-combustible materials and is sprinklered. The front portion of 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 back portion of the building that houses the classrooms and the media center are factory prefabricated modules consisting of steel frames sitting on concrete piers over a crawlspace. The interior walls of the modular construction are drywall on metal studs. The exterior faces of the modular construction were originally thin brick veneer installed with adhesive. The thin brick has since been replaced with standard 4" brick veneer.

The windows are insulated thermal broken aluminum and are in good condition. .

B. STRUCTURAL ANALYSIS

BUILDING STRUCTURE

The facility was built in 1988. The Strucutural design engineer was Abel/Johnson, P.A. The building is one-story. The front portion of 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 back portion of the building that houses the classrooms and the media center are factory prefabricated modules consisting of steel frames sitting on concrete piers over a crawlspace

The roof system consists of 1.5" deep galvanized type B roof deck. The building is approximately78,723 gross square feet. Long span joists with standard 1.5" deep roof deck were observed in the gymnasium and the all-purpose room. The window openings in the exterior walls are supported by steel angle lintels at spans of 6 feet or less, and by steel beams with hung plates at spans over 6 feet.

The two front entrance canopies consist of steel columns enclosed in masonry piers with a metal pyramid shaped roof.

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

STRUCTURAL OBSERVATIONS AND RECOMMENDATIONS

- The condition of the exterior brick work is good. No unusual or large cracks exist.
- At many locations the exterior angle lintels and hung plates have minor rusting. It is recommended that the outside edges be painted with a rust inhibitor.
- The screen wall at the trash dumpster was reviewed. The wall is in good shape. No unusual or large cracks exist.
- The screen wall at the kindergarten play area was reviewed. The wall is in good shape. No unusual or large cracks exist.
- No water damage was observed at the skylight over the main lobby.
- The media center and several classrooms were visually reviewed. No structural problems were found. These rooms are in the prefabricated portion of the building. Many of the partitions are gypsum board on metal studs.

HVAC Systems

The heating, ventilating, and air conditioning (HVAC) systems are similar throughout the existing building. Most systems were installed in 2007 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, complete with DX cooling and electric heat. 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 2007 and appear to be in good working condition.

- Cafeteria: A packaged rooftop unit with DX cooling and electric heating serves the cafeteria and stage areas. Supply air for these spaces is distributed by overhead air devices located throughout the area. Two large return air grilles, installed low and adjacent to stage area, return airflow back to the rooftop unit. It is anticipated that this rooftop unit was installed in 2007 and appears to be in good working condition.

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

- Kitchen: Similar to the cafeteria, a packaged rooftop unit with DX cooling and electric heating serves the kitchen and serving line areas. This unit appears to be in good working condition and was installed in 2007. Major kitchen equipment includes two stacked convection ovens and a two-burner electric range. There is no hood installed above this equipment, which does not meet

- health code requirements. 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 with DX cooling and electric heating 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 2007 equipment replacement.

- Gymnasium: A heating and ventilating unit with electric heat serves the gymnasium area. The exact age of this unit is unknown; however, discussions with building services personnel indicated no operational concerns with this system. Supply airflow is ducted through an exposed round duct that extends around the perimeter of the gymnasium. A single return air grille is mounted low within the gymnasium. An outdoor air intake louver and companion rooftop exhaust fan with open-ended exhaust duct is located at the roof level for summer operation.

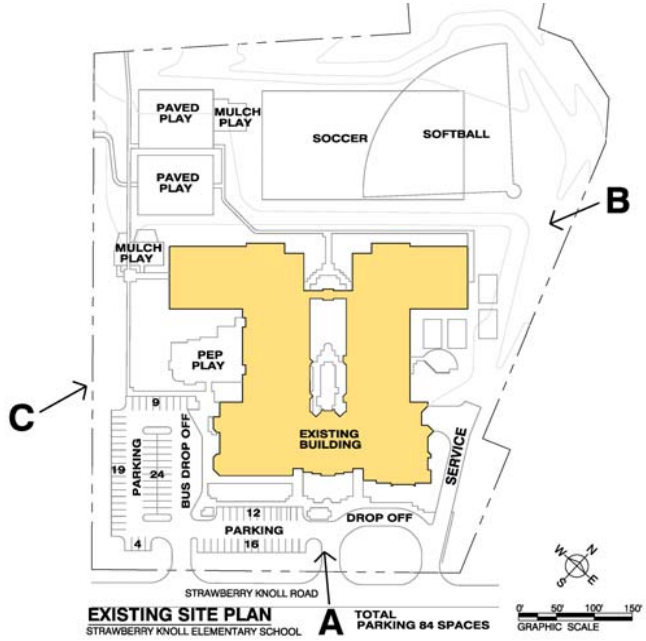
- Computer Lab: A packaged rooftop unit with DX cooling and electric heating serves the computer room and adjacent interior areas (including both the speech and resource rooms). This unit appears to be original to the building and in fair working condition.

- Administration and Health Suite: Two packaged rooftop units with DX cooling and electric heating serve the administration and health suite areas. One unit serves the interior open office area, as well as the adjacent health suite. Perimeter offices and conference room areas are supported by the other rooftop unit system. Both units appear to be in good working condition and were installed in 2007. The health suite area is provided with a switch operated exhaust fan, allowing odors to be purged when needed. However, the exhaust fan bearings appear to be worn or damaged, based on the sound generated when activated.

- Art and Art Storage Rooms: The art storage room is currently equipped with two kilns. Local exhaust for these kilns is removed through an overhead capture hood located above the kiln equipment. This arrangement offers an effective means of providing local exhaust at this equipment. Heating, cooling, and ventilation are accomplished through a self-contained unit ventilator system.

APPENDIX D: Project Photographs

A



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APPENDIX D: Project Photographs (Continued)

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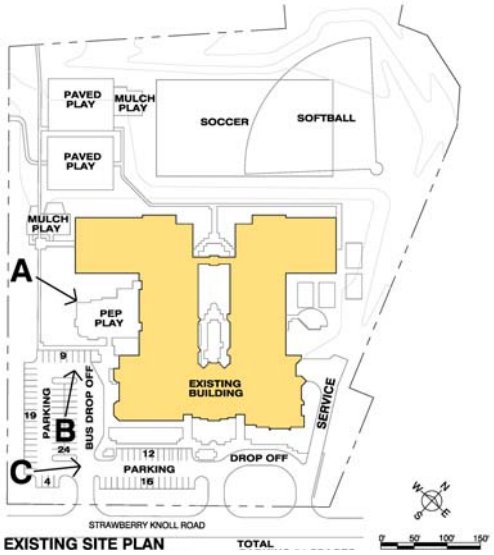

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APPENDIX D: Project Photographs (Continued)

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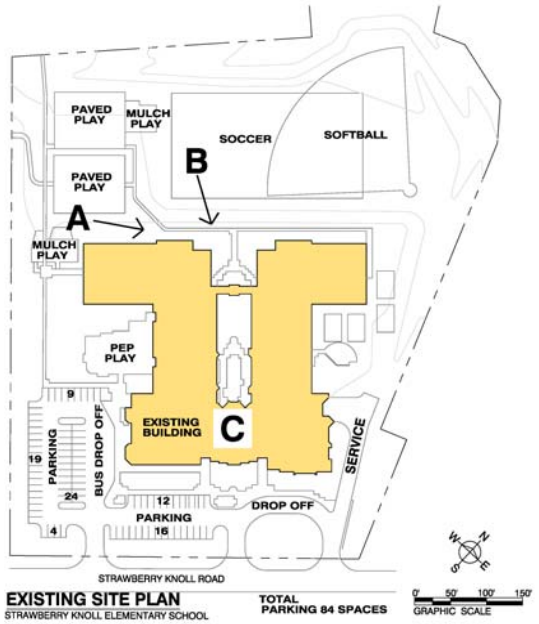

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