DISCUSSION/ACTION
8.0

Office of the Superintendent of Schools
MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

March 13, 2012

MEMORANDUM

To: Members of the Board of Education

From: Joshua P. Starr, Superintendent of Schools

Subject: Preliminary Plans Presentation—Candlewood Elementary School Modernization Project

WHEREAS, The architect for the proposed Candlewood Elementary School modernization project, Delmar Architects, P.A., has prepared a schematic design in accordance with the educational specifications; and

WHEREAS, The participants in the Candlewood Elementary School facility advisory process have provided input for the proposed schematic design; now therefore be it

Resolved, That the Board of Education approves the preliminary plans report for the Candlewood Elementary School Modernization Project developed by Delmar Architects, P.A.

JPS:LAB:JS:mas

Attachment

Preliminary Plans Presentation

Candlewood Elementary School

Modernization

Prepared for
Montgomery County Board of Education

March 2012

Delmar Architects, P.A.

Preliminary Plans Presentation

Candlewood Elementary School
Modernization

7210 Osprey Drive
Derwood, Maryland 20855

Montgomery County Board of Education

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Mr. R. Craig Shuman	Director, Division of Construction
Mr. Michael P. Shpur	Architect, Division of Construction
Mr. Rakesh Bagai	Project Manager, Division of Construction
Ms. Julie Morris	Facility Planner, Division of Long-range Planning

Facility Advisory Process Involvement

Involvement

The preliminary plans for the Candlewood Elementary School modernization project were developed based on the educational specifications prepared by Montgomery County Public Schools (MCPS). Through a series of public meetings, several design alternatives were developed and evaluated. The proposed plans presented herein were reviewed and subsequently modified in accordance with recommendations and suggestions received during the schematic design meetings.

Participants in Facility Advisory Process

Dr. Linda Sheppard	Principal	Candlewood Elementary School
Ms. Jane Agricola	Community	Candlewood Elementary School
Mr. Ray Agricola	Community	Candlewood Elementary School
Mr. Rakesh Bagai	Project Manager	Division of Construction, MCPS
Ms. Cheryl Cunningham	Parent	Candlewood Elementary School
Ms. Lara Falayi	Parent	Candlewood Elementary School
Ms. Cindy Graham	Staff	Candlewood Elementary School
Mr. Keith Green	Project Manager	Keller Brothers Construction Management
Ms. Gretchen Hays	Staff	Candlewood Elementary School
Ms. Kim George Kroese	Parent	Candlewood Elementary School
Mr. Huimin Li	Community	Candlewood Elementary School
Mr. Trevor A. Liburd	Community	Candlewood Elementary School
Ms. Sandy Matty	Community	Candlewood Elementary School
Mr. Tom Matty	Community	Candlewood Elementary School
Mr. Raymond Meixner	Community	Candlewood Elementary School
Ms. Julie Morris	Facility Planner	Division of Long -range planning, MCPS
Ms. Toni Parsons	Parent	Candlewood Elementary School
Mr. Michael P. Shpur	Architect	Division of Construction, MCPS
Mr. James Steckel	Community	Candlewood Elementary School
Ms. Jillian Storms	School Facilities Architect	Maryland State Department of Education
Ms. Amy Weatherill	Community	Candlewood Elementary School
Mr. Karl Yannes	Community	Candlewood Elementary School
Mr. Yin Zhez	Community	Candlewood Elementary School

Project Information

Background/History

Location: 7210 Osprey Drive, Derwood, Maryland 20855
Cluster: Col. Zadok Magruder Cluster

History and Square Footage of Existing Building:

1968	Construction of Original School	30,747	square feet
1976	Classroom Addition	17,796	square feet
	Total	**48,543**	**square feet**

Site Size: 11.78 acres

	Actual	Projections					
	2011-12	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**
Program Capacity	434	434	434	502	502	502	502
Enrollment:	347	355	363	377	385	388	392
Available Space	*87*	*79*	*71*	*125*	*117*	*114*	*110*

Number of Relocatable Classrooms: 0

Current Parking Spaces: 55

Project Information (continued)

Educational Program Objectives

The objectives of the project are to modernize the Candlewood Elementary School and to provide required program spaces for grades K-5. The project is scheduled to be completed in January 2015. The program summary includes 28 teaching stations including 3 special education classrooms and related support spaces. The feasibility study and the life cycle cost analysis conducted in June 2011 revealed that, due to the conditions of the existing facility, and the cost to bring it into compliance with the existing code requirements, the most cost-effective modernization option is to demolish the existing building and construct a replacement building on the site.

The replacement facility is designed for a capacity of 502 students with the core spaces being designed to accommodate 740 students. A future 12 classroom two-story addition is master-planned. A philosophy of adaptable classrooms with the flexibility to accommodate various presentation formats and maximum connectivity to outside resources has been incorporated in the design. Each instructional area will have adequate learning space, work areas, restrooms, storage, and other support facilities. The modernized facility will be in full compliance with the Americans with Disabilities Act (ADA).

Participants in the planning process expressed a vision for a modernized Candlewood Elementary School to be a welcoming and beautiful school that enhances the education of the students; a safe and child-friendly school that is flexible enough to accommodate a variety of teaching methods and class sizes; a state-of-the art facility; and an environmentally sensitive school that is comfortable, provides maximum day lighting, and is energy efficient.

Some of the design goals include the following:

- Arrange public spaces grouped together and separated from the instructional classroom space
- Locate administration suite adjacent to the main entrance with visual surveillance of student drop-off and bus loops
- Provide gymnasium and multi-purpose room accessible to the school and community during non-school hours
- Provide safer vehicular access with a student drop-off loop separate from the bus loop
- Create a defined and welcoming entry.
- Create a building with functional spatial relationships.
- Create a building that allows easy supervision of students.

Project Information (continued)

Teaching Stations and Spaces Provided When Complete:

(Number of teaching stations counted towards capacity is indicated in parentheses)

New Construction

Teaching Stations:

Kindergarten Classrooms	(5)
Classrooms (Grades 1-5)	(16)
Special Education Classrooms	(3)
Music	1
Dual Purpose Room	1
Computer Laboratory	1
Art	1

Core Facilities:

Administrative Suite	1
Health Suite	1
Multi-Purpose Room with platform	1
Kitchen	1
Instructional Media Center	1
Gymnasium	1

Total Teaching Stations **28**

Support Spaces:

Special Education Conference	1
Special Education Resource	1
Speech/Language Room	1
Therapy/Support Room	1
Large Instructional Support Room	2
Small Instructional Support Room	3
Instrumental Music	1
Testing/Conference Room	1
Instructional Data Assistant Office	1
Support Staff Office	2
Staff Development Office	1
Reading Specialist Office	1
Training/Conference Room	1
Building Service Suite	1
Staff Lounge	1
Recycling Room	1
Compactor Room	1
General Storage	3
Book Storage	1
PTA Storage	1
Outdoor Storage	1
Second Floor Workroom	1

Site Design

Site Features:

Candlewood Elementary School is situated on a 11.78 acre site at 7210 Osprey Drive, Derwood, Maryland. The site is bounded on the northeast by Osprey Drive, on the northwest by Redland Road, and on the southwest and southeast by single-family homes. The school site currently consists of an existing single-story building, paved driveways, a bus loop, parking, play areas, and ball fields. The existing school building is sited approximately 15 feet above Osprey Drive. A large portion of the school site is relatively level with the exception of a steep wooded slope that exists on the northwest end of the site. The site plan proposes modernizing the existing play fields in the current locations. On-site traffic circulation is designed to provide safe access to the school for pedestrians and to maximize on-site parking while minimizing overflow parking onto Osprey Drive. On-site bus loading for 10 buses, student drop-off, and 84 parking spaces are proposed and will be accessed from Osprey Drive.

Stormwater Management:

A new stormwater management system will be provided for both quality and quantity controls on site in accordance with the most current Montgomery County stormwater management regulations. The proposed stormwater management will include the use of Environmental Site Design elements required by the State of Maryland and Montgomery County.

Utilities:

All existing utilities, including water, sewer, gas, and electric services will be upgraded to support the needs of the replacement building.

Exterior Lighting:

The exterior lighting will be designed to shield adjacent residences from intrusive glare while maintaining light levels for safety and security. The light fixtures will be 100% down-lighting to minimize light pollution into the night sky.

Building Design

General Description:

The proposed building, designed to meet Montgomery County Public School educational specifications, is a partial two-story, steel-framed structure with brick veneer over masonry block exterior walls. Interior walls are primarily masonry block. The replacement building has a rectangular loop corridor circulation system and a central open courtyard to provide natural daylight and necessary ventilation to the interior spaces. The proposed plan separates the academic areas apart from the public areas of the building. The public areas that are located toward the front of the building and accessed at the first floor include the administrative suite, the instructional media center, the multi-purpose room and the gymnasium.

The main entrance is located between the student drop-off area and the bus loop at the front of the site off of Osprey Drive and is clearly identifiable from the street. A secondary entrance is located to serve the gymnasium and a third entrance serves the multi-purpose room. The proposed building is zoned to allow the activity spaces to function during non-school hours without compromising the security of academic areas of the building. The administrative suite is located adjacent to the main entrance, with a security vestibule in the front center of the building that directs visitors to check in at the administrative office. The gymnasium is on the right front of the building. The multi-purpose room is on the left front of the building. The instructional media center is located off the main lobby and obtains natural daylight from the courtyard. The academic classrooms are clustered on both floors. The classrooms for the lower grades are located on the first floor, which exits on grade. The remainder of the classrooms for the upper grades are located on the second floor.

Classroom Technology:

Classrooms will be designed to support interactive educational technology that includes controlled wireless computer access and interactive whiteboard systems. Individual classrooms are designed to provide a student seating arrangement that can be organized into small groups for project oriented teaching, or students can face the teacher in a traditional method.

Code Compliance/Accessibility:

All areas will be designed to meet the most current national and local building codes, including fire, life-safety, and health standards. The proposed building will be in full compliance with the Americans with Disabilities Act (ADA).

Project Information (continued)

Building Design (continued)

Sustainable Design Intent (LEED):

The project is registered and will be certified for silver or higher rating in conformance with Leadership in Energy and Environmental Design (LEED) certification through the United States Green Building Council. Some of the sustainable aspects of the project include the following:

- Encouraging alternative transportation to the school by providing conveniently located bike racks and preferred parking for low emitting/fuel-efficient vehicles and carpools
- Preserving a high percentage of vegetated open space to protect the surrounding ecosystem
- Managing stormwater to both reduce runoff quantity and improve quality
- Using highly reflective roof surfaces combined with a vegetated roof portion to reduce heat island effect and heat gain to the building
- Installing water-conserving, low-flow plumbing fixtures
- Optimizing the energy performance of the building by providing a highly energy efficient building envelope, lighting system, and heating, ventilation, and air conditioning system, utilizing a geoexchange system
- Optimizing equipment selection, installation, and operation of HVAC equipment through Enhanced Commissioning of the building energy systems
- Diverting construction “waste” from landfills that can instead be salvaged for reuse or recycled
- Adhering to construction indoor air quality management plans and using low-emitting building materials to safeguard occupant health
- Providing a high level of occupant control over individual lighting and thermal comfort to promote enhanced indoor environment
- Promoting user education to increase awareness of the building’s green features and to utilize the school as a teaching tool for environmental and sustainability topics
- Using construction materials that are recycled and regionally manufactured
- Implementing a Green Housekeeping plan
- Maximizing daylight in classrooms
- Minimizing background noise level from HVAC systems in classrooms and other core learning spaces and control reverberation time with sufficient sound-absorptive materials.

Building Design (continued)

Mechanical Systems:

Heating Ventilation and Air-Conditioning (HVAC) System:

The proposed new building will be heated and air-conditioned by a two-pipe hydronic heat pump (HHP) system. The HHP system will consist of individual, vertical water-cooled units for each classroom. Heating and cooling are provided by a geothermal ground source heat pump system. Ventilation for the classroom will be provided by a HHP integrated energy-recovery unit mounted on the roof.

Plumbing System:

Plumbing fixtures will comply with the Americans with Disabilities Act (ADA) requirements. The balance of the sanitary sewer and domestic water systems will be provided in accordance with the latest Washington Suburban Sanitary Commission (WSSC) Plumbing Code and Regulations. Water-saving plumbing fixtures will be used.

Fire Protection System:

The building will be fully-sprinklered with a wet system in accordance with the National Fire Protection Association Code (NFPA-13 and 14) and will be provided with a voice-annunciated fire alarm system.

Energy Management System:

A primary design factor will be conservation of energy. The importance and consideration placed on energy conservation will be reflected in the configuration and orientation of the building, the selection of materials, and the mechanical/electrical systems utilized. In addition, a direct digital automatic temperature control system will be provided to monitor and control all new HVAC equipment from a central building management system. The new building will be designed to exceed ASHRAE 90.1-2007 energy requirements and IBC Basic Energy Conservation codes as well as Montgomery County energy conservation codes. The design will incorporate the ANSI/ASHRAE/IES Energy-Efficient Design for New Building.

Building Design (continued)

Electrical Systems:

Power Distribution:

The building will receive a new 277/480 –volt, 3 phase, 4-wire electrical service. The building also will have emergency power by a natural gas-fueled generator to handle fire alarm, emergency lighting, telecommunications, kitchen freezer and cooler as well as the energy recovery units that provide freeze protection. Lighting will be energy efficient 2x4 fluorescent fixtures in common areas, with direct and pendant type lighting in the classrooms.

Public Address System:

A new public address system will be provided to serve the replacement building. Each classroom will have a call back switch and speakers. The corridors and restrooms will have speakers only.

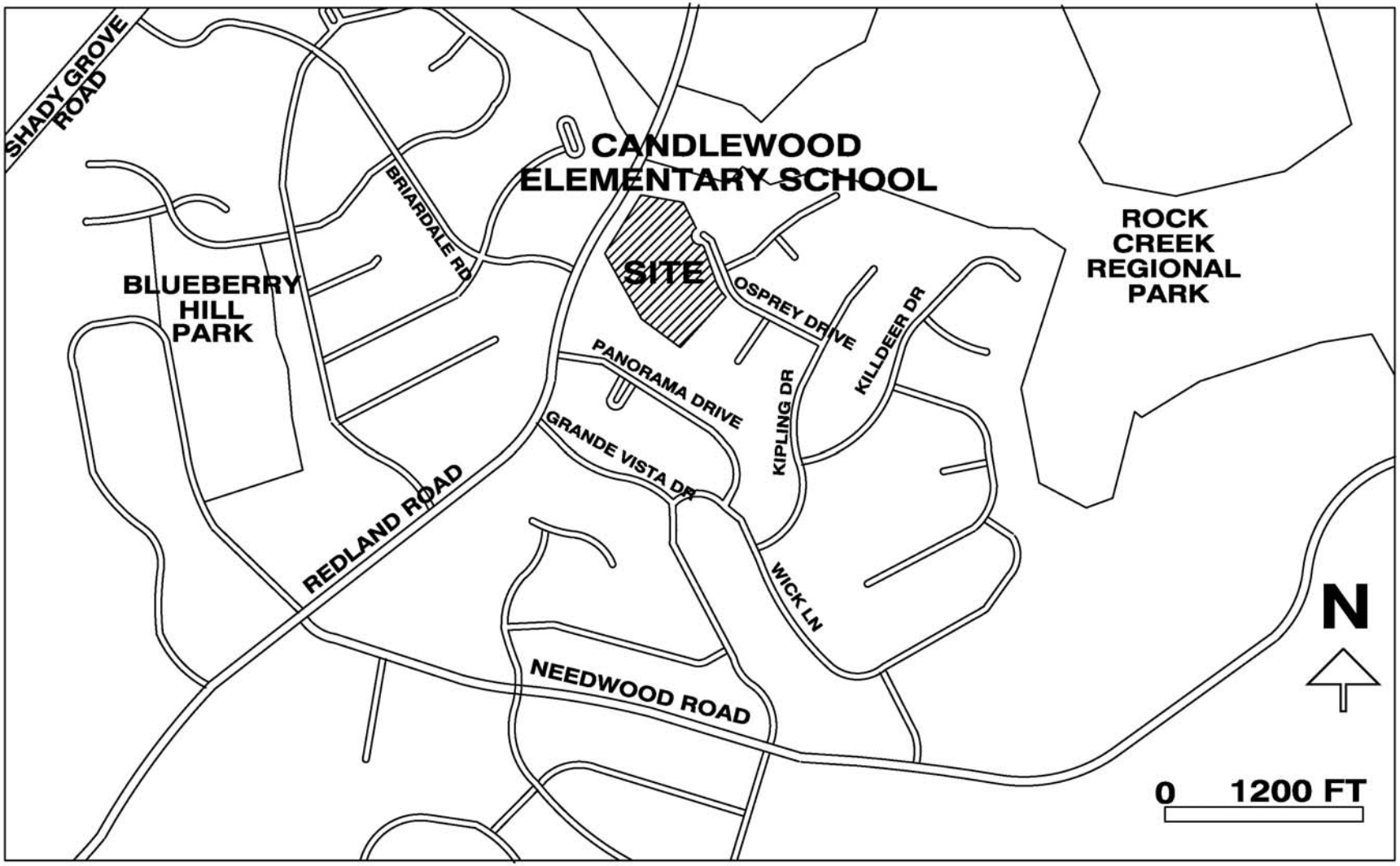
Security System:

The building will include a visitor management system that will provide office staff the ability to monitor and control visitor access to the school building. The visitor management system will include a computer-based visitor sign-in system that will monitor and track all visitors to the schools building. The new facility will also have a new building security system consisting of motion and contact sensors at all exterior doors that will be monitored by the MCPS Department of Safety and Security.

Technology Infrastructure:

The building will be equipped with data/voice/video over internet protocol (VoIP), video, and wireless systems. The network system design will include outlet boxes, conduits, surface raceways, conduit sleeves, and properly-sized telecommunications closets for the low voltage systems. The infrastructure system will consist of a fiber-optic backbone cable system with category 5E UTP cable for station drop connectivity, supporting switched 10/100/1000 Mbps Ethernet. With the improved switching systems, these systems have the capability of providing a gigabyte ethernet system with provisions to accommodate future changes in technology. For video distribution, a 1,000 Mhz bi-directional, broadband distribution system with coax trunk cable and RG-6 quad-shielded coax drop cable will be utilized. The system allows full cable spectrum to every part of the building with five dedicated channels: one channel for school distribution from the studio, two channels for school distribution or two-way video from any point in the building and two spare channels available for future use.

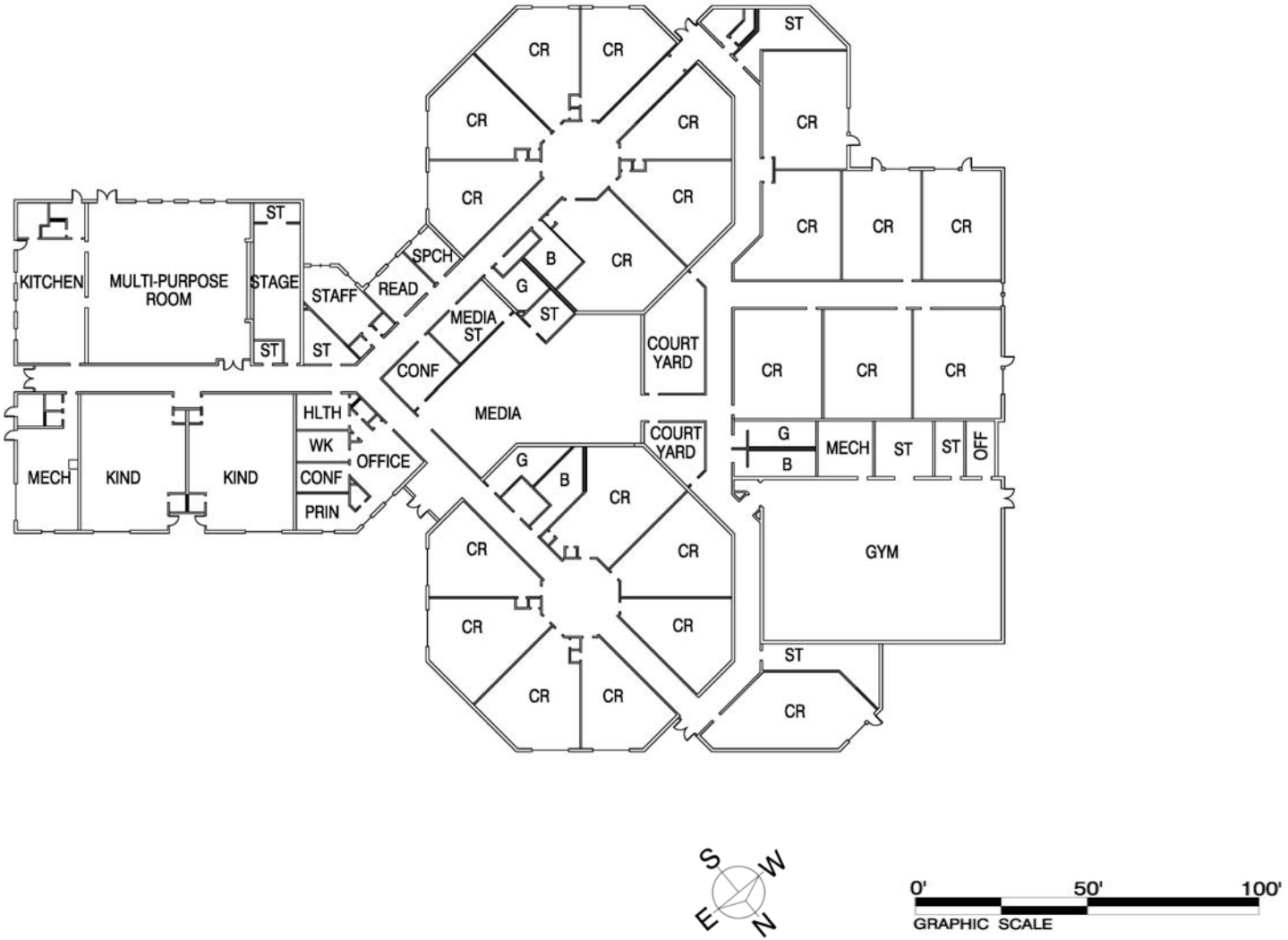
Vicinity Map



Existing Site Plan

Proposed Site Plan

Existing Floor Plan



Proposed First Floor Plan

1 CANOPY
2 TELEPHONE BOOTH
3 KINDERGARTEN CLASROOM
4 ADMINISTRATIVE SUITE
5 OFFICE
6 CONFERENCE ROOM
7 HEALTH SUITE
8 WORK ROOM
9 STAFF LOUNGE
10 COUNSELOR'S OFFICE
11 ELEVATOR
12 GYMNASIUM
13 THERAPY
14 SPEECH
15 LARGE GROUP INSTRUCTION
16 SMALL GROUP INSTRUCTION
17 PTA STORAGE
18 MULTIPURPOSE ROOM
19 KITCHEN
20 RECYCLE/COMPACTOR
21 COMPUTER LAB
22 TRASH
23 TRAINING/CONFERENCE
24 ART
25 MUSIC
26 INSTRUMENTAL MUSIC
27 DUAL PURPOSE ROOM
28 SPECIAL EDUCATION CONFERENCE
29 CLASSROOM
30 INSTRUCTIONAL MEDIA CENTER
31 FUTURE CLASSROOMS
32 COURTYARD
33 SUPPORT STAFF OFFICE
34 PRINCIPAL
35 ASSISTANT PRINCIPAL
36 INSTRUCTIONAL DATA ASSISTANT
37 TESTING/CONFERENCE ROOM
38 BOOK STORAGE
39 ISOLATION
40 SPECIAL EDUCATION RESOURCE
41 CONTROL ROOM AND STORAGE
42 MEDIA STORAGE
43 TEXT STORAGE
44 READING SPECIALIST
45 PUMP ROOM
46 STAFF DEVELOPMENT OFFICE

B BUILDING SERVICES
T TOILETS
M MECHANICAL ROOM
S STORAGE
D DATA/COMMUNICATIONS
E ELECTRICAL

0' 50' 100'
GRAPHIC SCALE

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Proposed Second Floor Plan

1 CANOPY
2 TELEPHONE BOOTH
3 KINDERGARTEN CLASROOM
4 ADMINISTRATIVE SUITE
5 OFFICE
6 CONFERENCE ROOM
7 HEALTH SUITE
8 WORK ROOM
9 STAFF LOUNGE
10 COUNSELOR'S OFFICE
11 ELEVATOR
12 GYMNASIUM
13 THERAPY
14 SPEECH
15 LARGE GROUP INSTRUCTION
16 SMALL GROUP INSTRUCTION
17 PTA STORAGE
18 MULTIPURPOSE ROOM
19 KITCHEN
20 RECYCLE/COMPACTOR
21 COMPUTER LAB
22 TRASH
23 TRAINING/CONFERENCE
24 ART
25 MUSIC
26 INSTRUMENTAL MUSIC
27 DUAL PURPOSE ROOM
28 SPECIAL EDUCATION CONFERENCE
29 CLASSROOM
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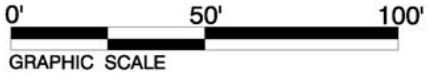
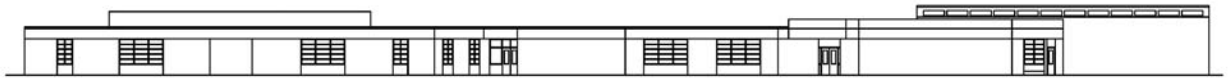
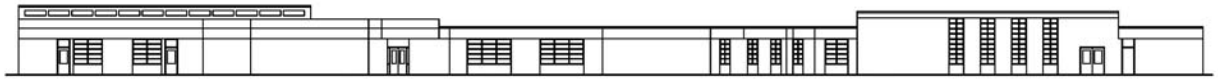


Existing Elevations



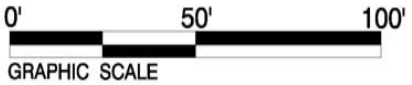
NORTHEAST ELEVATION

NORTHWEST ELEVATION



SOUTHWEST ELEVATION

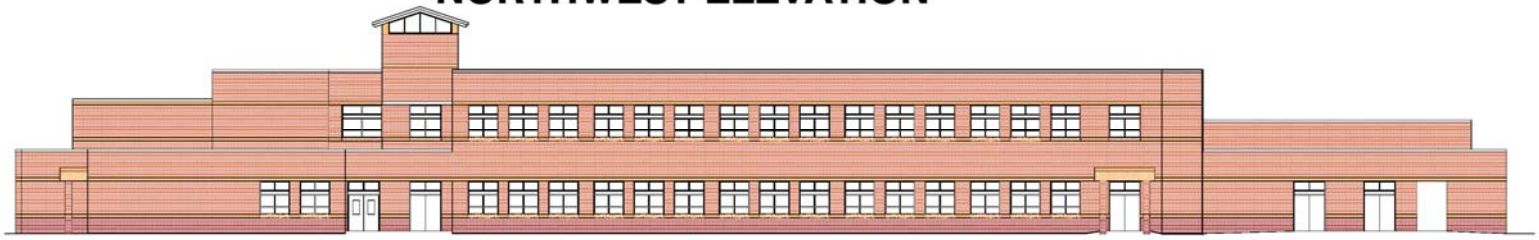
SOUTHEAST ELEVATION



Proposed Elevations

NORTHEAST ELEVATION

NORTHWEST ELEVATION



SOUTHWEST ELEVATION

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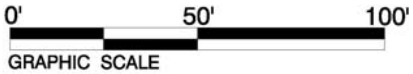

Project Team, Schedule, and Estimated Construction Costs

Design Team Members

Architect:	Delmar Architects, P.A.
Civil Engineer:	Macris, Hendricks and Glascock, P.A..
Mechanical/Electrical/Plumbing Engineer:	Mendoza, Ribas, Farinas and Associates
Structural Engineer:	Johnson Engineering Associates, P.A.
Kitchen Consultant:	Nyikos Associates, Inc.
LEED Consultant:	Sustainable Building Partners

Project Schedule

Preliminary Plans Presentation:	March	2012
Construction Documents Completed:	April	2013
Award Construction Contract:	June	2013
Project Completed:	January	2015

Estimated Construction Costs

Existing Building:	Existing	48,543 square feet
	Demolition:	48,543 square feet
	New Construction:	79,587 square feet
	Total:	79,587 square feet

Construction Cost Estimate for
Building and Site: $21,365,000