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Design Narrative for

Renovations to Hutchinson Elementary School

650 Cleveland Avenue SW, Atlanta, GA 30315

Prepared for

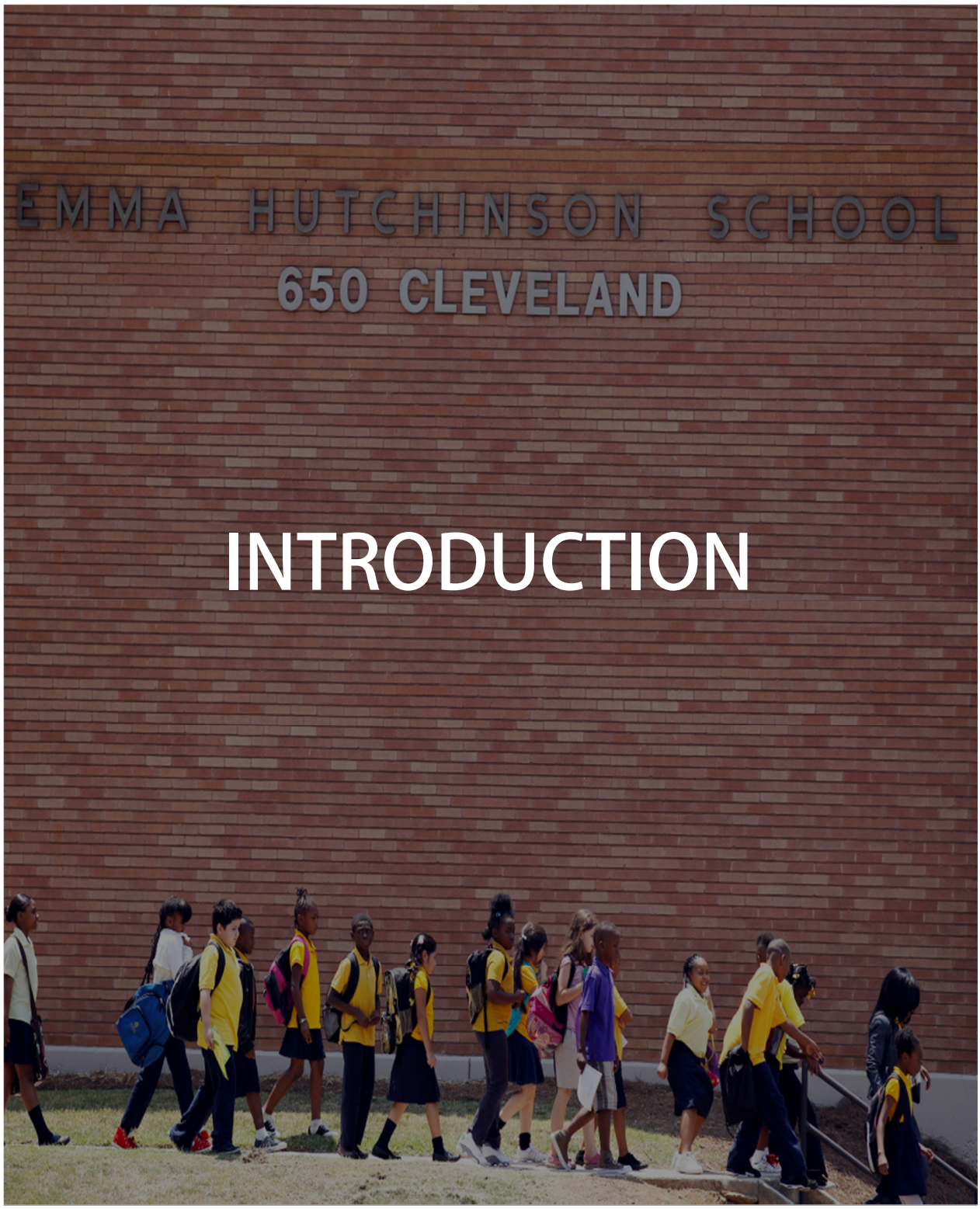
ATLANTA PUBLIC SCHOOLS

Atlanta, Georgia

ATLANTA PUBLIC SCHOOLS
Making A Difference

DESIGN NARRATIVE TABLE OF CONTENTS

INTRODUCTION



INTRODUCTION

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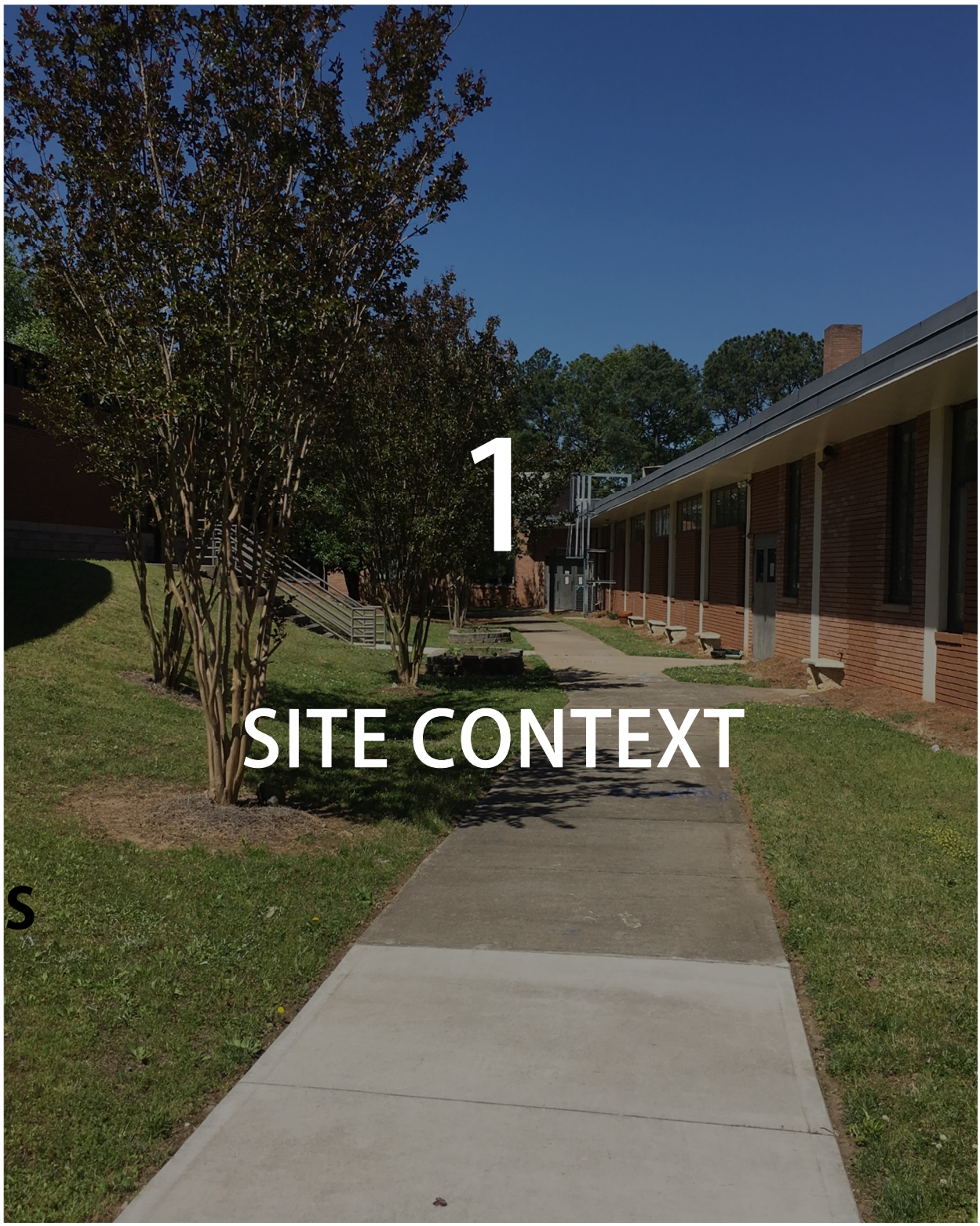
The intent of the Design Narrative is to assist APS during the conceptual stages to determine the feasibility of the project and to initiate the project review and approval process. GMC'S Architectural & Engineering Team will lead the Project Committee in identifying the school's needs and defining a scope of work. The information gathered shall be prioritized and included in this document as outlined below.

The Design Narrative will include an analysis of the current condition of the school and propose resolutions relevant to the expressed desire of the Project Committee, the GADOE regulations, and APS facilities guidelines.

During the Design Narrative Phase, studies are done to analyze space requirement issues, the constraints and opportunities of the site, and cost versus budget. This phase includes site analysis, programming, construction cost analysis, and value engineering. The amount of funding available defined in our budget is a critical factor in determining which concepts take precedence in order to determine scope, budget, and project schedule.



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SITE CONTEXT

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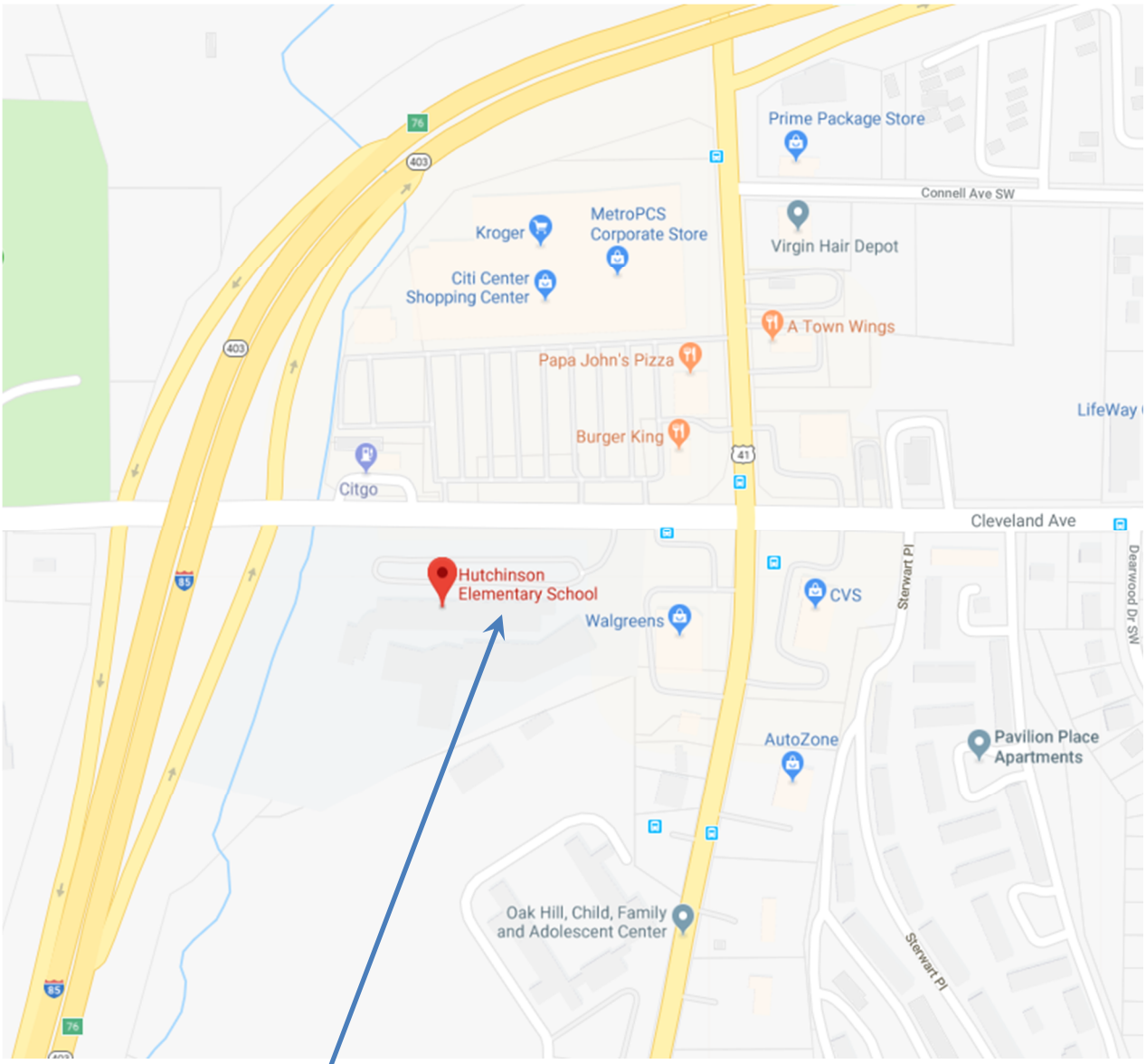


EMMA HUTCHINSON ELEMENTARY SCHOOL
650 CLEVELAND AVENUE SW
ATLANTA, GA 30315

OVERVIEW

Emma Hutchinson Elementary School is located at 650 Cleveland Avenue SW, Atlanta, Georgia. It is in Land Lot LL043 of the 14th District, Fulton County, City Council District 12. The property is zoned O-I (Office & Institutional).

ZONING

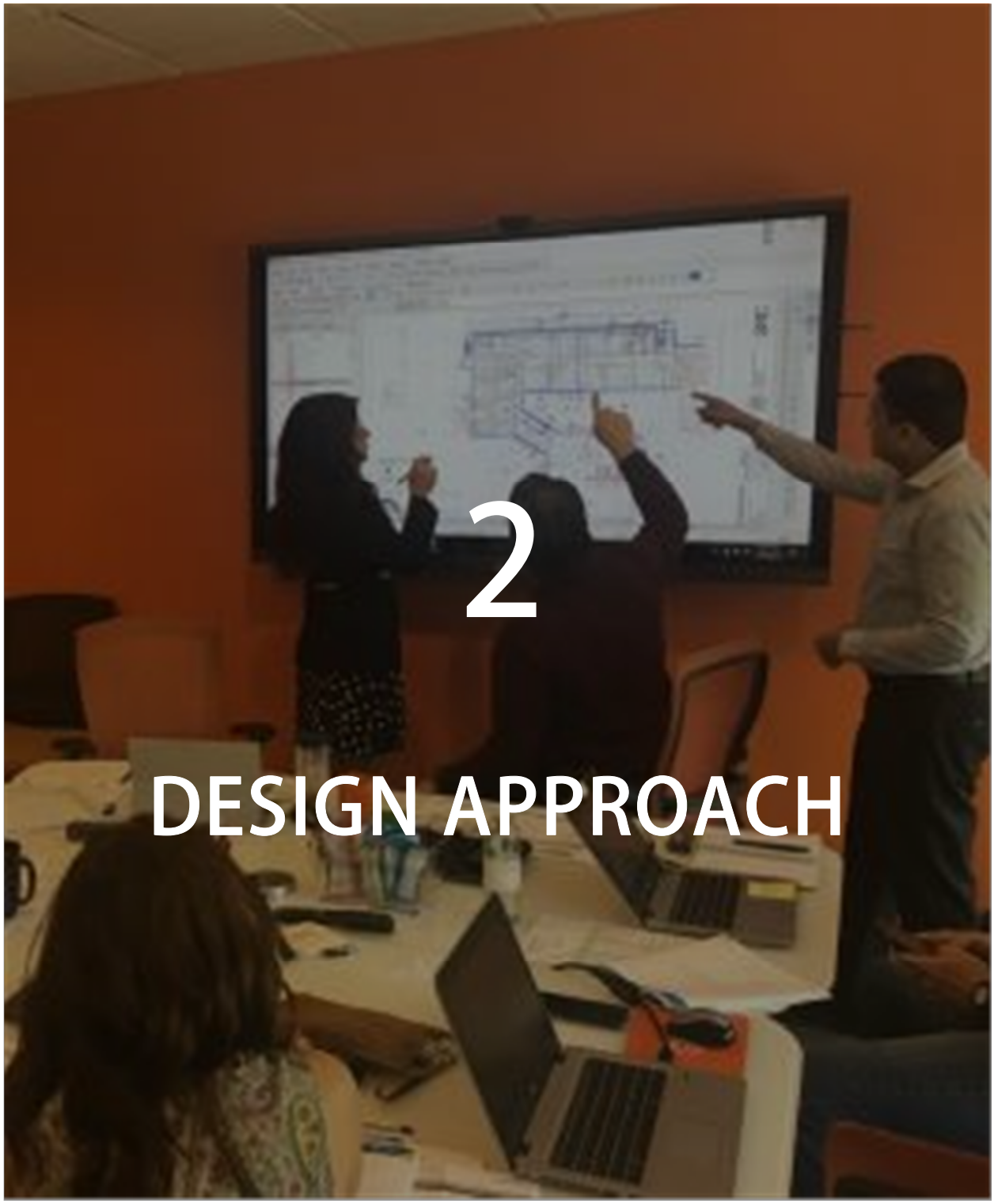
The property is bordered to the North by Cleveland Avenue with City Center Shopping Center (Zoned MRC-2-C) north of Cleveland Avenue. To the West is Interstate 85 and to the East is property zoned Commercial Mixed-Use with various business fronting Metropolitan Parkway. The Oak Hill Child, Family and Adolescent Center owned by the Fulton County Building Authority is located to the South.

Atlanta Public Schools is exempt from the required zoning setbacks and parking.

PARKING & SITE ACCESS

The Atlanta Public Schools, Construction and Renovation Guidelines for parking requires one space per classroom plus 15 spaces for staff and 12 additional spaces for visitors. Based upon this criteria, 73 spaces are required. Currently the lot is striped for 73 spaces with additional opportunities for parking at the west side of the Cafeteria/Kitchen.

GMC proposes to provide a new wear layer and restripe the existing parking lot with handicap accessible spaces designated near the new accessible Main Entrance. New signage will be provided designating the accessible spaces along with wayfinding signage around the exterior of the school.



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DESIGN APPROACH

PART ONE

GENERAL PROJECT REQUIREMENTS:

A. The following consultants will address the needs of Hutchinson Elementary School Renovations

1.	Architect	**Goodwyn Mills Cawood(GMC)**
2.	Environmental Engineering	**GMC**
3.	Mechanical(Plumbing) Engineer	**RMF Engineering**
4.	Electrical Engineer	**RMF Engineering**
5.	Structural Engineer	**PES Structural Engineers**
6.	Civil Engineer	**Eberly & Associates**

B. APS will relocate the students, teachers and staff the 2019-2020 school year while the renovations are taking place.

C. Original Project budget from APS was $6.8 million with the following basic programming elements indicated in the RFP as issues that require attention:

- Roof and envelope upgrades
- Door, window and hardware upgrades
- Electrical, HVAC and plumbing upgrades.
- Exterior and interior finish upgrades.
- Data, voice and video upgrades.
- Life Safety System upgrades.
- Interior and exterior signage upgrades.
- CCTV, security and access control upgrades.
- Furniture and casework upgrades.
- Site upgrades.
- Landscaping improvements.

PART TWO

PROPOSED DESIGN SOLUTION

A. INTRODUCTION

The scope of work for the Renovation of Emma Hutchinson Elementary School will include demolition, new construction and upgrades to the existing facility. The needs will be documented, prioritized and addressed to the extent possible within the project budget. APS has provided the following hierarchy to be followed for prioritizing the renovations:

1. Safety and Security (LV systems, secure access vestibule, main office, remote admin areas, traffic management, etc.)
2. Building Access: elevators, lifts, ramps, doors / hardware, etc.
3. Building Envelope: roof, windows, doors, waterproofing, etc.
4. Building Systems: mechanical, electrical, plumb, lighting, power, fixtures, etc.
5. Options for the remaining monies: relocating spaces, converting spaces, new functions, finishes, etc.

B. CIVIL

1. Storm Drainage

    a. The existing storm drain system will be inspected and evaluated to determine proper site drainage is being achieved. The school has several issues with water infiltration that will be addressed as part of the renovations. This scope of work will include GMC confirming the storm drain system is functioning properly.

    b. The trench drains installed along both sides of the Connector Corridor will be removed and installed at a level below the building slab elevation. New sidewalks shall be installed that slope away from the building and the new drains and covers will be sized correctly.

c. The concrete pad at the south exit from the Gymnasium will be removed, the sub-grade will be stabilized and a new pad will be installed to remediate the current water infiltration issue in this area.

2. Retaining Walls

a. The timber retaining wall is failing at the south side of Building 2021. This issue will be addressed along with inspection of the entire retaining wall system for the safety and security of the school.

3. Site Access

a. The existing sidewalks will be inspected and designated accessible routes around the site will be evaluated for compliance with the ADA Standards. Any deficiencies will be corrected to provide safe pathways around the school and connect the site parking and drop-off areas to the accessible building entrances.

b. The existing exterior ramp at the east end of Building 2021 provides an accessible route from Buildings 2020 and 2021. However, the ramp terminates in the courtyard, therefore the students must reenter the building at the Connector Corridor to reach safety. As part of the renovations the ramp will be extended to the sidewalk bordering the parking area.

4. Site Security

a. Security fencing will be added on the east side to enclose the courtyard and provide added security for the Pre-K students existing their classrooms.

b. The site fence and vehicle gate on the west side of the site shall be relocated to create a more secure boundary for the playground.

5. Landscaping improvements

a. New landscaping will complement the newly created Secure Entry Vestibule as well as the new Monumental Sign to maintain the school's curb appeal.

b. New hardscape and landscape will be used to create a more cohesive and accessible playground area.

a. The concrete retaining wall along the south property line will be cleaned and repainted.

b. The amphitheater will be renovated to create a covered outdoor instructional area.

c. Hardscape and landscape will be incorporated to enhance the outdoor learning gardens, greenhouse and goldfish pond.

C. ARCHITECTURAL

6. New Secure Entrance Vestibule

a. The first priority will be to create a secure and accessible entrance at the Main Entrance to the school. Currently handicap access is provided at the west end of the building near the Cafeteria. Visitors and students must contact the office and ask for assistance entering the building at this location. Once inside the building they are in the Lower Level Lobby and must take the elevator up to the Main Level and travel down the 1st Grade Corridor to the School Office.

b. The new entrance will extend the existing Vestibule approximately 9-ft. to the north. Students and Visitors will enter the vestibule where they will have access to stairs or a new elevator. A new glass wall will be added to separate this area from the corridor restricting access to the remainder of the school. Visitors will be directed into the office through a door added at the vestibule main level. The Main Office will be redesigned to allow visibility of the entrance vestibule and corridor so the office staff can monitor all activity in this area.

7. Main Office

a. The Main Office will contain the Principal's Office with Private Restroom, Secretary, Reception Counter with 2 Clerks, Conference

Room, Supply Storage, Student Records Room, Supply Storage and Copy Area.

b. The Principal's Office will be enlarged by removing the Vault and constructing a new Student Records Room near the existing Supply Room.
c. The addition of a Secure Vestibule will also extend the Office to create a Conference Room large enough for a group of up to 8 people to meet.
d. A secretary and two clerks will staff the office within the existing office footprint but with more efficient use of space and built-in storage the area will function better and have more open space.

8. Remote Administration Areas

a. The Auditorium which will be repurposed as an Administration Area using movable partitions. GMC recommends this method for creating new spaces with the flexibility to reconfigure or remove walls as needed without eliminating the possibility of using the Auditorium as an assembly area in the future.
b. The Auditorium is proposed to hold the Faculty Workroom, Parent Center, Textbook Storage Area, and Student Reading Program.
c. The Stage will be converted to a Large Conference Room and Assistant Principal Office using movable partitions. Theses spaces will be accessed by stairs on the east side and the existing lift on the west side.
d. The Clinic will remain in it's current location adjacent to the Media Center, however access to the Clinic will be moved to the south wall off of the Corridor.
e. The 2nd Assistant Principal's Office will be located in Room 1169 at the southeast corner of the Media Center. GMC proposes adding a window in the south and east walls of the office to facilitate monitoring of this area of the school.

9. Accessible Restrooms

a. Student Restrooms are provided for each grade level. The Kindergarten and 1st Grade Restrooms are contained in Building 2010.

These restrooms will be renovated to be handicap accessible per current standards. The restrooms for 2nd through 5th grade are contained in building 2020 and 2021. These restrooms are handicap accessible and will require no reconfiguration.

b. The Pre-K Classrooms will be renovated to include (2) new single restrooms for the Pre-K students.

c. New accessible restrooms will be constructed as part of the Faculty Lounge renovation that will be available for use by staff and visitors.

10. Building Access

a. Doors and hardware

i. The exterior doors around the school will be replaced with new insulated hollow metal doors and new heavy-duty hardware installed in existing frames unless the frames are determined to need replacement as well.

ii. The interior solid core wood doors in building 2010 were installed in 1956 and should be replaced

iii. The interior solid core wood doors in the remainder of the school generally appear worn but still functional, therefore GMC recommends refinishing in lieu of replacement. The hardware however should be replaced as the existing is either damaged or missing.

11. Building Envelope

1. The building has several different roofing systems all of which are 15 years old or older.

i. Building 2021 was constructed in 2004 and includes a built-up roof that peaks in the middle and slopes to a gutter on both sides. This roof has ponding water along both of these edges and reports of moisture in the exterior walls below is evident. This roof system shall be replaced including new trim, flashing, gutters and downspouts and visual inspection of the deck and structure below any damage.

ii. Building 2020 includes the Gymnasium. The roof over the Gymnasium is standing seam metal over sloped structure with

tectum panels below. The tectum panels show signs of moisture issues. Further investigation is necessary to determine if this roof system is failing and in need of replacement. GMC believes the investigation will substantiate the need to replace the gym roof as well as the downspouts and gutters.

iii. Signs of water infiltration are apparent along the north gymnasium wall. The roof above this area steps up from a low roof above the Corridor to the gym roof with non-functioning louvers and clerestory window above the low roof opening into the gym. The water is likely infiltrating at the roof/wall connection due to poor flashing installation. The window and louvers are installed within 4-inches of the top of the low roof which does not allow for proper flashing at these openings. GMC recommends removal of the louvers and the window, install new metal wall panels, weather barrier and sheathing in their place and install new flashing at the roof/wall juncture.

iv. Building 2010 was constructed in 1956. The roof is a built-up system over rigid insulation on a formed concrete deck with internal roof drains. There appears to be good slope to the drains with no ponding water except where roof curbs were installed for equipment without crickets. Whereas there are no reports of leaks the age of the roof would warrant further investigation in the form of moisture scans. If water is sitting on the concrete deck it will eventually cause it to deteriorate. GMC also recommends replacement of the roof drains.

v. The exterior aluminum windows at are in relatively good condition. One window had broken glass that would require replacement and the windows previously repaired with new glass will need to be reglazed. New sealant around the exterior all windows is recommended.

vi. While the building exterior appears to be in good condition and well maintained, GMC recommends cleaning the exterior of the buildings, resealing the brick and CMU, pointing up the masonry joints and installing new sealant at control joints and exterior penetrations/openings. GMC will conduct a more thorough inspection of the exterior of the building for any

envelope failures. We will look for weeps in the cavity wall systems to be maintained open and clear of any obstructions.

vii. The concrete eyebrow providing cover at the truck dock outside the Kitchen is severely deteriorated. GMC will include removal of the eyebrow in the scope of work and replace it with a new metal awning.

12. Interior Finish Upgrades

a. Classroom spaces throughout the existing school will be revived with new resilient flooring or carpet tiles, new wall finishes and new acoustical ceilings and LED light fixtures for a more conducive atmosphere to learning.
b. Administrative areas will receive new carpet tile, new wall finishes and suspended acoustical tile ceilings with new LED light fixtures.
c. New ceilings, resinous quartz flooring, wall tile and toilet partitions will be provided in renovated student and staff restrooms.
d. The Cafeteria will have new resilient flooring, new wall finishes and new ceiling treatments with LED lighting to create a more vibrant and appealing environment for the students.
e. The Gymnasium will have new vinyl flooring, new wall finishes, ceiling and light fixtures.
f. The Corridors will have new LED lighting and wayfinding will be incorporated into the new finishes for walls and floors.
g. The Stairs will have new stainless-steel handrails along with new rubber treads, risers and landings.

13. Cafeteria and Kitchen

a. The current kitchen is undersized for the FTE Design Goal by 200 square feet. Upgrades to the kitchen would allow for reconfiguration that provides for efficient use of the current square footage. If and addition is determined to be an option, GMC recommends exploring the addition of a cooler/freezer on the exterior of the building so the space currently occupied by this equipment in the kitchen could be reclaimed.

b. The previous Cafeteria addition is not utilized because of constricted views of the children seated in this area from the main seating area where the monitoring is conducted. Removal of addition loadbearing wall may be possible but further structural investigation is required.

14. Signage Upgrades

a. All handicap accessibility signage will be provided in and around the buildings to meet ADA requirements. Accessible routes from the parking lot and drop off area to the building main entrance will be identified with new directional signage. Inside the building, wayfinding signage will continue to assist students and visitors to reach their destinations by identifying accessible routes and building features.

b. A new monumental sign located along Cleveland Avenue will be designed to compliment the architectural style of the school.

15. Casework

d. GMC will design new casework for PreK, Kindergarten and 1st Grade classrooms in Building 2010.

e. The renovated Art Room and Music Room will receive new casework as will the new Computer Lab and Science Labs.

D. STRUCTURAL GENERAL DESIGN CRITERIA

1. DESCRIPTION:
The project consists of a two-story addition and a renovation of an existing two-story cast-in-place concrete framed elementary school facility with the addition of a prefabricated steel canopy.
a. Risk Category: III

2. APPLICABLE CODES:
a. 2012 International Building Code w/ State Amendments

b. ASCE 7-10
c. Additional design, material, testing, and inspection standards shall be as referenced in the Model Code governing the project or as otherwise required by the Authority Having Jurisdiction.

3. SNOW LOAD CRITERIA
   a. Ground Snow Load: 5 psf
   b. Importance Factor: 1.0

4. SEISMIC LOAD CRITERIA
   a. Mapped Acceleration Parameters:
      i. S_s: 0.183 g
      ii. S_1: 0.089 g
   b. Site Class: D
   c. Importance Factor: 1.25

   Values noted here shall be verified or updated by a qualified geotechnical engineer following geotechnical exploration and investigation.

5. WIND LOAD CRITERIA
   a. Basic Wind Speed: 120 mph
   b. Exposure Category: C

6. LOADING CRITERIA

   All loading shown here is in addition to the self-weight of structure including decking or slabs.

   a. Slab-on-Ground:
      Live Load 125 psf

   b. Elevated Slab:
      Live Load 80 psf

   c. Roof:
      i. Superimposed Dead Load: 20 psf
      ii. Live Load: 20 psf (reducible)
      iii. MEP Misc. Superimposed Load: PER MEP UNIT WEIGHT

7. MATERIAL DEFINITIONS

a. Concrete:

i.	Foundations:	3000 psi
ii.	Slab-on-Ground:	3000 psi

b. Reinforcing:

Rebar:	60,000 psi

c. Masonry:

i.	CMU F'_m:	1500 psi
ii.	Grout:	2000 psi

d. Steel:

i.	Wide Flange:		50ksi
ii.	Tube Shapes:		
	a)	HSS Rectangular:	46 ksi
	b)	HSS Round	42 ksi
	c)	Pipe	36 ksi
iii.	Other (unless noted Otherwise):		36 ksi

e. Steel Stud Framing:

i.	Wall framing	33 and 50 ksi

8. STRUCTURAL SYSTEM DESCRIPTION

<u>Entry Addition:</u>

a. New Shallow Foundations: The new foundations will consist of spread and continuous footings with an assumed bearing pressure per geotechnical findings. Minimum bearing depth for footings shall be 24 in below grade. All foundation design values are to be confirmed by a geotechnical investigation and report.

b. New Slab-on-Ground (SOG): The new SOG will consist of 4 in thick concrete slab reinforced with 6x6-W2.9xW2.9 welded wire reinforcing over a vapor retarder. Sub-grade (including aggregate where required) shall be prepared according to the recommendations of a qualified geotechnical engineer. Control joints shall be cut in at approximately 12'-0" on center with box outs at all columns and pre-molded joint filler between slab and structure where noted.

c. Existing Floor Framing: The existing elevated slab at the entry area appears to be slab-on-grade with retaining walls at the perimeter of the vestibule.

d. New Floor Framing: The new elevated slab will consist of a 3-1/2" thick light weight concrete slab on a 2" composite metal deck (5 ½"" total thickness) reinforced with WWR 6x6-W2.1xW2.1 flat sheets and #4 bars @ 12" o.c. x 6' long over the girders supported by a composite steel beam structural system.

e. Columns: Columns in the existing building appear to be cast-in-place concrete. The new addition will have steel HSS steel columns.

f. New Stairs and Elevator Enclosures: The new stairs will be cast-in-place concrete stairs on grade with a new 10" cast-in-place retaining wall between the stairs and elevator. The new elevator will consist of cast-in-place concrete pit walls and 8" CMU walls above grade.

g. Existing Roof Framing: The existing roof slab appears to be cast-in-place concrete slab. Any openings created in this slab for new equipment will need to be reviewed and reinforced with post-installed steel angles.

h. New Roof Framing: The new addition is within the footprint of the existing canopy roof and will tie into the underside of the existing concrete roof slab.

i. Lateral Load Resisting System: The existing lateral load resisting system appears to be concrete moment frames which shall be confirmed with the existing structural drawings. The lateral load resisting system for the new entry vestibule will be steel moment frames.

j. Existing Façade Framing: The existing façade is supported by concrete beams and columns. The existing concrete beams will be analyzed for potential removal at the center portion over the new stairs and elevator.

k. New Façade: The new curtainwall will be laterally supported with steel HSS girts between the new HSS addition columns.

l. Miscellaneous Items:
   i. New steel lintels will be provided at various new openings in the existing interior non-load bearing 4" CMU.
   ii. There will be various existing openings in the existing interior non-load bearing 4" CMU walls that will require infill.
   iii. New steel beams and posts will be provided to support new storefront in the lobby.

iv. New 6”-8” non-load bearing CMU walls will be provided where required in the Teacher’s Workroom and Administrative Office.

New Pre-fabricated Canopy:
The existing concrete framed canopy at the kitchen will be removed and replaced with a new pre-fabricated steel canopy designed by a specialty designer.

New Openings in Existing Cafeteria Wall
The existing cafeteria will be analyzed to determine an allowable opening in the existing concrete wall between the original 1955 cafeteria and the 2000 addition.

9. ITEMS NOT IN SCOPE

At the time of this narrative, PES was provided with the existing drawings, but no selective demolition has been performed to verify existing conditions. Any unknown conditions discovered during construction that differ from the existing drawings and assumptions made regarding existing conditions are excluded from the scope of work.

Underpinning required to lower the existing foundations for the new elevator pit shall be designed and installed by a specialty contractor experienced in this type of work.

Design of pre-fabricated canopy structures will be designed by a specialty canopy designer.

E. FIRE PROTECTION, MECHANICAL, & PLUMBING DESIGN NARRATIVE

1. GENERAL

a. This document summarizes the fire protection, plumbing, and mechanical process systems for the Hutchinson Elementary School project. The narrative provides the Basis of Design and understanding of the Owner’s Design Intent for the fire protection, plumbing and mechanical systems. As such, the document can begin

to be used to develop a construction cost model/budget with associated general requirements for the facility.

b. This document establishes the basic design criteria for the fire protection, plumbing and mechanical systems for the proposed project and shall be used to supplement local, state and national codes and laws which are applicable to the work being undertaken and those laws dealing with environmental protection, occupational safety and health.

c. System selection, sizing and loads are based on the best information available at the time the documents were produced, which currently includes programmatic and associated square footage information. Necessary adjustments to the project documents will be made as the design process continues and more information, such as block and stacking diagrams, are received. The renovated building will be approximately 88,000 GSF when complete.

2. CODES AND STANDARDS

All fire protection, plumbing, and mechanical systems shall be designed and constructed to comply with the following codes and standards with Georgia amendments:

a. 2012 International Mechanical Code (IMC)

b. 2012 International Building Code (IBC)

c. 2012 International Plumbing Code (IPC)

d. 2012 International Fire Code (IFC)

e. 2009 International Energy Conservation Code (IECC)

f. National Fire Protection Agency (NFPA) Standards (latest editions)

g. Georgia Department of Education Planning and Construction Requirements

h. Georgia State Fire Marshal Regulations

i. ASHRAE Standards and Handbooks (latest editions)

j. 2010 American with Disabilities Act Standards for Accessible Design

k. ANSI A117.1 - 2009 - Standard for Accessible and Usable Buildings and Facilities

l. ASCE 7-2010

m. ASME A17.1 - 2010 - Safety Code for Elevators and Escalators

n. ASME CSD-1-2004 Controls and Safety Devices for Automatically Fired Boilers

o. SMACNA HVAC Duct Construction Standards, Metal and Flexible

p. Environmental Protection Agency Regulation

q. State and Local Codes and Regulations

r. Owner's Insurance Underwriter Standards

The codes and standards applicable to this project shall be those in effect at the time of bid and those versions currently acceptable to the Authority Having Jurisdiction (AHJ).

3. INFRASTRUCTURE AND UTILITY SYSTEMS

   a. Refer to the site and civil documents for information regarding the site utilities. The project will require domestic water, sanitary sewer, storm drainage and natural gas services.

   b. The infrastructure and utility systems will be sized to serve the project as currently defined with approximately 5-10% additional capacity to accommodate future renovations and program changes.

   c. SITE FIRE FLOW DATA

      Hydraulic Test Data: Not Available

      i. Date:
      ii. Test Hydrant Location:
      iii. Elevation:
      iv. Static:
      v. Residual:
      vi. Flow:
      vii. Main Size:

4. FIRE PROTECTION

   a. Building Hazard Classification

      i. The building is not classified as a high-rise structure since there are no occupied floors more than 75 feet above the lowest level of fire department vehicle access.

   b. Sprinkler System Criteria

i. The requirements of the IBC 2012 Section 903 require an automatic sprinkler system to be installed in the building based on the defined occupancy and building height.

   1) The building shall be protected with a wet pipe sprinkler system.

ii. Sprinkler system shall conform to requirements stated in NFPA 13. Sprinkler systems requirements are defined in Chapter 7 and installation requirements are defined in Chapter 8 for wet and dry pipe systems in the building. Based on these requirements, hydraulically calculated sprinkler piping and sprinkler heads will be provided at a minimum frequency such that the protection area does not exceed 225 per square feet per head per Chapter 8 of NFPA 13.

iii. Various areas shall be sprinklered to the following densities calculated from the density curves in NFPA Standard 13, with a minimum area of application of 1,500 square feet:

iv. Light Hazard areas such as classrooms, multipurpose, office areas, public areas, corridors and lobbies will have a minimum design density of 0.10 gallons per minute per square foot over the hydraulically most remote 1,500 square feet.

v. Ordinary Hazard Group I areas such as kitchen, storage rooms, mechanical rooms, electrical switchgear, and transfer rooms will have a minimum design density of 0.15 gallons per minute per square foot over the hydraulically most remote 1,500 square feet.

   1) The design calculations shall include an allowance for outside hose streams and a ten (10) pound per square inch safety factor for future water supply deterioration.

c. Standpipe Criteria

i. The requirements of the IBC 2012 Section 905 DO NOT require a standpipe system to be installed in the building based on the defined occupancy and current building height therefore one will NOT be designed for the building.

5. FIRE SUPPRESSION SYSTEMS

a. All existing systems shall remain functional within the building. Modifications as necessary will be per the guidelines herein.

b. Sprinklers

i. The building will be fully sprinkled by an automatic wet sprinkler system. The entire system shall be in accordance with NFPA 13 and shall meet all requirements of State and local authorities having jurisdiction and the Owner's Insurance Underwriter. Ordinary temperature–rated sprinklers shall be used throughout the building.

ii. Sprinklers shall be installed at the top of each stairwell and under the first accessible landing above the bottom of the shaft.

iii. Sprinkler piping for the automatic wet pipe system will extend from a sprinkler riser. Each sprinkler zone will be provided with a zone valve assembly connected to the sprinkler riser.

iv. Sprinkler head layout will conform to the requirements of NFPA 13. Fully recessed quick response sprinklers will be

provided in all hard ceiling areas with custom cover plates to match the ceiling paint color. Semi-recessed quick response sprinklers will be provided in all suspended acoustical tile areas with chrome escutcheon plates. Upright quick response brass pendants will be provided in mechanical areas, and areas without ceilings. Sprinklers installed in mechanical equipment rooms, electrical equipment rooms, and main switchgear rooms will be provided with protective head covers.

6. SPECIALTY SYSTEMS

a. Dry-Pipe Sprinkler System

i. A dry pipe sprinkler zone will be provided for the following areas of the building. These areas will be provided with a dedicated zone valve capable of separating the wet side from the dry side consisting of unfilled sprinkler piping distributed over the coverage area. This zone valve will be controlled by dry pipe control valve and release air in system to allow water flow during sprinkler head operation. Water flow alarm will also be provided with system.

1) Exterior loading/unloading

2) Main electrical room

b. Clean Agent Fire Suppression Systems

i. The current program for the project does not identify areas that will require a special fire protection system similar to an FM-200, halon or CO_2 tank system.

c. Building Smoke Control

i. In accordance with IBC 2012, the building does not require an active smoke control, stair pressurization or smoke evacuation system.

7. PIPING SYSTEMS

a. Pipe Materials

i. Fire protection piping serving the wet pipe systems shall be constructed of Schedule 40 black steel pipe meeting ASTM A-795 requirements with mechanical grooved pipe couplings and fittings for roll or cut pipe 125 pound steam, 175 pound water ANSI.

ii. Fire protection piping serving the dry pipe system shall be constructed of Schedule 40 galvanized steel pipe meeting ASTM A-795 requirements with mechanical grooved pipe couplings and fittings for roll or cut pipe 125 pound steam, 175 pound water ANSI.

F. PLUMBING

1. Design Criteria

a. All plumbing and piping work shall be executed in the proposed facility in accordance with local, state and national codes and laws applicable to the work being undertaken. Plumbing systems for the

facility include domestic, sanitary, storm, natural gas systems to support the various program functions.

2. PLUMBING SYSTEMS

a. Domestic (Potable) Water System

i. Building 2010:

1) Domestic water serving the facility is original to the 1956 construction and will be replaced. System will be provided to satisfy the maximum probable demand of the domestic water system. Code minimum water supply fixture units or actual equipment water consumption flow rates will be used to determine domestic water quantities and appropriately size the piping.

2) The available water pressure is assumed to be sufficient to serve the building therefore a booster pump package will not be required to maintain required domestic water system pressure for the building.

3) Piping distribution for the domestic cold water will originate in the first-floor mechanical room and branch to the building hot water systems. The piping will be routed above the ceiling. Pipe lines serving toilet groups will be provided with isolation valves and water hammer arrestors near end of runs. Tepid water will be provided to any safety devices.

ii. Building 2020:

1) Domestic water serving this facility was installed with the original construction in 1994. Domestic water enters the building in the boiler room. Generally all systems appear to be in good shape and will not be affected by this project.

iii. Building 2021:

1) Domestic water serving this facility originates in Building 2020 and was installed with the original construction in 2000. Systems are generally in good condition and will not be affected by this project.

b. Service Water Heating

i. Building domestic hot water for remote locations will be generated at 130°F by a single electric tank type domestic hot water heater. The 130°F water will be tempered down to 110°F supply temperature using Holby tempering valves. The basis of design shall be State PCE.

ii. To avoid control problems associated with oversized single thermostatic mixing valves, a dual mixing valve arrangement will be provided to temper the 140°F water down to 120°F supply temperature. The system will have a piped recirculation system to maintain minimum 110°F hot water supply temperature at all times. The basis of design for the dual mixing valve is the Leonard New Generation High-Low System.

iii. Domestic hot water quantities will be estimated by potable fixture counts and code required fixture units for water.

c. Plumbing Fixtures

i. Building 2010: Plumbing fixtures in this building will generally be replaced for ADA compliance.

ii. Building 2020: Plumbing fixtures will not be affected.

iii. Building 2021: Plumbing fixtures will not be affected.

iv. Plumbing fixtures in public toilets in the building will be coordinated with architectural considerations and be constructed of vitreous china or a fixture of similar quality.

v. Plumbing fixtures will be provided where indicated on the architectural drawings. All plumbing fixtures shall be low flow, commercial grade of type, style and material consistent with the intended use. Manual controls will be used on all fixtures. Plumbing fixtures will generally be as follows and shall be equal to American Standard:

1) Water closets – Vitreous China, elongated, wall mounted, top spud, concealed flush valve, open front seat.

2) Urinals – Vitreous China, wall mounted, top spud, concealed flush valve.

3) Lavatories - Vitreous China, wall or counter mounted with lever faucet.

4) Showers – ADA approved, one-piece gel coat insert, pressure-balancing mixing valve with lever handle and

integral volume control. Wall/hand shower with in-line vacuum breaker, flexible 5' metal hose, wall connection and flange, 30" slide bar for hand shower mounting.

5) Sinks – stainless steel, counter mounted with gooseneck faucets and wrist blade handles
6) Mop basin – molded stone or terrazzo.
7) Plumbing brass – Chicago faucet, type as required.

vi. Water fountains – Barrier-free dual height, wall mounted self-contained electric water cooler with stainless steel cabinet and bottle filler.

vii. Water-Conserving Fixtures: Plumbing fixtures and fittings shall use in aggregate at least 30% less water than the water use baseline calculated for the building after meeting the Energy Policy Act of 1992 fixture performance requirements. Flow and flush rates shall not exceed the following:

1) Toilets: no more than 1.28 gallons per flush and have documented bowl evacuation capability per MaP testing of at least 400 grams.
2) Urinals: no more than 0.125 gallons per flush or use.
3) Lavatory Faucets: 0.5 gpm with metering faucet controls.

viii. Isolation valves shall be provided above the ceiling for each toilet room/bathroom group.

ix. Water hammer arrestors shall be provided for each toilet/urinal with a flush valve.

x. Non-freeze wall hydrants shall be located around the perimeter of the building, one (1) per exposure or one (1) per 100 linear feet, whichever is greater, for landscape use and shall be supplied from the domestic water system.

xi. Hose Bibbs shall be provided in student toilets, food service areas, and within 50 feet of a dumpster/compactor.

d. Sanitary and Vent System

i. Sanitary drainage piping will be routed from the plumbing fixtures to vertical pipe risers then be collected horizontally below the building and discharge by gravity to the site sanitary sewer. Cleanouts shall be provided in accordance with the International Plumbing Code.

ii. Plumbing code drainage fixture units will be used to determine the sanitary system load and pipe sizes.

iii. Floor drains will be provided in all mechanical rooms and toilet rooms, and shall be piped to the building sanitary system.

iv. Floor drains shall utilize automatic trap primers.

v. An oil minder sump pump shall be provided for each elevator pit to comply with ASME A17.1 - 2010 - Safety Code for Elevators and Escalators.

vi. Sanitary drainage from the kitchen fixtures and floor drains will be extended to an exterior, below-grade grease

interceptor (by civil) before connection to the municipal sanitary system.

e. Storm Drainage

i. Generally, storm water for the building will be collected via sloped roofs, gutters, vertical downspouts. Connection to the site storm water system will be direct with downspout boots.

ii. For building areas with flat roofs, the drainage system shall utilize commercially available drains of style, size, and quantity consistent with the area being drained. The piping shall be routed from the roof drains to vertical pipe risers then be collected horizontally below the building and discharge by gravity to the site storm sewer.

iii. Where a flat roof is utilized and roof scuppers are not used for emergency overflow, a secondary roof drain system will be provided. Discharge shall be above grade, in a location which would normally be observed by the building occupants or maintenance personnel.

iv. Sizing of the roof drains and piping shall be based on a rainfall rate of 3.7 inches per hour for a storm of one (1) hour duration and 100-year return.

v. Storm drain piping shall be the same materials as those described for the sanitary drainage system. Cleanouts shall be provided in accordance with the plumbing code.

f. Natural Gas

i. A new natural gas service will be provided as the combustion fuel for the building domestic hot water heaters. Pressure reduction and metering will occur on the exterior of the building and shall be obtained and provided by the utility company. Natural gas service will extend into the first floor mechanical room of building 2010 and be piped to required equipment.

3. PIPING SYSTEMS

a. Pipe Materials

i. Domestic water piping shall be Type "L" copper tubing with wrought copper or cast brass fittings and solder joints. The pipe joints will be formed with 95-5 tin-antimony solder or code approved "lead free" solder having a chemical composition equal to or less than 0.2-percent lead. System components shall be class 125 rated.

ii. Sanitary drainage and vent piping shall be service weight cast iron soil pipe and fittings. Gasketed bell and spigot joints using a neoprene gasket will be used for the portions of the system that will be underground. No-hub clamped joint using a one-piece neoprene gasket, and stainless steel shield with retaining clamps will be used for the above ground portions.

iii. Natural gas piping will be schedule 40 seamless black steel with butt-welded fittings. Natural gas piping branches to fixtures may be 150 pound black malleable iron screwed fittings.

b. Pipe Insulation Materials

i. Insulation materials furnished will meet the minimum thickness requirements of ASHRAE Standard 90.1 - 2010, "Energy Efficient Design of New Buildings" and 2009 International Energy Conservation Code (IECC).

ii. Domestic hot water piping insulation will be 1-inch heavy density fiberglass pipe insulation with vapor barrier jacket. Domestic cold water piping insulation will be ½-inch heavy density fiberglass pipe insulation with all service jacket and self-sealing lap.

iii. Domestic water piping concealed in walls and cabinets will be insulated with closed cell elastomeric tubular insulation with built-in vapor barrier.

iv. Handicapped lavatory water and sanitary piping insulation will be ½ inch closed cell elastomeric tubular insulation with vapor barrier jacket.

v. Horizontal storm water piping will be insulated with one (1) inch heavy density fiberglass pipe insulation with vapor barrier jacket.

vi. Roof drain bodies will be insulated with flexible, unfaced board type fiberglass, two inch thick.

G. HEATING, VENTILATING AND AIR CONDITIONING

1. Design Criteria

a. The heating, ventilating and air conditioning (HVAC) systems shall be designed to produce the desired space temperature, humidity,

pressurization and air quality conditions while employing the following design criteria.

b. Outdoor Ambient Conditions

i. The cooling and dehumidification design values are based on 2.0% annual cumulative frequency of occurrence and the heating design values are based on 99.0% annual cumulative frequency of occurrence. Climate data is for Atlanta Hartsfield Jackson, Ga (WMO#722190) as indicated in the 2017 ASHRAE Handbook – Fundamentals.

	Cooling	Dehumidification	Heating
Design Temperature, Dry Bulb	89.5°F	79.6°F	26.5°F
Design Temperature, Wet Bulb	73.3°F	72.6°F (DP)	--
Mean Wind Speed	8.7 MPH	8.7 MPH	11.8 MPH
Prevailing Wind Direction	300° True	300° True	320° True

c. Indoor Design Conditions

i. The following indoor design temperature and humidity conditions are required for all interior program spaces. Temperature will be generally controlled to plus/minus 2°F and humidity to plus/minus 10% RH from the stated values. When a max or min value is noted, that implies the limit of system operability.

Space Type	Summer	Winter
Classrooms	74°F DB/50% RH	70°F DB
Lobby and Circulation	74°F DB/50% RH	70°F DB
Work Room	74°F DB/50% RH	70°F DB
Storage	74°F DB/50% RH	70°F DB
Administration/Offices	74°F DB/50% RH	70°F DB
Conference	74°F DB/50% RH	70°F DB
Food Service	74°F DB/50% RH	70°F DB
Electrical and mechanical rooms	85°F DB (Note 1)	60°F DB (Note 1)
Elevator Machine Rooms	Note 2	Note 2
Communications and data rooms	Note 2	Note 2
AV Rooms	Note 2	Note 2

Note 1: Rooms less than 60-sf with no heat producing equipment, such as transformers and electronic panels with data processing boards, will be conditioned with transfer air.

Note 2: Rooms will be provided with an independent fan coil unit to protect against the overheating of electrical equipment. Indoor design condition shall be as required by the equipment manufacturer's recommendations.

ii. The minimum humidification requirement of 30% is established by ASHRAE 55-2010 Thermal Environmental Conditions for Human Occupancy. Based on the high occupancy rate and HVAC system proposed a condition of 30% may be met without supplemental humidification.

d. Ventilation Criteria

i. Supply air to the various program spaces shall be provided at a rate that satisfies the ventilation criteria for the building. Ventilation rates shall be provided in accordance with ASHRAE Standard 62.1 – 2010, "Ventilation for Acceptable Indoor Air Quality" and calculated using the Ventilation Rate Procedure. The occupancy density shall be based on the formal program for the facility, the furniture/seating layout or the printed ASHRAE values whichever is greater.

ii. Outdoor air intakes for ventilation airflows shall be located a minimum of 25 feet from any hazardous or noxious contaminant, including unclean building exhaust, plumbing vents, boiler flues, streets, parking lots and loading docks.

iii. In accordance with ASHRAE Standard 62.1-2010, the building HVAC systems will utilize CO_2-based demand controlled ventilation (DCV) with ventilation reset to modulate the design outdoor-air intake flow and/or space or zone airflow as

operating conditions change, thus reducing the energy used to condition the outside air. Using this strategy, CO_2 sensors shall be installed in zones that are densely populated with widely varying patterns of occupancy (e.g., conference rooms, etc.). The sensors shall be used to reset the ventilation requirements for their respective zones. The other zones-- which are not densely populated and/or do not experience significant variations in occupancy -- shall be assumed to require their design ventilation rates whenever the spaces are occupied.

e. Exhaust Criteria

i. Exhaust airflow shall be provided as required by ASHRAE 62.1-2010. Exhaust makeup air may be any combination of outdoor air, recirculated air and transfer air.

Program Occupancy	Exhaust Rate CFM/ft^2
Art Classrooms	0.70
Break Room	0.30
Janitor, trash, recycle rooms	1.00
Copy, printing rooms	0.50
Locker Room	0.50
Toilets	75 CFM/water closet or urinal

ii. Exhaust air shall be discharged outdoors at a point where it will not cause a nuisance and from which it cannot again be readily drawn in by a ventilation system (a minimum of 25 feet). Other factors, such as wind direction, wind velocity, stack effect, system sizes, and building height shall be evaluated and locations of intake and exhaust outlets adjusted as required.

f. Pressurization Criteria

i. Building air systems shall be balanced to achieve positive building pressure and to minimize infiltration. Air handling system will return and/or exhaust approximately 7.5% less air than they are supplied to ensure a positively pressurized building.

ii. Air systems shall be designed to provide air movement from clean to less clean or potentially contaminated areas. Where hazardous gases or chemicals may be present or used (housekeeping areas, copy/printing rooms), spaces shall be exhausted to create negative pressure with respect to adjacent spaces with the doors to the room closed.

iii. All public toilet rooms, janitors' closets, and kitchen areas shall be negative with respect to the corridor and internal occupied zones.

iv. Since the building height is less than seventy-five (75) feet and does not classify as a high-rise building, stair tower pressurization will not be provided.

g. Filtration Criteria

i. All dedicated air handling units shall be provided with air filtration media that provides a Minimum Efficiency Reporting Value (MERV) of MERV 8 for pre-filters and MERV 13 for final filters as defined by ASHRAE Standard 52.2.

ii. Filtration shall be applied to both return and outside air that is delivered as supply air.

h. Building Operating Schedule

i. Program areas are expected to operate ten (10) hours per day (7am-5pm), five (5) days a week, excluding weekends and individually scheduled events.

ii. Programmable system shutdown and night setback modes for selected areas shall be provided for all water source heat pump units to reduce energy use during periods of non-use.

i. Internal Heat Gains

i. Equipment heat gains and occupancy loads for general use spaces shall be as defined by the programming documents and Owner furnished load criteria. Equipment loads shall be derived from equipment listed in the program.

ii. Lighting loads shall be based on the design standards defined hereinafter and the minimum requirements of ASHRAE 90.1-2010.

j. Envelope Load Criteria

i. Building skin/conduction loads shall be based on the architectural wall, roof and window constructions and shall be confirmed/provided by the Architect.

k. Flexibility Criteria

i. Building objectives frequently change and require changes in operations and program spaces. Therefore, engineering systems shall be flexible and adaptable without significant modifications to system infrastructure. The utility systems shall be flexible enough to accommodate reasonable changes in internal loads and process needs without major modifications.

ii. Air distribution systems shall be designed to afford flexibility for future redesign, primarily by providing accessibility to the duct systems throughout the air distribution system and by providing symmetry and uniformity in the branch duct layout.

2. HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS

a. Building 2010:

i. The HVAC system serving the building is a Daikin VRV system installed in 2016 and will not be affected by this project. Packaged DOAS systems are located on the roof of the building.

ii. Recommend a TAB analysis be performed on this building to determine existing airflows. A condensation issue was observed in one of the classrooms.

iii. Restroom exhaust will be investigated to determine if proper exhaust is present.

b. Building 2020:

i. The HVAC system serving the building is a Daikin VRV system installed in 2016 and will not be affected by this project. Packaged DOAS systems are located outside on grade.

c. Building 2021:

i. The HVAC system serving the building is a Daikin VRV system installed in 2016 and will not be affected by this project.

d. Air Distribution

i. Vertical ductwork distribution for the building shall be enclosed in two-hour fire rated shafts. Medium velocity insulated ductwork shall distribute supply air to variable air volume terminal reheat units. Ductwork downstream of terminal reheat units shall be insulated and sized for low velocity to air devices. Insulated flexible ductwork shall be provided from the low velocity duct mains to the air devices. Spin-in-fittings with volume dampers shall be used to connect flexible ductwork to the low pressure duct mains.

ii. Distribution ductwork for supply, return, and exhaust systems shall be constructed of ASTM grade, first quality galvanized steel of gauges as called for in the SMACA Duct Manual. Supply ductwork located within the rated shafts shall be sized

at 1,800 feet per minute (FPM) maximum velocity. Return ductwork located within the rated shafts shall be sized at 1,500 FPM maximum velocity. Fire dampers shall be located at ductwork penetrations of the rated shafts. Medium velocity primary supply ductwork above the ceilings shall be sized at 1,500 FPM maximum velocity. Return ductwork above the ceilings shall be sized at 1,200 FPM maximum velocity.

iii. Supply ductwork concealed shall be insulated with two (2) inch blanket type lightweight fiberglass duct insulation with vapor barrier facing. Exposed ductwork and ductwork located in shafts will have two (2) inch of board type fiberglass insulation with vapor barrier facing. Return air ductwork concealed in shafts only shall be insulated with two (2) inch blanket type lightweight fiberglass duct insulation with vapor barrier facing. Exposed return air ductwork will have one (1) inch of board type fiberglass insulation with vapor barrier facing.

iv. Supply Air Terminals: Single duct variable volume reheat air terminal units shall be provided for each space or group of similar spaces to provide individual room temperature control. Reheat coils shall be electric. Air terminals shall have interior sealed liner. Terminal sound attenuators shall be provided on the occupant side of all supply terminal units. Air terminals shall be equal to Titus DESV.

v. Fire dampers shall be installed in supply, return and exhaust ductwork where required by wall or floor rating.

vi. Diffuser selection shall be coordinated with the Architect to ensure that the program spaces have the intended appearance. Air devices located in areas where there may be moisture, i.e. toilet rooms, janitor's closets, soiled utility rooms, pantries, etc. shall be constructed of aluminum.

vii. Noise Criteria: Classrooms and other core learning spaces shall be designed to meet the minimum acoustical performance defined below.

1) Office: NC-25 to NC-30 (35dBA to 38dBA)
2) Open Meeting: NC-35 to NC-40 (42dBA to 47dBA)
3) Conference: NC-25 to NC-30 (35dBA to 38dBA)
4) Classroom: NC-25 to NC-30 (35dBA to 38dBA)

e. Miscellaneous Heating and Air Conditioning

i. Elevator Machine Rooms: Fan coil units shall be provided to provide independent 24/7 year round cooling to the Telecommunication Rooms.

ii. Main IT, AV, Data Rooms: Fan coil units shall be provided to provide independent 24/7 year round cooling to the IT/ server Rooms.

iii. Floor Electrical Rooms: Rooms less than 60 square feet with no heat producing equipment, such as transformers and electronic panels with data processing boards, will not be heated, cooled or ventilated. Room with heat producing equipment shall be provided with Fan coil units to provide cooling for the rooms.

3. MISCELLANEOUS EXHAUST/VENTILATION

    a. Building 2020: The gymnasium has two inoperable outside air louvers that will be investigated as part of this project. Humidity in the gym is unusually high and will also be investigated. High humidity also exists in the library and will need to be investigated.

4. PIPING SYSTEMS

    a. Pipe Materials

        i. Air conditioning condensate piping shall be Type "L" copper tubing with wrought copper or cast brass fittings and solder joints. The pipe joints shall be formed with 95-5 tin-antimony solder or code approved "lead free" solder having a chemical composition equal to or less than 0.2-percent lead. The piping shall be insulated with fiberglass pipe insulation having an all service jacket and self-sealing lap.

    b. Pipe Insulation Materials

        i. Insulation materials furnished will meet the minimum thickness requirements of ASHRAE Standard 90.1 - 2007, “Energy Efficient Design of New Buildings” and 2009 International Energy Conservation Code (IECC).

5. BUILDING AUTOMATION AND CONTROL SYSTEMS

    a. The building automation system (BAS) will not be affected by the scope of this project.

6. MECHANICAL VIBRATION AND SEISMIC CONTROLS

   a. Seismic and vibration isolation equipment shall consist of elastomeric isolation pads and mounts, restrained elastomeric isolation mounts, freestanding and restrained spring isolators, housed spring mounts, elastomeric hangers, spring hangers, spring hangers with vertical-limit stops, thrust limits, pipe riser resilient supports, resilient pipe guides, restrained vibration isolation roof-curb rails, seismic snubbers, restraining cables, steel and inertia vibration isolation equipment bases. The installation of HVAC and piping systems shall comply with the SMACNA Seismic Hazard Design Guide with the appropriate seismic restraint applied to hazardous and life safety systems based on the building seismic zone.

   b. Attachments and supports for suspended ductwork, HVAC piping, domestic water piping and fire protection systems shall be designed to meet the force and displacement requirements based on the seismic loads above and shall be in accordance with IBC 2012.

   c. Mechanical and plumbing equipment require seismic bracing and shall be in accordance with IBC 2012 and ASCE 05-07.

7. TESTING AND BALANCING

   a. All air and water distribution systems shall be balanced and equipment performance shall be tested by an independent balancing agency and an approved member of the Associated Air Balance Council (AABC).

8. COMMISSIONING

   a. Fundamental and enhanced commissioning of the entire HVAC, plumbing and electrical systems shall be provided by a 3rd party commissioning agent.

   b. The contractor shall provide all necessary tools, services, instruments, and consumables required to adjust and remediate documented deficiencies during and subsequent to the commissioning process.

H. ELECTRICAL ENGINEERING

1. INTRODUCTION

i. This document summarizes the electrical and special systems for the Hutchinson Elementary School project. The narrative provides the Basis of Design and understanding of the Owner's Design Intent for electrical systems. As such, the document can begin to be used to develop a construction cost model/budget with associated general requirements for the facility.

ii. This section establishes the basic design criteria for the electrical systems for the proposed facility and shall be used to supplement local, state and national codes and laws which are applicable to the work being undertaken and those laws dealing with environmental protection, occupational safety and health.

iii. System sizing and loads are based on the best information available at the time the project documents were produced which currently includes preliminary programmatic and associated square footage information. Systems will be revised as the design process continues. The existing building to be renovated is approximately 71,000 gross square feet.

2. CODES AND STANDARDS

a. All electrical work in this division shall be provided in accordance with the following codes and standards:

i. Americans with Disabilities Act (ADA)

ii. American National Standards Institute (ANSI)

iii. ASHRAE Standards and Handbooks

iv. ASME A17.1 - 2010 - Safety Code for Elevators and Escalators

v. Electronics Industry Association/ Telecommunications Industry Association (EIA/TIA)

vi. EPA Regulations

vii. Illuminating Engineering Society of North America (IESNA)

viii. Institute of Electrical and Electronics Engineers (IEEE)

ix. Insulated Power Cable Engineers Association (IPCEA)

x. International Building Codes (IBC) 2012 Editions

xi. International Energy Codes (IBC) 2009 Edition

xii. National Fire Protection Association (NFPA) 2014

xiii. National Electrical Code 2017 (NFPA 70)

xiv. National Electrical Manufacturers Association (NEMA)

xv. Underwriters Laboratories, Inc. (UL)

xvi. All local code supplements

xvii. APS Design Guidelines v2.10

b. The electrical work shall be coordinated with the requirements of all other Divisions including architectural, structural, civil, fire protection, plumbing and mechanical.

c. The anticipated scope of work for the project includes the provision of the following electrical systems including power, lighting, and special systems. The following is a listing of the systems to be provided under the electrical division:

i. Primary service from Georgia Power is assumed to be adequate and is not anticipated to be modified or upgraded

ii. Normal Power Secondary Distribution System

iii. Emergency and Standby electrical system

iv. Receptacles and Equipment Connections

v. Interior Lighting

vi. Emergency Lighting

vii. Lighting Controls

viii. Fire Detection and Alarm System

ix. Telecommunications and A/V Raceway Distribution System

x. Security System Raceway Distribution System

xi. Grounding System

xii. Seismic Bracing

xiii. Sustainable Compliant Electrical Systems

3. POWER

The following paragraphs provide a general description of the requirements for all systems under the electrical division.

a. Utility Service

i. The existing Georgia Power medium voltage pad mounted transformer will remain. It is assumed the existing service is adequately sized to handle the existing electrical loads and the loads being added as part of the renovation. This assumption will be verified by utilizing existing Georgia Power electricity bills provided by APS.

b. Building Service

i. The existing service entrance switchboard is sized at 1200A, 480Y/277V, 3-phase and anticipated to be adequately sized and will remain.

c. Building Distribution

i. The electrical distribution equipment downstream of the main switchboard will be replaced in the original wing of the building. This will include distribution panelboards, dry type transformers, branch panelboards, protection devices, switching devices, conductors and other miscellaneous materials as necessary to supply the electrical loads throughout the building.

ii. The existing panelboards that are in the corridors will be removed and new panelboards will be installed in two dedicated electrical rooms. Space for these rooms will be

identified by the architect and are anticipated to be on each end of the original building.

iii. The electrical distribution equipment in the two additions are in good condition and will remain.

iv. The following is a list of the unitary electrical loads expected to be added to the existing electrical system:

LOAD TYPE	VA/SF
Lighting Load	-1.0
Receptacle Load	1.0
IT, AV, Miscellaneous	1.0
TOTAL	1.0

v. The building is approximately 71,000 GSF. Applying the unitary loads listed above, results in an estimated additional connected electrical load of approximately 71kVA. It is assumed replacing the existing fluorescent lighting system will reduce the lighting power consumption by approximately 1VA/SF. Estimating one 30 Horsepower elevator brings the total connected load to 100kVA.

d. Electrical Gear

i. Gear manufacturers shall be Square D, Cutler Hammer, General Electric and Siemens.

ii. Distribution panelboards shall be provided in the local electrical rooms on each end of the original building to serve all loads associated on the floor such as lighting and mechanical equipment. These distribution panels shall be 480/277 volt with copper bussing.

iii. Dry type transformers shall be provided on each floor to step the voltage from 480 volts to 208Y/120 volt, 3 phase, 4 wire for supply to the receptacle and equipment loads. These transformers shall be sized to support the connected loads and shall be energy efficient.

iv. A 208Y/120 volt distribution panel will be provided on the secondary of the transformers for distribution to the branch circuit panels located throughout the floor. Panelboards will be provided with copper bussing.

v. Variable frequency drives are furnished for most of the

mechanical equipment, therefore they will be fed from circuit breakers mounted in a distribution panel. Motor control centers will not be necessary.

vi. Uninterruptible Power Supply System A central uninterruptible power supply (UPS) will not be provided

vii. All distribution feeders and branch circuit wiring shall be copper with type THHN/THWN insulation. Wiring shall be installed in electrical metallic tubing (EMT), ¾" minimum. Connections to vibrating equipment shall be sealtite, flexible metallic conduit. Final connections to lighting fixtures shall be flexible metallic conduit. MC cable will not be allowed.

viii. Voltage drop in the building will be limited to 2% for feeders and 3% for branch circuits, for a maximum of 5% overall per ASHRAE requirements.

e. Receptacles and Equipment Connections

i. In the two additions to the building, the existing receptacles in the classrooms, offices and other spaces are understood to be adequate. The quantity of receptacles in the original portion of the building was reported as inadequate. Additional receptacles will be provided as indicated below or as outlined in the APS Design Guidelines.

ii. General purpose, specification grade receptacles shall be provided in the following areas:

1) *Offices: One double-duplex NEMA 5-20R receptacle at the work station location and one duplex NEMA 5-20R receptacle per wall.*

2) *Meeting and Group Spaces: Duplex NEMA 5-20R receptacles spaced 12 feet on center with a minimum two per wall.*

3) *Classrooms: Duplex NEMA 5-20R receptacles spaced 12 feet on center with a minimum of two per wall.*

4) *Computer Areas: One double-duplex NEMA 5-20R receptacle for each workstation.*

5) *Utility Spaces: One duplex NEMA 5-20R receptacle on each wall.*

6) *Lobbies and Corridors: Duplex NEMA 5-20R receptacles spaced 20 feet on center.*

7) *Restroom: GFCI type duplex NEMA 5-20R receptacles above the counters.*

8) *Communications Rooms: Double duplex NEMA 5-20R receptacles spaced 8 feet on center with at least one per wall. Special receptacles, rack or cable tray mounted, as required for IT equipment.*

9) *Roof: Weatherproof GFCI type duplex NEMA 5-20R receptacles within 25 feet of all mechanical equipment.*

iii. Electrical connection of modified or new mechanical equipment.

4. EMERGENCY POWER DISTRIBUTION SYSTEM

a. A standby natural gas generator with LP backup will be designed to provide emergency power to legally required emergency loads as defined in NFPA 70 (NEC) Article 700 which include egress lighting, fire alarm systems and security and emergency notification systems. The generator will also provide standby power to critical equipment via a separate ATS. These critical loads will include the kitchen cold storage and Telecomm equipment and Telecomm Room cooling.

b. The following is a list of the unitary electrical loads utilized for preliminary sizing of the emergency electrical system components:

LOAD TYPE	VA/SF
Egress Lighting	0.5
Special Systems (FA, Security, IT)	1.0
Site Lighting	0.1
Kitchen Equipment	1.0
Critical HVAC	0.5
TOTAL	3.1

c. Applying the unitary loads listed above results in a total estimated connected emergency electrical load of approximately 220kVA.

d. The generator will be exterior to the building and sized on the order

of 225kVA standby. The primary fuel source will be natural gas. A backup LP day tank sized for 3-hours at full load will be provided. The generator will be located outdoors, in a weatherproof, sound attenuated enclosure.

e. The emergency power system will include an 480Y/277V, 3-phase, 4-wire engine generator, two 150-amp, open-transition, 3-pole transfer switches, panelboards, transformers, feeders and branch circuits. The ATS's and distribution panelboard will require a separate electrical room from the main electrical room due to the size of the service switchboard.

f. The generator shall be manufactured by CAT, Cummins/Onan or Kohler only.

5. LIGHTING

a. Interior Lighting

i. The interior lighting system will be replaced including fixtures, and local controls. Centralized controls will be reused to the extent possible.

ii. The existing fluorescent lighting fixtures will be replaced with modern LED fixtures.

iii. The current APS Design Guideline does not list LED luminaires as an approved technology. However, APS indicated that LED luminaires have been used successfully for other projects. The design intent is to use LED luminaires due to their lower power consumption and ease of maintenance compared to fluorescent technologies. Lighting controls will consist of local occupancy and vacancy sensors, day-lighting sensors where applicable and time scheduled controls. Relay-based lighting controls will be utilized where local controls are not appropriate. Illuminance levels will be designed in accordance with the Illuminating Engineering Society of North America (IESNA) "Lighting Handbook, 9th Edition" and the APS Design Guidelines. Task lighting will be designed in private offices. The lighting system will be designed in accordance with the power densities outlined in ASHRAE Standard 90.1-2007.

iv. Emergency egress lighting will be connected to the emergency power generator. Exit signs will be edge-lit LED type

v. The following table lists the various areas along with the associated lighting levels and lighting systems:

AREA	FOOTCANDLES	DESCRIPTION
Private Offices	70	2' x 4' recessed high performance architectural LED troffer and occupancy (vacancy) sensor
Conference Rooms	70	Indirect pendant mounted LED with LED downlights, occupancy (vacancy) sensor
Group Offices	70	2' x 4' recessed high performance architectural LED troffer and occupancy (vacancy) sensor,
Meeting Spaces/Classrooms	70	Indirect pendant mounted linear LED fixtures with occupancy (vacancy) sensor, white board linear LED fixtures
Toilets	40	LED Wall mounted and Downlighting with occupancy (vacancy) sensor
Breakrooms	50	2' x 4' recessed 2' x 4' recessed high performance architectural LED troffer and occupancy (vacancy) sensor
Storage/Unassigned/ Supply	30	2' x 4' recessed high performance architectural LED troffer
Open Common Areas	30	Indirect pendant mounted linear LED fixtures
Corridor – General	5-20	LED linear slot fixture

Circulation

Corridor – Public, Main Lobby	5-20	LED linear slot fixture, LED downlighting, decorative pendants
Mechanical/Electrical	40	1' x 4' LED industrial with wireguard
Telecommunications Rooms	40	2' x 4' recessed LED with acrylic lens
Stairs	15	Surface mounted LED troffers

b. Life Safety Lighting

i. The life safety egress lighting will consist of LED lighting fixtures along the paths of egress, corridors, stairs, electrical rooms, and toilets.

ii. Illuminated exit signage will be used at all designated/code required exits as well as strategic locations along the path of egress. The lamps will be LED types for long life and lower maintenance. Exit signage will be connected to the emergency generator.

c. Exterior Site Lighting

i. Existing parking lot lighting is provided by Georgia Power and will not be modified.

ii. APS indicated that exterior lighting in the courtyard is currently insufficient. Exterior lighting consisting of building mounted LED luminaires will be added to the courtyards. Exterior lighting will be controlled via either day-lighting sensors or time schedule controls. Certain zones identified as egress or essential to security will be connected to the emergency generator to provide illumination during a power failure. Illuminance levels will be designed in accordance with the IESNA Handbook and life safety codes.

iii. Exterior fixtures shall be provided with cut-off shields in compliance with dark sky requirements.

d. Lighting Controls

i. In general, most interior lighting fixtures will be locally switched utilizing line voltage switches. Occupancy (vacancy) sensors will be provided in all spaces to further reduce energy consumption. Sensors will be placed throughout the building in accordance with ASHRAE 90.1 standards.

ii. A lighting control system shall be provided to automatically turn off all common area interior lighting fixtures during non-business hours. This system provides a centralized way of controlling the lighting by time-of-day with an integral astronomical time clock. The system will flash the lights five minutes before any scheduled off sequence. Occupants can override the automatic off sequence by pushing the local reset switch and the lights will stay on until the next programmed off sequence. Overrides switches shall be provided at main entrances and each floor.

iii. A daylight response system will be incorporated in common spaces where natural day lighting is present and there are no window shades which would reduce the amount of available daylight. The daylight response system will automatically dim the lighting when day lighting in the space reaches and maintains a programmed minimum foot-candle level. 0-10V dimming ballasts will be incorporated in the lighting fixtures located in day lit spaces. The daylight response system shall have a minimum of 3 dimmable output zones with each zone capable of dimming at a different level than the others.

iv. All exterior lighting will be controlled by the building lighting control system or local photo sensors.

v. Sustainable requirements:

1) Light Pollution Reduction: A lighting control system shall be provided to automatically turn off non-emergency interior fixtures during non-business hours. Low glare fixtures and the use of shielding devices will limit light from leaving the property.

2) Controllability: A high level of interior lighting controllability will be provided to improve occupant productivity and comfort to the building occupants. Interior lighting will be provided with individual lighting

controls for at least 90% of single occupancy rooms. Design will also include lighting controls for all shared multi-occupant spaces to meet the group needs.

6. SPECIAL SYSTEMS

a. Fire Alarm

i. A complete multiplexed addressable fire alarm system shall be provided throughout the building in accordance with the requirements of NFPA and ADA. The system shall be a voice evacuation system. The fire alarm system shall include a control panel located in the main electrical room and a remote annunciator panel located in the main entrance lobby. Manual pull stations, smoke detectors, thermal detectors, duct detectors, signaling devices (speakers/strobes), sprinkler flow switches, and sprinkler tamper switches shall be provided as required by NFPA and ADA.

ii. All fire alarm wiring shall be installed in EMT conduit.

iii. The existing fire alarm system shall be removed in its entirety.

b. Telecommunications Raceway Distribution System

i. APS indicated the majority of the telecommunications system is adequate and will remain.

ii. The existing MDF is located in the Library. APS indicated the existing MDF will not be replaced or modified.

iii. The existing IDF is located in a cabinet in the teachers' lounge. APS indicated a dedicated IDF room should be provided if possible.

iv. A raceway system and power connections for telecommunication system modifications will be designed. This design will not include any cabling, devices or equipment. A third party consultant will provide the system design. The raceway system will include a combination of basket type cable tray, conduit and j-hooks. Each data device location will be roughed-in with boxes and conduits stubbed into the ceiling. Typical office and classrooms will be roughed-in for telephone and data at workstation locations. Rough-in for classroom technology will be provided. Other

non-typical locations requiring data rough-ins will be coordinated with APS.

v. All telecommunications closets will be provided with 3/4-inch plywood terminal boards on all walls.

vi. Rough-in and cabling shall be provided for all A/V equipment. The rough-in for power and communications wiring shall be coordinated with the owner, and the assigned A/V vendor.

c. Security System

i. APS is evaluating the condition of the existing security system. It is anticipated the system can remain.

ii. If APS determines the system requires replacement, the building shall be provided with a raceway system and power connections for a security system to control and monitor access to the building. The raceway system will not include any cabling, devices or equipment.

iii. The system design will be by a third party consultant. The system shall include card readers at all exterior entry doors, elevators, electrical and IT rooms. Provisions shall be made for CCTV cameras at all exterior doors and select interior locations.

iv. The location of card readers, cameras, and other security equipment and their power requirements will be coordinated with APS.

7. GROUNDING SYSTEM

a. The existing main building grounding system shall remain.

b. Copper ground buses 24”x2”x1/4” shall be provided in new electrical room as well as all telecomm rooms. The ground buses shall be interconnected with the ground grid with a #4/0AWG conductor. All connections to the ground bus shall be bolted.

c. An insulated ground conductor will be provided with all power feeders and branch circuits, for equipment grounding purposes.

8. SEISMIC BRACING

   a. Electrical seismic requirements are based on the seismic loads listed below:

      i. Site Classification = see structural narrative.

      ii. Seismic Use Group = see structural narrative.

   b. Attachments and supports for conduits shall be designed to meet the force and displacement requirements based on the seismic loads above and shall be in accordance with IBC 2015 Section 1621.

   c. Electrical equipment requires seismic bracing and shall be in accordance with IBC 2015 Section 1621.

9. SUSTAINABLE ELECTRICAL SYSTEMS

   a. The electrical system design will implement high performance equipment and control strategies in order to provide a sustainable electrical system. The electrical systems will be specified to meet or exceed the following:

      i. Energy efficient lighting fixtures controlled by occupancy/vacancy sensors (where applicable) will be specified to decrease energy consumption of the building.

      ii. Controllability: A high level of interior lighting controllability will be provided to improve occupant productivity and comfort to the building occupants. Interior lighting will be provided with individual lighting controls for at least 90% of single occupancy rooms. Design will also include lighting controls for all shared multi-occupant spaces to meet the group needs. Task lighting will be evaluated as a way to reduce overhead ambient light.

3

SPACE PROGRAM SUMMARY

PART ONE

INTRODUCTION

Emma Hutchinson Elementary School is a 70,797 square foot shool located on an 8.5 acre site at 650 Cleveland Avenue in Atlanta, Georgia. The original school building was constrcuted in 1993-94 and 2000.

The following are programmatic recommendations to optimize the preferred spatial relationships of various instructional and support functions at Hutchinson Elementary. These recommendations also respond to inconsistencies between the existing programming and the guidelines and regulations of Atlanta Public Schools and Georgia Department of Education.

PART TWO

CLASSROOM ANALYSIS

The existing 38 Classrooms (29 Core) currently support a Full Time Enrollment of 454 (FTE). The existing Kindergarten and First Grade Classrooms are not sufficiently sized to meet the required 750 sq.ft. minimum according to APS and GADOE Guidelines. However, the state guideline provides a 10% margin for calculating area requirements which would allow for a reduction of area leaving only the (5) Kindergarten Classrooms undersized:

750 sf – 75 sf = 675 s.f Minimum Classroom Size

The existing school currently has 29 core K-5 Classrooms and 1 expanded Pre-K Classroom. In order to reach the goal of 33 core classrooms some of the special program classrooms would have to be eliminated or construct an addition to the school. There is currently no area of the school which exceeds the minimum spatial requirements that would warrant reconfiguring the spaces to create the additional classrooms needed and the scope of work for this renovation does not include funding for a new building or addition.

We propose to relocate and reconfigure spaces to provide the 29 core classrooms plus 9 special program rooms that APS requires. This number includes Art, Music, ESOL, Foreign Language and PEC classrooms as well as Science and Computer Labs.

GA. DEPARTMENT OF EDUCATION SQUARE FOOTAGE COMPARISON TO EMMA HUTCHINSON ELEMENTARY SCHOOL CLASSROOM SUMMARY			
# of Rooms	**ROOM NAME**	**ROOM LOCATION / CHARACTERISTICS**	**COMMENTS**
5	KINDERGARTEN CLASSROOMS	Location: Building 2010 Main Level Built in 1956. Size Range: 657 SF to 670 SF.	Classrooms do not meet 750 SF requirement for K thru 3rd Grade The classrooms each have a sink. Repurposing classrooms and relocating walls would create classrooms that provide the minimum square footage but other support spaces would be lost.
5	FIRST GRADE CLASSROOMS	Location: Building 2010 Main Level Built in 1956. Size Range: 675 SF to 765 SF.	Classrooms meet or exceed the 750 SF requirement. The classrooms each have a sink. They are suitable for 1st Grade Classes. Recommend new finishes and casework.
10	2nd and 3rd GRADE CLASSROOMS	Location: Building 2021 Main Level Built in 2000. Size: 750 SF.	Classrooms meet or exceed the 750 SF requirement for K thru 3rd Grades. Recommend new finishes and casework.
9	4th and 5th GRADE CLASSROOMS	Location: Building 2020 Main Level Built in 1993. Size: 660 SF.	Classrooms meet or exceed the 660 SF requirement for 4th thru 5th Grades. Recommend new finishes and casework.
5	Foreign Language, ESOL, PEC	Location: Building 2010 Main Level Built in 1956. Size Range: 645 SF to 720 SF.	Classrooms do not meet the 750 SF requirement. Currently there is (1) 355 SF PEC Classroom with no restroom, washer/dryer or changing bed. Recommend adding (2) PEC classrooms, one with restroom, W/D and changing bed. Removing walls and corridor would create classrooms that provide the minimum square footage.

2	PRE-K CLASSROOM	Location: Building 2010 Main Level Built in 1956. Size: 1,135 SF.	Classrooms exceed minimum 750 SF requirement. (2) single toilet rooms will be added and check-in desk for child drop-off and pick-up. Access control at exterior door and new fence enclosing east end of building. Recommend new finishes and casework.
2	ART AND MUSIC CLASSROOM	Location: Building 2020 Main Level Built in 1993. Size Range: 1156 SF to 1436 SF.	Classrooms exceed minimum 1000 SF requirement. Art includes a Kiln Room and Storage. Music includes a Storage Room. Recommend new finishes and casework.
1	SCIENCE LAB	Location: Building 2020 Main Level Built in 1993. Size: 1000 SF.	GMC recommends converting the existing Speech/Math Lab into a Science Lab as required for Grades K-5 by APS Guidelines

PART THREE

MEDIA CENTER ANALYSIS

The existing Media Center totals 3,469 SF. The State of Georgia Department of Education requirement for Media Centers in Elementary Schools with 825 FTE is 3,750 Net Square Feet with 500 SF reduction for existing facilities. The current Media Center square footage is sufficient for up to 840 students however it is lacking areas desired by APS for Elementary Schools. GMC proposes to make modifications to the existing space to provide for the desired areas if the Design Committee feels it is a priority.

GA. DEPARTMENT OF EDUCATION / APS SQUARE FOOTAGE COMPARISON TO EMMA HUTCHINSON ELEMENTARY SCHOOL MEDIA CENTER			
# of Rooms	**ROOM NAME**	**ROOM LOCATION / CHARACTERISTICS**	**COMMENTS**
1	MEDIA CENTER	Location: Building 2020 Main Level Built in 1993. Size: 3,469 SF.	Media Center has been recently renovated. Recommend relocating door to Clinic to Corridor side; combine Tech Room with Workroom providing new casework with sink; Rm. 1173 to be MC Specialist's Office and Rm. 1169 to be Remote Assist. Principal's Office with windows on corridor walls.
1	COMPUTER/ INTERACTIVE LEARNING LAB	Location: Building 2020 Main Level Built in 1993. Size: 770 SF.	APS and GADOE recommend an Interactive Learning Lab adjacent to the Media Center. Capturing space from the Art Classroom, Corridor and Storage Rm. 20 will create a 770 SF space with direct access to the Media Center.

PART FOUR

FOOD SERVICE ANALYSIS

The existing Cafeteria is located in the Lower Level of Building 2010 built in 1956 with a Cafeteria Addition built in 2000. The existing Cafeteria area is 1,810 SF and the Addition is 881 SF. which totaled exceeds the GADOE requirement for 825 FTE (2,619 SF). However, the addition does not provide adequate visual supervision of the students eating in this area so it is rarely used during lunch waves. GMC and our Structural Consultant will investigate removal of additional wall area between the two spaces to make the addition a usable space.

The existing Kitchen also located in the Lower Level of Building 2010 was expanded in 2000 to create an area totaling 2,200 SF. GADOE requires 2,400 SF for Kitchens serving 825 students. The school has also expressed issues with the current Kitchen size and layout. While a redesign/expansion would not be recommended as a priority based on the current renovation project's budget, it is an issue that will need to be addressed.

GA. DEPARTMENT OF EDUCATION SQUARE FOOTAGE COMPARISON TO EMMA HUTCHINSON ELEMENTARY SCHOOL FOOD SERVICE			
# of Rooms	**ROOM NAME**	**ROOM LOCATION / CHARACTERISTICS**	**COMMENTS**
1	CAFETERIA	Location: Building 2010 Main Level Built in 1956. Size: 2,691 SF.	New finishes, fixtures and furniture are recommended
1	KITCHEN	Location: Building 2010 Main Level Built in 1956. Size: 2,200 SF.	New finishes, equipment and layout is recommended.
1	FACULTY DINING	Location: Building 2010 Main Level Built in 1956. Size: 450 SF.	The existing Faculty Lounge is receiving renovations and an addition to create a new Faculty Dining Area and Toilet .

PART FIVE

ADMINISTRATION ANALYSIS

The existing Administrative area is primarily centralized around the main entrance to the school in Building 2010 and it is lacking in square footage. Entry to the building is at the parking lot/lower level with access by stairs to the main level where the office is located. GMC proposes to extend the vestibule with an approximately 360 SF addition creating a secure entrance that is handicap accessible. The office will be reconfigured to have direct visual contact with the secure entry vestibule. Remote administration areas are recommended to be created in the existing Auditorium and an Assistant Principal's office in Building 2020. In addition to the existing administration spaces required by APS the repurposed areas will allow for a new Conference Room and Parent Center. The relocation of the Faculty Workroom will allow for reallocation of the classroom it is currently occupying.

GA. DEPARTMENT OF EDUCATION SQUARE FOOTAGE COMPARISON TO EMMA HUTCHINSON ELEMENTARY SCHOOL ADMINISTRATION AREAS

# of Rooms	ROOM NAME	ROOM LOCATION / CHARACTERISTICS	COMMENTS
4	MAIN ADMIN AREA	Location: Building 2010 Main Level Built in 1956. Size: 1,149 SF.	Reconfiguration and expansion of the Main Administration provided space for reception, conference room, 2 clerks, secretary, student records room, storage room and a larger principal's office with private toilet
5	REMOTE ADMIN AREA	Location: Building 2010 Main Level- Auditorium Built in 1956. Size: 2,200 SF.	The existing 3,200 SF Auditorium and Stage are not being utilized for the intended purpose. GMC recommends using movable partitions to create needed administration spaces including a Faculty Workroom, Assistant Principal's Office, Common Conference Room and Book Storage
2	SUPPORT SPACES	Location: Building 2020 Main Level Built in 1993. Size: 698 SF.	The Mechanical Room has been abandoned and is currently used for storage. The recommendation is to create a 120 SF office for the Building Manager and organize the remaining space as a 578 SF General Storage Room with direct access to the exterior.

PART SIX

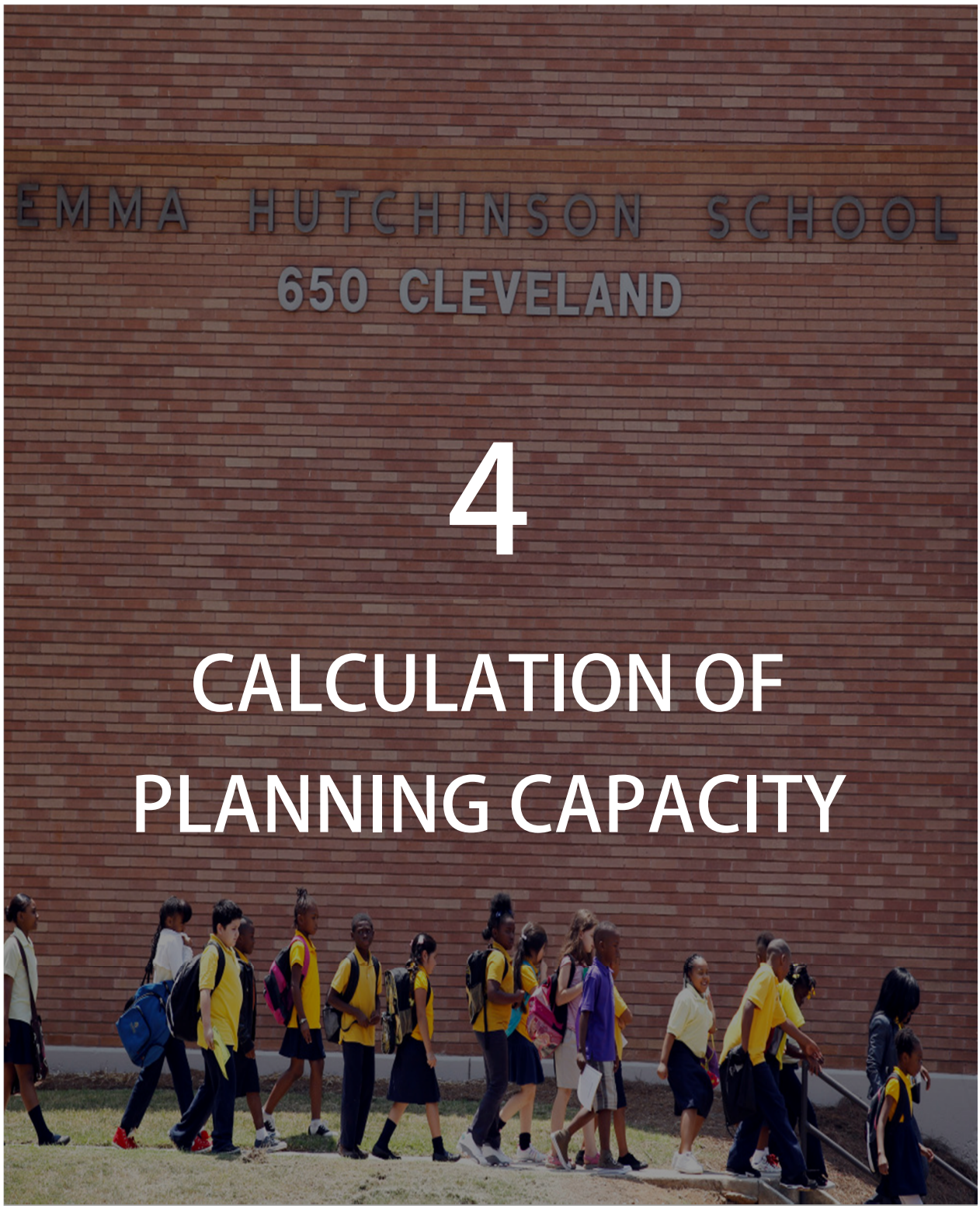
RESTROOMS

The student restrooms in Building 2010 do not meet the current requirements for handicap accessibility. The GADOE requirement for Grades K-8 is to have toilet locations on the floor and wing of the supported IUs and they must be adequate for that student population. According to the GADOE Minimum Plumbing Fixture Requirements the number of fixtures in the Kindergarten and 1st Grade Restrooms can be reduced allowing the addition of a handicap stall in each Restroom. All the student restrooms in Building 2010 will be renovated and additional toilets provided for the Pre-K classroom.

The student restrooms in Buildings 2020 and 2021 have stalls that meet the accessibility requirements. New fixtures, partitions and toilet accessories will be installed along with finish upgrades per the APS Guidelines and meeting ADA Standards.

GA. DEPARTMENT OF EDUCATION SQUARE FOOTAGE COMPARISON TO EMMA HUTCHINSON ELEMENTARY SCHOOL RESTROOMS

# of Rooms	ROOM NAME	ROOM LOCATION / CHARACTERISTICS	COMMENTS
4	KINDERGARTEN AND 1ST GRADE RESTROOMS	Location: Building 2010 Main Level Built in 1956. Girls Req'd. Exist. Renovated WC 3 6 5 Lav 2 2 2 Boys Req'd. Exist. Renovated WC 2 4 2 U 2 3 2 Lav 2 2 2	Restroom renovations include new fixtures, toilet partitions, toilet accessories and finishes within the existing space.
6	2ND THRU 5TH GRADE RESTROOMS	Location: Building 2020 and 2021 Main Level Built in 1993 and 2000 Girls Req'd. Exist. Renovated WC 4 5 5 Lav 3 3 3 Boys Req'd. Exist. Renovated WC 3 3 3 U 3 3 3 Lav 2 2 2	Restroom renovations include new fixtures, toilet partitions, toilet accessories and finishes within the existing space.
2	PRE-K RESTROOMS	Location: Building 2020 Main Level Built in 1993. Size: 50 SF.	Pre-K currently has no restrooms and must use the Kindergarten's. The original building had restrooms in the Pre-K area where the new ones are proposed to be located so plumbing should be available to reconnect without the expense of running new lines.



4

CALCULATION OF PLANNING CAPACITY

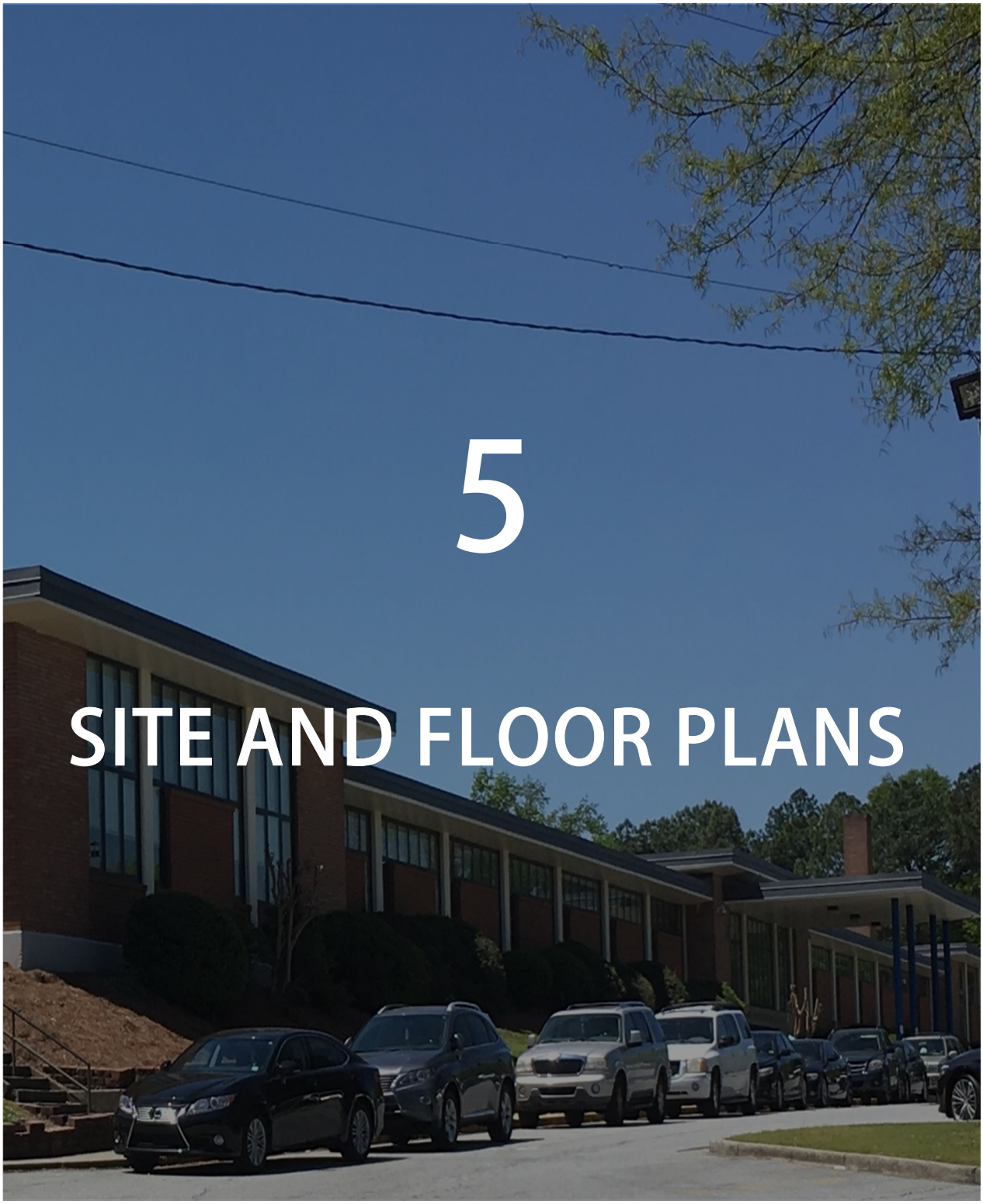
Elementary School Space List:

APS Standard				GA DOE	Hutchinson Elementary School			
FTE: 825 Max	Planning Core Classrooms (Goal): 33 Total Classrooms: 38				Design FTE:825			
					Provided			
SPACES	Room Count	Required Sq. Ft. / Room	Max Students / Room	Required Sq. Ft. / Room*	Room Count	Sq. Ft.	Students /Room	Comments
CORE INSTRUCTION								
Preschool Classrooms/ PreK w/ Toilet	1	750		750	1	1135	20	
CORE CLASSROOMS								
Kindergarten	5	750	21	750	5	668	16	
First Grade	5	750	25	750	5	675*	16	
Second Grade	5	750	25	750	5	750	16	
Third Grade	5	750	25	750	5	750	17	
Fourth Grade	5	750	32	660	5	660	13	
Fifth Grade	5	750	32	660	4	660	15	
Total K-5	30				29			
	* GADOE allows 10% margin on square foot requirement for existing schools							

EXTENDED CORE							
Foreign Language (Typical Classroom)	1	750			1	676	
ESOL (Typical Classroom)	1	750			1	645	
PEC (1 With restroom washer dryer and changing bed area)	3	750			3	720, 667, 355	
Art (With Kiln and Storage)	1	1350		1000	1	1216	
Choral / Music (with Storage)	1	1000		1000	1	1156	
Band (Optional) (Including Storage)	1	1500			0	---	
PE (With Storage and Office Space)	1	5000		5000	1	6535	
Computer/Interactive Learning Lab	1	1250		750	1	770	
Science Lab	1	1000			1	1000	
MEDIA CENTER							
Media Center	1			3750*	1	3469	*DOE allows +/- 500 SF
Media Specialist Office	1	250			1	200	
Work Room	1	300			1	325	Tech Storage is shared space with Work Room
Technology Storage (Old AV)	1	300					
MDF Room	1	200			1	250	
NUTRITION							
Kitchen	1			2400	1	2200	
Faculty Dining	1	450			1	450	
Student Dining	1			2619		2691	
MAIN OFFICE / ADMINSTRATION SUITE							
Reception and Waiting Room Desk for 2 Clerks	1	500			1	284	

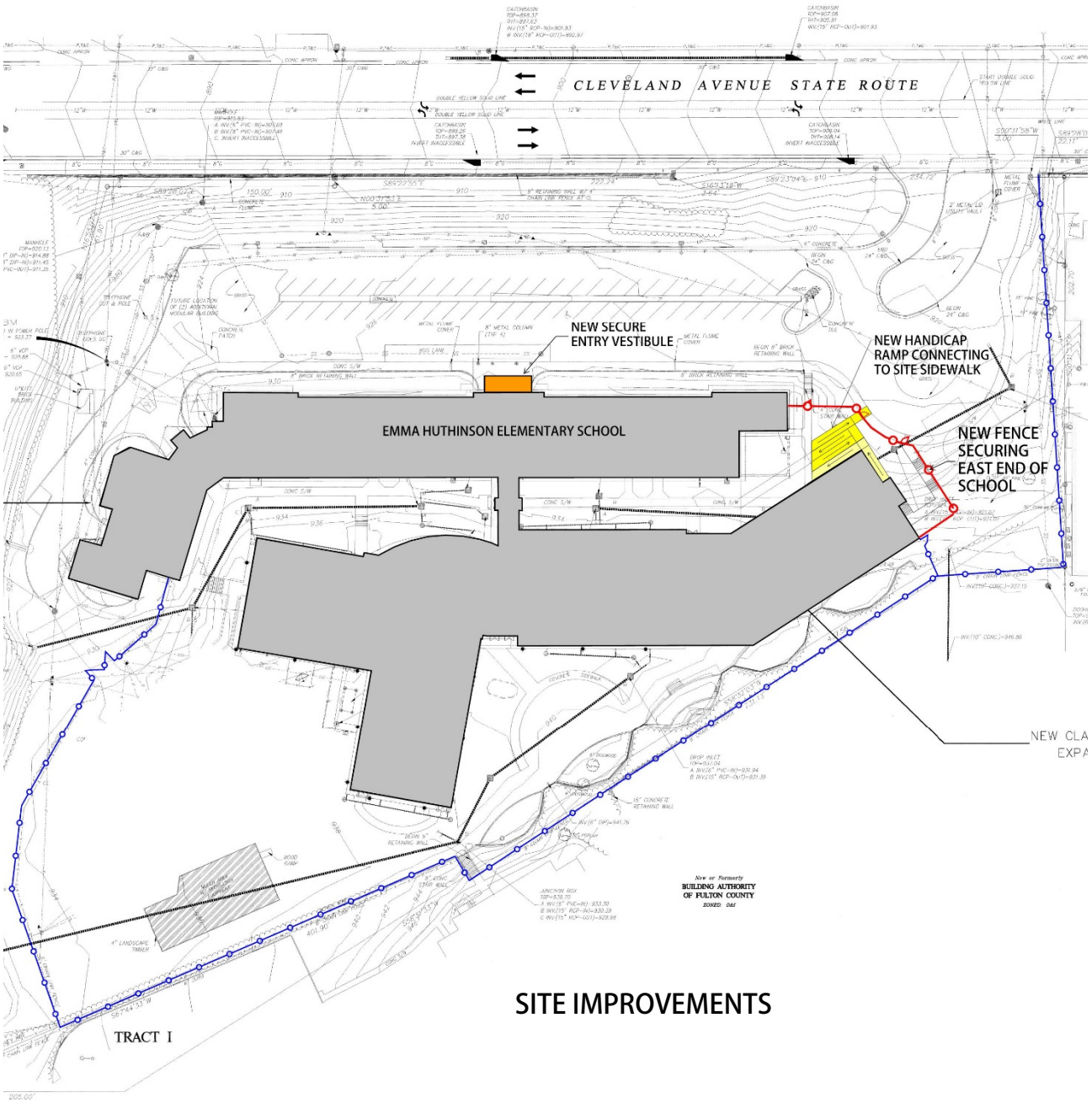
Supply Storage	1	150			1	66	
Secretary's Office	1	120			1	178	
Principal's Office (With Private Toilet)	1	300			1	325	
Principal's Conference Room	1	350			1	204	
Student Records Vault	1	150			1	50	
ADMINISTRATION SUPPORT OFFICE							
Counselor's Office	1	250			1	245	
Test Storage	1	144			1	200	
Common Conference Room	1	350			1	355	
REMOTE OFFICE							
Faculty Work Room	1	350			1	310	
Assistant Principals	2	140			2	140	
Opportunity Room (Storage)	1	150			1	150	
Parent Center	1	500			1	500	
Clinic (With Exam Room and Restrooms)	1	300			1	350	
SUPPORT SPACES							
Storage Room Near Each Grade Level	6	100			3	783	
Text Book Storage	2	250			1	310	
Building Manager's Office	1	120			1	120	
General Storage (Access to Outside)	1	400			1	578	

Staff Restrooms	1	200			4	200	
Adult Restrooms	2	100			2	100	
Janitor's Closet	1	150			4	183	

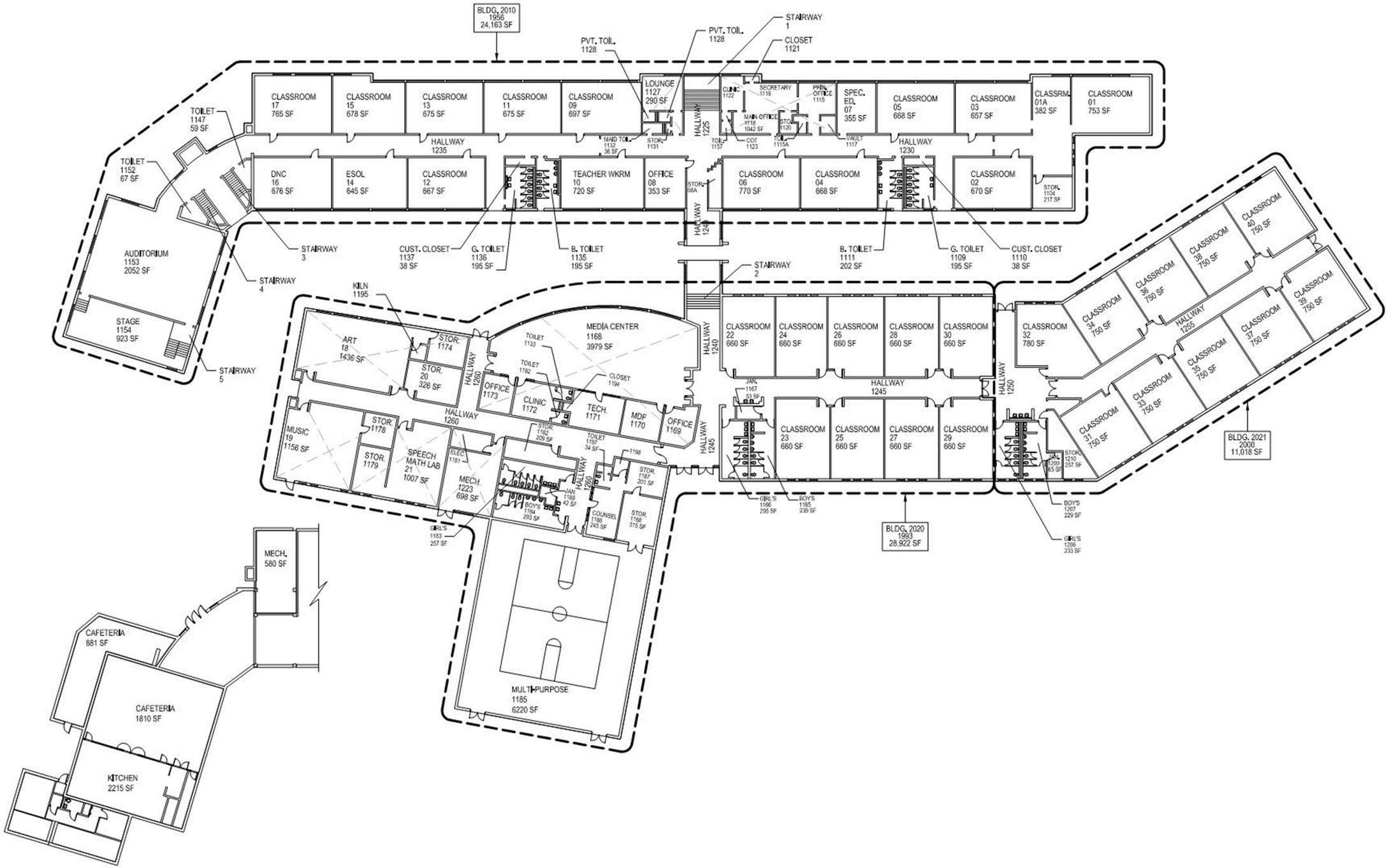


5

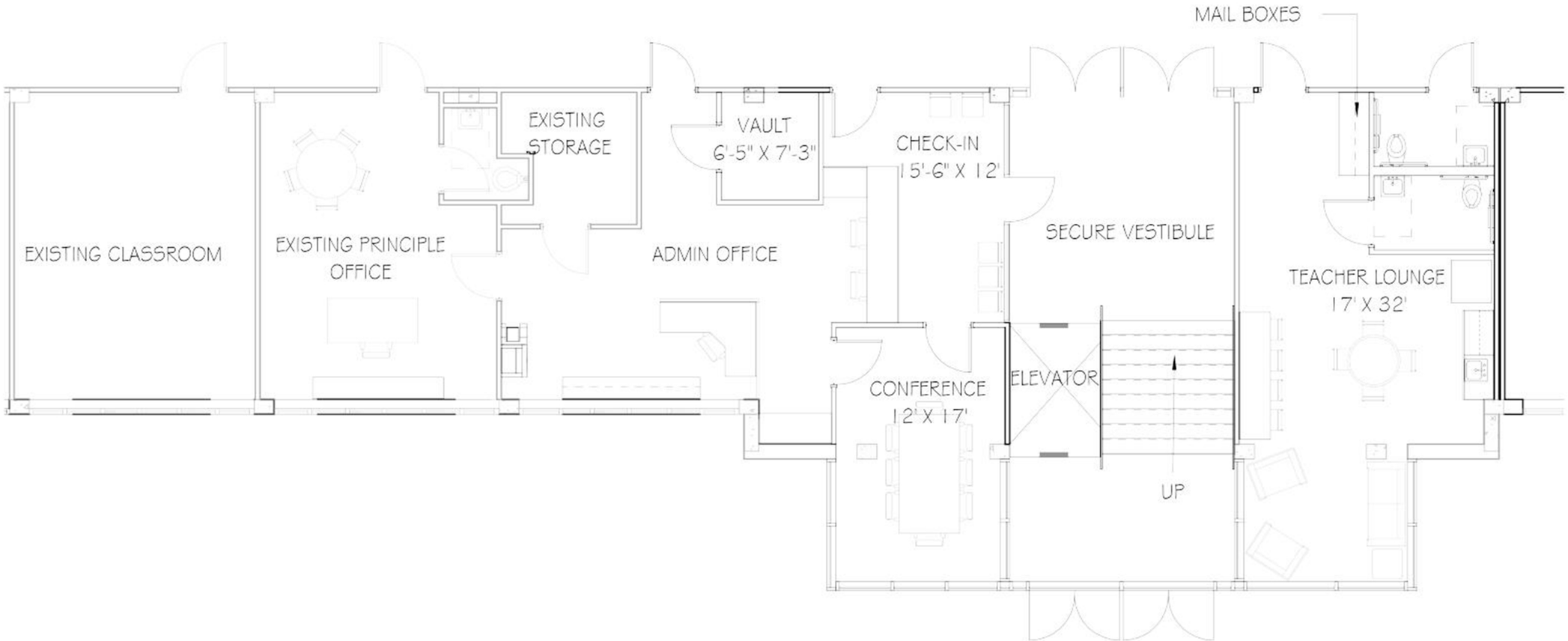
SITE AND FLOOR PLANS



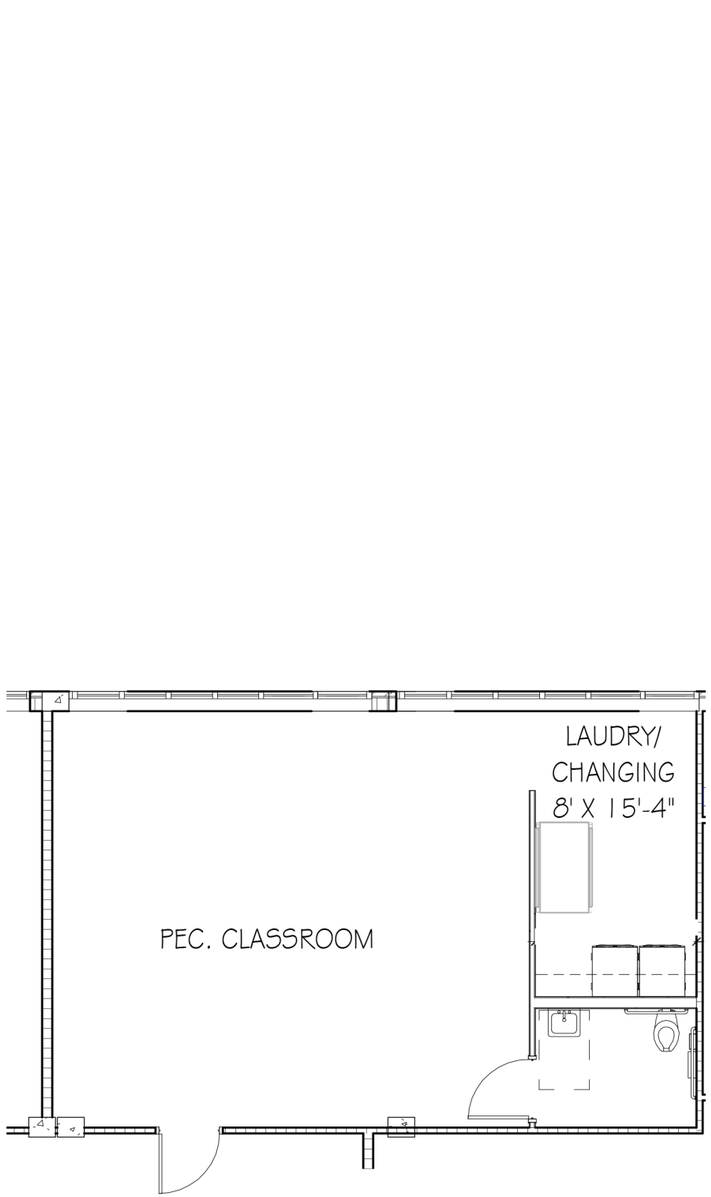
SITE IMPROVEMENTS


BLDG. 2010
1956
24,163 SF
PVT. TOIL.
1128
PVT. TOIL.
1128
STAIRWAY
1
CLOSET
1121
CLASSROOM
17
765 SF
CLASSROOM
15
678 SF
CLASSROOM
13
675 SF
CLASSROOM
11
675 SF
CLASSROOM
09
697 SF
LOUNGE
1127
290 SF
CLINIC
1122
SECRETARY
1119
PRIN. OFFICE
1115
SPEC. ED.
07
355 SF
CLASSROOM
05
668 SF
CLASSROOM
03
657 SF
CLASSRM.
01A
382 SF
CLASSROOM
01
753 SF
TOILET
1147
59 SF
HALLWAY
1235
HALLWAY
1225
MAIN OFFICE
1118
1042 SF
STOR.
1120
VAULT
1117
HALLWAY
1230
MAID TOIL.
1132
36 SF
STOR.
1131
TOIL.
1157
COT
1123
TOIL.
1115A
TOILET
1152
67 SF
DNC
16
676 SF
ESOL
14
645 SF
CLASSROOM
12
667 SF
TEACHER WKRM
10
720 SF
OFFICE
08
353 SF
STOR.
106A
CLASSROOM
06
770 SF
CLASSROOM
04
668 SF
CLASSROOM
02
670 SF
STOR.
1104
217 SF
HALLWAY
1240
AUDITORIUM
1153
2052 SF
STAGE
1154
923 SF
STAIRWAY
3
STAIRWAY
4
STAIRWAY
5
CUST. CLOSET
1137
38 SF
G. TOILET
1136
195 SF
B. TOILET
1135
195 SF
B. TOILET
1111
202 SF
G. TOILET
1109
195 SF
CUST. CLOSET
1110
38 SF
STAIRWAY
2
KILN
1195
ART
18
1436 SF
STOR.
1174
STOR.
20
326 SF
HALLWAY
1260
OFFICE
1173
CLINIC
1172
TECH.
1171
MDF
1170
OFFICE
1169
MEDIA CENTER
1168
3979 SF
TOILET
1133
TOILET
1192
CLOSET
1194
STOR.
1182
209 SF
TOILET
1197
34 SF
1198
STOR.
1187
201 SF
HALLWAY
1240
CLASSROOM
22
660 SF
CLASSROOM
24
660 SF
CLASSROOM
26
660 SF
CLASSROOM
28
660 SF
CLASSROOM
30
660 SF
HALLWAY
1245
JAN.
1167
53 SF
CLASSROOM
23
660 SF
CLASSROOM
25
660 SF
CLASSROOM
27
660 SF
CLASSROOM
29
660 SF
HALLWAY
1250
CLASSROOM
32
780 SF
CLASSROOM
34
750 SF
CLASSROOM
36
750 SF
CLASSROOM
38
750 SF
CLASSROOM
40
750 SF
HALLWAY
1255
CLASSROOM
31
750 SF
CLASSROOM
33
750 SF
CLASSROOM
35
750 SF
CLASSROOM
37
750 SF
CLASSROOM
39
750 SF
STOR.
1210
257 SF
JAN.
1209
65 SF
BLDG. 2021
2000
11,018 SF
MUSIC
19
1156 SF
STOR.
1178
STOR.
1179
SPEECH MATH LAB
21
1007 SF
ELEC.
1181
MECH.
1223
698 SF
HALLWAY
1260
JAN.
1189
42 SF
BOY'S
1184
293 SF
COUNSEL
1186
245 SF
STOR.
1188
315 SF
GIRL'S
1183
257 SF
MULTI-PURPOSE
1185
6220 SF
GIRL'S
1166
295 SF
BOY'S
1165
239 SF
BLDG. 2020
1993
28,922 SF
BOY'S
1207
229 SF
GIRL'S
1206
233 SF
MECH.
580 SF
CAFETERIA
881 SF
CAFETERIA
1810 SF
KITCHEN
2215 SF

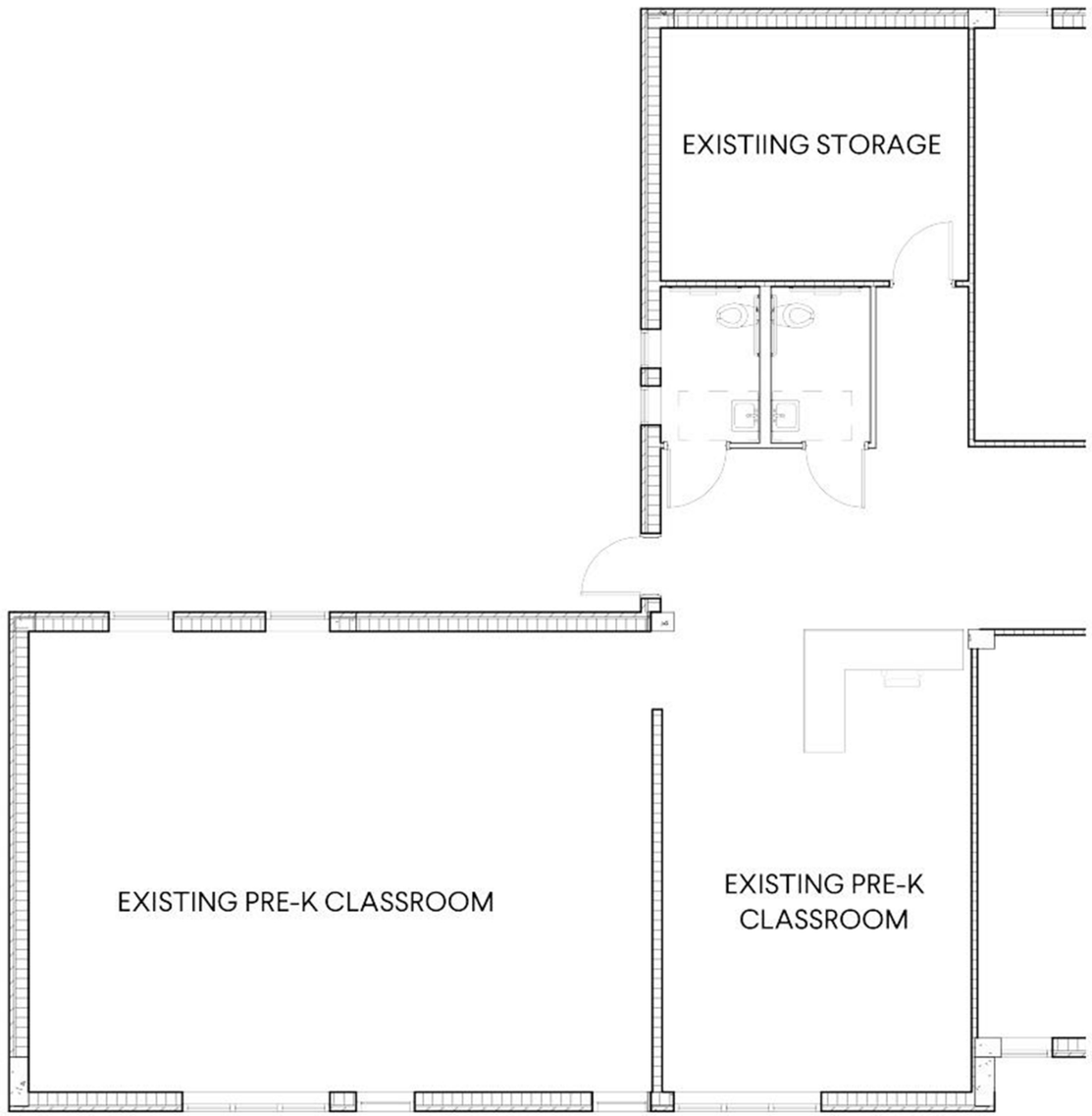
Overall Plan



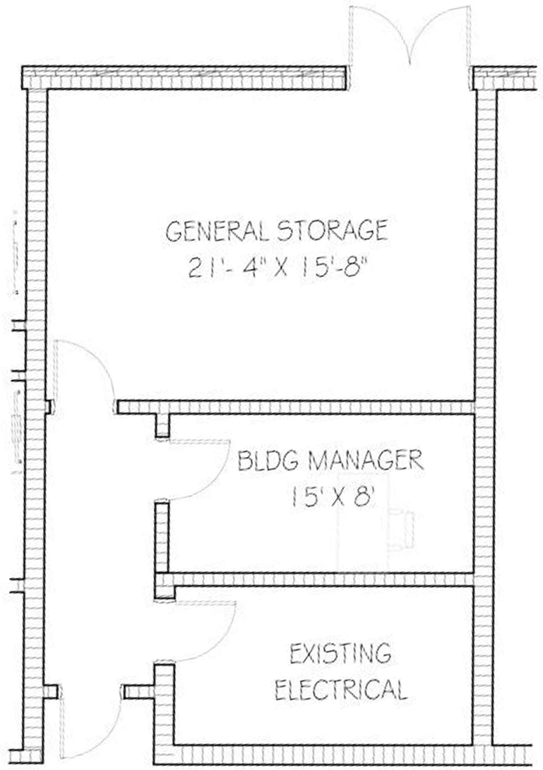
Secured Vestibule & Front Office



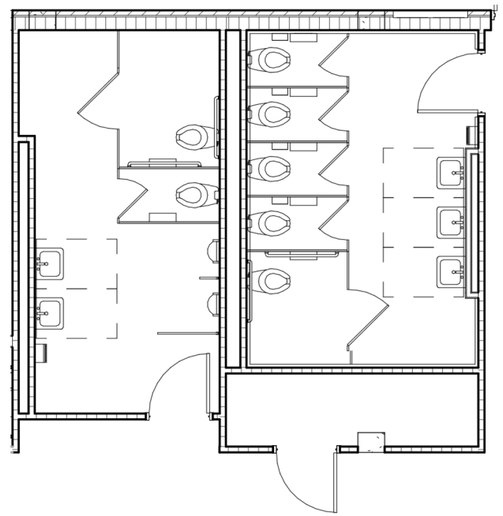
PEC. Classroom



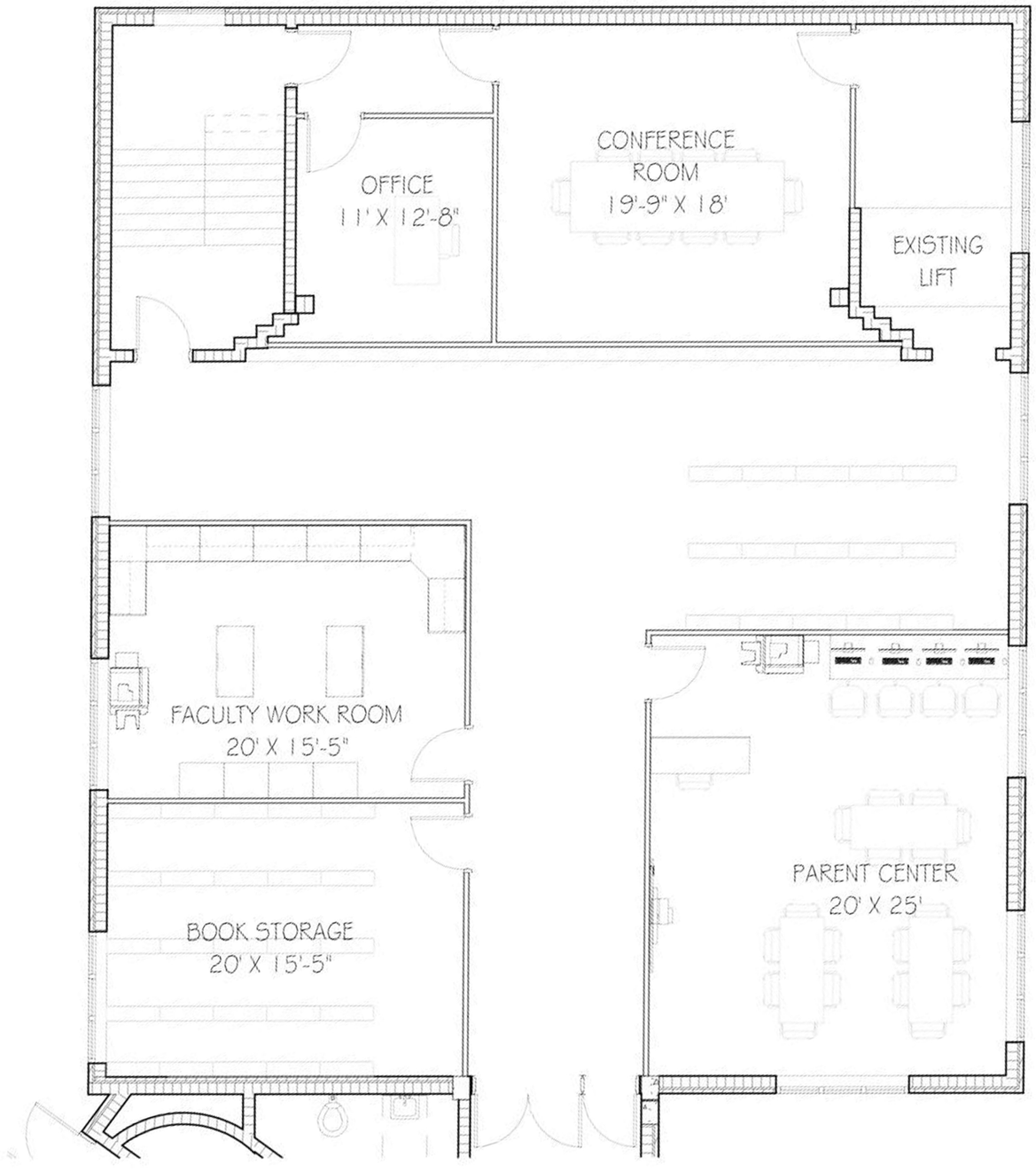
Pre-K Classroom



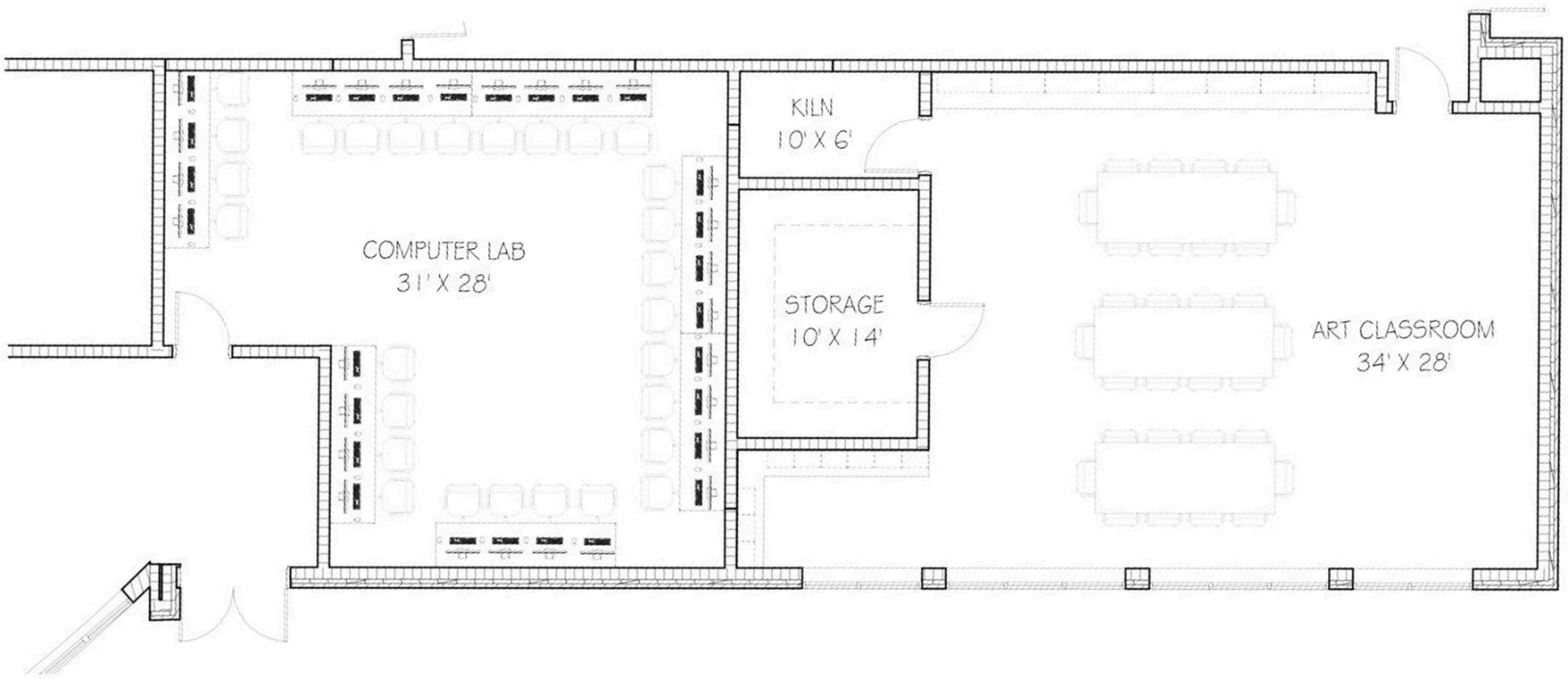
Building Manager Office & General Storage



Restroom



Administration

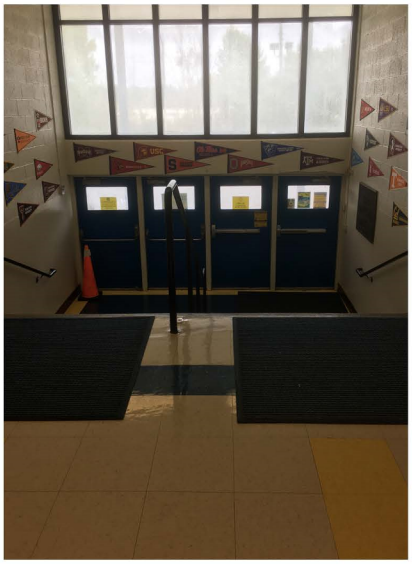


Computer Lab

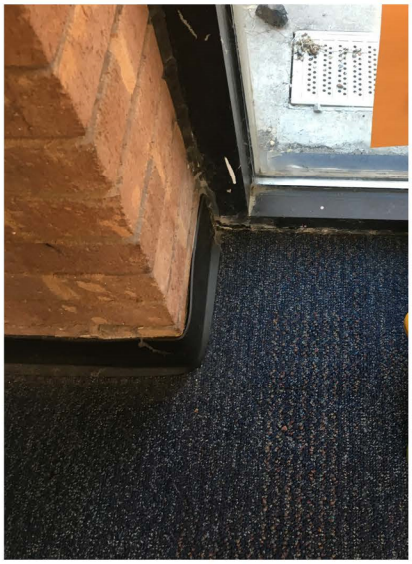
6 PHOTO DOCUMENTATION

The badly deteriorated concrete eyebrow at the delivery area is recommended for removal and replacement with an aluminum awning

Existing Main Entrance is not handicap accessible. A new secure vestibule will include an elevator for accessibility.



Water infiltration at the Connector Corridor will be corrected by modifying the trench drain/storm drain system.



Failing timber retaining wall will be remediated.

Existing concrete retaining wall will be cleaned and painted. The amphitheater will be renovated and a cover added for use as an outdoor instructional area.

Existing windows have been repaired. Re-glazing will be necessary.

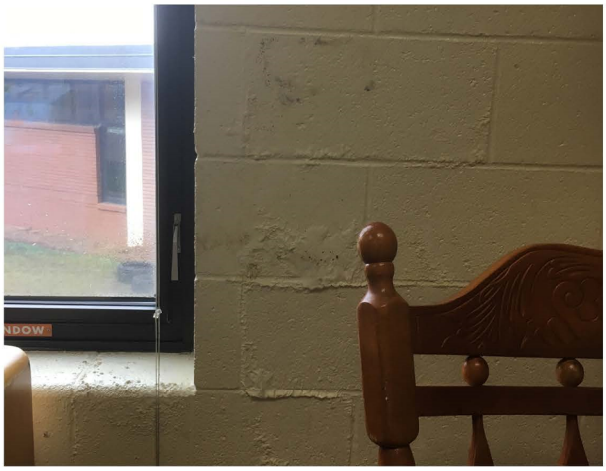
Exterior sealant is missing or deteriorated. Renovations will include new exterior sealant

New landscaping and hardscaping will provide accessible routes around the building.

Existing exterior soffit repair/replacement will be part of envelope renovation.

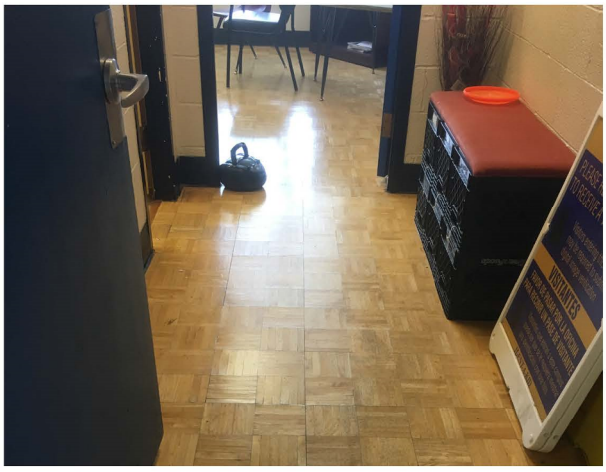
Existing vehicle access gate at west side of playground shall be modified to create secure enclosure.

Existing exterior ramp from Building 2021 does not provide an accessible egress route to a public way. A new ramp extending to the sidewalk at the parking lot perimeter will provide the missing egress component.



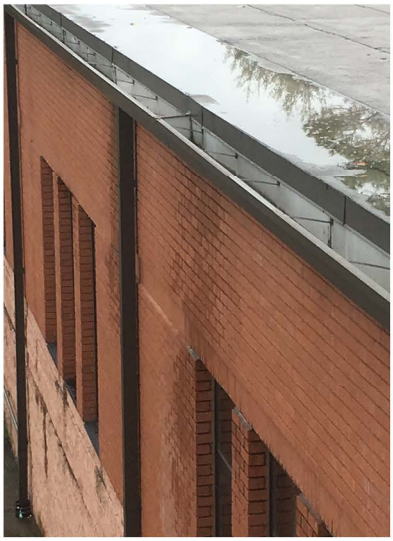
Moisture is apparent in the exterior walls of Building 2021. Roof leaks are suspect.

Gymnasium floor exhibits moisture damage from concrete pad outside door being destabilized.



The existing Faculty Lounge will be renovated.

Moisture damage at north Gymnasium wall due to flashing failure at roof/wall juncture above.



Standing water at roof edge and moisture issues in exterior cavity walls of Building 2021 point to need for roof replacement.

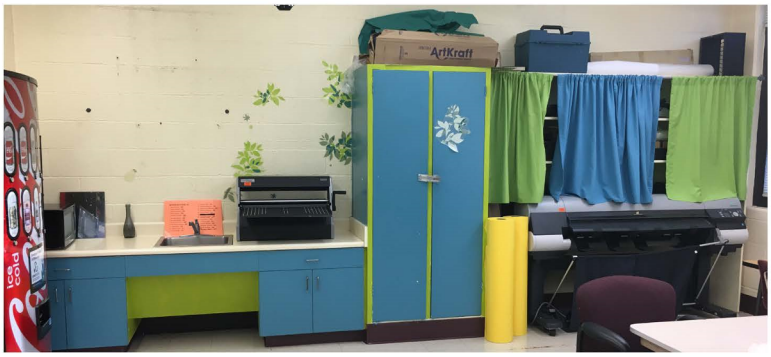
Failing downspout and gutter system at Gymnasium roof will be replaced.

Brick will be cleaned, sealed and all voids filled

Asphalt will receive a new wear layer and striping.

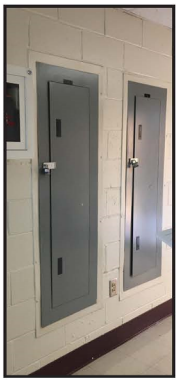
Building 2010 roof has no reported leaks but further investigation will determine if roof replacement is necessary.

The Auditorium is a viable space for remote administration space.



Existing Teacher Workroom is in a former Classroom. Relocation to the Auditorium will allow for the classroom to be used for a PEC Classroom.

The Cafeteria Addition is not currently utilized due to lack of visual supervision. Additional openings in the dividing wall will be investigated.



Existing electrical panels will be relocated to prevent tampering by the students.

The metal canopy at the west exit of Building 2020 will be replaced.

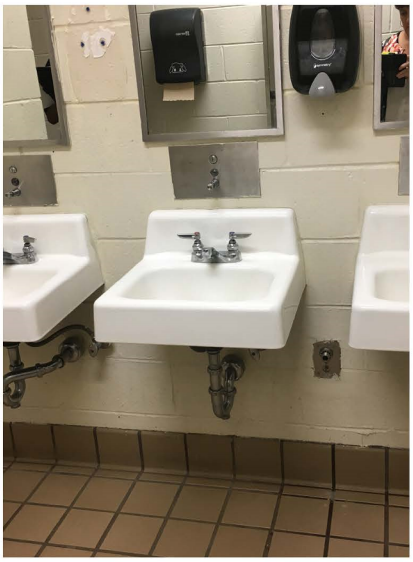
Stair risers and treads will receive new finishes.

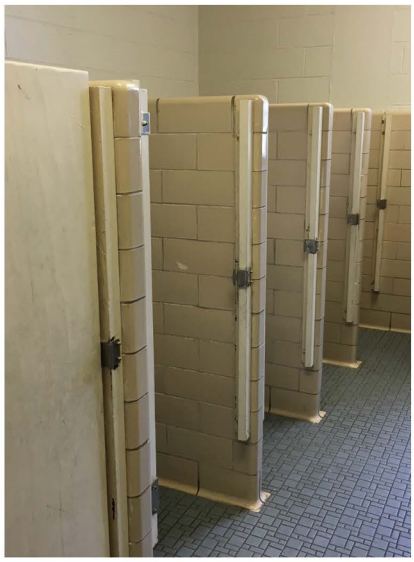
The Gymnasium Floors, Walls and Ceiling will receive new finishes.

Restrooms will receive new fixtures, finishes and toilet accessories.

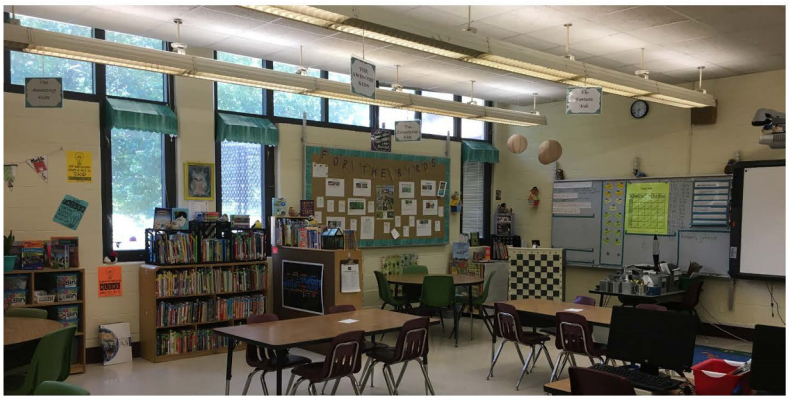
Kindergarten and 1st Grade Restrooms will be renovated to provide handicap accessible facilities.

Kindergarten and 1st Grade Restrooms will be renovated to provide handicap accessible facilities.

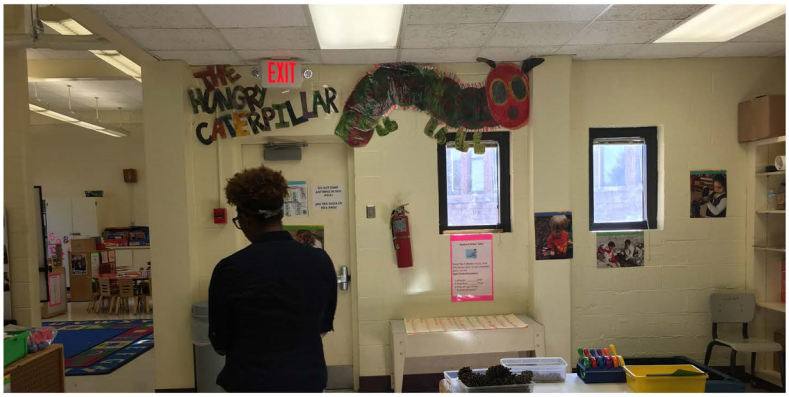




Kindergarten and 1st Grade Classrooms currently have casework with sinks. The Classrooms will receive new casework and finishes retaining the sinks as required by APS and GADOE guidelines.

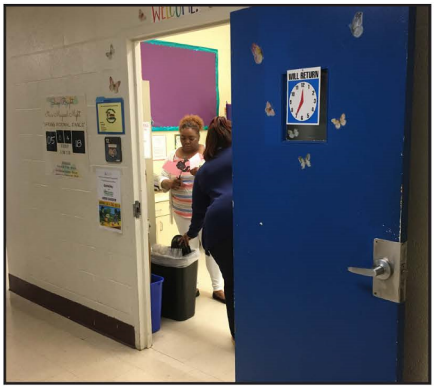


Classroom lighting will be replaced with new LED fixtures.



The Pre-K Classroom currently does not have Restrooms for the students. Restrooms will be added where they previously existing by connecting to existing water and sewer.

The Music Room will receive new finishes, casework and furniture.



New interior solid core doors and hardware are recommended for Building 2010.

The existing Kitchen is undersized for the goal 825 FTE. Expansion may not be feasible but the layout will be reviewed for improvement.

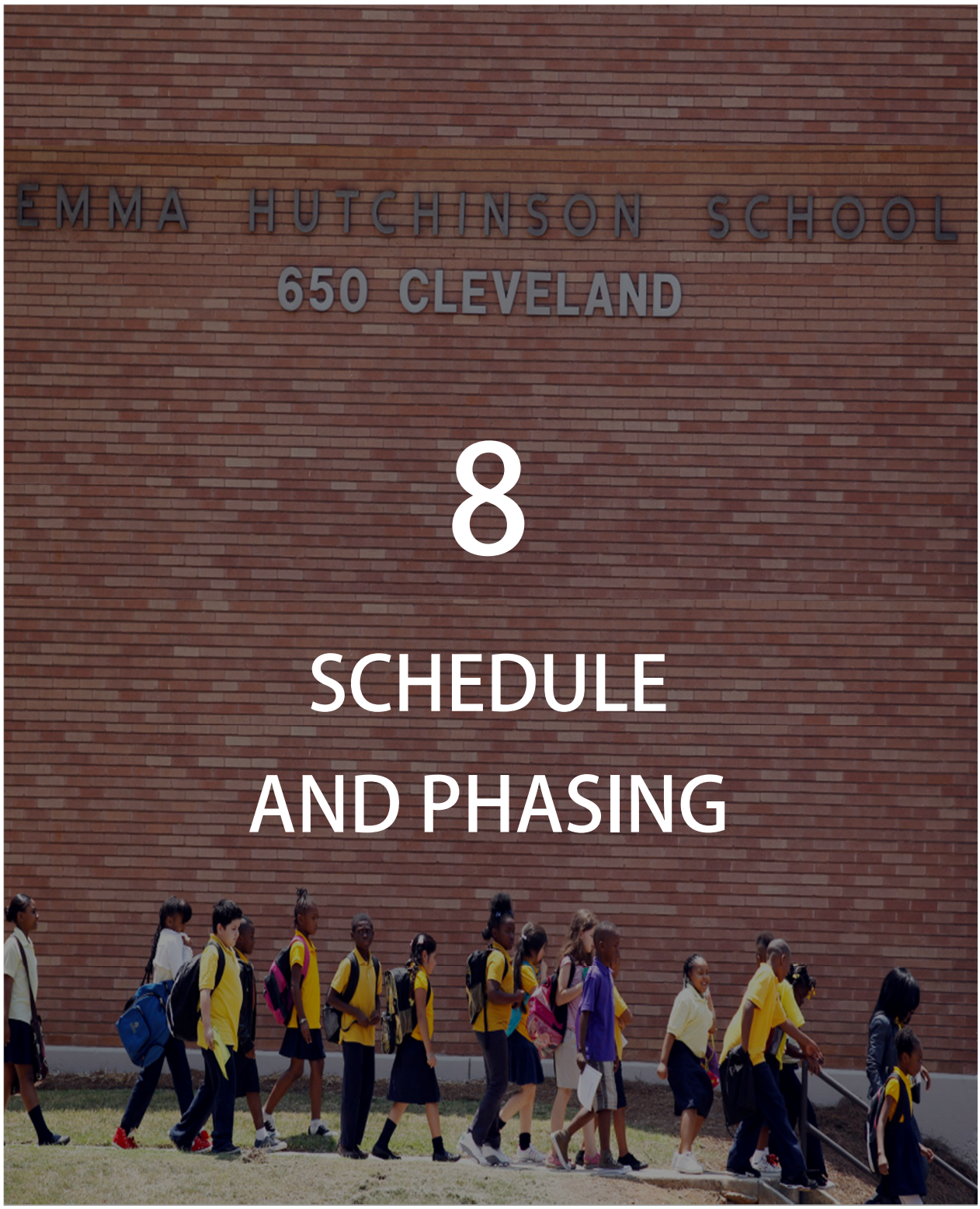
Existing Kitchen equipment will be evaluated for replacement.

7

COST ESTIMATE

ESTIMATED PROBABLE COST OF CONSTRUCTION

NO.	DIVISION	TOTAL COST
01	GENERAL CONDITIONS	$650,000.00
02	SITEWORK/UTILITIES/PARKING LOT	$265,791.00
03	COCRETE	$27,968.00
04	MASONRY/MASONRY RESTORATION	$163,124.00
05	METALS	$22,000.00
06	WOOD/CASEWORK	$207,806.00
07	MOISTURE PROTECTION/ROOF/FLASHING/JOINT SEALER	$509,128.00
08	DOORS /STOREFRONT/CURTAINWALL/HARDWARE	$311,701.00
09	FINISHES	$1,007,271.00
10	SPECIALTIES	$233,123.00
11	EQUIPMENT	$82,000.00
12	FURNISHINGS	$343,000.00
13	SPECIAL CONSTRUCTION	$0.00
14	CONVEYANCE SYSTEMS	$123,230.00
15	HVAC/PLUMBING /FIRE PROTECTION	$694,441.00
16	ELECTRICAL	$2,004,029.00
		TOTAL $6,644,612.00

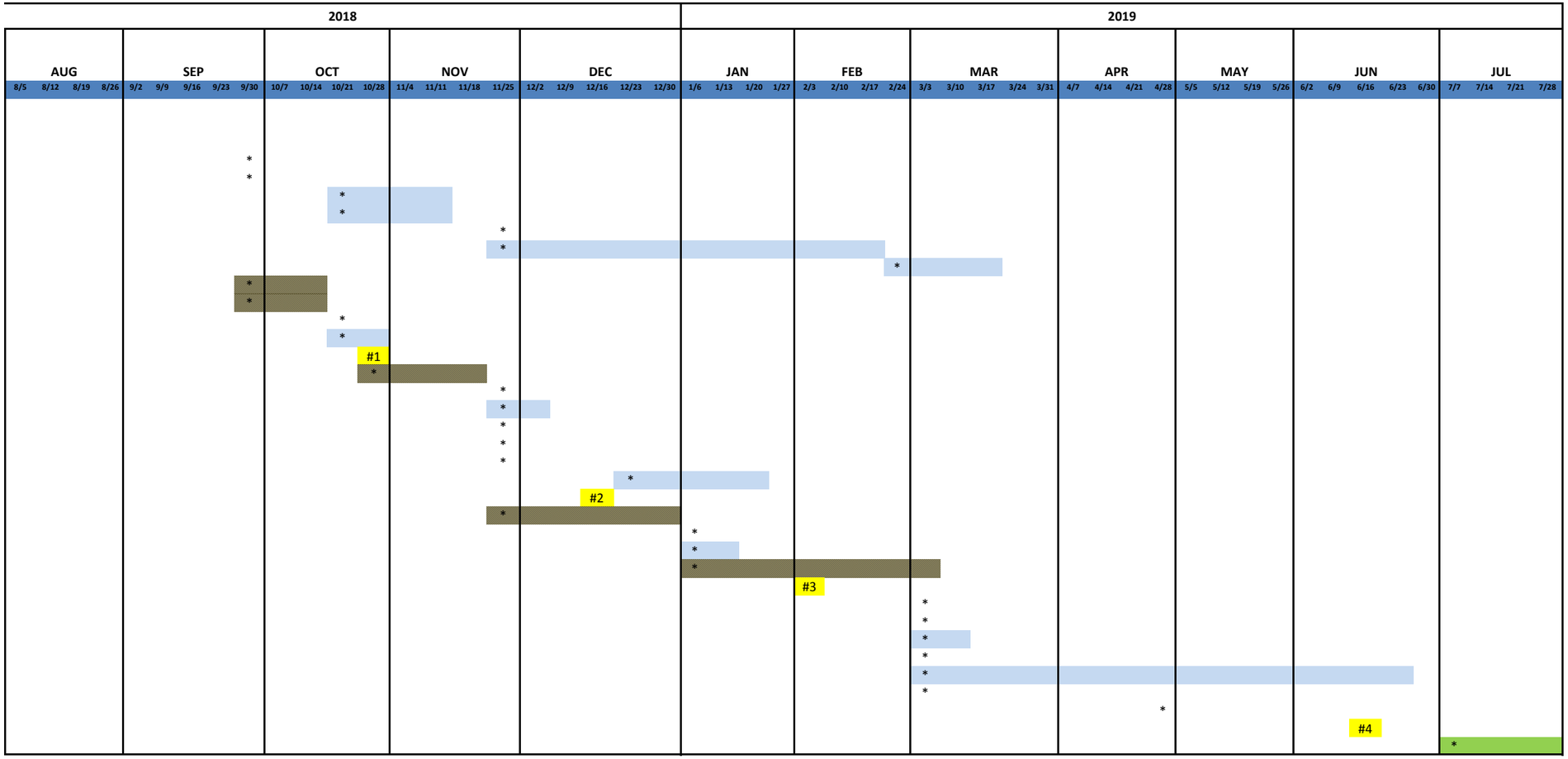


8

SCHEDULE AND PHASING

Atlanta Public Schools
Hutchinson Elementary School Renovation

ID	Activity	Type	Project Committee Meeting	Duration Days	Start Date	Finish Date
0	PROJECT DESIGN SCHEDULE				12-Apr-18	
1	Release Architect RFP			30	12-Apr-18	12-May-18
2	Evaluate and Select Architect			30	12-Apr-18	12-May-18
3	Architect Assignment			0	2-Aug-18	2-Aug-18
14	Architect Contract Execution			0	24-Sep-18	24-Sep-18
4	Kick-Off Mtg. w/ APS				26-Sep-18	26-Sep-18
5	Release CM RFP			30	15-Oct-18	14-Nov-18
6	Evaluate and Select CM			30	15-Oct-18	14-Nov-18
7	CM Assignment			0	19-Nov-18	19-Nov-18
8	Phase 1 Hazard Screen Site Studies			90	19-Nov-18	17-Feb-19
9	GDOE Site Approval Review			30	18-Feb-19	20-Mar-19
10	Needs Assessment	1		20	24-Sep-18	14-Oct-18
11	Design Narrative	1		20	24-Sep-18	14-Oct-18
12	Design Narrative Submittal to APS			0	16-Oct-18	16-Oct-18
13	APS Design Narrative Review			14	16-Oct-18	30-Oct-18
15	Project Committee Meeting #1		#1	0	22-Oct-18	22-Oct-18
16	Schematic Design (SD) Phase	1		30	22-Oct-18	21-Nov-18
17	SD Submittal to APS			0	21-Nov-18	21-Nov-18
18	APS SD Review and Comment			14	21-Nov-18	5-Dec-18
19	"Preliminary" Submittal to GA. DOE			0	21-Nov-18	21-Nov-18
20	Preliminary Submittal to City of Atlanta			0	21-Nov-18	21-Nov-18
21	Submittal to AUDC			0	21-Nov-18	21-Nov-18
22	AUDC Approval (typically +/-30 days)			30	21-Dec-18	20-Jan-19
25	Review)		#2	0	10-Dec-18	10-Dec-18
23	Design Development (DD) Phase	1		42	21-Nov-18	2-Jan-19
24	DD Submittal to APS			0	3-Jan-19	3-Jan-19
26	APS DD Review and Comment			14	3-Jan-19	17-Jan-19
27	Construction Document Phase	1		60	3-Jan-19	4-Mar-19
28	CDs)		#3	0	31-Jan-19	31-Jan-19
29	95% CD Submittal to APS			0	28-Feb-19	28-Feb-19
30	"Check Set" Submittal to GA. DOE			0	28-Feb-19	28-Feb-19
31	APS 95% CDs Review and Comment			14	28-Feb-19	14-Mar-19
32	Submit 95% CDs to City of Atlanta			0	28-Feb-19	28-Feb-19
33	City of Atlanta Permit Review (may vary)			120	28-Feb-19	28-Jun-19
34	"Final" Submittal to GA. DOE			0	28-Feb-19	28-Feb-19
35	Submit 100% CDs to APS			0	25-Apr-19	25-Apr-19
36	Project Committee Meeting #4 (pre-con)		#4	0	12-Jun-19	12-Jun-19
37	Construction Start	2		30	1-Jul-19	31-Jul-19
	TOTAL DURATION				**DAYS**	



NOTES
1. Duration of GDOE Site Approval Review may vary greatly
2. COA "site development" review should typically begin
3. COA permit review duration may vary greatly depending
4. COA permit review process and durations subject to
5. Project Comittee Meeting #4 to occur just prior to

LEGEND

Design / Architect's Responsibility

9

APPROVAL SHEET

APS Approval and Sign-off Sheet

_____ School Principal	_____ G0 Team Representative
_____ Associate Superintendent	_____ Go Team Representative
_____ School Board Representative	_____ Director/Exec. Dir. of Facilities
_____ PTA Representative	_____
_____ PTA Representative	_____
_____ NPU Representative	_____
_____ Community Member	_____
_____ School Faculty Representative	_____
_____ School Business Partner	_____
_____ Architect	_____
_____ Project Manager	_____