LS3P

ENGAGE **DESIGN** **TRANSFORM**

Building For A Better Tomorrow... One Child At A Time

Aiken County Public Schools

Aiken High School Phase 2A

Construction Documents Submittal - April 2016

LS3P Commission No. 2201-147220

Contents
Aiken High School Phase 2A

EXISTING SCIENCE BUILDING (PHASE 1)

"The mission of Aiken County Public School System is to create in students a passion for learning and achievement that will serve them as they compete and contribute in a global society."

- Aiken County Public School District's Purpose Statement

Design Statement

PRELIMINARY 3-D RENDERING OF NEW MAIN ENTRY AT ADMINISTRATION

Our initial project scope was to develop a campus Master Plan based on Phasing to ultimately replace most or all of the existing academic facilities on the campus. Phasing plans were developed for renovations/additions to the campus, presented to the District Committee, and presented to the School Board by District Staff.

LS3P completed the design of Phase 1 of the Master Plan, which consisted of two new building additions: a two-story science classroom building and a one-story field house, construction of which were completed in 2013. Phase 2 is the logical second step, which seeks to develop and provide the following:

Phase 2A: New administration, general classrooms, media center, student dining/food service and business classrooms/labs.

Phase 2B: New auxiliary gym, art, sewing and child care, culinary, ROTC, band and chorus.

Phase 2C: New auditorium and vocational facilities.

The Construction Documents Submittal of Phase 2A has resulted in a project that remains consistent with the original project goals and represents a refinement of the original master plan and the work undertaken during Phase 1 and previous development of Phase 2A.

Site Plan

EXISTING SITE PLAN

N

The site is the existing Aiken High School campus located at 449 Rutland Drive NW in Aiken, South Carolina. The new work will be phased in order to keep the school in operation as portions of the existing buildings are selectively demolished while new portions are constructed. The new buildings will be designed to take advantage of a predominantly north-south solar orientation, will visually complement the existing gymnasium elevation, and will build upon the design language of the building designed and constructed as part of Phase 1.

Vehicular circulation will be largely re-designed, with new car and bus drop-off loops incorporated into the design. The parking area accessed from Rutland Drive, which was constructed during Phase I, will be reconfigured to accomodate a new main entrance to the administration wing and parent drop-off loop. New parking areas will increase maintain parking accomodations while providing safer pedestrian connections between the existing buildings to remain and the new buildings.

Phasing Plans

EXISTING SITE PLAN

PHASE 2A SITE PLAN

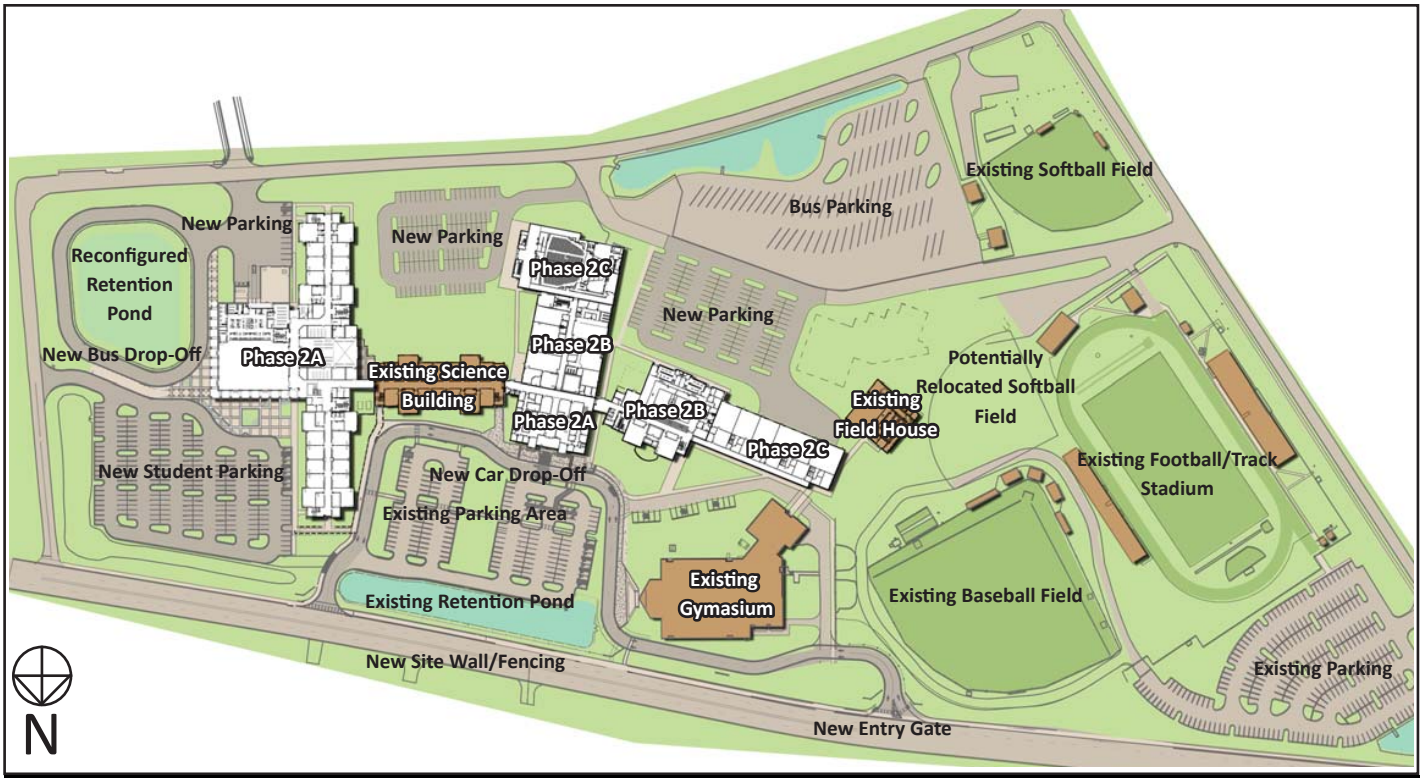
Phasing Plans

PHASE 2B SITE PLAN

PHASE 2C SITE PLAN

LS3P

Phase 2 Overall Site Plan



PHASE 2 OVERALL SITE PLAN

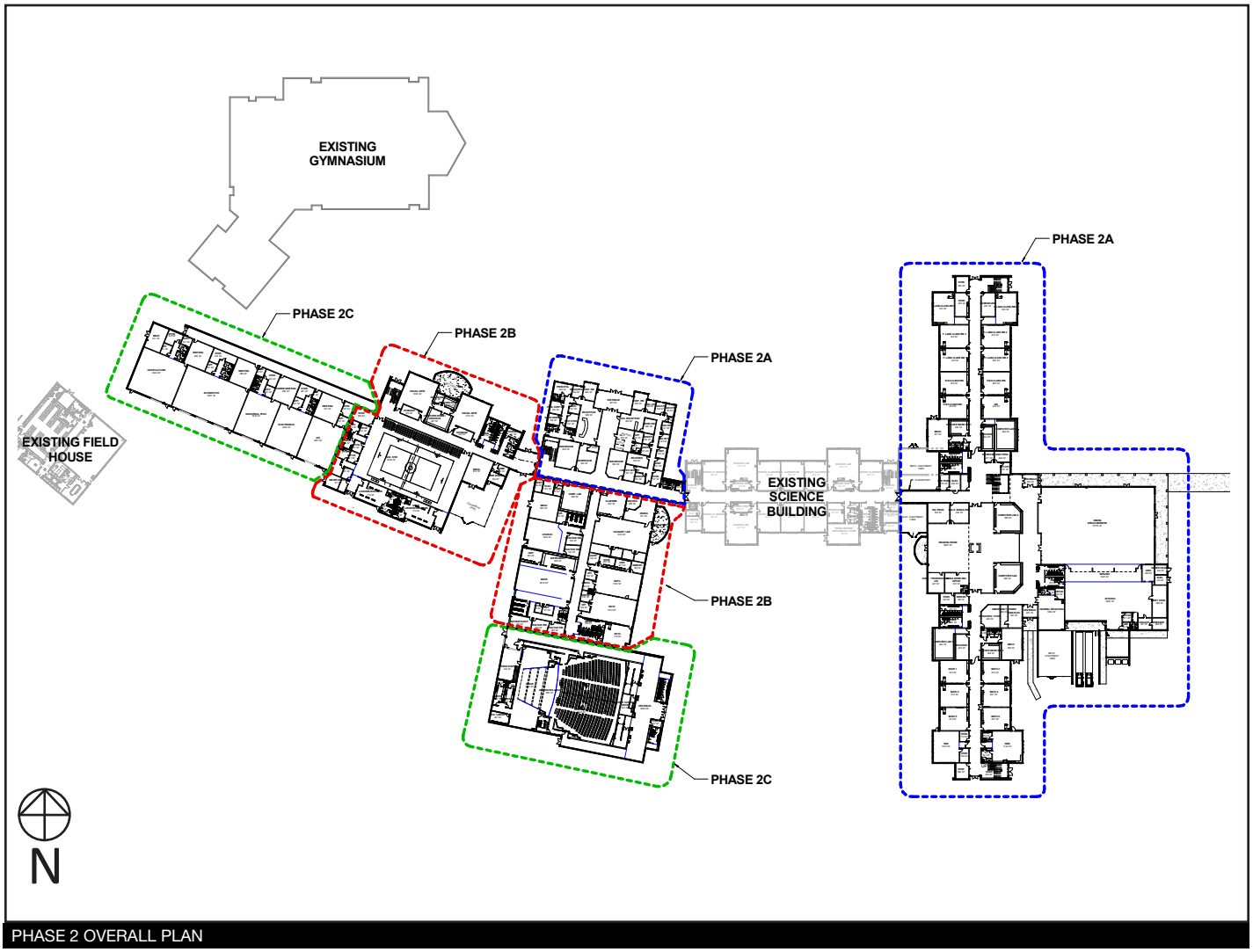
Program of Spaces

SUMMARY SCHEMATIC DESIGN PROGRAM
AIKEN HIGH SCHOOL - PHASE 2
1,600 STUDENT HIGH SCHOOL
July 29, 2015

PHASE 2A

SPACE	Number of Existing Spaces	Number of New Spaces	Number of Students (in each)	Student Capacity	GROSS SF	Notes
CLASSROOMS / MEDIA CENTER						
EXISTING SCIENCE & MATH CLASSROOMS	18	0	24	432		Existing spaces to remain counted in student capacity but not counted in new SF amount
EXISTING CLASSROOMS IN TAYLOR GYM	5	0	24	120		Existing spaces to remain counted in student capacity but not counted in new SF amount
GENERAL NEW CLASSROOMS		38	24	912		12 English, 6 Math, 10 SS, 6 Foreign Language, 2 Flex, 1 ISS & 1 Homebound
NEW SPECIAL EDUCATION		12	12	144		6 Resource, 1 ESOL, 3 ACES, 1 PMD & 1 TMD
MEDIA CENTER TOTAL						
BUSINESS LAB/CLASSROOMS						4 Business Labs/Classrooms
CLASSROOMS / MEDIA CENTER				**1,608**		
ADMINISTRATION						
ADMINISTRATION						Includes reception area, Principal and other administrative offices, testing storage and staff workroom
GUIDANCE						Includes reception area, Guidance and other offices, records vault and health room
ADMINISTRATION						
DINING & CUSTODIAL						
DINING & FOOD SERVICE		1				3 Seatings of 534 students each
CENTRAL RECEIVING		1				
DINING & CUSTODIAL SUB-TOTAL						
TOTAL BUILDING GROSS SF - PHASE 2A				**1,608**	**152,633**	

Floor Plan - Full Build-Out



PHASE 2 OVERALL PLAN

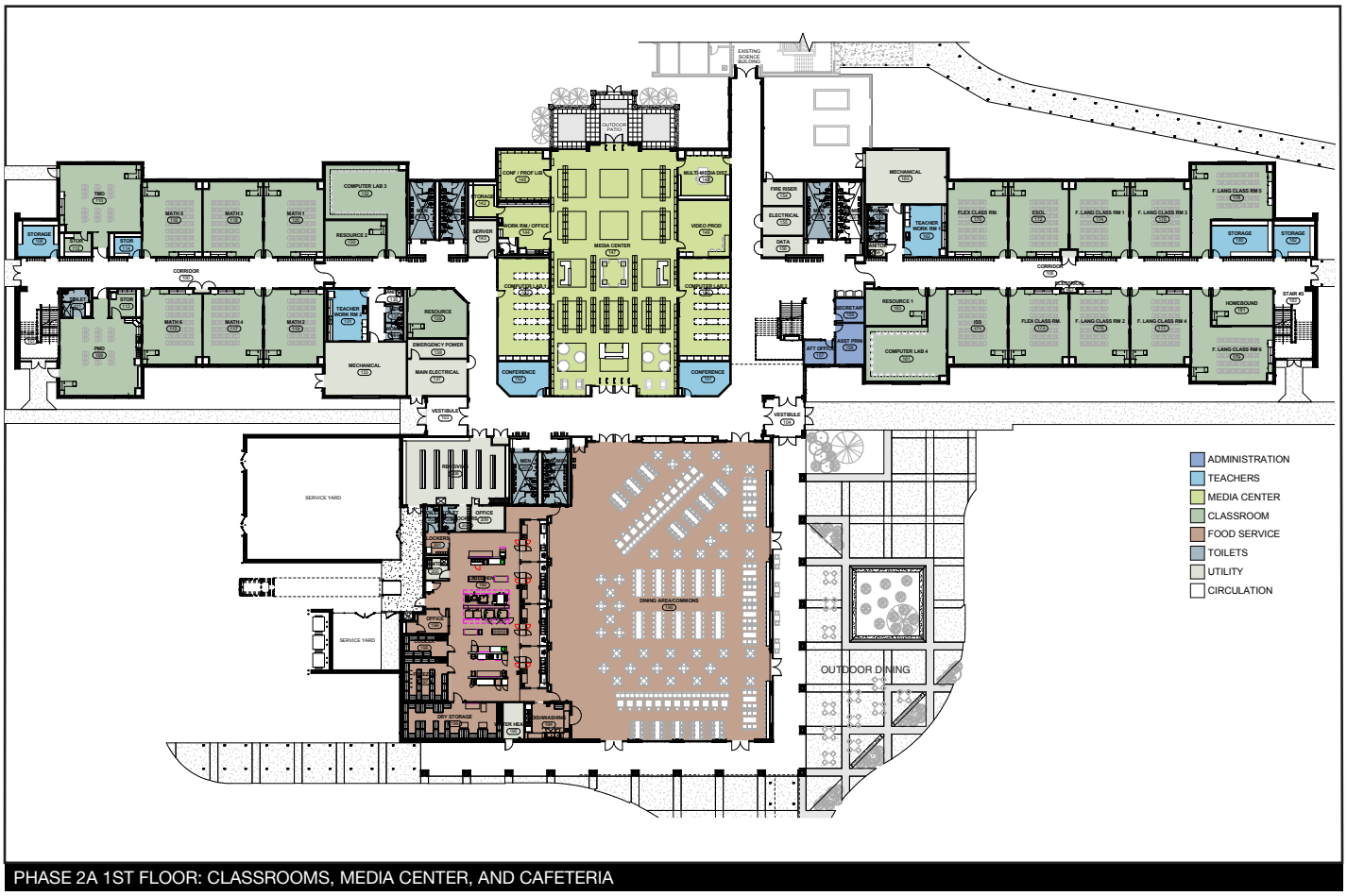
Phase 2A Floor Plans

PHASE 2A 2ND FLOOR: BUSINESS LABS

PHASE 2A 1ST FLOOR: ADMINISTRATION AND GUIDANCE

LS3P

Phase 2A Floor Plans



PHASE 2A 1ST FLOOR: CLASSROOMS, MEDIA CENTER, AND CAFETERIA

Phase 2A Floor Plans

PHASE 2A 2ND FLOOR: CLASSROOMS

Elevations & Perspectives

EXISTING TAYLOR GYMNASIUM TO REMAIN

EXISTING SCIENCE BUILDING TO REMAIN

OVERALL RUTLAND DRIVE ELEVATION (PHASES 1 & 2A)

OVERALL DUPONT DRIVE ELEVATION (PHASES 1 & 2A)

ADMINISTRATION (PHASE 2A) AND EXISTING SCIENCE BUILDING (PHASE 1)

RUTLAND ENTRY GATE (PHASE 2A)

SITE FENCING/WALL AT DETENTION POND ALONG RUTLAND DRIVE (PHASE 2A)

CAFETERIA AND CLASSROOM WINGS (PHASE 2A)

LS3P

Materials and Systems

A. Structural System

The structural design will be in accordance with the 2012 IBC and ASCE 7-05 for wind, seismic and gravity loadings. The structural system will consist primarily of load bearing CMU (concrete masonry unit) walls of eight and twelve inch thickness as required by height. The exterior masonry walls will be vertically reinforced and grouted CMU with additional horizontal joint reinforcing with an integral veneer tie system. The interior CMU walls will also be vertically reinforced and grouted and contain horizontal joint reinforcing.

Elevated floors will consist of a welded wire mesh reinforced slab on composite metal deck. The slab and deck will be supported on composite steel beams which bear on the main load bearing lines to include exterior walls, corridor walls, and interior partition walls at isolated locations.

The roofs will be framed with steel joists spaced approximately five feet on center. Similar to the floor, the steel joists will bear at main bearing lines including exterior walls, and corridor walls. Areas of pitched roofs will be framed with galvanized structural steel framed on top of steel joists. Roof deck will consist of 1 1/2" galvanized steel.

Per the Geotechnical report significant undercutting and fill placement will be required at the classroom building. With these ground modifications, conventional shallow spread and strip footings will be used with an allowable soil bearing pressure of 2500 psf. Continuous strip footings will be provided beneath all exterior walls and interior masonry walls. Larger spread footings will be used at isolated and integral cmu wall piers. All foundations will be constructed of reinforced concrete. The first floor construction will be a 4-inch welded wire mesh reinforced concrete slab on grade placed on a 15-mil vapor barrier.

Per the Geotechnical report, the site is a Site Class "D" resulting in a Seismic Design Category "C" classification for the structures. The code-applied wind and seismic lateral loads will be resisted by a system composed of the elevated concrete floor slab diaphragms, metal roof deck diaphragm and reinforced masonry shear walls.

B. Roofing

The insulation system within the new roof system assemblies will consist of polyisocyanurate roof insulation and perlite roof insulation with a minimum R-value of 30.

The roofing membrane on the low sloped roof areas will consist of three (3) plies of fiberglass felts adhered in hot asphalt and an Energy Star granule surfaced modified bitumen cap sheet adhered in cold adhesive. A three (3) year Contractor's Warranty and a twenty (20) year Manufacturer's Warranty will be provided for the low sloped roofing system.

All sheet metal components for both roofing systems will consist of pre-finished, minimum 24 gage Galvalume. Other specific flashing details will require other appropriate metal types.

The roofing systems will comply with the 2012 IBC and ACPS requirements.

C. Exterior and Interior Walls

The exterior facade of the new classroom building will consist of brick, decorative CMU, and metal panels with aluminum windows. The majority of the interior wall surfaces will be painted concrete block, with gypsum wall board in the administration and guidance office suites.

D. Doors and Windows

Exterior doors will be painted hollow metal (steel) while interior doors will typically be stained solid core wood. All door frames will be hollow metal (steel). Classroom windows will typically be aluminum, triple-glazed, with integral blinds. Aluminum storefront windows will be used at selected locations, such as stair towers and windows above the main visitor entry.

Materials and Systems

E. Wall Finishes

All interior walls will be primed and will have a minimum of two finish coats of paint applied. Waterbourne epoxy paint will be used on all CMU walls.

F. Floor Finishes

The classroom building will typically feature vinyl composition tile at the classrooms and corridors. Terrazzo flooring with vinyl wall base will be specified at the visitor entry lobby. The group toilets will feature an epoxy flooring. The flooring in the auxiliary gym (Phase 2B) is to be determined based on anticipated usage of the gym.

G. Ceilings

Acoustical ceiling tile (2'x2') will typically be provided throughout corridor and classroom spaces. Hard ceilings will be used in toilet and shower areas. No ceilings will typically be installed in janitor, electrical, data, mechanical, or fire riser rooms.

H. Accessories and Specialties

Marker and tack boards will be provided in all classroom and teaching areas. Signage will be provided to identify each space. Rough-ins will be provided for District-installed Smart Boards.

I. Casework and Millwork

Durable grade plastic laminate cabinets will be typically provided throughout. All classrooms will feature built-in teacher desks. Library shelving will be included in the building package.

J. Mechanical System

The HVAC system for the Phase 2A addition will include a new variable flow primary air cooled chiller plant, with three (3) chillers, each sized for 35% to 40% of the total building cooling load, and variable speed chilled water system pumps with each pump sized for 100% of the chilled water load. The new chiller plant will also serve the existing Science Wing. The Science Wing chillers will remain as installed but disconnected from the chilled water system. When the Taylor Gym is renovated, the chillers will be relocated to the Taylor Gym site to serve the Taylor Gym HVAC system. The existing Science Wing mechanical room will be modified and the pumps in that wing removed.

The classroom and administrative areas will be served with indoor, variable air volume (VAV) air handlers and terminal units with electric heat. The kitchen and cafeteria will be served with rooftop units and will be single zone VAV air handlers or constant volume air handlers. One rooftop air handler unit will be provided to serve the exterior zone of the Media Center. All air handlers will be dual wall with chilled water coils and SCR electric heaters.

Ducts will be rectangular or spiral galvanized sheetmetal with fiberglass insulation with FRP jackets. Piping will be schedule 40 black steel or Type L copper with polyiso insulation outdoors and in mechanical rooms and fiberglass insulation with ASJ jacket in other locations. Outdoor piping will have an aluminum jacket. Underground chilled water piping shall have polyurethane insulation with a PVC or FRP jacket.

The control system will be a web based control system by Automated Logic Controls. All components of the HVAC system will be controlled along with the common lighting zones (primarily corridors and exterior lighting). The existing control system serving the Science Wing and the Field House will be removed and replaced with Automated Logic Controls. The Cafeteria air handler controls will allow the air handlers to operate in heating mode (no cooling will be available) if needed when the building is operating on emergency power.

Materials and Systems

K. Plumbing System

Water closets will be the flush valve type and will be floor-mounted. Urinals will be the flush valve types and will be wall-mounted. Flush valves shall be self-generating hydropower battery sensor-operated.

Lavatories will be wall-hung enameled cast iron. Group bathroom lavatories will be a one (1) piece, wall hung, molded unit with integral sinks. Student lavatories will be provided with cold water only. Adult lavatories will be provided with hot and cold water. Group bathroom lavatories will feature self-generating hydropower sensor-operated faucets.

Sinks will be stainless steel 18 gauge type 302 with hot water and cold water. Staff Workroom, Teachers' Lounge, and Conference Room sinks will be stainless steel with hot water and cold water. Service sink for custodial will be terrazzo with stainless steel caps. Showers will be stainless steel wall mounted units with privacy partitions.

Drinking fountains and water coolers will be wall-hung for the designated grade level and for the handicapped. Generally all interior locations will be provided with electric water coolers. All drinking fountains and water coolers will be stainless steel and vandal proof.

Hose bib with loose key and vacuum breaker will be located in all toilets with floor drains and in mechanical rooms. Wall hydrants outside building will be surface- mounted, loose key, anti-freeze with backflow preventer, located at approximately 100-ft. intervals around perimeter of the building. Hydrants (on roof) will be provided for wash down and maintenance. A hot water recirculation pump will be provided with each water heater when the hot water system extends over 50 feet from water heater to last fixture.

Floor drains with deep seal traps and trap primer connections will be provided in all wet areas.

L. Fire Protection System

The classroom and Cafeteria building (in Phase 2A) will be protected throughout by a wet pipe sprinkler system unless indicated otherwise. The wet pipe sprinkler system shall consist of six zones (three for first floor and three for second floor). A dry pipe system shall be provided for the loading dock.

The Administration wing (in Phase 2A) will be protected throughout by a wet pipe sprinkler system. The wet pipe sprinkler system shall consist of two zones (one for first floor and one for second floor).

The mechanical rooms, electrical rooms, storage areas, janitor rooms and water heater rooms shall be designed for Ordinary Hazard Group I occupancy. The remainder of the building shall be designed for Light Hazard Occupancy.

Each riser room shall have an individual incoming fire line. Civil design will provide a freestanding post indicator valve and a freestanding fire department connection (FDC).

Each riser room shall have a reduced pressure backflow preventer located indoors.

Concealed sprinklers will be provided in all areas with finished ceilings.

Upright sprinklers will be installed in mechanical rooms, electrical rooms, storage rooms, and similar rooms and any other space without ceilings.

M. Electrical System

Electrical service for the new addition will be obtained from a pad-mount transformer from SCE&G. Service voltage will be 277/480V 3 phase 4 wire. Surge protective devices (SPD) will be provided for the new electrical service and downstream distribution equipment.

Materials and Systems

Emergency power will be derived from an outdoor diesel generator set in a sound attenuated weatherproof enclosure. Nominal size is estimated to be 175 kW at 480Y/277 3 phase 4 wire.

Interior lighting will generally consist of specification grade LED lay-in lighting fixtures. Lighting levels in classrooms will be controlled via simple 0-10V dimming, inherent in contemporary LED driver design, and shall provide separate control for teaching wall.

Exterior lighting will consist of building mounted LED architectural cut-off security fixtures.

Occupancy sensors for lighting control and energy savings will be used as much as possible. Commons areas such as corridors and exterior lighting will be controlled by the building automation system.

An addressable fire alarm system will be provided. The system will be a voice-evacuation type utilizing strobes, speakers, and pre-recorded voice messages to notify occupants. The fire alarm system will report automatically to a Central Receiving Station. Basis of design will be systems manufactured by Silent Knight.

A premises wiring system, including fiber optic backbone with CAT 6 copper drops, will be provided. This will include a conduit and/or cable tray system for support of IT technology wiring and equipment racks for installation of jack panels and Owner-installed electronics. Nominal outlet locations in instructional spaces shall be for two (2) drops per classroom, one for teacher station and one for wireless access point.

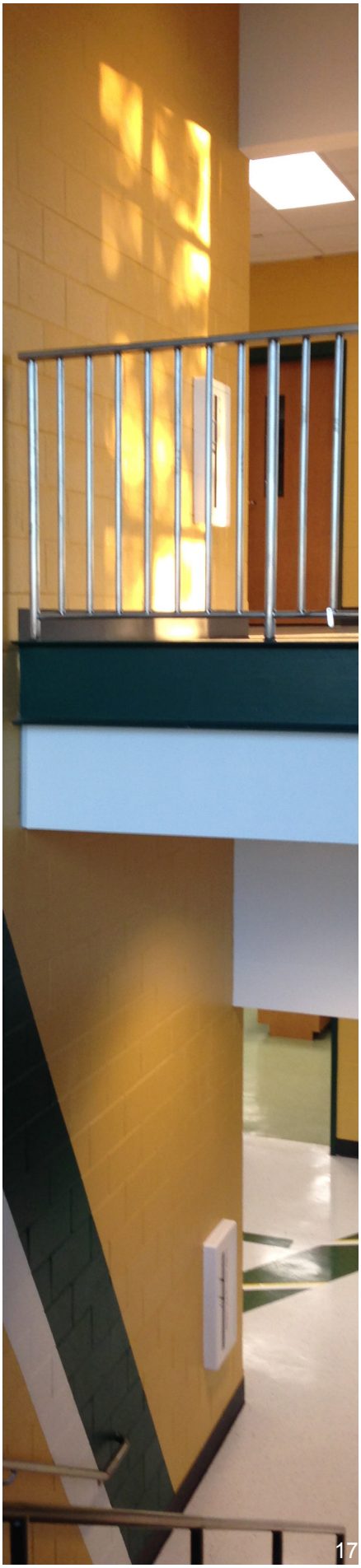
Cable tray system shall be for the sole use of IT, security, CCTV, and other systems installed outside the construction contract. HVAC controls shall not be installed in the cable tray system. Cable tray shall be aluminum ladder type tray.

Conduit pathway shall be provided within instructional spaces to support multi-media applications between the instructor's station and display equipment.

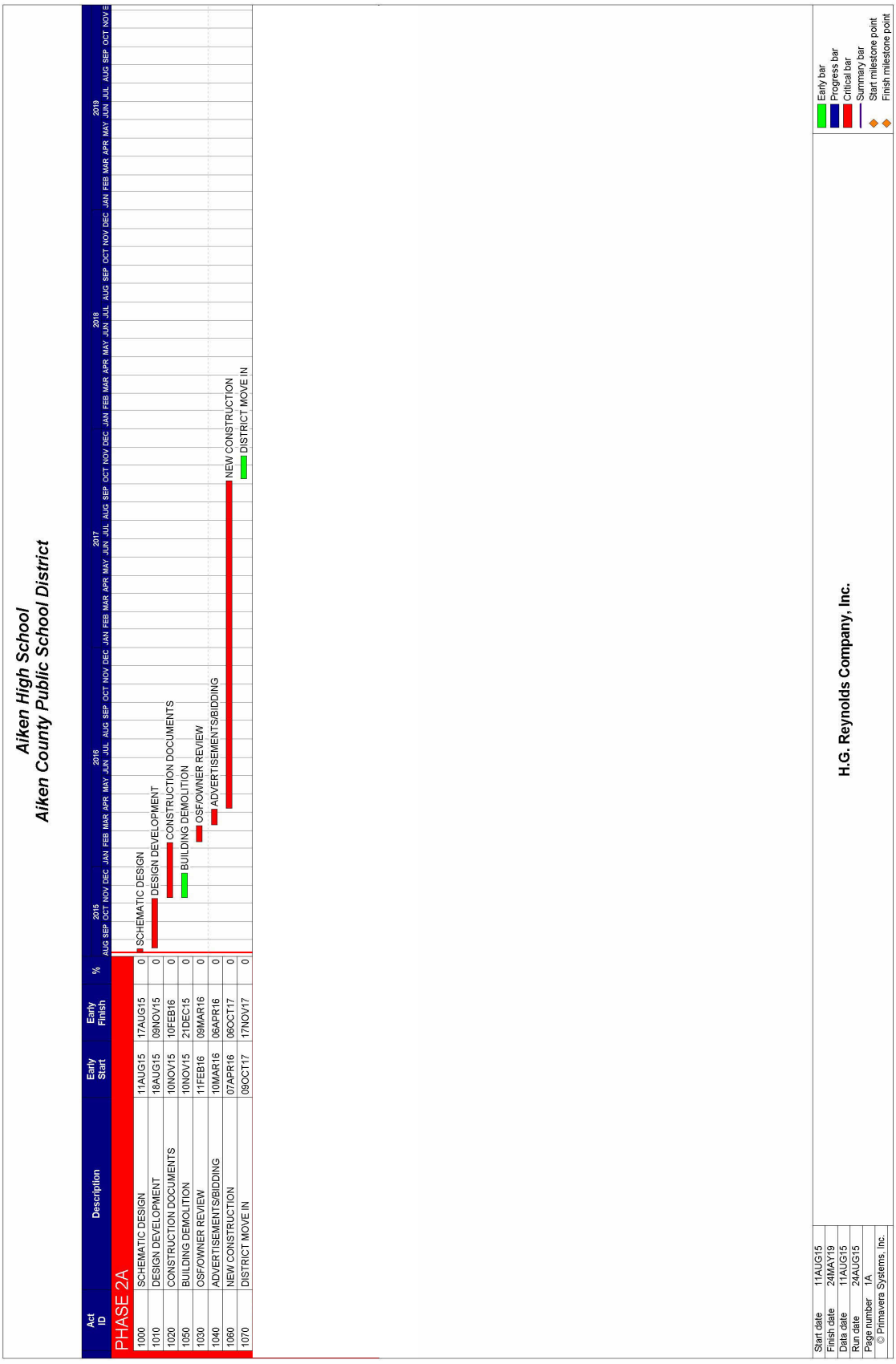
Intrusion detection system (IDS), building access control and CCTV systems. System electronics and installation will be included in the construction contract via Owner's security vendor.

A two-way school intercom system shall be provided for calls to instructional areas and for general paging through the building. Basis of design will be Rauland Borg, TCU. Call-back buttons shall be provided in classrooms and selected locations. Administrative phone handsets shall be provided announcements at the main reception desk, principal's office, and the guidance reception desk.

Sound reinforcement systems and AV presentation systems will be provided in the cafeteria.



Schedule


Aiken High School
Aiken County Public School District
Act ID
Description
Early Start
Early Finish
%
PHASE 2A
1000 SCHEMATIC DESIGN 11AUG15 17AUG15 0
1010 DESIGN DEVELOPMENT 18AUG15 09NOV15 0
1020 CONSTRUCTION DOCUMENTS 10NOV15 10FEB16 0
1050 BUILDING DEMOLITION 10NOV15 21DEC15 0
1030 OSF/OWNER REVIEW 11FEB16 09MAR16 0
1040 ADVERTISEMENTS/BIDDING 10MAR16 06APR16 0
1060 NEW CONSTRUCTION 07APR16 06OCT17 0
1070 DISTRICT MOVE IN 09OCT17 17NOV17 0
2015
2016
2017
2018
2019
SCHEMATIC DESIGN
DESIGN DEVELOPMENT
CONSTRUCTION DOCUMENTS
BUILDING DEMOLITION
OSF/OWNER REVIEW
ADVERTISEMENTS/BIDDING
NEW CONSTRUCTION
DISTRICT MOVE IN
Start date 11AUG15
Finish date 24MAY19
Data date 11AUG15
Run date 24AUG15
Page number 1A
© Primavera Systems, Inc.
H.G. Reynolds Company, Inc.
Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Preliminary Project Budget Summary Estimate

Aiken High School - Phase 2A (2015-2017)
Aiken County School District
LS3P Commission No.: 2201-147220

		Aug-15		Schematic Design - Phase 2A	Jan-16		Design Development - Phase 2A	Jan-16		Construction Documents - Phase 2A
Description		*GSF*	*$/GSF*	*Totals*	*GSF*	*$/GSF*	*Totals*	*GSF*	*$/GSF*	*Totals*
Estimated Construction Costs	**HG Reynolds**									
Demotition										
Site and Building Demolition		11900	$10	$119,000	39,000	$8.54	$333,117	39,000	$8.54	$333,117
Building & Site										
New Construction		*152,633*	*$185*	$28,237,105	*152,633*	*$190.07*	$29,010,717	*152,633*	*$190.07*	$29,010,717
Projected Sub-Total Construction				**$28,356,105**			**$29,343,834**			**$29,343,834**
Design / Estimate Contingency			4.95%	$1,403,627		1.7%	$500,000		1.7%	$500,000
***Projected* Total Construction / Phase**				**$29,759,732**			**$29,843,834**			**$29,843,834**
Professional/Technical/Inspection Fees	(Fees, surveys, inspections)									
TOTAL				**$2,983,859**			**$2,983,859**			**$2,983,859**
Advertising										
Bid advertisements				*(included in CM@R)*			*(included in CM@R)*			*(included in CM@R)*
Miscellaneous										
Fixtures, Furnishings & Equipment; Technology	*(% of Estimated Const.)*		*8%*	$2,380,779		10%	$2,984,383.40		10%	$2,984,383.40
TOTAL				**$2,380,779**			**$2,984,383**			**$2,984,383**
Sub-Total				$35,124,369			$35,812,076			$35,812,076
Overall Project Contingency	*(of estimated const)*		3%	$1,053,731.08		5.03%	$1,500,000		5.03%	$1,500,000
ESTIMATED TOTAL				**$36,178,100**			**$37,312,076**			**$37,312,076**
Alternates										
Add'l. Construction Admin (LS3P weekly)	*OPTIONAL*	*24 mo*	$7,000	$168,000	*24 mo*	$7,000	$168,000	*24 mo*	$7,000	$168,000
Add'l. Construction Admin (Consultants as req'd)	*OPTIONAL, hourly*	*24 mo*	*TBD*		*24 mo*	*TBD*		*24 mo*	*TBD*	
				$36,346,100			**$37,480,076**			**$37,480,076**
	Budget over/under $60M			*$23,653,900*			*$22,519,924*			*$22,519,924*

OVERALL PROJECT BUDGET
*Actual costs to be provided by District.