

FRANKLIN HIGH SCHOOL FACILITY ASSESSMENT

MACON COUNTY SCHOOLS



JUNE 2022

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
EXECUTIVE SUMMARY	3
GENERAL INTRODUCTION.....	5
CAMPUS ASSESSMENT	7
BUILDING ASSESSMENTS	
MAIN BUILDING	15
FINE ARTS BUILDING.....	27
ENGLISH BUILDING.....	39
CAREERS BUILDING	49
MEDIA CENTER/CAFETERIA BUILDING.....	61
VOCATIONAL BUILDING.....	73
GYMNASIUM	87
APPENDICES	
DESCRIPTIONS OF APPENDICES	99
A. CAMPUS MAP	
B. BUILDING CONDITIONS MATRIX	
C. INITIAL PROGRAM ANALYSIS	
D. SPACE UTILIZATION PLANS	
E. OPINIONS OF PROBABLE COSTS	

EXECUTIVE SUMMARY

This report documents the scope of work required to repair and reconfigure the existing buildings of the Franklin High School campus to establish a modern, high quality educational environment for the next fifty years. Goals include bringing buildings into compliance with current building codes, improving energy efficient and reducing maintenance costs.

The campus has seven separate primary buildings, each with unique problems requiring tailored solutions. This decreases the opportunity for “economy of scale” that could lower construction costs. The existing structural systems and building configurations place significant constraints on the types of improvements and upgrades that can be pursued. These constraints will limit options for HVAC upgrades, narrowing opportunities for potential energy savings. Many of these buildings are over 50 years old and have met or exceeded their life expectancies. They can be dramatically improved through renovations, but they cannot be made “as good as new.” The renovated buildings will continue to be more expensive to operate and maintain than new construction.

There are limits to what can be achieved through an approach that only renovates the existing buildings. Renovations alone cannot provide all the space required to operate a 1,200 student campus effectively. An additional 56,000 square feet in building additions would be needed to simply meet the North Carolina Department of Public Instruction (NCDPI) Guidelines. Yet another 32,000 square feet would need to be constructed to continue to provide enhanced CTE programs currently offered at Franklin High, to expand those offerings, and to provide an auxiliary gym and larger auditorium as requested by the school district, all of which are above and beyond the NCDPI recommendations. Additional construction is also needed to physically connect the seven buildings together to enhance student safety and campus security, and to make this multi-level campus more accessible to physically challenged individuals. Because of the configuration of site and buildings, there is limited area available to infill between buildings with new construction to meet programmatic requirements. Expansion into adjacent playing fields or parking areas would make the campus less compact, more difficult to secure and supervise, and would limit options to improve traffic patterns or provide additional staff and student parking.

Logistics and operational impacts of construction have also been evaluated as part of this report. A comprehensive renovation project would require widespread use of modular classroom space to relocate students and teachers out of existing buildings for the duration of construction. There are significant site limitations for the placement of modular classrooms, so renovations would need to be phased, with a projected overall construction duration of six years. There would be challenges associated with replicating certain programmatic services in temporary space. A renovation project of this magnitude would certainly be disruptive to the normal operations of the school.

The projected costs associated with this work are significant. Detailed cost estimates for the scopes of work identified have been provided in this report, including costs associated with temporary modular classrooms and a construction duration of six years.

At the onset of this assessment, the school district and stakeholders established these goals for the future of Franklin High School:

- To make Franklin High a driver for economic development for Macon County
- To make the school safe and inviting for students and faculty
- To make Franklin High the center of the community
- To realize significant energy savings
- To make the school a focus of community pride

It is the professional opinion of the design team that a course of comprehensive renovations in conjunction with supplemental new construction at the Franklin High School campus can improve the quality of the educational environment of the existing facilities. However, this approach would ultimately fall short of achieving the stated goals for this campus. Other alternatives, including complete building replacement, should be considered to achieve all the stated goals of the district.

GENERAL INTRODUCTION

This document is intended to provide a general evaluation of the existing facilities on the Franklin High School campus. The assessment is to provide information on the costs and scope of needed work that can inform decisions related to the viability and advisability of renovations of existing buildings versus replacement with new buildings.

The design team reviewed the physical conditions and quality of construction for each building, evaluating architectural, structural, mechanical, and electrical components that were accessible or visible during site visits. The Macon County Schools maintenance director and past and present administrators toured the campus with the design team and provided valuable insight into historic and ongoing problems and concerns. Additional information was gleaned from the available construction drawings from previous construction and renovations projects. Buildings were also evaluated for general compliance with modern code requirements, with special emphasis on life safety and accessibility. Referenced codes and standards include:

- NC State Building Codes, 2018 Edition.
- NC State Building Code, Existing Building Code, 2018 Edition.
- NC Department of Public Instruction Facility Guidelines, 2019.
- NC Department of Public Instruction Science Facilities Planner, 2013.
- NC Department of Public Instruction Typical Space Profiles, May 2016.
- ASHRAE Equipment Life Expectancy Chart.

Detailed recommendations for repairs and improvements have been developed for each building, with an overall goal of identifying work required to provide a high-quality educational environment for Macon County students for the next fifty years.

The ability of the existing buildings to support a modern educational program was also evaluated. The sizes and quantities of existing key program spaces on the campus were compared to the general recommendations of the North Carolina Department of Public Instruction (NCDPI) for a 1,200 student high school. The results are tallied in the Initial Program Analysis Spreadsheet at Appendix C, and illustrated in the Space Utilization Plans at Appendix D. A customized program of spaces tailored to the needs of Franklin High and consistent with the goals of Macon County Schools is currently being developed with the assistance of Dr. Chris Baldwin, Principal Noe and all Macon County Schools administrative department heads.

Cost estimates for the scopes of work described herein are included at Appendix E and represent a professional opinion of probable costs based on available construction industry data and a professional understanding of current construction market conditions, including some escalation to anticipate unknown future market factors. Political and market conditions can have a sudden and significant impact on the rate of positive or negative escalation. In cases of significant changes in market conditions or the political climate, the basis of the escalation rate should be reevaluated.

It should be noted that a detailed compliance survey related to accessibility and building codes was not performed, and it is in no way inferred that every aspect of the existing campus has been reviewed. No bid documents or corrective design documents have been produced at this time.

THE PROJECT TEAM

LS3P acted as lead designer for this project, coordinating the work of the assessment. Our consulting engineers were active participants in the process: Arp Engineering for structural engineering, CMTA for plumbing, mechanical and electrical engineering, Wade Trim for civil engineering. Cost estimating services were provided by MBP.

CAMPUS SITE ASSESSMENT

I. RECOMMENDATIONS

These observations and recommendations are general in nature, as noted under the following individual sections. Specific courses of action to rectify the deficiencies noted herein should be developed in conjunction with plans for campus improvements.

II. VEHICULAR TRAFFIC

The confluence of parent, visitor, staff and student parking at the front of campus is already a problem, which will only be exacerbated as the student population grows.

- The parent queue should extend deeper into campus so that it does not block adjacent roadways.
- Bus traffic should be separated from parent traffic, and consideration should be given to creating separated dispersal points for bus riders and car riders to facilitate this.
- The roadway along the north side of campus, McCollum Drive, is badly damaged, partially undermined and slumping into the adjacent gully (see figure 1). Extensive repairs are required. Railings should be added alongside the gully for safety.

III. PARKING

Parking for staff and students is generally inconveniently sited and inadequate.

- Staff parking is scattered around campus. Staff lots are not sited for easy or convenient access to most buildings, so many staff park along roadways or in any level area to be found near buildings (see figure 2).
- Student parking is separated from academic buildings by Panther Drive; students must cross vehicular traffic to access the school buildings.
- After-hours parking is inadequate for large events at the gym or the stadium.
- Redistribution of parking and additional parking should be a consideration in the redesign of the campus.

IV. SECURITY

The campus is a collection of freestanding buildings with a porous perimeter. Access controls systems at exterior doors have improved the security of individual buildings, but students are exposed as they travel from building to building during class changes.

- Enclosed corridors should be developed to create a secure path of travel to every building, from one end of the campus to another. Existing corridors are too narrow to support this traffic. Configuring these corridors to give administrators the ability to easily monitor the hallways and travel quickly from the Main Office to the far reaches of the school will be exceedingly challenging.
- Perimeter fencing running from building to building provides a physical barrier, if not a visual barrier, around the campus (see figure 3). The fencing is not a viable option everywhere, as access must be maintained along McCollum Drive for kitchen and vocational shop deliveries (see figure 4).
- All the locksets on campus should be rekeyed with a masterkeyed system that allows for quick emergency access to any space on campus without sorting through dozens of miscellaneous keys.

V. CHANGES OF LEVEL

The campus developed over many decades, mostly during a time when accessible routes from building to building were not a consideration. As a result, there are significant level changes to be negotiated as one moves across campus, even between adjacent buildings (see Campus Map, Appendix A). This is especially challenging for exceptional students with mobility issues.

- The ad-hoc system of covered walks, ramps and steps needs a complete reworking to create an accessible route between any buildings which are to be retained (see figures 5 and 6). Ideally the accessible routed would be enclosed for security, as noted above.
- Site elevators may be required to accommodate major changes in level where there is inadequate room for ramps with ADA compliant slopes, landings and railings.
- There is extensive settlement and cracking at the larger exterior stairs. These require replacement (figures 7 and 8).
- Replacement will be required where existing walkways have cracked and settled, creating tripping hazards.

VI. UTILITY SERVICE

Improvements to campus-wide utility service should be considered in conjunction with campus improvements.

- Duke power distributes service to the campus via a system of 18 separate meters. Consolidation of the service should be considered to reduce the number of meters, for cost savings.
- Natural gas from Toccoa is provided to 4 separate meters: the main building, Fine Arts, Careers Building and Gymnasium.

- There are 4 separate water services on campus. It is probable that most of the water and sewer lines are at the end of their service life, in need of replacement.

VII. HVAC SYSTEM MANAGEMENT

Each building on campus is currently served by independent HVAC systems of varying ages. Most are at the ends of their useful lifespans (see notes at individual building assessments).

For a campus of this size, our recommendation would be to create a new central plant to centrally serve each facility. Having a central plant will allow for diversity across each building, thus making the total tonnage required less than would be required with individual boiler chillers at each facility.

- A new facility would need to be constructed to house new condensing hot water boilers, air cooled chillers, and central pumping systems.
- The heating generation equipment will consist of two (2) condensing style boilers. Each boiler will be sized for 100% of the buildings block load. Boilers to be Weil-McLain or approved equal. The primary pumping shall consist of a base-mounted end-suction constant speed pump dedicated to each boiler. The secondary pumping system will each consist of two (2) base-mounted end-suction variable speed pumps.
- The chilled water generation equipment will consist of two (2) air cooled chillers. Chiller plant will be sized at 110% of building block load. Chillers to be Trane model RTAC or approved equal. The primary pumping shall consist of a three (3) base-mounted end-suction constant speed pumps. A pump shall be dedicated to each chiller and the 3rd shall be piped to serve as backup for either chiller. The secondary pumping system will consist of two (2) base-mounted end-suction variable speed pumps. All exterior chilled water piping will be insulated with 2" thick insulation and be equipped with heat trace and jacketing.
- Piping will need to be routed underground, either direct buried piping or through new tunnels that would need to be constructed. Piping would be routed through the center of campus and valves will be installed in underground valve boxes at each building for isolation.
- A new, campus wide Building Automation system should be provided to control HVAC systems campus-wide.

VIII. COMMUNICATIONS

Each building on campus is currently served by independent non-addressable fire alarm systems. These are local alarms with no building-to-building connections. The entire system should be replaced with a new fully addressable system with Voice Evacuation capabilities to comply with current life safety codes.

Similarly, campus buildings are equipped with receive-only intercom systems; staff cannot communicate back to the main office. A comprehensive upgrade is required to provide adequate communications capabilities.

IX. GEOTECHNICAL

There is evidence of settlement issues manifested in walks, steps and drives around campus, as well as in many of the buildings themselves. Geotechnical investigations identified many areas of poorly compacted uncontrolled fill beside existing buildings, parking and walkways. Some of the material encountered in the borings is very loose and soft, with some locations containing buried topsoil and other organics. These conditions are particularly susceptible to excess settlement.

Replacement of unsuitable soils with engineered fill, along with carefully monitored compaction and/or specialized foundations, will likely be required if these areas are redeveloped during campus renovations.

X. STORMWATER MANAGEMENT

Stormwater infrastructure on the Franklin High School Campus is a collection of traditional open and closed conveyance systems. No doubt, as the campus has grown and evolved over time, these systems have been modified and expanded to accommodate improvements or address issues. As a result, having a clear understanding of the entire network is a challenge. Many drainage structures are visible on the ground but inaccessible due to the grate type/style, condition of the structure or debris within the structure. Pipes connecting these structures are a mystery and are likely not functional.

The site has 3 predominant watersheds. One, comprising roughly one-third of the site, includes a majority of the campus buildings and discharges to the West toward the intersection of McCollum Drive and Porter Street. The second comprises the football field, student parking areas, and ancillary buildings that discharge to the Southeast corner of the site along Phillips St. The final watershed is smaller, less developed, and includes the practice field and the north slope. Watersheds are generally divided by Panther Drive and McCollum Drive. There are no stormwater management facilities on the site through which stormwater is routed for the purpose of treatment or peak flow attenuation.

Offsite storm flow is not a factor within the two watersheds North of Panther Drive. The South watershed that discharges to Phillips St. does appear to have contributing flow from offsite. The extent to which drainage from Wayah Street impacts the site is unclear. The Street is curbed and has drainage structures, but the location and direction of outlet pipes is unknown. Additionally, flow is directed into this watershed from an offsite, yet undetermined source, at the SW corner of the campus and discharged from a 48" CMP along the edge of the student parking area. This pipe appears to carry perennial flow and was likely installed within a historic stream channel or for the purpose of collecting a

springhead. This pipe extends East beneath the football field and collects numerous secondary lines from other parts of the watershed. Junction structures within this line appear to have been buried, making much of the line inaccessible.

Conveyance system materials appear to be largely CMP. Smaller secondary lines that aren't mapped may be HDPE and/or PVC. CMP that has been installed for 50-years or longer is considered to be nearing the end of its effective life. Coated pipes with paved inverts may have a longer life expectancy but given the age of the campus, predominant material type, condition of drainage structures, and general ambiguity regarding the overall drainage network, it is likely that significant exploration and effort would be required to improve existing systems for the purpose of extending the system lifespan or overall functionality.

XI. MANAGING CONSTRUCTION ON AN OPERATIONAL CAMPUS

The impacts of comprehensive renovations on the operations of the school would be significant. There is inadequate space available to house the entire school in temporary modular classrooms, therefore the work will have to be phased over many years. Modularity cannot be sited in close proximity to existing buildings, so students will be traveling farther, and more time will be needed for class changes.

It will be difficult to fence off construction areas for individual buildings to provide adequate access for contractors while maintaining safe student access to, and egress from, the remaining buildings. There is limited space available on campus for staging of construction equipment and laydown of materials. Construction traffic will penetrate deep into the campus to deliver materials to the point of use; roads may be partially blocked when lifts and cranes are in use. These factors present considerable logistics challenges.

XII. STADIUM UPGRADES

Plans to correct deficiencies at the stadium are being developed independently of this assessment process. It is anticipated that the Agriculture building and greenhouse, as well as the field houses, weight room, concessions and pressbox will be displaced when that construction begins.

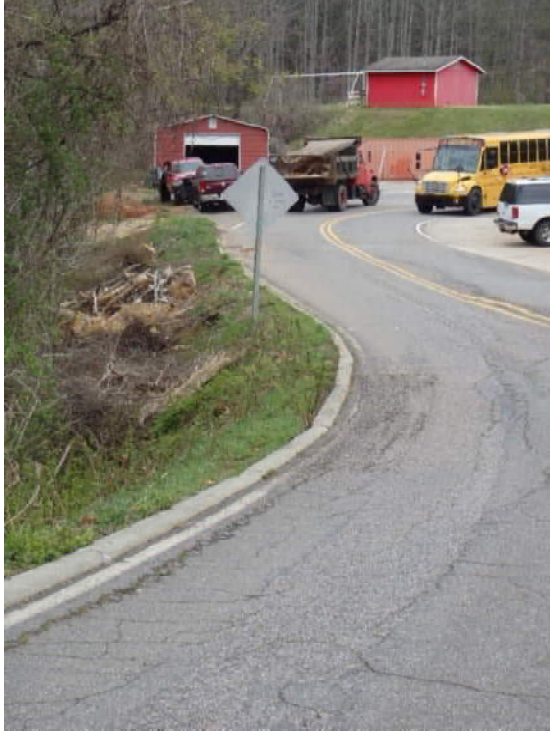


Fig. 1: Subsiding pavement at McCollum Drive



Fig. 3: Perimeter security fence



Fig. 4: Covered walk outside security fencing beside Media Center



Fig. 2: Impromptu parking beside Vocational Building



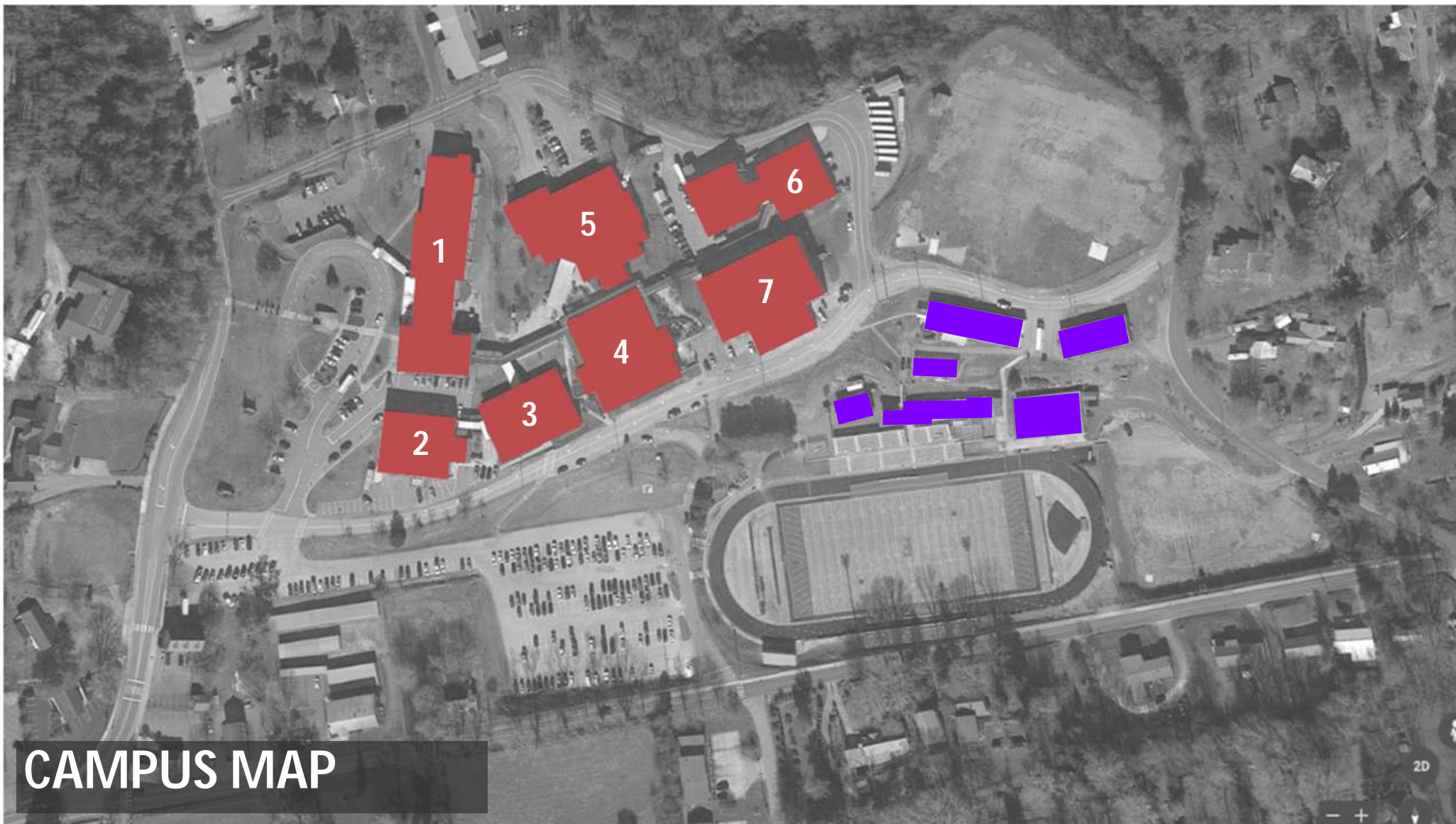
Figs 5 & 6: Walks, steps, ramps and rails:
Negotiating level changes at heart of campus



Fig. 7: Deteriorated stair



Fig. 8: Deteriorated stairs.



BUILDING LEGEND

- 1 MAIN BUILDING, 1952 *Elevation: lower floor 2016.12, upper floor 2118.04*
- 2 FINE ARTS BUILDING, 1970 *Elevation: lower floor 2103.07, upper floor 2116.13*
- 3 ENGLISH BUILDING, 2000 *Elevation: lower floor 2104.46, upper floor 2117.77*
- 4 CAREERS CENTER, 1972 *Elevation lower floor 2109.24, upper floor 2121.27*
- 5 MEDIA CENTER/CAFETERIA, 1985 *Elevation: 2121.58*
- 6 VOCATIONAL BUILDING, 1992 *Elevation lower floor 2097.19, upper floor 2109.97*
- 7 GYMNASIUM, 1954 *Elevation 2109.6*

■ Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



MAIN BUILDING

I. SUMMARY OF RECOMMENDATIONS

This building requires extensive investment to ensure life safety and adequate fire protection, provide accessibility and reduce maintenance and operating costs, and to support a modern educational program. Correction of deficiencies would entail a near-complete gutting of the building, down to the exterior walls, floors, roof deck and internal steel frame.

Renovations for this building are projected to require 2 full years.

Construction cost: \$14.1 million, or \$330 per square foot.

Refer to Cost Estimates at Appendix E for additional details

- The building is best suited for core classrooms and administrative spaces; science labs and exceptional children's classrooms should be relocated to new space elsewhere. Extensive reconfiguration of interior spaces is required to provide adequate restroom facilities and additional instructional/administrative space.
- The building requires a new roof and masonry repairs to restore the integrity of the building envelope.
- A new insulated facade and new windows are required to improve energy efficiency and reduce operating costs.
- A complete replacement of the building's aged plumbing, mechanical and electrical systems is needed, including utilities concealed in masonry walls and below slabs.
- A complete fire suppression system is required throughout.
- An elevator separate from the fire stair is required.

Constraints impacting renovations:

- Lack of clearance for ductwork will limit options for new HVAC systems.
- Extensive destructive renovations would be required to structurally retrofit the building to meet current structural and seismic code requirements.
- New utilities can only be concealed with furred walls, resulting in less usable space inside the rooms.
- Widening undersized corridors would result in less usable space inside adjacent rooms.
- Repairs to differential settlement and movement related cracks could be short term – cracks could reappear if movement continues.

Limits to what can be addressed through renovations:

- Floor levels do not correspond to any other campus buildings.
- The building is 70 years old and will continue to be more costly to maintain than a new building.

II. BUILDING DATA

Constructed:	1952, Addition 1954, Addition & Renovations 1986
Occupancy Classification:	E (Educational)
Construction Classification:	II-B (Assumed)
Allowable Height & Area:	14,500 SF per floor, 2 stories, 55 feet total height Clear perimeter increases allowable area to 25,375 SF per floor
Actual Building Area:	Approximately 18,000 SF at lower level, 24,800 SF at the upper level, 2 stories, 26 feet total height.
Documents accessed:	Construction document sets, 1952, 1954 (partial), 1986.

III. BUILDING CONDITION

A. STRUCTURE

- The original building has a steel frame structure with concrete footings, slab on grade floors. Bar joists running parallel to the corridors span between beams to support the upper floor and roof decks.
- The original exterior walls are non-load bearing, 4" CMU/structural clay tile with a 4" wall cavity and 4" brick veneer, built over shallow spread footings. Some parapets are 8" CMU with brick veneer and concrete coping, supported in part on the roof deck.
- Floor-to-floor height is only 12'-0". Clearance above ceiling and below structure is extremely limited. Lack of clearance for ductwork will limit options for new HVAC systems.
- Original drawings indicate that the upper floor is a 3" concrete slab; the roof decks are 3" vermiculite and gypsum concrete slabs. The original skylights over the corridors were removed and the voids filled in, probably in conjunction with a reroofing project. Cracks telegraphing through the VCT flooring at the upper level indicate minor underlying differential movement between the slab and supporting structure (See Fig. 5). Efforts to repair cracking could be a short-term solution unless the source of movement can be determined and rectified. Repaired cracks could reappear if differential movement continues.
- The 1954 addition has load bearing 8" CMU walls with shallow spread footings, brick veneer. Per the original drawings, there may be some horizontal reinforcing at these CMU walls; however, it is most likely this addition also is not designed to resist the seismic loads or meet the seismic detailing requirements of the current NC building code. Steel beams and bar joists support the floor and roof decks.
- The NC building code in effect at the time of construction required wind loads to be considered in the structural design but not seismic loads. The current NC

building code does not require upgrading the existing building to comply with new seismic loads unless certain repairs, alterations, change of occupancy, or additions are made. While the structure is designed for wind load resistance, it is most likely this structure is NOT designed to resist the seismic loads or meet the seismic detailing requirements of the current NC building code.

In keeping with the goal of preparing this building for an additional fifty years of service, seismic retrofitting of all masonry walls is recommended. Reinforcing steel would be inserted into every concrete masonry wall in the building, extending from the wall footing to the top of the wall. The process would require partial removal of existing roofing, roof deck and floor slabs and shoring of roof and floor structures while the tops of these walls are exposed, so that the reinforcing steel can be inserted into the cores of the masonry at spacings of 4 feet on center. Removal of approximately 25% of the concrete block faces in these locations will also be required, so that the steel can be guided down the center of the wall and the wall grouted solid after placement. Retrofit reinforcing will also be required at the entire perimeter of every opening in each wall.

B. ENVELOPE & EXTERIOR

- Steps at the main entry are uneven and settling. *Replacement is needed.*
- A retrofit overbuild superstructure and metal roofing system (see figures 1 & 2) was installed in 2000 directly on top of a failed single ply membrane roof. This overbuild superstructure appears to bear on top of the insulation and previous roofing system and is subject to movement from wind and gravity loads if any compression of that system occurs. The roof and gutters are a source of chronic leaks, particularly at the roof hips. *Roof replacement is required.*
- There is a history of chronic leaks at the lower level computer lab, where the exterior wall is partially below grade. *Remedial waterproofing is required.*
- Exterior masonry appears to be in fair condition. Selective repointing was undertaken in the 1986 renovations *but will be required again to restore watertightness.*
- Settlement cracking at the main entry facade and numerous window heads was repaired during the 1986 renovations. Those cracks have re-emerged in places and require repairs (see figure 3). *Repair is required.*
- Window head heights were lowered during the 1986 renovations and a stud infill with stucco finish was installed above each window. The stucco appears to be in good condition.
- Windows were replaced in 1986. The balances have broken, rendering most of the double-hung sashes inoperable, and the seals on the double pane insulated glass in those units have failed, causing condensation between the panes (See figure 3). *Replacement is required.*
- *Selective steel lintel replacement is required* at locations with extensive rust (See figure 3).

C. INTERIOR

- Interior walls are painted 4" CMU or structural clay tile (See figure 4). Retrofitting these walls with seismic reinforcing or concealed utilities is not possible.
- Original ceilings were lath and plaster direct applied to the bottoms of the floor and roof structure. Suspended acoustic tile ceilings were installed during the 1986 renovations, approximately 11" below the plaster ceilings. Corridor ceilings were recently replaced and are 2'x2' acoustic tile in fair condition. Remaining ceilings are the 1986-era 2'x4' acoustic tile, in need of replacement. Wholesale replacement of ceilings is needed.
- VCT flooring is well maintained but at the end of its service life. Replacement is needed.
- Doors throughout the building are typically 6'-8" high, which was common when the building was constructed but not suited to today's taller students. Retrofit lintels are required to retrofit with taller doors and frames.
- Corridor doors and frames are not fire rated. View lites in doors are typically wire glass, which is no longer permissible by code. Replacement of corridor doors is required; new glazing to be safety glazing.
- Restrooms have painted CMU walls, quarry tile floors, mortar is badly stained. Replacement of mortar and tile is needed.

IV. BUILDING SYSTEMS

A. PLUMBING

- The building lacks a main water shut-off valve. One should be provided.
- There is no backflow preventer. One should be provided.
- Domestic water heaters are located throughout the facility. They have been replaced as needed, but it was discussed with the maintenance department that these have been difficult to maintain. The ASHRAE Equipment Life Expectancy for this style hot water heater is 15 years.
- Water and waste piping are original to the building, leaky and increasingly difficult and costly to maintain per the maintenance department.
- It was noted by the maintenance staff that sewage occasionally backs up into and out of the floor drains at the lower floor.
- Water closets are original; manual flush valves, urinals, and lavatories were replaced during the 1986 renovations.
- Gas is provided in the science labs; however, eye wash stations mandated by NCDPI requirements are not present.
- If a major renovation would take place to this building, a complete replacement of all plumbing fixtures, piping, water heating units, gas piping, etc. would be recommended.

B. HEATING, VENTILATION & AIR-CONDITIONING

- The boiler is a Peerless Cast Iron boiler and is located in the basement (see figure 7). This boiler has been replaced since the building was built, but it was discussed that this unit has reached the end of its service life. The ASHRAE Equipment Life Expectancy for this style boiler is 30 years.
- The hydronic piping throughout the building is original. The maintenance staff noted that they haven't had major issues; however, the piping is past its service life.
- Radiant heaters (see Fig. 6) are located throughout some spaces (hallways, restrooms, etc). These are original to the building and have exceeded their service life of 25 years per ASHRAE.
- The package indoor air handling units (Bard units, see figure 8) providing conditioned air to individual classroom spaces are noisy and it was discussed with some teachers that the noise interferes with instruction, and the units need to be turned off during some instruction. The ASHRAE Equipment Life Expectancy for this style unit is 15 years.
- Outdoor air is introduced through the wall directly through these air handling units. No centralized outdoor air system is present.
- Split system style condensing units have been added for some areas (office and admin, for example). The air handlers for these units are located in the attic, and the heating coils are connected to the boiler. These units were installed in 2001 and are at the end of their expected life. The ASHRAE Equipment Life Expectancy for this style unit is 15 years. It was discussed with the maintenance staff that these units are difficult to access and maintain.
- Measuring/testing wasn't performed, but it appears that the current code required amount of outdoor air is not being provided throughout this facility due to the lack of outdoor air HVAC equipment.
- HVAC controls are rudimentary, with time clock on-off control, no centralized temperature control, no remote monitoring.
- Vent hoods are not provided in the science labs.
- *If a major renovation would take place to this building, a **complete replacement of all HVAC equipment including equipment, ductwork, diffusers, etc. would be recommended. This building would require a new dedicated outdoor system, with energy recovery, to provide the code requirement amount of outdoor air into the space. This unit could be located in the attic space with vents provided to the exterior. The heating/cooling for each space would be provided by new water source heat pumps. These heat pump units could be installed in the attic space, and in closets located throughout the facility. They could be floor mounted units in the classrooms, but an enclosure of some type would be recommended. These heat pump units would be connected to the new central plant (see description under Campus Assessment for central plant options). A new,***

campus wide Building Automation system would be provided to control all systems.

C. ELECTRICAL

- The original power service was replaced in 1986 with a Square D 1200A - 208Y/120V panelboard (see figure 9), supplied from a 500kVA pad-mounted transformer. Parts/breakers are still available for these panels. Most of the existing panels seem in reasonable condition; however, there appears insufficient receptacle outlets in the classrooms (see figure 10). In addition, the overall power available maybe inadequate to a modern educational program. An overall load analysis would need to be performed to determine any available capacity in this system for potential renovation. During most renovation projects a new service and electrical distribution throughout would need to be provided.
- Installing new receptacles in CMU walls is not viable; there are retrofitted surface-mounted power conduits throughout the building (see figure 10). Raceways or furred walls may be utilized to conceal utility upgrades.
- Electrical panels are located in corridors and other non-secure spaces.
- There is no surge suppression noted on the facility. It is recommended adding a surge suppression system with the replacement of the electrical distribution equipment.
- No emergency power is provided to this building.
- Corridor lighting was upgraded during recent renovations, but other lighting is fluorescent, original to the building, in need of replacement. Fluorescent lamps are still available today, but it is recommended to replace all of these fixtures with new, high performance LED fixtures.
- Most light switches appear to be original to the facility. It is recommended that all light switches be replaced as they have reached the end of their expected useful life regarding springs and contacts.
- The facilities have minimum automatic lighting controls, and minimum controllability in the space. It is recommended to add occupancy sensors and additional controls throughout the facility. These sensors will save electricity by turning OFF the lights, as well as extend the life of the fixtures.
- All lighting items noted above would be required to be replaced to meet the current Energy Conservation Code.
- All emergency egress, and exit signage, are integral battery backup style fixtures. Some of these fixtures appear to have been replaced within the last 10 years. Most of the fixture's spot tested while on site were still working properly. However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures.
- Intercom and data drops were provided in the 1986 renovations. The intercom is receive-only; staff cannot communicate back to the office. A comprehensive upgrade to these systems is needed.

- The building has a Silent Knight (Honeywell) fire alarm panel, which is non-addressable (see figure 11). This is a local alarm only, i.e., not connected to any other building. Manual pull stations do not have tamper resistant covers at any locations (see figure 12). These are recommended and required in common areas accessible to students in Group E occupancies. The system appears to be in working order; however, to meet current codes, all fire alarm systems for educational facilities are required to be Voice Evacuation style systems. To meet this requirement, the entire system would need to be replaced with a new, fully addressable system.

V. CODE COMPLIANCE

A. LIFE SAFETY

- Building complies with the maximum height and area allowed by code.
- Exit capacities are adequate to the occupant load, travel distances are acceptable per code.
- Corridor walls are 4" masonry with unrated doors and frames, which does not provide the required one hour rating required in an unsprinklered building. Provide a sprinkler system.
- Corridor doors and frames are not fire rated. View lites in doors are typically wire glass, which is no longer permissible by code. Replace all corridor doors and frames; new glazing to be safety glazing.
- Operable windows are required for emergency exiting in all classrooms without exterior doors. Windows must be replaced or repaired to comply.
- Elevators are no longer allowed to open into an exit stair enclosure. Construct a new elevator tower.
- Stair guardrails are lower than the required 42" height; pickets at stair railings are set too far apart for current code (see figure 13). Replace railings per Code.

B. FIRE PROTECTION

- Sprinklers are not present, and the fire area of the upper floor is over the 20,000 square foot threshold that now triggers a sprinkler requirement for schools. A sprinkler system would also offset some of the deficiencies in the fire rated construction. Provide a sprinkler system.
- The fire alarm system is not tied to any of the other campus buildings; it is one of only two buildings on campus that *does* notify the fire department. Provide new alarm system, integrating all campus buildings.

C. ENERGY CODE

- There is no insulation in the exterior masonry walls. Retrofitting the interior face of the exterior walls with insulation would provide only partial improvement and could result in condensation issues. Overbuilding the existing building skin with a

new insulated finish or veneer, or complete replacement of the building skin, is needed.

- Windows should be replaced to provide better thermal performance and lower solar heat gain, especially on the unshaded east and west elevations. Replacement of all windows is needed.

D. PLUMBING CODE

- The bathroom fixture count for students is well short of current code requirements and the travel distance to student bathrooms from the most remote classrooms on the upper level exceeds the 200' maximum. The required plumbing count for students is 16 waterclosets for women, 13 waterclosets or urinals for men. There are adequate facilities for staff. Provide additional restrooms as required.

E. ACCESSIBILITY

- Steps at the main entry and north entry do not have adequate railings. Retrofit with new railings.
- An elevator addition was constructed during the 1986 renovations. The cab capacity is 2,100 pounds, which does not meet current minimum requirements, and the shaft is too small to retrofit with a compliant cab. Provide new elevator and elevator enclosure.
- Entries to student toilet rooms do not provide accessible maneuvering clearance (see figure 14), accessible stalls which lack grab bars are provided in the rooms (see figure 15). Enlarge and reconfigure restrooms as required.
- Staff toilet rooms are too small to provide accessible clearances. Enlarge and reconfigure restrooms as required.
- There is no protective wrap at exposed sink waste piping. Provide pipe protection at renovated restrooms as required.

VI. PROGRAM ASSESSMENT

A. PROGRAM SPACES

- All core classrooms except one (Math 204, 25% undersized) are adequately sized per NCDPI recommendations (see figure 16).
- Science labs are 10% to 24% undersized per current NCDPI requirements (see figure 17). They do not have direct access to prep rooms or secure chemical storage rooms, do not have emergency shut-off switches, safety showers or eyewashes, which are all mandated by those requirements.
- Special Ed self-contained classrooms are dramatically undersized, only 53% to 65% of the NCDPI's recommendation of 1,200 SF.

- The administration area was dramatically enlarged during the 1986 renovation but is not large enough to house all recommended staff per current NCDPI recommendations.
- Main corridors are only 8'-11" wide, with lockers at one side (See figure 4). NCDPI recommends 12' minimum for high school corridors, and 14' minimum for corridors with lockers at one side to handle traffic flow. Corridor walls are load-bearing, so extensive structural modifications would be required to widen corridors, and this would reduce the size of the adjacent academic spaces.

B. SAFETY & SECURITY

- The main office does not have good visual supervision or control of the main entry.
- Access to classrooms at the southwest end of the lower floor is through small hallways off the main corridor, difficult to supervise.

C. STRATEGIES FOR REUSE

- Science labs and EC classrooms and resource rooms should move to more appropriate accommodations elsewhere. These spaces can be reconfigured to provide additional core classrooms.
- Interior spaces can be reconfigured to accommodate additional core classrooms and administrative spaces.



Fig. 1: Overbuild roof system, Main Building

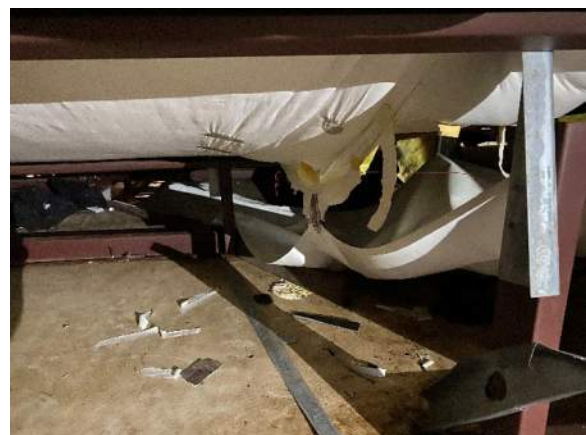


Fig. 2: Collecting roof leaks, Main Building



Fig. 3: Condensation in glass, rusted lintel, diagonal cracking at window head



Fig. 6: Radiant heaters in hallways



Fig. 4: Narrow corridors with 4" CMU walls

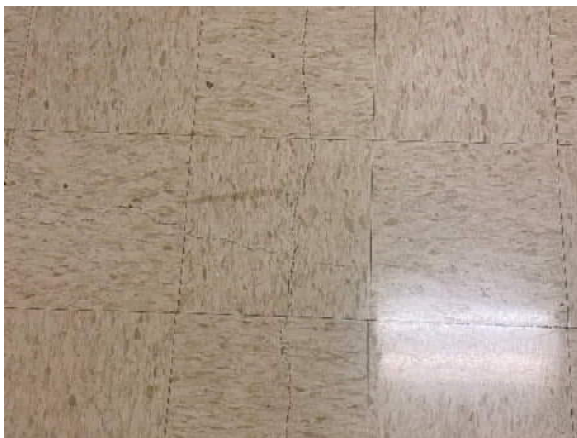


Fig 5: Cracking in corridor floor slabs



Fig. 7: Boiler



Fig. 8: Bard unit



Fig. 10: Insufficient Receptacles



Fig. 9: Existing Service



Fig. 11: Existing fire alarm



Fig. 12: Manual pull station



Fig. 15: Retrofit HC stall, no grab bars.



Fig. 13: Overwide gaps at too-short stair rails



Fig. 16: Typical classroom

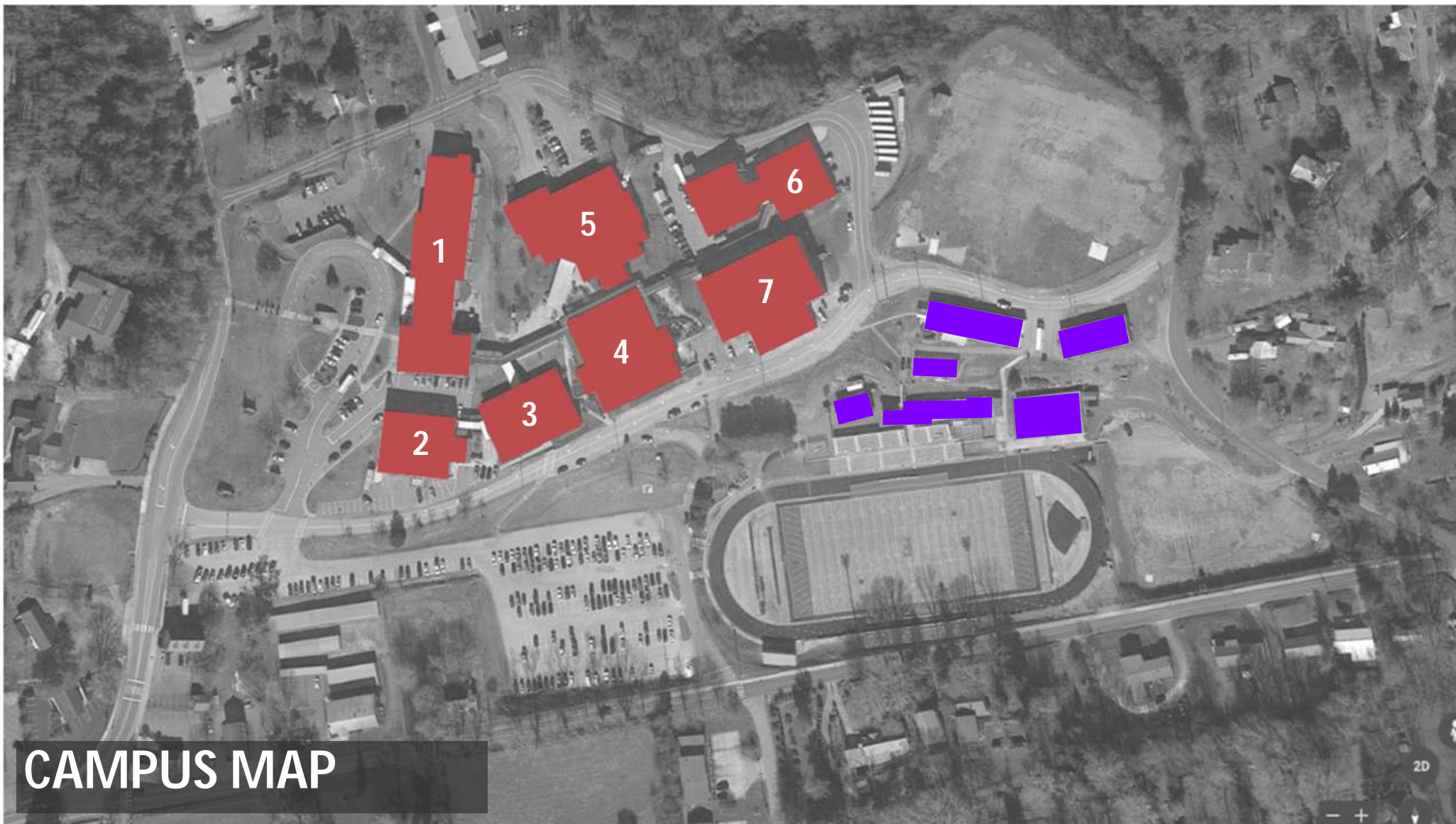


Fig. 14: Inadequate clearance, restroom entry



Fig. 17: Critically undersized science room.


[CLICK FOR MAIN BUILDING COST SUMMARY](#)



CAMPUS MAP

BUILDING LEGEND

- | | |
|--------------------------------|--|
| 1 MAIN BUILDING, 1952 | <i>Elevation: lower floor 2016.12, upper floor 2118.04</i> |
| 2 FINE ARTS BUILDING, 1970 | <i>Elevation: lower floor 2103.07, upper floor 2116.13</i> |
| 3 ENGLISH BUILDING, 2000 | <i>Elevation: lower floor 2104.46, upper floor 2117.77</i> |
| 4 CAREERS CENTER, 1972 | <i>Elevation lower floor 2109.24, upper floor 2121.27</i> |
| 5 MEDIA CENTER/CAFETERIA, 1985 | <i>Elevation: 2121.58</i> |
| 6 VOCATIONAL BUILDING, 1992 | <i>Elevation lower floor 2097.19, upper floor 2109.97</i> |
| 7 GYMNASIUM, 1954 | <i>Elevation 2109.6</i> |

 Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



FINE ARTS BUILDING

I. SUMMARY OF RECOMMENDATIONS

Renovations could extend the building's lifespan and reduce operating costs, but the building design and structure present serious challenges. An addition will likely be required to improve accessibility. Significant investment would produce a limited amount of good instructional space.

Renovations for this building are projected to require 18 months.

Construction cost: \$6.3 million, or \$378 per square foot.

Refer to Cost Estimates at Appendix E for additional details

- Interior reconfiguration could potentially create space that is suitable, *but not optimal*, for a handful of performing arts classrooms. Portions of the building with sloping floors and limited headroom will be difficult to repurpose.
- The building requires a new roof and masonry repointing to restore the integrity of the building envelope.
- A new insulated overbuilt facade and new windows are required to improve energy efficiency and reduce operating costs.
- A complete replacement of the building's aged plumbing, mechanical and electrical systems is needed, including utilities concealed in masonry walls and below slabs.
- Upper floor restrooms and an elevator are required.

Constraints impacting renovations include:

- Lack of clearance for ductwork will limit options for new HVAC systems.
- New utilities can only be concealed with furred walls, resulting in less usable space inside the rooms.
- Extensive destructive renovations would be required to structurally retrofit the building to meet current structural and seismic code requirements.

Limits to what can be accomplished with renovations include:

- Floor levels do not correspond to any other campus buildings.
- The building is 52 years old and will continue to be more costly to maintain than a new building.

II. BUILDING DATA

Constructed:	1970
Occupancy Classification:	E (Educational) with associated Assembly space
Construction Classification:	II-B (Assumed)
Allowable Height & Area:	14,500 SF per floor, 2 stories, 55 feet total height Clear perimeter increases allowable area to 25,375 SF per floor
Actual Height & Area:	6,960 SF lower floor, 9,716 SF upper floor, 2 stories, 35 feet total height
Documents accessed:	Construction document sets, 1968, 2006 (HVAC Redo).

III. BUILDING CONDITION

A. STRUCTURE

- The building is supported by a structural frame of exposed precast columns, roof and spandrel beams, built over shallow spread footings.
- The exterior walls are non-load bearing masonry infill: stack bond 12" CMU at the lower level, and two-wythe running bond brick at the upper level. Existing drawings indicate no steel reinforcing in these walls except at lintels and precast beams.

The NC building code in effect at the time of construction required wind loads to be considered in the structural design but not seismic loads. The current NC building code does not require upgrading the existing building to comply with new seismic loads unless certain repairs, alterations, change of occupancy, or additions are made. While the structure is designed for wind load resistance, it is most likely this structure is NOT designed to resist the seismic loads or meet the seismic detailing requirements of the current NC building code.

In keeping with the goal of preparing this building for an additional fifty years of service, seismic retrofitting of all masonry walls is recommended. Reinforcing steel would be inserted into every concrete masonry wall in the building, and into the void in the double-wythe brick walls, extending from the wall footing to the top of the wall. The process would require partial removal of existing roofing, roof deck and floor slabs and shoring of roof and floor structures while the tops of these walls are exposed, so that the reinforcing steel can be inserted into the cores of the masonry at spacings of 4 feet on center. Removal of approximately 25% of the concrete block faces or bricks in these locations will also be required, so that the steel can be guided down the center of the wall and the wall grouted solid after placement. Retrofit reinforcing will also be required at the entire perimeter of every opening in each wall.

- The roof and a portion of the upper floor are supported by bar joists; those that support the sloping floor of the auditorium are sloped.
- Floor-to-floor height is 13'-1" at auditorium lobby and stage, it varies elsewhere since chorus and band on first floor are tiered (see figures 1 and 2), auditorium floor slopes (see figure 3).
- The suspended portion of the upper floor is a 2 1/2" concrete slab with wire mesh reinforcing over steel deck; the remaining floors are slab on grade.
- The original roof structure was rigid insulation over 1 1/2" metal deck, with ballasted built-up roofing.

B. ENVELOPE & EXTERIOR

- The current roofing was installed in 2000, is at the end of its service life. Replacement is required.
- Exterior masonry needs repointing; there are indications of moisture penetration at exterior walls on both levels (see figure 4). Existing drawings show vermiculite insulation fill in the brick wall cavity at the upper level, no insulation in the CMU wall cavity at the lower level. Retrofitting the interior face of the exterior walls with insulation would provide only partial improvement and could result in condensation issues. Remedial waterproofing is required.
- There are signs of moisture penetration at the lower level retaining walls; waterproofing or foundation drainage may be compromised. Extensive excavation and repairs would be required to mitigate these issues.
- Exterior doors and frames are steel with single pane glass and old, tired panic devices and closers. Replacement is required.
- Windows are single pane steel sash, original to the building, in need of replacement for safety and energy efficiency. Replacement is required.
- Cast concrete canopies over exterior doorways have deteriorated (see figure 5). Replacement is needed.

C. INTERIOR

- Interior walls are typically painted CMU or exposed unpainted brick. Retrofitting these walls with seismic reinforcing or concealed utilities is not possible.
- Plaster ceilings were originally installed directly to bottom of roof & floor joists. Clearance below the plaster is extremely limited in some areas; retrofitting with ducted HVAC systems would be challenging (see figure 7). An acoustical spray applied insulation was applied to the ceilings in the auditorium, band and chorus rooms; this material is impossible to clean (see figure 6). New ceilings are needed throughout, and options for HVAC systems will be limited by clearances.
- Ceilings in band and chorus are too low for good acoustics. Relocate music rooms to more suitable spaces.
- VCT flooring is original and at the end of its service life. Carpet at band and chorus is in need of replacement. New flooring throughout is needed.

- Stage flooring is badly worn and needs replacement. Stage flooring replacement is not required if auditorium is relocated, see below.
- Auditorium seats approximately 700, not the full student body. Seating is original and narrow, with wood seats and backs, in poor condition. Replacement seating is required.
- Auditorium curtains are badly worn. Replacement curtains are required.
- Restrooms have glazed tile walls, quarry tile floors in generally good condition, but mortar is badly stained (see figures 9 and 10). Replacement of mortar and tile is needed.

IV. BUILDING SYSTEMS

A. PLUMBING

- There is no backflow preventer. One should be provided.
- There are no bathrooms at the upper, auditorium level for students or public use. These must be provided.
- There are no water fountains upstairs for student or public use. These must be provided.
- Water and waste piping are original to the building, difficult and costly to maintain per discussions with the maintenance staff.
- Plumbing fixtures and flush valves/faucets were replaced in 2012 (see figures 9 and 10), but all piping is original as noted above.
- If a major renovation would take place to this facility, a complete replacement of all plumbing fixtures, piping, water heating units, gas piping, etc. would be recommended.

B. HEATING, VENTILATION & AIR-CONDITIONING

- The air handling units and chiller (see figure 8) were replaced in 2008. The ASHRAE Equipment Life Expectancy for this style air handling unit is 15 years, so it is nearing the end of its useful life. The ASHRAE Equipment Life Expectancy for this style chiller is 20 years
- The boiler is a Weil-McLain unit and is not original to the building (see figure 11). It was converted to natural gas service in 2015. The ASHREA Equipment Life Expectancy for this style boiler is 30 years.
- Radiant heaters (see figure 12) are located throughout some spaces (hallways, restrooms, etc.). These are original to the building and are at the end of their service life of 25 years per ASHRAE.
- Retrofitting with ducted HVAC systems would be challenging in many areas on the ground floor due to limited headroom.
- Piping outside of the boiler room is original and increasingly difficult and costly to maintain.

- Outdoor air is introduced directly through the air handling unit.
- HVAC controls are rudimentary, with time clock on-off control, no centralized temperature control, no remote monitoring.
- Measuring/testing wasn't performed, but it appears that the current code required amount of outdoor air is not being provided throughout this facility due to the lack of outdoor air HVAC equipment.
- *If a major renovation would take place to this facility, a complete replacement of all HVAC equipment including equipment, ductwork, diffusers, etc. would be recommended. This building would require a new dedicated outdoor system, with energy recovery, to provide the code requirement amount of outdoor air into the space. This unit could be located in the attic space with vents provided to the exterior. The heating/cooling for each space would be provided by new water source heat pumps. These heat pump units could be installed in the attic space, and in closets located throughout the facility. They could be floor mounted units in the classrooms, but an enclosure of some type would be recommended. These heat pump units would be connected to the new central plant (see description under Campus Assessment for central plant options). A new, campus wide Building Automation system would be provided to control all systems.*

C. ELECTRICAL

- The power service is a GE Spectra Series 1200A - 208Y/120V panelboard (see figure 13). Parts/breakers are still available for this panel. Some of the existing panels are in poor condition and should be replaced (see figure 14). In addition, the overall power available maybe inadequate to a modern educational program. An overall load analysis would need to be performed to determine any available capacity in this system for potential renovation. *During most renovation projects a new service and electrical distribution throughout would need to be provided.*
- Some electrical panels are located in non-secure spaces.
- There is no surge suppression noted on the facility. *It is recommended adding a surge suppression system with the replacement of the electrical distribution equipment.*
- No emergency power is provided to this building.
- General lighting throughout the building is original surface-mounted T-12 fluorescent fixtures and mostly not working or in very poor condition and in need of replacement (see figures 15 and 16). Fluorescent lamps are still available today, but *it is recommended to replace all of these fixtures with new, high performance LED fixtures.*
- A portion of the stage lighting and controls are original and in need of replacement. Most light switches appear to be original to the facility. *It is recommended that all light switches be replaced as they have reached the end of their expected useful life regarding springs and contacts.*

- The facility has no automatic lighting controls, and minimum controllability in the space. It is recommended to add occupancy sensors and additional controls throughout the facility. These sensors will save electricity by turning OFF the lights, as well as extend the life of the fixtures.
- All lighting items noted above would be required to be replaced to meet the current Energy Conservation Code.
- All emergency egress, and exit signage, are integral battery backup style fixtures. Some of these fixtures appear to have been replaced within the last 10 years. However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures.
- The original power and communications service is inadequate for current usage. there are retrofitted surface-mounted power and data conduits throughout the building. Installing new receptacles in CMU walls is not viable. Raceways or furred walls may be utilized to conceal utility upgrades
- The intercom is receive-only; staff cannot communicate back to the office. A comprehensive upgrade to this system is needed.
- The building fire alarm panel is non-addressable type and is a local alarm only, i.e., not connected to any other building. The system appears to be in working order; however, to meet current codes, all fire alarm systems for educational facilities are required to be Voice Evacuation style systems. To meet this requirement, the entire system would need to be replaced with a new, fully addressable system.

V. CODE COMPLIANCE

A. LIFE SAFETY

- Building complies with the maximum height and area allowed by code.
- Exit capacities are adequate to the occupant load, travel distances are acceptable per code.
- Stage wings are used for set and prop storage, dressing rooms. The required fire rated separation between the stage and these functions is not present. New fire separated support spaces should be provided, but this cannot be achieved in the proper proximity to the stage within the confines of the existing building footprint.
- Stair guardrails are lower than the required 42" height; pickets at stair railings are set too far apart for current code (see figure 17). Replace railings per Code.
- Corridor doors are solid core in steel frames, but not labeled with a fire rating. View lites in doors are wire glass, which is no longer permissible by code. Replace all corridor doors and frames; new glazing to be safety glazing.

B. FIRE PROTECTION

- Sprinklers are not present or required for the building.

- The fire alarm system is not tied to any of the other campus buildings; it *does not* notify the fire department. *Provide new alarm system, integrating all campus buildings.*

C. ENERGY CODE

- Existing drawings show vermiculite insulation fill in the brick wall cavity at the upper level, no insulation in the CMU wall cavity at the lower level. Retrofitting the interior face of the exterior walls with insulation would provide only partial improvement and could result in condensation issues. *Overbuilding the existing building skin with a new insulated finish or veneer is needed.*
- Windows are single pane steel sash, and should be replaced to provide better thermal performance and lower solar heat gain; does not meet current code requirements. *Replacement of all windows is needed.*
- Exterior doors are not thermally broken, without insulated glazing, does not meet current code requirements. *Replacement of all exterior doors is needed.*

D. PLUMBING CODE

- The bathroom fixture count provides less than half of current code requirements. The *required* plumbing count is 10 waterclosets for women, 8 waterclosets or urinals for men (auditorium and classroom uses combined).
- There are no bathrooms serving the auditorium level, and while the upper level bathrooms at the adjacent English building lie within 200 feet of covered, accessible travel distance, there are not enough fixtures there to satisfy this floor's occupant load. *Provide additional restrooms upstairs.*

E. ACCESSIBILITY

- There is no elevator for accessible floor-to-floor travel. *Provide new elevator tower.*
- There is no ramp from the audience to the stage; no accessible exit for wheelchairs at the lowest audience level without ascending back up to the lobby entry (see figure 3). *A second accessible exit within the confines of the existing building footprint would displace a significant amount of program space.*
- Band and chorus rooms have tiered floors (see figures 1 and 2), are only wheelchair accessible from the corridor or the exterior at the top level. *Level the tiered floors and utilize the rooms for less acoustically sensitive classrooms.*
- Doors lack accessible lever hardware. Many doors lack required accessible door-approach clearances on one or both sides. *Replace all door hardware, reconfigure room entries to provide adequate clearances.*
- Group bathrooms are at lower level, not ADA compliant and not accessible from upper level. *Provide additional restrooms upstairs.*
- Stage toilet rooms are too small to provide accessible clearances. Additional fixtures would be required when the stage is utilized at maximum capacity. *Provide additional restrooms upstairs.*

- There is no protective wrap at exposed sink waste piping. Provide pipe protection at renovated restrooms as required.

VI. PROGRAM ASSESSMENT

A. PROGRAM SPACES

- Auditorium is too small to accommodate the student body.
- Chorus is adequately sized per current NCDPI recommendations but lacks the headroom and proper sound treatment for good acoustics (see figure 2).
- Band is 10% undersized per current NCDPI requirements, but clearly inadequate to support a popular and award-winning program (see figure 1). Band classes overflow into the hallway. It also lacks the headroom and sound treatment for good acoustics.
- The downstairs corridor is only 6'-4" wide (see figure 7). NCDPI recommends 8' minimum for corridors serving two classrooms to handle traffic flow. A wider corridor should be provided.

B. STRATEGIES FOR REUSE

- Enlargement of the auditorium is not a viable option given the close proximity of adjacent structures.
- The auditorium floor can potentially be overbuilt with steel studs, metal deck and a lightweight concrete slab, to level it out. Band and Drama/Dance can relocate to the upper floor.
- The tiered band room can be leveled for accessibility and chorus relocated to that area. Acoustics will be acceptable, not optimal.
- A small addition could provide a safer enclosed exit stair, elevator and upper level bathrooms. Alternately, program space could be sacrificed to develop these facilities within the existing footprint.



Figs 1 & 2: Tiered band and chorus rooms



Fig 4: Moisture damage at interior walls



Fig. 5: Deteriorated concrete canopy



Fig. 3: Small auditorium, inaccessible stage



Fig. 6: Spray-on retrofit acoustical insulation



Fig. 7: Narrow corridor, low headroom



Figs 9 & 10: Lower level bathrooms



Fig. 8: Chiller



Fig 11: Boiler



Fig. 13: Existing service



Fig. 12: Radiant heaters



Fig. 14: Existing panel



Fig. 15: Existing lobby light



Fig. 16: Existing auditorium lighting

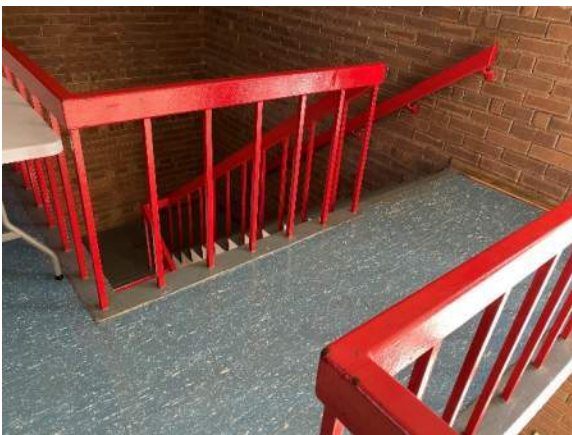
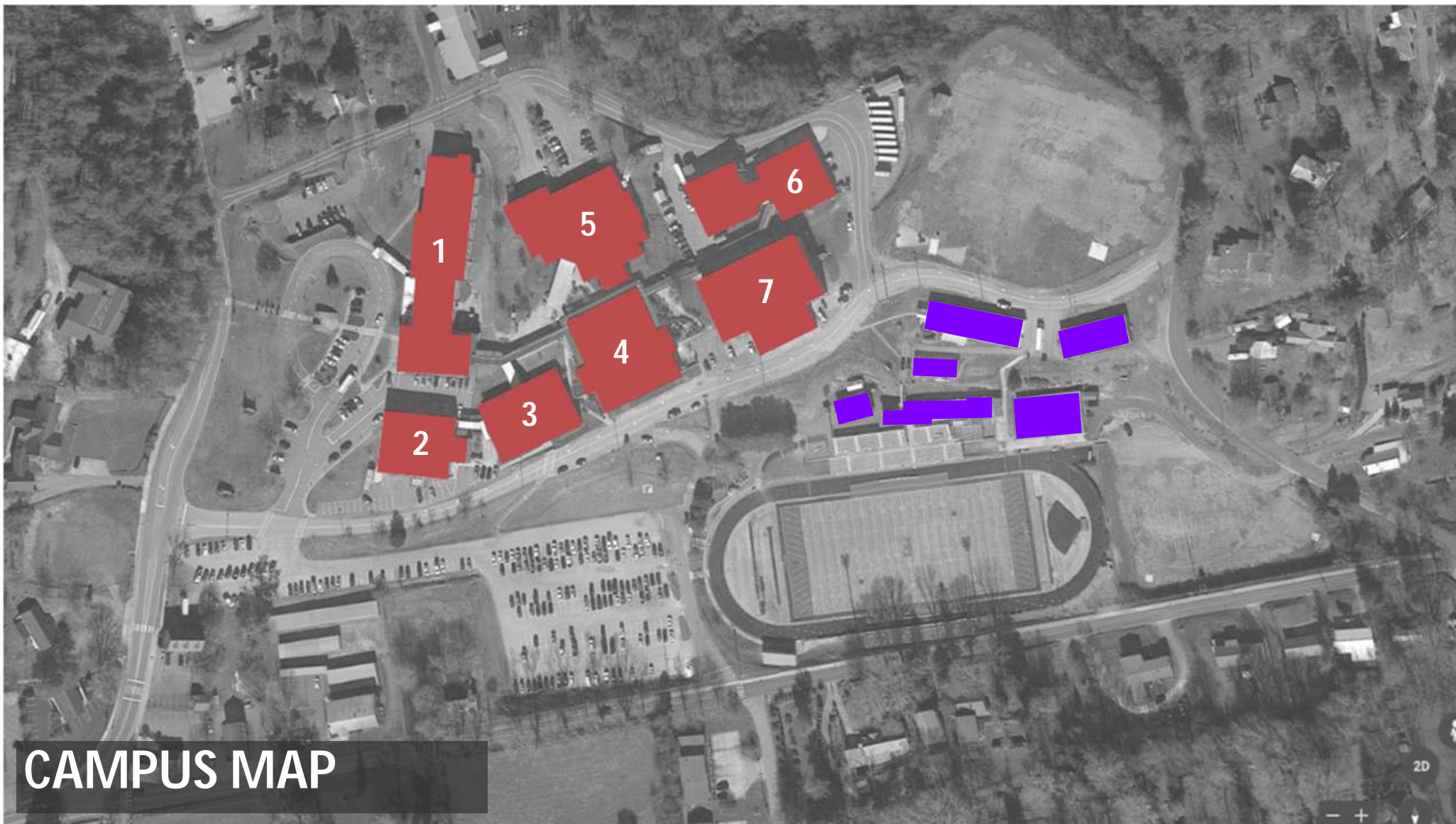


Fig. 17: Overwide gaps at too-short stair railing.

[CLICK FOR FINE ARTS BUILDING COST SUMMARY](#)



CAMPUS MAP

BUILDING LEGEND

- | | |
|--------------------------------|--|
| 1 MAIN BUILDING, 1952 | <i>Elevation: lower floor 2016.12, upper floor 2118.04</i> |
| 2 FINE ARTS BUILDING, 1970 | <i>Elevation: lower floor 2103.07, upper floor 2116.13</i> |
| 3 ENGLISH BUILDING, 2000 | <i>Elevation: lower floor 2104.46, upper floor 2117.77</i> |
| 4 CAREERS CENTER, 1972 | <i>Elevation lower floor 2109.24, upper floor 2121.27</i> |
| 5 MEDIA CENTER/CAFETERIA, 1985 | <i>Elevation: 2121.58</i> |
| 6 VOCATIONAL BUILDING, 1992 | <i>Elevation lower floor 2097.19, upper floor 2109.97</i> |
| 7 GYMNASIUM, 1954 | <i>Elevation 2109.6</i> |

■ Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



ENGLISH BUILDING

I. SUMMARY OF RECOMMENDATIONS

This is the youngest building on campus and well suited to core classrooms. Renovations could extend the building's lifespan and reduce operating costs, but the existing building floor levels do not relate well to the adjacent buildings or roadway.

**Renovations for this building are projected to require 1 full year.
Construction cost: \$2.4 million, or \$148 per square foot.**

Refer to Cost Estimates at Appendix E for additional details

- Consideration should be given to infill of the breezeway.
- Restrooms should be constructed on the lower level.
- The building requires a new roof and some masonry cleaning and repointing to restore the integrity of the building envelope.
- Complete replacement of adjacent walkways is needed to restore the accessible route from this building to Fine Arts and the Main Building.
- New windows are required to improve energy efficiency and reduce operating costs.
- Replacement of the building's aged mechanical units, communications, fire alarm and lighting systems is needed.
- Additional plumbing and mechanical components will reach the end of their useful lifespan within the next fifty years, including utilities concealed in masonry walls and below slabs. Funds should be budgeted for their replacement if they are not replaced at this time.

Constraints impacting renovations:

- Lack of clearance for ductwork will limit options for new HVAC systems.
- New utilities can only be concealed with furred walls, resulting in less usable space inside the rooms.
- Widening undersized corridors would result in less usable space inside adjacent rooms.
- In order to correct drainage issues at the southern walk, the adjacent roadway would need to be lowered to redirect water away from the walk.

Limits to what can be addressed through renovations:

- Floor levels do not correspond to any other campus buildings.

II. BUILDING DATA

Constructed:	2000
Occupancy Classification:	E (Educational)
Construction Classification:	II-A
Allowable Height & Area:	26,500 SF per floor, 3 stories, 65 feet total height Additional area allowed with clear perimeter, not calculated
Actual Height & Area:	Approx. 6,250 SF lower floor, 9,775 SF upper floor, 2 stories, 37 feet total height
Documents accessed:	Construction document set, 1999.

III. BUILDING CONDITION

A. STRUCTURE

- The structural system consists of load-bearing masonry walls and cast-in-place concrete retaining walls with steel framing support for floor and roof, built over shallow spread footings.
- The exterior walls are load bearing CMU with brick or split-face CMU veneer. Seismic reinforcing is present.
- Floor-to-floor height is 13'-4". The suspended portion of the upper floor is a reinforced 5" composite concrete slab on steel deck. Remaining floors are slab on grade.
- Roof structure is steel deck with fire rated gypsum sheathing, rigid insulation and standing seam roof panels.

B. ENVELOPE & EXTERIOR

- There is marked settlement at the walks and ramps between this building and the adjacent Fine Arts building (see figure 1). The walls of the exterior stair on the west side show significant cracking where the stair was overbuilt during construction to raise it to the appropriate level (see figure 2). Reconstruction of these features is required.
- The original roof is still in place. A lack of proper detailing where the main roof meets the higher roof over the central open breezeway has resulted in uncontrolled drainage and chronic leaks at this joint, both inside the building and at the face of the pilasters flanking the passageway (see figure 3). Roof replacement is required.
- Exterior masonry is in good shape, except where poor roof drainage has caused staining at the passageway gables. Cleaning and repointing are required.

- There is poor drainage at the front walkway, where the building is depressed below the level of the adjacent roadway. In order to correct drainage issues at the southern walk, the adjacent roadway would need to be lowered to redirect water away from the walk.
- Exterior doors and frames are hollow metal, in good condition.
- Windows are aluminum frame, insulated, original to the building, in good condition.

C. INTERIOR

- Interior walls are painted CMU or cast concrete. Retrofitting these walls with concealed utilities for future telecom upgrades is not practicable. Raceways or furred walls may be utilized to conceal utility upgrades.
- Suspended acoustic tile ceilings are in good condition.
- VCT and carpet flooring is original and nearing the end of its service life. Replacement is needed.
- Restrooms have epoxy painted CMU walls, porcelain tile floors in generally good condition with some stained mortar. Stall partitions are steel braced CMU, in good condition.

IV. BUILDING SYSTEMS

A. PLUMBING

- The plumbing system does include shut-off valves and a pressure reducing valve at the water entry, but no back-flow preventer. One should be provided.
- There are water fountains at both levels.
- Water and waste piping are original to the building, it was noted by the maintenance staff that this piping is still in good condition.
- Fixtures are original to the building and in good condition (see figure 5).
- Domestic hot water is provided by a Bradford White hot water heater (see figure 6). No known issues were noted; however, it is past its rated life of 15 year per ASHRAE.
- If a major renovation would take place to this facility, a complete replacement of all plumbing fixtures, piping, water heating units, gas piping, etc. would be recommended. The piping does not have any issues, but within the new life span of the facility after a renovation the piping would be at the end of its useful life.

B. HEATING, VENTILATION & AIR-CONDITIONING

- The classroom package indoor air handling units are original MarvAir brand units (see figure 7). These units are original and past their service life of 15 years per ASHRAE. It was noted by the maintenance staff that parts are no longer available for repair of these systems.

- Outdoor air is delivered directly through these classroom air handling units.
- It was noted by a teacher that these units are very loud and disruptive to the learning environment.
- The air handling units' condensate lines are piped to dry wells, and some are located in areas subject to flooding.
- HVAC controls are rudimentary, with time clock on/off control, no remote monitoring.
- The corridors are only provided with heat that is provided by ceiling mounted electric heaters.
- Measuring/testing wasn't performed, but it appears that the current code required amount of outdoor air is not being provided throughout this facility due to the lack of dedicated outdoor air HVAC equipment.
- *If a major renovation would take place to this facility, a complete replacement of all HVAC equipment including equipment, ductwork, diffusers, etc. would be recommended. The ductwork and diffusers do not have any issues, but within the new life span of the facility after a renovation this material would be at the end of its useful life. This building would require a new dedicated outdoor system, with energy recovery, to provide the code requirement amount of outdoor air into the space. If a new roof was provided during this renovation, it could be designed to allow for this OA unit to be located on the roof. If not, this unit could be ground mounted and then ducted into the facility if a large enough space is not available inside the facility. The heating/cooling for each space would be provided by new water source heat pumps. These heat pump units could be installed and in closets that would need to be created throughout the facility. They could be floor mounted units in the classrooms, but an enclosure of some type would be recommended. These heat pump units would be connected to the new central plant (see description under Campus Assessment for central plant options). A new, campus wide Building Automation system would be provided to control all systems.*

C. ELECTRICAL

- The power service is a GE Spectra Series 1200A - 208Y/120V panelboard (see figure 8). Parts/breakers are still available for this panel. In addition, the overall power available maybe inadequate to a modern educational program. *An overall load analysis would need to be performed to determine any available capacity in this system for potential renovation.*
- Some electrical panels are in storage spaces, with in-sufficient access to maintain the equipment. Dedicated areas should be defined in front of the electrical equipment (see figure 9).
- There is no surge suppression noted on the facility. *It is recommended adding a surge suppression system with the replacement of the electrical distribution equipment.*
- No emergency power is provided to this building.

- General lighting throughout the building is the original 2x4 lay-in fluorescents, which should be upgraded to energy efficient LED. Fluorescent lamps are still available today, but it is recommended to replace all these fixtures with new, high performance LED fixtures.
- Some of the emergency light fixtures appear to be very dated and although tested regularly, should be replaced (see figure 10). However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures.
- The facility has no automatic lighting controls, and minimum controllability in the space. It is recommended to add occupancy sensors and additional controls throughout the facility. These sensors will save electricity by turning OFF the lights, as well as extend the life of the fixtures.
- All lighting items noted above would be required to be replaced to meet the current Energy Conservation Code.
- The original power and communications service is inadequate for current usage. Installing new receptacles in CMU walls is not viable. Raceways or furred walls may be utilized to conceal utility upgrades.
- The building fire alarm panel is non-addressable type and is a local alarm only, i.e., not connected to any other building. The system appears to be in working order; however, to meet current codes, all fire alarm systems for educational facilities are required to be Voice Evacuation style systems. To meet this requirement, the entire system would need to be replaced with a new, fully addressable system.
- The intercom is receive-only; staff cannot communicate back to the main office. A comprehensive upgrade to this system is needed.

V. CODE COMPLIANCE

A. LIFE SAFETY

- Building complies with the maximum height and area allowed by code for this type construction.
- Exit capacities adequate to the occupant load, travel distances are acceptable per code, windows provide emergency egress from classrooms, and exit signs are present.
- Stair guardrails and handrails comply with current code requirements.
- Corridor walls are 1-hour rated, doors and frames are labeled with a fire rating.

B. FIRE PROTECTION

- Sprinklers are not present or required for the building.
- Spray-on fire proofing is missing on the underside of the breezeway stair (see figure 11). Provide fireproofing or fire-rated gypsum ceiling.

- The fire alarm system is a stand-alone system, not tied to any of the other campus buildings; it *does not* notify the fire department. Provide new alarm system, integrating all campus buildings.

C. ENERGY CODE

- There is R-10 insulation in the exterior masonry walls, which complies with current code requirements.
- Roof insulation is R-26, somewhat short of the current R-30 required by current code. Provide additional insulation in conjunction with roof replacement.
- Windows are aluminum frame with insulated glazing, but do not meet the current code requirements for thermal performance and lower solar heat gain. Replace windows.
- Exterior doors are thermally broken, with insulated glazing.

D. PLUMBING CODE

- The bathroom fixture count is short one stall for female students; the number of staff facilities is adequate. The *required* plumbing count for students is 7 waterclosets for women, 6 waterclosets or urinals for men. Provide additional bathrooms to meet Code.

E. ACCESSIBILITY

- There is an elevator for accessible floor-to-floor travel.
- There are no bathrooms at the lower level for students or staff, and none at this level in adjacent buildings within 200 feet of covered, accessible travel distance. Provide new bathrooms at the lower level.
- Some of the original lever door hardware has been replaced with non-compliant knobs. Replace non-accessible door hardware.
- There is no protective wrap at exposed sink waste piping. Provide pipe protection as required.

VI. PROGRAM ASSESSMENT

A. PROGRAM SPACES

- Classroom sizes exceed NCDPI recommendations for core classrooms (see figure 12).
- Corridors are 10' wide upstairs and down. NCDPI recommends 15' for corridors with lockers both sides (upstairs condition), 14' for lockers on one side only (downstairs condition) to handle traffic flow (see figure 13). Corridor walls are load-bearing, so extensive structural modifications would be required to widen corridors, and this would reduce the size of the adjacent academic spaces.

B. SAFETY & SECURITY

- The building was sited and designed to create an open gateway to campus from the student parking lot. The lower level of the breezeway has since been fenced to provide perimeter security and now functions only as an exit (see figure 4).
Consider infilling the breezeway.
- The alcove exits at the east and west ends of the lower floor and at the lower level breezeway (beside the open stair) are difficult to supervise (see figure 1).

C. STRATEGIES FOR REUSE

- Infill of the breezeway and elimination of the open stairway there can provide additional classroom space and eliminate a non-secure campus access point.



Fig. 1: Deteriorating stair, concealed entry.



Fig. 2: Subsidence at walkway beside entry



Fig. 3: Area of roof leaks, pilaster damage beside breezeway roof.

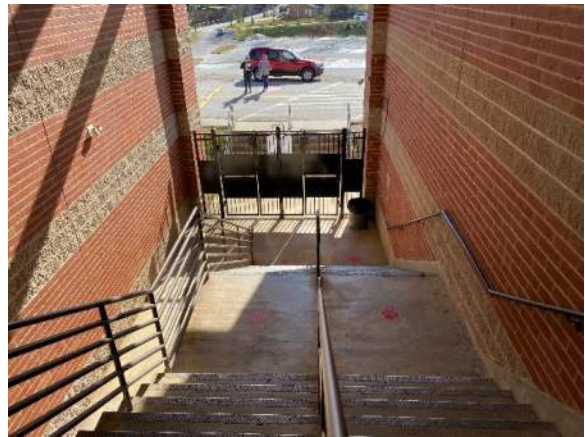


Fig. 4: Breezeway to nowhere.



Fig.5: Group restroom



Fig. 7: Classroom AHU



Fig. 6: Existing water heater



Fig. 8: Existing service



Fig. 9: Existing access to panels



Fig. 10: Existing emergency light



Fig. 11: Storage beneath unprotected breezeway stair.

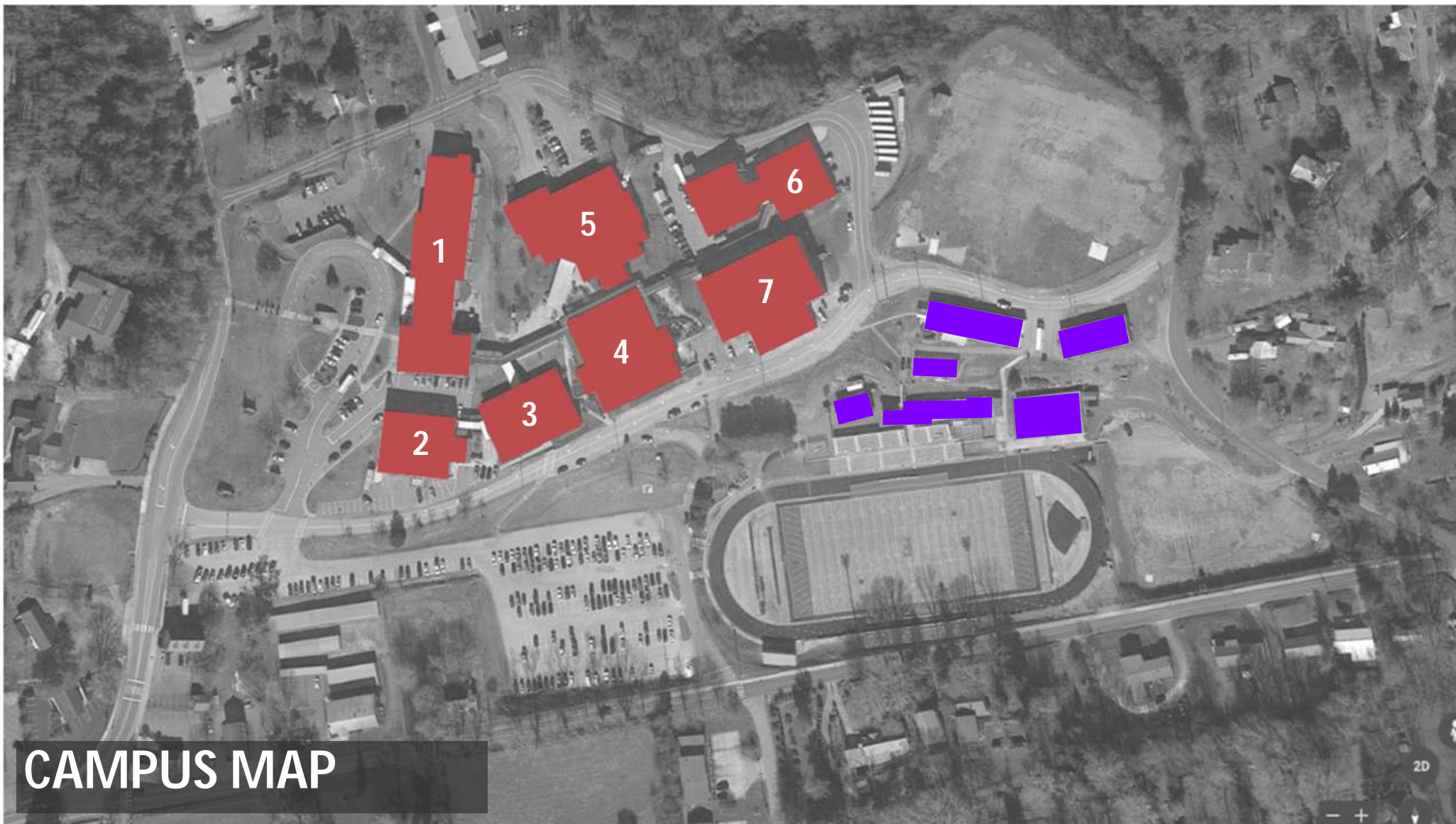


Fig. 12: Typical classroom



Fig. 13: Corridor

[CLICK FOR ENGLISH BUILDING COST SUMMARY](#)



BUILDING LEGEND

- 1 MAIN BUILDING, 1952 *Elevation: lower floor 2016.12, upper floor 2118.04*
- 2 FINE ARTS BUILDING, 1970 *Elevation: lower floor 2103.07, upper floor 2116.13*
- 3 ENGLISH BUILDING, 2000 *Elevation: lower floor 2104.46, upper floor 2117.77*
- 4 CAREERS CENTER, 1972 *Elevation lower floor 2109.24, upper floor 2121.27*
- 5 MEDIA CENTER/CAFETERIA, 1985 *Elevation: 2121.58*
- 6 VOCATIONAL BUILDING, 1992 *Elevation lower floor 2097.19, upper floor 2109.97*
- 7 GYMNASIUM, 1954 *Elevation 2109.6*

■ Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



CAREERS CENTER

I. SUMMARY OF RECOMMENDATIONS

This building requires significant investment to ensure life safety and adequate fire protection, provide accessibility and reduce maintenance and operating costs, and to support a modern educational program.

Renovations for this building are projected to require 18 months.

Construction cost: \$5.3 million, or \$243 per square foot.

Refer to Cost Estimates at Appendix E for additional details

- The building is best suited to general business or core classrooms; other specialized programs would be better served in new space elsewhere.
- Reconfiguration of interior spaces is required to provide code-compliant egress and adequate restroom facilities.
- A new insulated overbuilt façade, new roof and new windows are required to improve energy efficiency and reduce operating costs.
- A complete replacement of the building's aged plumbing, mechanical and electrical systems is needed, including utilities concealed in masonry walls and below slabs.
- A complete fire suppression system is required throughout.

Constraints impacting renovations:

- Lack of clearance for ductwork will limit options for new HVAC systems.
- New utilities can only be concealed with furred walls, resulting in less usable space inside the rooms.
- Extensive destructive renovations would be required to structurally retrofit the building to meet current structural and seismic code requirements.
- Repurposing windowless interior spaces will be problematic.

Limits to what can be addressed through renovations:

- Floor levels do not correspond to any other campus buildings.
- The building is 50 years old and will continue to be more costly to maintain than a new building.

II. BUILDING DATA

Constructed:	1972
Occupancy Classification:	E (Educational)
Construction Classification:	V-B (Assumed)
Allowable Height & Area:	9,500 SF per floor, 1 story, 40 feet total height Clear perimeter increases allowable area to approximately 11,875 SF per floor
Actual Height & Area:	Approx. 9,900 SF lower floor, 12,000 SF upper floor, 2 stories, 25 feet total height
Documents accessed:	Construction document sets, 1971, 1993 (renovations).

III. BUILDING CONDITION

A. STRUCTURE

- The building is supported by a load bearing masonry walls with steel framing support for floor and roof, built over shallow spread footings.
- The exterior walls are load bearing double-wythe brick with a 4-1/2" cavity. Drawings indicate that horizontal joint reinforcing is present. Non-load bearing infill panels at windows are double wythe brick. Non-load bearing walls above upper level entries are wood stud infill anchored to steel structure.
- Roof structure is supported by exposed, reinforced concrete beams which run exposed, continuous at all exterior walls, spanning all infill panels.
- Interior walls are a mix of stack bond CMU, double-wythe load bearing brick, and wood stud partitions.
- The roof and a portion of the upper floor are supported by bar joists. The remainder is slab on grade.
- Floor-to-floor height is 12 feet. On the upper floor space and the north side of the lower floor corridor, headroom between the drop ceiling and structure above is extremely limited.
- The suspended portion of the upper floor is a 3" concrete slab on steel deck; the roof decks were originally rigid insulation over 1 1/2" metal deck, with ballasted built-up roofing.
- The NC building code in effect at the time of construction required wind loads to be considered in the structural design but not seismic loads. The current NC building code does not require upgrading the existing building to comply with new seismic loads unless certain repairs, alterations, change of occupancy, or additions are made. While the structure is designed for wind load resistance, it is

most likely this structure is NOT designed to resist the seismic loads or meet the seismic detailing requirements of the current NC building code.

In keeping with the goal of preparing this building for an additional fifty years of service, seismic retrofitting of all masonry walls is recommended. Reinforcing steel would be inserted into every concrete masonry wall in the building, and into the void in the double-wythe brick walls, extending from the wall footing to the top of the wall. The process would require partial removal of existing roofing, roof deck and floor slabs and shoring of roof and floor structures while the tops of these walls are exposed, so that the reinforcing steel can be inserted into the cores of the masonry at spacings of 4 feet on center. Removal of approximately 25% of the concrete block faces or bricks in these locations will also be required, so that the steel can be guided down the center of the wall and the wall grouted solid after placement. Retrofit reinforcing will also be required at the entire perimeter of every opening in each wall.

B. ENVELOPE & EXTERIOR

- Existing entries are at building ends, not convenient to circulation paths (see figure 1).
- Staff identified no current issues with the existing roofing.
- Plaster soffits at the overhangs are generally in good condition, with some cracking.
- Exterior masonry is generally in good condition, with minor settlement cracking in evidence. *Some repointing is required.*
- Efflorescence at lower level retaining walls indicate that waterproofing or foundation drainage may be compromised. *Extensive excavation and repairs would be required to mitigate these issues.*
- Exterior doors and frames are steel with single pane glass. *Replacement with energy efficient doors is needed.*
- Windows are single pane steel sash, most are original to the building. *Window replacement is needed for safety and energy efficiency.*

C. INTERIOR

- Interior walls are typically painted stack bond CMU or exposed painted or unpainted brick.
- Lay-in acoustic tile ceilings are original to the building, stained. *Replacement is needed.*
- VCT flooring and carpet are at the end of their service life. *Replacement is needed.*
- Quarry tile flooring in corridors is in generally good condition, with some treads missing on the interior stair (see figure 2). *Replacement of tile on the stair is required for safety.*

- Casework and appliances in Family & Consumer Sciences kitchens are in need of replacement (see figure 3).
- Residential ranges in classroom kitchens are not equipped with hoods (see figure 3). Hoods and makeup air should be provided.
- Quarry tile floors in restrooms are in generally good condition, but mortar is badly stained (see figure 4). New flooring should be provided.

IV. BUILDING SYSTEMS

A. PLUMBING

- There is no backflow preventer. One should be provided.
- Drinking fountains present, but not high-low fixtures per Code.
- Water and waste piping are original to the building. Per the maintenance staff it is difficult and costly to maintain.
- Bathroom fixtures are original (see figure 4), but faucets/flush valves have been replaced.
- If a major renovation would take place to this facility, a complete replacement of all plumbing fixtures, piping, water heating units, gas piping, etc. would be recommended.

B. HEATING, VENTILATION & AIR-CONDITIONING

- There are multiple system types serving this facility:
 - The boiler is a Weil McLain unit that is not original to the building but appears past its service life of 30 years per ASHRAE. It was converted to natural gas service in 2011 (see figure 5).
 - Some areas are served by packaged roof top units with DX cooling and a hot water coil. These units were replaced in 2010, so they are nearing the end of their service life of 15 years per ASHRAE (see figure 6).
 - Part of the basement is served by a packaged rooftop unit that is original to the facility and past its useful life of 15 years per ASHRAE (see figure 7).
 - The other part of the basement is served by a Daiken Split System (see figure 8).
 - Only portions of the building are provided with outdoor air that is brought in directly through the roof top units.
- Piping outside of the boiler room is original. Per the maintenance staff it leaks and is increasingly difficult and costly to maintain.
- Measuring/testing wasn't performed, but it appears that the current code required amount of outdoor air is not being provided throughout this facility due to the lack of outdoor air HVAC equipment.

- HVAC controls are Honeywell, with time clock on-off control, no centralized temperature control, no remote monitoring.
- Ducted HVAC systems have been carefully routed through and below structure due to limited headroom between ceiling and structure. Adding make-up air ductwork to the system would be extremely challenging.
- If a major renovation would take place to this facility, a complete replacement of all HVAC equipment including equipment, ductwork, diffusers, etc. would be recommended. This building would require a new dedicated outdoor system, with energy recovery, to provide the code requirement amount of outdoor air into the space. This unit could be located on the roof. Structural analysis would need to be reviewed to provide support and sound dampening. The heating/cooling for each space would be provided by new water source heat pumps. These heat pump units could be installed in closets that would need to be created throughout the facility. These heat pump units would be connected to the new central plant (see description under Campus Assessment for central plant options). A new, campus wide Building Automation system would be provided to control all systems.

C. ELECTRICAL

- The original power service is a Square D 1200A - 208Y/120V panelboard (see figure 9). Parts/breakers are limited for this age of equipment. Some of the existing panels are in poor condition and should be replaced, modified breaker covers do not comply with the NEC (see figure 10). In addition, the overall power available maybe inadequate to a modern educational program. An overall load analysis would need to be performed to determine any available capacity in this system for potential renovation. During most renovation projects a new service and electrical distribution throughout would need to be provided.
- Some electrical panels are in non-secure spaces.
- There is no surge suppression noted on the facility. It is recommended adding a surge suppression system with the replacement of the electrical distribution equipment.
- No emergency power is provided to this building.
- General lighting throughout the building is original surface-mounted T-12 fluorescent fixtures or recessed 2' x 4' panels and mostly working or in poor condition / missing fixture covers and in need of replacement (see figure 11). Fluorescent lamps are still available today, but it is recommended to replace all of these fixtures with new, high performance LED fixtures.
- Exterior lighting is not present, is needed for safety. Adding exterior lighting is needed.
- Some of the emergency light fixtures appear to be very dated and although tested regularly, should be replaced (see figure 12). However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures. Most light switches appear to be original to the facility. It is

recommended that all light switches be replaced as they have reached the end of their expected useful life regarding springs and contacts.

- The facility has no automatic lighting controls, and minimum controllability in the space. It is recommended to add occupancy sensors and additional controls throughout the facility. These sensors will save electricity by turning OFF the lights, as well as extend the life of the fixtures.
- All lighting items noted above would be required to be replaced to meet the current Energy Conservation Code.
- All emergency egress, and exit signage, are integral battery backup style fixtures. Some of these fixtures appear to have been replaced within the last 10 years. However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures.
- The original power and communications service is inadequate for current usage. A comprehensive upgrade to these systems is needed.
- Installing new receptacles in CMU walls is not viable; there are retrofitted surface-mounted power and data conduits throughout the building. Raceways or furred walls may be utilized to conceal utility upgrades.
- The building fire alarm panel is non-addressable type and is a local alarm only, i.e., not connected to any other building. The system appears to be in working order; however, to meet current codes, all fire alarm systems for educational facilities are required to be Voice Evacuation style systems. To meet this requirement, the entire system would need to be replaced with a new, fully addressable system.
- The intercom is receive-only; staff cannot communicate back to the office. A comprehensive upgrade to this system is needed.

V. CODE COMPLIANCE

A. LIFE SAFETY

- Building complies with the maximum height and area allowed by code; however, the presence of unrated corridors and an open stair connecting the two levels creates a contiguous fire area that exceeds the code maximum of 20,000 SF for an unsprinklered educational occupancy. Sprinklers are required to bring the building into compliance unless floor-to-floor separation can be provided.
- The presence of non-fire treated wood in some exterior walls lowers the construction classification to V-B, and the building exceeds the maximum height and area for this type construction. Replacement of these assemblies with non-combustible framing would bring the construction classification up to II-B, bringing the building into compliance with the height and area requirements of the code. Alternately, adding sprinklers would bring the current construction into compliance.
- Exit capacities are adequate to the occupant load.

- Travel distances are acceptable per code; however, the lack of a contiguous through-building corridor at the upper level means some rooms do not have two choices of travel direction to an exit (see figure 15). Reconfiguration is required for code-compliant egress.
- A second exit was added to the lower level during the 1993 renovations, but there remain dead end corridors on both levels in excess of 20', not permissible in unsprinklered buildings. The dead end corridor at the lower level leads to the stair, but the stair itself cannot be considered an exit since it is not enclosed at the upper level and does not empty directly to the building exterior or into a lobby with a clear path of travel to the exit. Reconfiguration or sprinklers will be required to provide code-compliant egress.
- Several classrooms on both levels are over 1,000 SF, but lack a second exit door, or have exit doors that do not swing out in the direction of egress. Reconfiguration is required for code-compliant egress.
- Windows in classrooms lacking exterior doors are too high and too small for the required emergency egress (see figures 13 & 14). Larger operable windows are required for code-compliant alternative egress.
- A bathroom and storage room open directly onto the interior stair on the lower level, which is not permissible by current Code. Reconfiguration is required for code-compliant egress.
- Stair guardrails are lower than the required 42" height; pickets at stair railings are set too far apart for current code (see figure 2). Retrofit with new railings.
- Corridor doors are solid core in steel frames, with single pane glass transom panels, and are not labeled with a fire rating. Replacement doors and frames should be provided.

B. FIRE PROTECTION

- Sprinklers are not present and are required since there is a dead end in excess of twenty feet. Provide a sprinkler system or reconfigure the interior spaces to eliminate the dead end.
- The fire alarm system is not tied to any of the other campus buildings; it does not notify the fire department. Provide new alarm system, integrating all campus buildings.

C. ENERGY CODE

- Existing drawings show vermiculite fill in the load-bearing brick wall cavity, 1" rigid insulation at the brick infill panels. Insulation in the exterior masonry walls is minimal, does not meet current code requirements. Retrofitting the interior face of the exterior walls with insulation would provide only partial improvement and could result in condensation issues. Overbuilding the existing building skin with a new insulated finish or veneer is needed.
- Roof insulation is minimal, does not meet current code. Additional insulation should be provided, in conjunction with the next roof replacement.

- Windows are single pane steel sash, and should be replaced to provide better thermal performance and lower solar heat gain; do not meet current code requirements. See also the comments on emergency egress windows, above. Replacement of all windows is needed.
- Exterior doors are not thermally broken, without insulated glazing, do not meet current code requirements. Replacement is needed.

D. PLUMBING CODE

- The bathroom fixture count provides less than half of current code requirements. The *required* plumbing count for students as the building is currently utilized (12 classrooms) is 8 waterclosets for women, 7 waterclosets or urinals for men. Enlarge restrooms as required.
- There is one unisex bathroom at each level for staff, which complies with the Code.

E. ACCESSIBILITY

- The building was retrofitted with a small elevator during the 1993 renovations.
- In the lower level mens group bathrooms, plumbing fixtures were removed and the room reconfigured during the 1993 renovations to create accessible stalls and clearances. Upper level womens group bathrooms and staff restrooms on both levels remain inaccessible. Enlarge and reconfigure restrooms as required.
- Many doors lack accessible lever hardware, and some lack accessible approach clearances. Provide new hardware, reconfigure entries as required.
- Drinking fountains are not code required high-low paired fixtures. Replace fountains with compliant fixtures.

VI. PROGRAM ASSESSMENT

A. PROGRAM SPACES

- Family and Consumer Sciences and Foods Labs are less than 80% of the size recommended by NCDPI (see figure 3). These spaces lack emergency shut-offs to the cooking equipment and adequate power to support the equipment.
- Nursing is only slightly (8%) undersized per NCDPI recommendations. Health Sciences is smaller and 15% undersized.
- Two of the three business labs are significantly (25%, 32%) undersized (see figure 13).
- The three core classrooms created on the lower level during the 1993 renovations comply with NCDPI size recommendations (see figure 14).
- Corridors are 6' to 7' wide upstairs, and 6' to 8' wide downstairs. NCDPI recommends 12' for corridors without lockers to handle traffic flow (see figure 13). Wider corridors should be provided.

D. STRATEGIES FOR REUSE

- Family and Consumer Science, Nursing and Health Sciences should be relocated to more appropriately sized and better equipped spaces elsewhere.
- Reconfiguration can provide additional general business type CTE classrooms, but useful repurposing of the windowless interior spaces will be difficult.



Fig. 1: Careers building entry



Fig. 3: Family & consumer sciences classroom

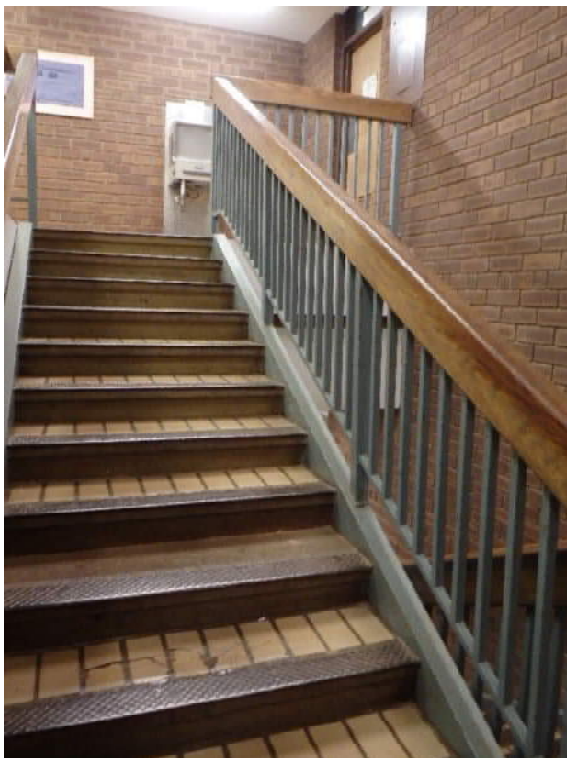


Fig. 2: Central stair



Fig. 4: Restroom fixture, stained mortar

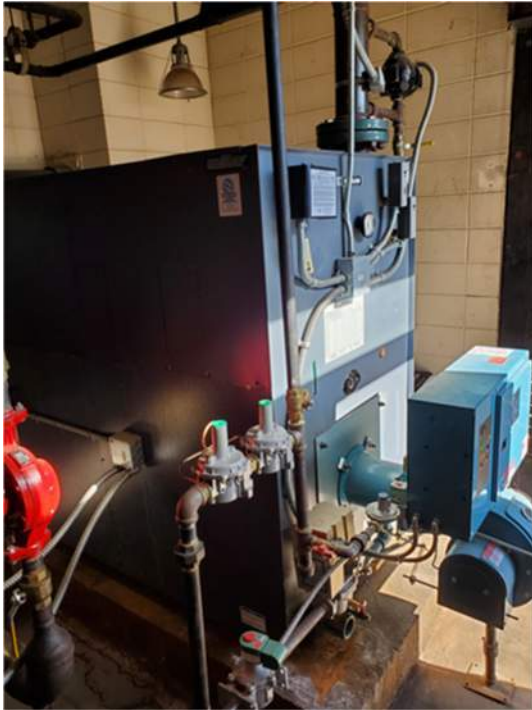


Fig. 5: Boiler



Fig. 7: Rooftop unit



Fig. 6: Rooftop unit



Fig. 8: Daikin split system



Fig. 9: Existing service



Fig. 11: Existing corridor light



Fig. 10: Existing panel



Fig. 12: Existing emergency light fixture



Fig. 13: Business lab, high windows

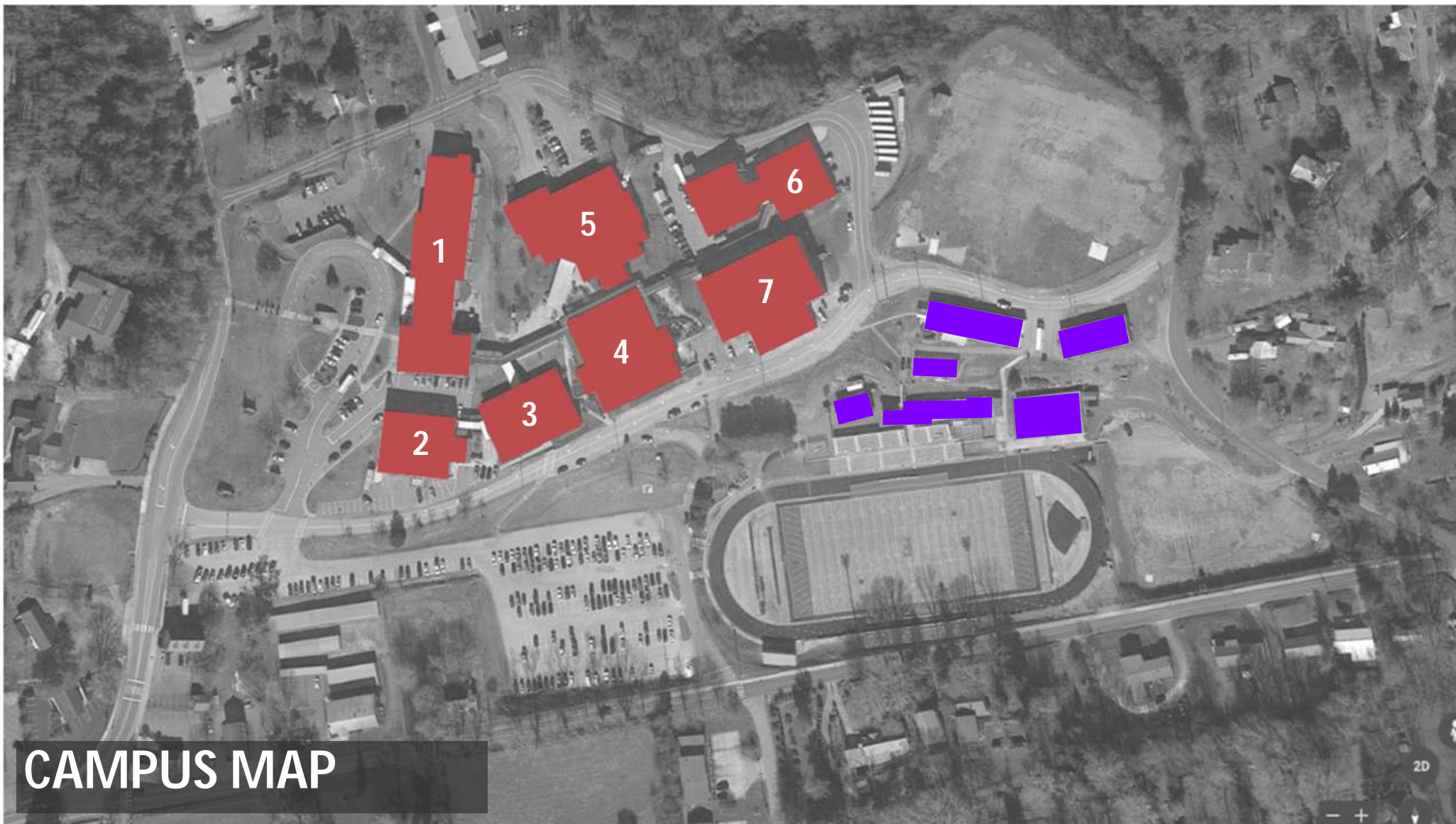


Fig. 15: Windowless space at core of upper floor



Fig. 14: Lower level classroom, high windows


[CLICK FOR CAREERS CENTER BUILDING COST SUMMARY](#)



CAMPUS MAP

BUILDING LEGEND

- | | |
|--------------------------------|--|
| 1 MAIN BUILDING, 1952 | <i>Elevation: lower floor 2016.12, upper floor 2118.04</i> |
| 2 FINE ARTS BUILDING, 1970 | <i>Elevation: lower floor 2103.07, upper floor 2116.13</i> |
| 3 ENGLISH BUILDING, 2000 | <i>Elevation: lower floor 2104.46, upper floor 2117.77</i> |
| 4 CAREERS CENTER, 1972 | <i>Elevation lower floor 2109.24, upper floor 2121.27</i> |
| 5 MEDIA CENTER/CAFETERIA, 1985 | <i>Elevation: 2121.58</i> |
| 6 VOCATIONAL BUILDING, 1992 | <i>Elevation lower floor 2097.19, upper floor 2109.97</i> |
| 7 GYMNASIUM, 1954 | <i>Elevation 2109.6</i> |

 Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



MEDIA CENTER/CAFÉ BUILDING

I. SUMMARY OF RECOMMENDATIONS

Renovations could extend the building's lifespan and reduce operating costs, but replacement with a multi-story structure could potentially provide a lot of needed program space in the heart of campus. Significant renovations and enlargement will be required if the media center and the cafeteria are both to remain in the building.

Renovations for this building are projected to require 18 months.

Construction cost: \$4.9 million, or \$228 per square foot.

Refer to Cost Estimates at Appendix E for additional details

- The existing kitchen needs to be replaced entirely, and the dining hall expanded significantly.
- The building would need a complete fire suppression system if it were expanded to accommodate an enlarged kitchen and cafeteria.
- The building requires new windows and extensive masonry repair and repointing to restore the integrity of the building envelope.
- A new facade or overbuilt facade and new windows and storefront entries are required to add insulation, improve energy efficiency and reduce operating costs.
- A complete replacement of the building's aged plumbing, mechanical and electrical systems is needed, including utilities concealed in masonry walls and below slabs.
- Bathroom expansions are required.

Constraints impacting renovations:

- Food service may need to be satellited from another school during construction.
- New utilities can only be concealed with furred walls, resulting in less usable space inside the rooms.
- Extensive destructive renovations would be required to structurally retrofit the building to meet current structural and seismic code requirements.
- Repairs to differential settlement and movement related cracks could be short term – cracks could reappear if movement continues.

Limits to what can be addressed through renovations:

- Floor level does not correspond to any other campus buildings.
- Maneuvering clearances at the loading dock will remain tight.
- The building is 37 years old and will continue to be more costly to maintain than a new building.

II. BUILDING DATA

Constructed:	1985
Occupancy Classification:	E (Classrooms with associated assembly spaces)
Construction Classification:	II-B (Assumed)
Allowable Height & Area:	14,500 SF per floor, 2 stories, 55 feet total height Clear perimeter increases allowable area to approximately 22,475 SF per floor.
Actual Height & Area:	21,400 SF, 1 story, 23 feet total height
Documents accessed:	Construction document sets, 1985, 1999 (renovations).

III. BUILDING CONDITION

A. STRUCTURE

- The building is supported by load bearing masonry walls and steel beams, with steel framing support for roof, built over shallow spread footings.
- The exterior walls are typically load-bearing masonry, stack bond 8" CMU with brick veneer. Existing drawings indicate horizontal joint reinforcing in these walls. At the pop-up roof over the center of the building, exterior walls are steel studs with brick veneer, and the structure is supported by steel beams.
- The roof is supported by bar joists, with steel beams carrying the walls and joists above at overhangs.
- The original roof deck was 2" rigid insulation over metal deck, topped with 2" or more of insulating concrete, with ballasted single-ply membrane roofing. Roof slopes to internal roof drains. Ballast was removed and not replaced during the last roof replacement.
- The NC building code in effect at the time of construction (prior to 1996) required wind loads to be considered in the structural design but not seismic loads. The current NC building code does not require upgrading the existing building to comply with new seismic loads unless certain repairs, alterations, change of occupancy, or additions are made. While the structure is designed for wind load resistance, it is most likely this structure is NOT designed to resist the seismic loads or meet the seismic detailing requirements of the current NC building code.
In keeping with the goal of preparing this building for an additional fifty years of service, seismic retrofitting of all masonry walls is recommended. Reinforcing steel would be inserted into every concrete masonry wall in the building, extending from the wall footing to the top of the wall. The process would require partial removal of existing roofing and roof deck and shoring of roof structures while the tops of these walls are exposed, so that the reinforcing steel can be

inserted into the cores of the masonry at spacings of 4 feet on center. Removal of approximately 25% of the concrete block faces in these locations will also be required, so that the steel can be guided down the center of the wall and the wall grouted solid after placement. Retrofit reinforcing will also be required at the entire perimeter of every opening in the wall.

B. ENVELOPE & EXTERIOR

- The current roofing is in fair condition, in need of cleaning.
- Damage to exterior masonry walls is pervasive; there are indications of long-term moisture penetration at grouted joints on all exterior walls (see figure 1). Complete repointing of masonry joints is required.
- Exterior doors at storefront entries are aluminum with uninsulated wire glass. Other exterior doors and frames are steel. Provide new energy efficient entry systems with insulated safety glazing.
- Windows are typically double-pane aluminum, original to the building, in need of replacement for energy efficiency. Replace windows.
- Clerestory windows aluminum storefront with 1/4" wire glass, uninsulated. There are chronic leaks at these clerestory windows and the presence of heavy condensation indicates that seals are broken on many of the insulated glazing panels (see figure 2). Provide new clerestory windows.
- Inadequate maneuvering clearances at the service entry have resulted in damage to the building in the loading dock area (see figure 3). Consider relocation of the dock so that adequate maneuvering clearance may be provided.

C. INTERIOR

- Interior walls are typically painted stack bond CMU. Retrofitting these walls with concealed utilities is not possible. There are some steel stud partitions walls in the media center.
- Inside faces of exterior walls show evidence of moisture infiltration (see figure 4). Comprehensive repointing is required.
- Hollow metal frames along the corridor are wire glass (see figure 5), which is no longer permissible by code. Replace wire glass with safety glazing.
- Ceilings are typically 2x2 lay-in acoustic tile in fairly good condition, with painted gypsum board at kitchen and bathrooms.
- Quarry tile flooring in kitchen, and bathrooms is original to the building. Quarry tile in the commons area became detached from the slab; a large portion was recently removed, the slab leveled, and tile replaced with VCT. It is possible that some settlement of the slab has occurred causing the separation with the quarry tile. If the problem recurs, removal and replacement of the slab and flooring may be required.
-

- Restrooms have painted CMU walls, quarry tile floors in generally good condition, but mortar is badly stained (see figure 6). As with the quarry tile at the adjacent commons area, the tile flooring at the commons bathrooms has separated from its setting bed. Replace existing tile floors.

IV. BUILDING SYSTEMS

A. PLUMBING

- There is no backflow preventer. One should be provided.
- The domestic water heater is a Bradford White and was replaced in 2014.
- Water and waste piping are original to the building.
- The grease trap is original to the building and would need replaced if a major renovation takes place.
- Bathroom fixtures are original, but faucets/flush valves have been replaced.
- If a major renovation would take place to this facility, a complete replacement of all plumbing fixtures, piping, water heating units, gas piping, etc. would be recommended. This would include all domestic and sanitary connections to all kitchen equipment.

B. HEATING, VENTILATION & AIR-CONDITIONING

- There are multiple system types serving this facility:
 - Packaged style air handling units are located in a mezzanine above the facility, with a DX unit located on the roof for cooling (see figures 7, 8 and 9). A portion of these units were replaced in 2011; however, some of the units are still original to the building and are past their useful life of 15 years per ASHRAE
 - (3) classrooms contain packaged air handling units in the space (Bard Units). These units bring outdoor air into the room directly through the unit. The ASHRAE Equipment Life Expectancy for this style unit is 15 years
 - The office area is served by a mini-split system. The ASHRAE Equipment Life Expectancy for this style unit is 15 years
- Measuring/testing wasn't performed, but it appears that the current code required amount of outdoor air is not being provided throughout this facility due to the lack of outdoor air HVAC equipment.
- The fuel tank which supplies this building is located between this building and the gym.
- HVAC controls are rudimentary, with no remote monitoring.
- If a major renovation would take place to this facility, a complete replacement of all HVAC equipment including equipment, ductwork, diffusers, etc. would be recommended. This building would require a new dedicated outdoor system.

with energy recovery, to provide the code requirement amount of outdoor air into the space. This unit could be located on the roof. Structural analysis would need to be reviewed to provide support and sound dampening. The heating/cooling for each space would be provided by new water source heat pumps. These heat pump units could be installed in closets that would need to be created throughout the facility. These heat pump units would be connected to the new central plant (see description under Campus Assessment for central plant options). A new, campus wide Building Automation system would be provided to control all systems.

C. ELECTRICAL

- The primary switchgear and breakers are located outside the building in a Nema3R enclosure, on the front walkway (see figure 10), this gear feeds two Square D 800A - 208Y/120V panelboards in the kitchen area. To work on the panels, the equipment needs to be shut down from outside, potentially in bad weather. Parts/breakers are limited for this age of equipment. Some of the existing panels are in poor condition and should be replaced, (see figure 11). In addition, the overall power available maybe inadequate for a modern educational / kitchen program. An overall load analysis would need to be performed to determine any available capacity in this system for potential renovation. During most renovation projects a new service and electrical distribution throughout would need to be provided.
- Some electrical panels are in non-secure spaces.
- There is no surge suppression noted on the facility. It is recommended adding a surge suppression system with the replacement of the electrical distribution equipment.
- No emergency power is provided to this building.
- General lighting throughout the building is original recessed 2' x 4' panels and mostly working or in poor condition and in need of replacement. Fluorescent lamps are still available today, but it is recommended to replace all of these fixtures with new, high performance LED fixtures.
- Most light switches appear to be original to the facility. It is recommended that all light switches be replaced as they have reached the end of their expected useful life regarding springs and contacts.
- The facility has no automatic lighting controls, and minimum controllability in the space. It is recommended to add occupancy sensors and additional controls throughout the facility. These sensors will save electricity by turning OFF the lights, as well as extend the life of the fixtures.
- All lighting items noted above would be required to be replaced to meet current Energy Conservation Code.
- All emergency egress, and exit signage, are integral battery backup style fixtures. Some of these fixtures appear to have been replaced within the last 10 years.

However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures.

- Installing new receptacles in CMU walls is not viable; there are retrofitted surface-mounted power and data conduits throughout the building. Raceways or furred walls may be utilized to conceal utility upgrades.
- The building fire alarm panel is non-addressable type and is a local alarm only, i.e., not connected to any other building. The system appears to be in working order; however, to meet current codes, all fire alarm systems for educational facilities are required to be Voice Evacuation style systems. To meet this requirement, the entire system would need to be replaced with a new, fully addressable system.
- The intercom is receive-only; staff cannot communicate back to the office. A comprehensive upgrade to this system is needed.

V. CODE COMPLIANCE

A. LIFE SAFETY

- Building complies with the allowable height and area permitted by code for this type construction.
- Exit capacities are adequate to the occupant load, travel distances are acceptable per code, windows provide emergency egress from classrooms.
- Panic hardware is present where required, in good condition.
- Corridor walls are 1-hour construction but not everywhere continuous to the roof deck. Corridor doors, windows and frames are not labeled with a fire rating. Reconfigure as required to provide rated corridors.

B. FIRE PROTECTION

- Sprinklers are not present or required for the in its current configuration.
- The fire alarm system is not tied to any of the other campus buildings; it **does** notify the fire department. Provide new alarm system, integrating all campus buildings.

C. ENERGY CODE

- Existing drawings show 1" rigid insulation in the wall cavity, R-11 batt insulation at pop-up roof walls, which does not meet current code requirements. Retrofitting the interior face of the exterior walls with insulation would provide only partial improvement and could result in condensation issues. Overbuild or replacement of the existing building skin is required to provide adequate insulation.
- Roof insulation is inadequate to meet current code requirements. Additional insulation should be provided in conjunction with the next roof replacement.

- Windows do not meet current code requirements, should be replaced to provide better thermal performance and lower solar heat gain.
- Exterior doors are not thermally broken, without insulated glazing, do not meet current code requirements. Replace exterior doors.

D. PLUMBING CODE

- The bathroom fixture count provides less than half of current code requirements. The *required* plumbing count for students is 8 waterclosets for women, 7 waterclosets or urinals for men, plus one unisex bathroom required for staff. Enlarged bathrooms are required.

E. ACCESSIBILITY

- Doors lack accessible lever hardware. A handful of doors lack required accessible door-approach clearances on one or both sides. Provide new hardware, reconfigure entries as required.
- Group bathrooms and staff bathrooms are not ADA compliant. Group bathrooms can be reconfigured for compliance, but there are already too few fixtures present to meet code. Staff bathrooms would need to be enlarged to be made compliant. Enlarge and reconfigure bathrooms as required.
- Drinking fountains are not code required high-low paired fixtures. Replace fountains.

VI. PROGRAM ASSESSMENT

A. INSTRUCTIONAL SPACES

- Media Center is approximately 25% undersized per NCDPI recommendations, but many districts are opting for smaller media centers with less support spaces (for example, periodical storage has become much less important) as improved technology delivers more information to students throughout the campus.
- Classrooms were added during the 1999 renovations; their sizes meet current NCDPI recommendations.

B. FOOD SERVICE SPACES

- The dining hall is dramatically undersized at 2,800 SF, and would require a 4,200 SF expansion to comply with NCDPI recommendations for a 1,200 student school (see figure 12).
- The kitchen is sized to serve a 600 student school; and should be nearly twice this size (see figure 13). The existing kitchen cannot be reconfigured or expanded without compromising service access.
- The serving area is approximately 20% too small to accommodate 1,200 students (see figure 14). Staff cannot refill serving tables without passing through lines of students.

- The dishmachine is inadequate; food service is via disposable plates and utensils.

C. STRATEGIES FOR REUSE

- The three core classrooms beside the dining hall can be relocated elsewhere, and that space completely gutted to house a new kitchen. There is more space available between this portion of the building and the adjacent roadway; the loading dock situation could be improved. A new serving area would have to be constructed adjacent to this area. The dining area would remain critically undersized.
- There is potential for approximately 6,000 SF expansion to the dining hall on the west side of the building to enlarge the dining hall. A full-building sprinkler system would be required if it were to be constructed.
-



Fig. 1: Extensive moisture damage at grout joints.



Fig. 4: Moisture infiltration at exterior walls.



Fig. 2: Broken seals at leaky clerestory windows.



Fig. 5: Wire glass at lobby windows.



Fig. 3: Damage at loading dock; inadequate maneuvering space for trucks.



Fig. 6: Group restrooms, plumbing fixtures.



Fig. 7: Rooftop equipment



Fig. 8: Rooftop units



Fig. 9: Rooftop unit



Fig. 10: Existing service



Fig. 11: Existing panel



Fig. 13: Critically undersized kitchen

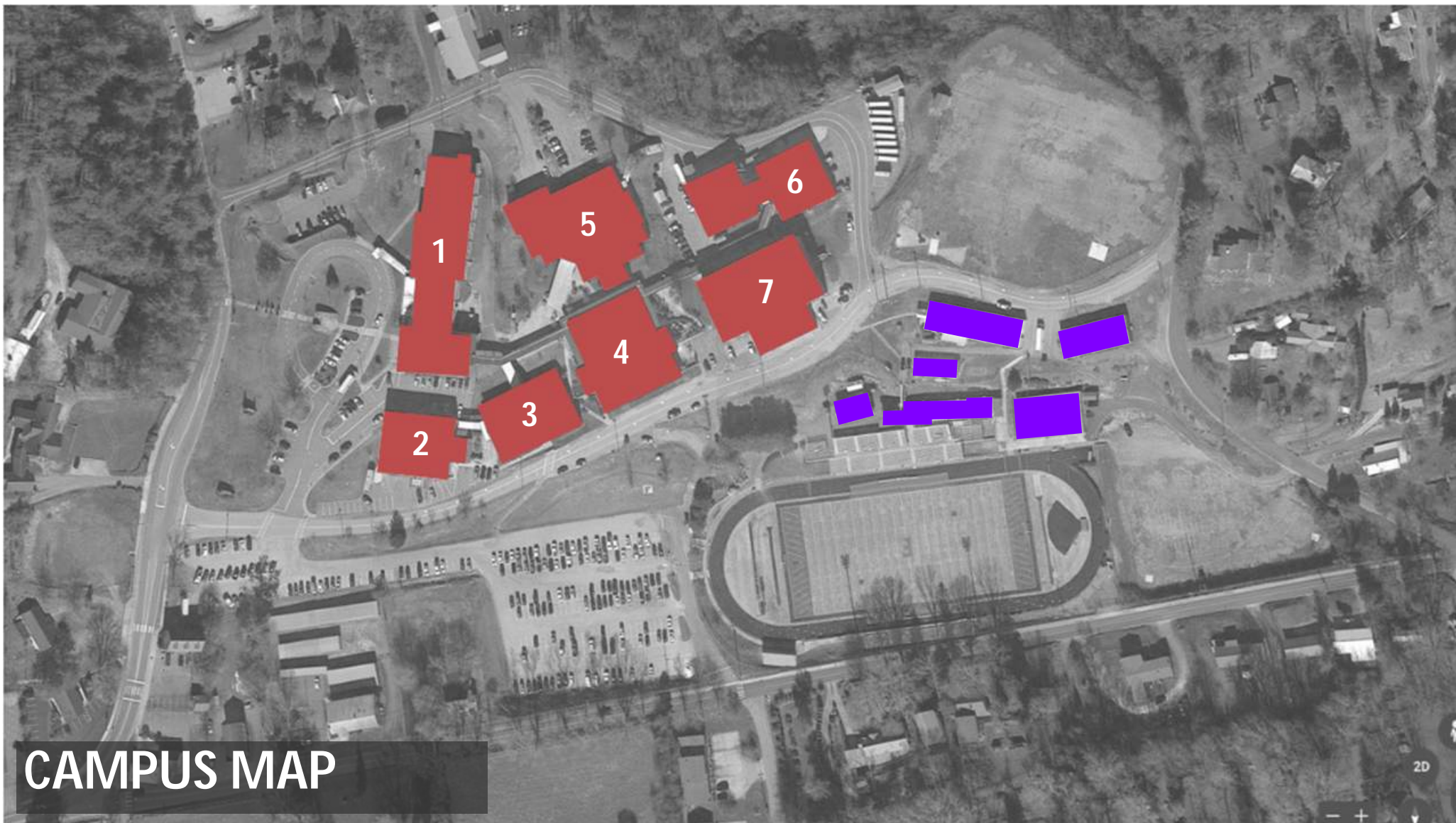


Fig. 12: Tiny dining room.



Fig. 14: Undersized serving area, staff pass through students to refill serving tables.

[CLICK FOR MEDIA CENTER/CAFÉ BUILDINGS COST SUMMARY](#)



CAMPUS MAP

BUILDING LEGEND

- | | |
|--------------------------------|--|
| 1 MAIN BUILDING, 1952 | <i>Elevation: lower floor 2016.12, upper floor 2118.04</i> |
| 2 FINE ARTS BUILDING, 1970 | <i>Elevation: lower floor 2103.07, upper floor 2116.13</i> |
| 3 ENGLISH BUILDING, 2000 | <i>Elevation: lower floor 2104.46, upper floor 2117.77</i> |
| 4 CAREERS CENTER, 1972 | <i>Elevation lower floor 2109.24, upper floor 2121.27</i> |
| 5 MEDIA CENTER/CAFETERIA, 1985 | <i>Elevation: 2121.58</i> |
| 6 VOCATIONAL BUILDING, 1992 | <i>Elevation lower floor 2097.19, upper floor 2109.97</i> |
| 7 GYMNASIUM, 1954 | <i>Elevation 2109.6</i> |

■ Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



VOCATIONAL BUILDING

I. SUMMARY OF RECOMMENDATIONS

This building is a recent addition to campus and well suited to CTE trades instruction. Renovations could address life safety issues, extend the building's lifespan and reduce operating costs, but there is evidence of settlement which could be difficult to address.

Renovations for this building are projected to require 18 months.

Construction cost: \$2.2 million, or \$133 per square foot.

Refer to Cost Estimates at Appendix E for additional details

- Selective reconfiguration is required for code-compliant egress and adequate restrooms.
- Installation of a complete fire suppression system is recommended.
- The building requires a new roof and masonry repair to restore the integrity of the building envelope and address settlement issues.
- New windows are required to improve energy efficiency and reduce operating costs.
- Repairs are required to address apparent settlement of floor slab and walls near the east end of the upper level.
- A complete replacement of the building's aging plumbing, mechanical and electrical systems, including utilities concealed in masonry walls and below slabs, should be undertaken over the course of the next 20 years.
- An addition is required to accommodate the Agriculture program and adequate restrooms.

Constraints impacting renovations:

- It will be very difficult to accommodate these programs elsewhere during renovations.
- New utilities can only be concealed with furred walls, resulting in less usable space inside the rooms.
- Extensive destructive renovations would be required to structurally retrofit the building to meet current structural and seismic code requirements.
- Repairs to differential settlement and movement related cracks could be short term – cracks could reappear if movement continues.

Limits to what can be addressed through renovations:

- Floor levels do not correspond to any other campus buildings.
- The building is 30 years old and will continue to be more costly to maintain than a new building.

II. BUILDING DATA

Constructed:	1992
Occupancy Classification:	E (Educational)
Construction Classification:	II-B (Assumed)
Allowable Height & Area:	14,500 SF per floor, 2 stories, 55 feet total height Clear perimeter increases allowable area to approximately 20,590 SF per floor
Actual Height & Area:	7,590 SF upper floor, 8,790 SF lower floor, 2 stories (tiered), 32 feet total height
Documents accessed:	Construction document set, 1992.

III. BUILDING CONDITION

A. STRUCTURE

- The building is supported by load bearing masonry walls with steel framing support for roofs and connector floor, built over shallow spread footings.
- The exterior walls are load bearing masonry, 8" and 12" CMU with brick veneer. Existing drawings indicate some reinforcing is present.
- The roof and the lobby floor are supported by bar joists.
- Floors, except for the upper floor of the connector, are slab on grade. There are signs of floor settlement at the northeast end of the women's restroom on the Upper Level, and in the adjacent classroom (see figures 1, 2 and 3). Approximately 1/2" of settlement has occurred. The adjacent CMU walls for the restroom are non-loadbearing but are cracking from this movement and settlement of the CMU footing. This may indicate a leak in an underslab line. Extensive excavation and repairs could be required to mitigate this issue.
- Floor-to-floor height is 12'-8" at the central lobby and from one portion of the tiered building to the other.
- The upper level roof is fiber cement deck with 2" rigid insulation and single-ply membrane roofing. Roof at the connector and lower level is metal deck with 2" rigid insulation, 2-1/2" lightweight concrete topping and single ply membrane roofing. Roofs slope to perimeter gutters.
- The NC building code in effect at the time of construction (prior to 1996) required wind loads to be considered in the structural design but not seismic loads. The current NC building code does not require upgrading the existing building to comply with new seismic loads unless certain repairs, alterations, change of occupancy, or additions are made. While the structure is designed for wind load

resistance, it is most likely this structure is NOT designed to resist the seismic loads or meet the seismic detailing requirements of the current NC building code.

In keeping with the goal of preparing this building for an additional fifty years of service, seismic retrofitting of all masonry walls is recommended. Reinforcing steel would be inserted into every concrete masonry wall in the building, extending from the wall footing to the top of the wall. The process would require partial removal of existing roofing, roof deck and floor slabs and shoring of roof and floor structures while the tops of these walls are exposed, so that the reinforcing steel can be inserted into the cores of the masonry at spacings of 4 feet on center. Removal of approximately 25% of the concrete block faces in these locations will also be required, so that the steel can be guided down the center of the wall and the wall grouted solid after placement. Retrofit reinforcing will also be required at the entire perimeter of every opening in the wall.

B. ENVELOPE & EXTERIOR

- The current roofing was recently repaired but is in need of a full replacement. Replace roof.
- Gutters are leaking. Replace gutters and downspouts as required.
- Exterior masonry needs repair; there are indications of settlement or differential movement between the structural CMU and the brick veneer. Diagonal cracks extend through the brick veneer at the bearing of the overhead door and window lintels along the north and northeast side of the building (see figure 4). The most likely cause of the damage is settlement; this is borne out by the subsidence evident at the adjacent driveway in this area. Additional investigation is required to determine the best course of action. At minimum, rebuilding the damaged portions of the walls is required, but additional measures may be required to stabilize the foundation and prevent recurrence of the problem. Repaired cracks could reappear over time if differential movement continues.
- Exterior doors and frames are steel with insulated glass.
- Windows are original, not thermally broken or energy code compliant. Windows and louvers are no longer securely anchored to the walls. There is significant water intrusion at the sill of exterior windows and louvers. Replace all exterior windows.

C. INTERIOR

- Interior walls are typically painted stack-bond CMU. Retrofitting these walls with concealed utilities is not viable. Raceways or furred walls may be utilized to conceal utility upgrades.
- Lay-in acoustic tile ceilings are original to the building, in need of replacement. Shop areas have no ceilings, exposed structure needs cleaning/painting. Clean or replace ceilings.
- VCT flooring, where present, needs replacement (see figure 5). Shop floors need cleaning and sealing. Clean and replace flooring as required.

- Stair treads are badly damaged, tripping hazards (see figure 6). Replace flooring at stairs for safety.
- Some interior doors have wire glass view lites. Replace wire glass with safety glazing.
- Restrooms have painted CMU walls, quarry tile floors in generally good condition, but mortar is badly stained (see figure 7). Replace existing tile flooring.

IV. BUILDING SYSTEMS

A. PLUMBING

- There is no backflow preventer. One should be provided.
- Potable water to this building is supplied from the Gym. A separate service should be established.
- Domestic hot water is provided from a Rheem residential style hot water heater. No known issues were noted by staff. The ASHRAE Equipment Life Expectancy for this style water heater is 15 years.
- New plumbing fixtures and toilet partitions were provided in this facility in 2012 (see figure 7). All piping is still original.
- If a major renovation would take place to this facility, a complete replacement of all plumbing fixtures, piping, water heating units, gas piping, etc. would be recommended. The fixtures are currently in good shape but would not meet the requirements of a 50-year life expectancy after a major renovation.

B. HEATING, VENTILATION & AIR-CONDITIONING

- This building was originally served by the boiler in the Gym. This has been disconnected and Goodman “gas pack” style units have been provided. Cooling is provided by Goodman condensing units location outside. These units were replaced in 2017.
- The shop portion is provided heating by hanging gas heaters, plus ventilation (see figure 8). Cooling is not provided in this portion. Exhaust is provided at the welding booths (see figure 9). Improved ventilation is needed in the shop areas.
- It was noted by the maintenance staff that the dust collection system requires lots of maintenance and is need of replacement (see figure 10).
- The art room has split systems that provide cooling to the space (see figure 11).
- Measuring/testing wasn’t performed, but it appears that the current code required amount of outdoor air is not being provided throughout this facility due to the lack of outdoor air HVAC equipment.
- HVAC controls are rudimentary, no remote monitoring.
- If a major renovation would take place to this facility, a complete replacement of all HVAC equipment including equipment, ductwork, diffusers, etc. would be

recommended. This building would require a new dedicated outdoor system, with energy recovery, to provide the code requirement amount of outdoor air into the space. This unit could be located on the roof. Structural analysis would need to be reviewed to provide support and sound dampening. The heating/cooling for each space would be provided by new water source heat pumps. These heat pump units could be installed in closets that would need to be created throughout the facility. These heat pump units would be connected to the new central plant (see description under Campus Assessment for central plant options). Some of the condensing units in place are in good shape but would not meet the life expectancy requirements after a complete renovation. A new, campus wide Building Automation system would be provided to control all systems. The dust collection system and shop exhaust system would be replaced as part of this renovation as well.

C. ELECTRICAL

- The original power service is a Siemens 1200A - 208Y/120V panelboard (see figure 12 and 13). Parts/breakers are limited for this age of equipment. Some of the existing panels are in poor condition and should be replaced. In addition, the overall power available maybe inadequate to a modern educational program. An overall load analysis would need to be performed to determine any available capacity in this system for potential renovation. During most renovation projects a new service and electrical distribution throughout would need to be provided.
- Some electrical panels are in non-secure spaces.
- There is no surge suppression noted on the facility. It is recommended adding a surge suppression system with the replacement of the electrical distribution equipment.
- No emergency power is provided to this building.
- General lighting throughout the building is recessed fluorescent fixtures and mostly working and in need of replacement. Fluorescent lamps are still available today, but it is recommended to replace all of these fixtures with new, high performance LED fixtures.
- Most light switches appear to be original to the facility. It is recommended that all light switches be replaced as they have reached the end of their expected useful life regarding springs and contacts.
- The facility has no automatic lighting controls, and minimum controllability in the space. It is recommended to add occupancy sensors and additional controls throughout the facility. These sensors will save electricity by turning OFF the lights, as well as extend the life of the fixtures.
- All lighting items noted above would be required to be replaced to meet current Energy Conservation Code.
- All emergency egress, and exit signage, are integral battery backup style fixtures. Some of these fixtures appear to have been replaced within the last 10 years.

However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures.

- The original power and communications service is inadequate for current usage. Access to the existing building communications and fire alarm equipment is restricted (see figures 14 and 15).
- Installing new receptacles in CMU walls is not viable; there are retrofitted surface-mounted power and data conduits throughout the building. Raceways or furred walls may be utilized to conceal utility upgrades.
- The building fire alarm panel BOSCH is non-addressable type and is a local alarm only, i.e., not connected to any other building. Maintenance staff report that replacement parts are no longer available. The system appears to be in working order; however, to meet current codes, all fire alarm systems for educational facilities are required to be Voice Evacuation style systems. To meet this requirement, the entire system would need to be replaced with a new, fully addressable system.
- The intercom is receive-only; staff cannot communicate back to the office. A comprehensive upgrade to this system is needed.

V. CODE COMPLIANCE

A. LIFE SAFETY

- Building complies with the allowable height and area permitted by code for this type construction.
- Exit capacities are adequate to the occupant load, travel distances are acceptable per code, windows in classrooms without exterior doors provide emergency egress.
- With few exceptions, doors at shop spaces, where two exits are required, do not swing out in the direction of egress and lack panic hardware. Reconfigure entries as required.
- The upper level corridor constitutes a dead end in excess of 50 feet long which is never permissible, even in a sprinklered building (see figure 16). Reconfiguration of the upper level corridor is required.
- The lower level corridor constitutes a dead end in excess of 20 feet long which is not permissible in an unsprinklered building (see figure 17). Sprinkler system or reconfiguration is required.
- Classrooms adjacent to the shop spaces on the upper level do not have two choices for travel direction to an exit unless the doors between into the adjoining shop spaces cannot be locked. Opportunities for internal reconfiguration are limited without impacting bearing walls, but the upper level corridor could be extended through the building to bring exiting on that level up to code. Reconfiguration of the upper level corridor is required.

- Guardrails at stair landing are tall, but guardrails at the open side of the stair are lower than the required 42" height; pickets at stair railings are set too far apart for current code. Replace the railings.
- Guardrails at storage mezzanines in shop areas are tall enough, but the horizontal railings set too far apart for current code (see figure 18). Replace the railings.
- Corridor doors are solid core in steel frames, but not labeled with a fire rating. View lites in doors are wire glass, which is no longer permissible by code. Replace corridor doors and frames, all new glazing to be safety glazing.

B. FIRE PROTECTION

- Sprinklers are not present or required for the building but are advisable for these types of teaching spaces.
- The fire alarm system is not tied to any of the other campus buildings; it *does not* notify the fire department. Provide new alarm system, integrating all campus buildings.

C. ENERGY CODE

- Existing drawings show 1-1/2" rigid insulation in the brick wall cavity, approximately 75% of current code requirements. Additional insulation should be provided to supplement existing.
- Roof insulation is inadequate to meet current code requirements. Additional insulation should be provided in conjunction with a roof replacement.
- Windows do not meet current code requirements. Replace all windows to provide better thermal performance and lower solar heat gain.
- Exterior doors are not thermally broken, do have insulated glazing but do not meet current code requirements. Replace all exterior doors.

D. PLUMBING CODE

- The bathroom fixture count provides less than half of current code requirements; most of the deficiency is in womens' fixtures. The *required* plumbing count for students is 6 waterclosets for women, 5 waterclosets or urinals for men, plus one unisex staff bathroom per floor. Enlarge or supplement bathrooms as required to meet code.

E. ACCESSIBILITY

- There is an elevator for accessible floor-to-floor travel.
- Mezzanines at shop areas are not required to be accessible, but it is difficult to access these areas (see figure 18).
- Many doors lack accessible lever hardware. Replace hardware as required.
- Student and staff bathrooms are not ADA compliant and are too small to be renovated for compliance (see figure 7). Enlarge or supplement bathrooms as required to provide accessible restrooms at each floor.

VI. PROGRAM ASSESSMENT

A. INSTRUCTIONAL SPACES

- Carpentry, automotive and welding shops are well sized and well equipped.
- The art room is slightly larger than NCDPI standards, but the kilns should be in an enclosed, fire rated room with direct venting to the exterior (see figure 19).
- Classrooms adjacent to the shop areas are sized to comply with NCDPI recommendations.

B. STRATEGIES FOR REUSE

- *If this building is to be retained, consideration should be given to incorporating the Agriculture program here, since that program will be displaced by stadium construction.*



Fig. 1: Subsidence at upper level slab



Fig. 3: Subsidence at upper level slab



Fig. 2: Subsidence at upper level slab



Fig. 4: Cracking at door & window heads.



Fig. 5: Damaged VCT, upper level.

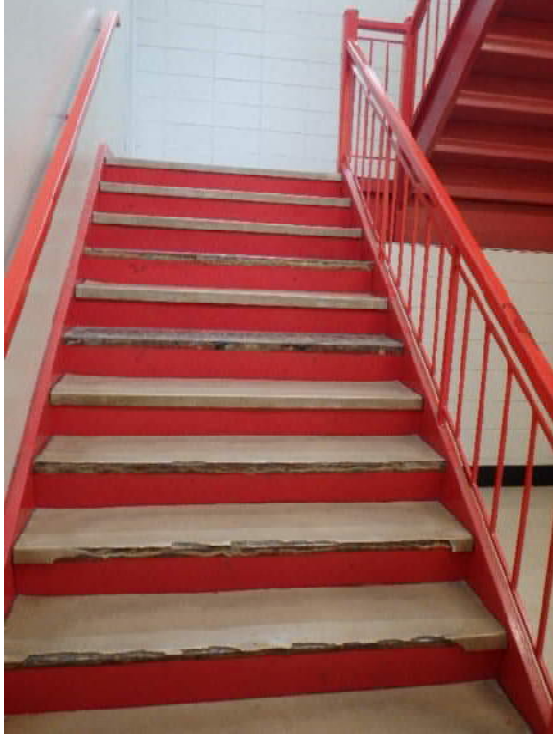


Fig. 6: Damaged flooring at stair.



Fig. 8: Shop heater



Fig. 7: Undersized restroom

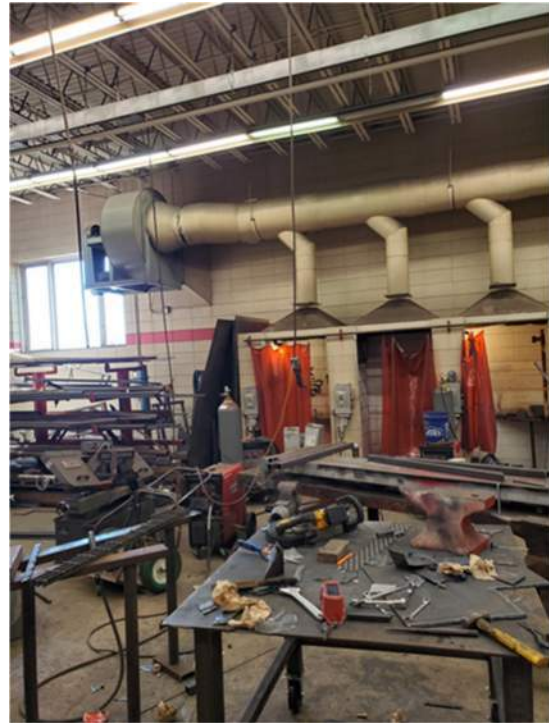


Fig. 9: Welding hoods and exhaust fan



Fig. 10: Dust collection system



Fig. 11: Art room split system



Fig. 12: Existing service



Fig. 13: Existing panel



Fig. 14: Existing access restrictions



Fig. 15: Existing communications & fire alarm



Fig. 16: Upper level dead end corridor

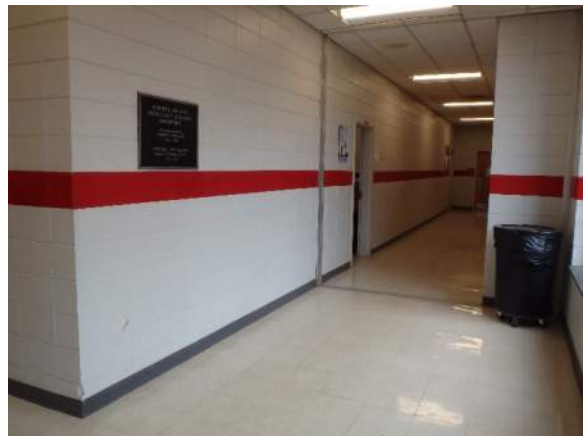


Fig. 17: Lower level dead end corridor

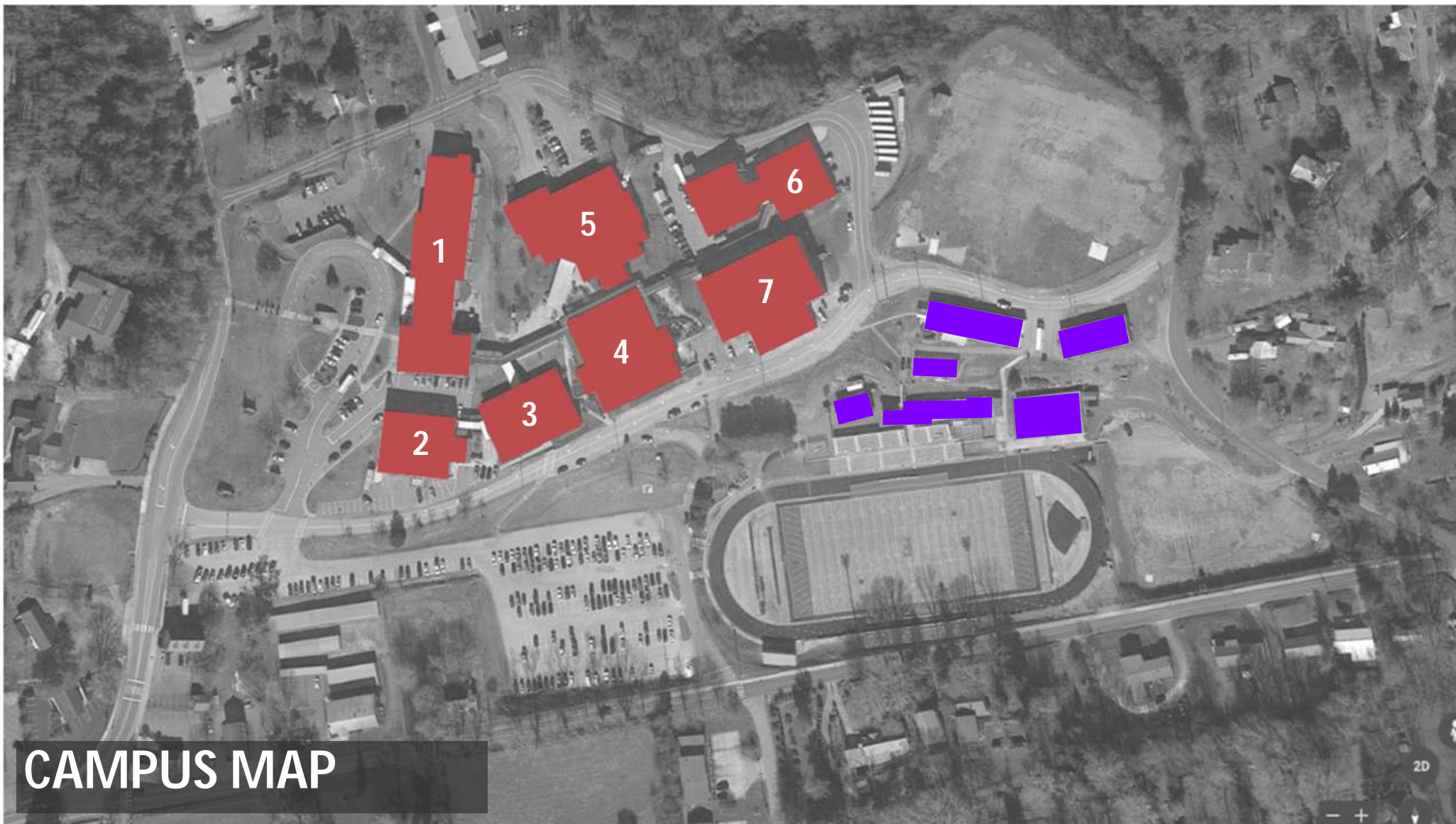


Fig. 18: Mezzanine railings.



Fig. 19: Unenclosed kiln, unvented kiln.

[CLICK FOR VOCATIONAL BUILDING COST SUMMARY](#)



CAMPUS MAP

BUILDING LEGEND

- | | |
|--------------------------------|--|
| 1 MAIN BUILDING, 1952 | <i>Elevation: lower floor 2016.12, upper floor 2118.04</i> |
| 2 FINE ARTS BUILDING, 1970 | <i>Elevation: lower floor 2103.07, upper floor 2116.13</i> |
| 3 ENGLISH BUILDING, 2000 | <i>Elevation: lower floor 2104.46, upper floor 2117.77</i> |
| 4 CAREERS CENTER, 1972 | <i>Elevation lower floor 2109.24, upper floor 2121.27</i> |
| 5 MEDIA CENTER/CAFETERIA, 1985 | <i>Elevation: 2121.58</i> |
| 6 VOCATIONAL BUILDING, 1992 | <i>Elevation lower floor 2097.19, upper floor 2109.97</i> |
| 7 GYMNASIUM, 1954 | <i>Elevation 2109.6</i> |

■ Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



GYMNASIUM

I. SUMMARY OF RECOMMENDATIONS

Without exhaustive destructive testing, it is the professional opinion of the design team that the lifespan of the building cannot be extended for another 50 years due to pervasive structural issues. These issues can be corrected; however, we feel that the cost of the repairs will far exceed the cost of a new, replacement building.

Renovations for this building are projected to require 18 months.

Construction cost: \$10.3 million, or \$471 per square foot.

Refer to Cost Estimates at Appendix E for additional details

II. BUILDING DATA

Constructed:	1954, Lobby Addition 2008.
Occupancy Classification:	A (Assembly)
Construction Classification:	II-B (Assumed)
Allowable Height & Area:	14,500 SF per floor, 2 stories, 55 feet total height Clear perimeter increases allowable area to approximately 23,925 SF per floor
Actual Height & Area:	19,215 SF main floor, 2,588 SF lower floor, 2 stories, 36 feet total height
Documents accessed:	Construction document sets, 1954, 2007 (addition).

III. BUILDING CONDITION

A. STRUCTURE

- The building is supported by load-bearing masonry walls, with steel trusses supporting floor (over boiler room) and roof, built over shallow spread footings. The exterior walls are load-bearing 12" CMU, with a brick veneer bonded into the CMU at each 6th course. Preliminary measurements with a plumb bob indicate deviations from plumb of 3/4" to 1" with a "bow" occurring in the middle of the wall vertically, most prominently in the northwest corner (see figure 1). The "bow" of the exterior wall is most evident in the brick veneer. The bow at the interior, load bearing wythe of CMU block is less pronounced. It is not known if and to what extent the brick veneer and CMU bond is compromised. *Reconstruction of the bowed walls may be required. Destructive investigation would be required to develop a plan to address the problem.*

- There is vertical cracking and separation between the exterior wall of the structure and interior wall of the women's restroom and locker room in the northwest corner. The vertical cracking measures approximately 1/4" to 3/8" and occurs in the interior loadbearing walls supporting the mezzanine. Reconstruction of the displaced walls and foundation repairs may be required. Destructive investigation would be required to develop a plan to address the problem.
- Over 1 1/2" of separation occurs between the mezzanine slab and exterior wall in the northwest corner. A 2x4 baseboard has been placed to cover this gap. Reconstruction of the displaced wall and foundation repairs may be required. Destructive investigation would be required to develop a plan to address the problem.
- Cracks measuring approximately 1/4" occur in the elevated mezzanine floor slab adjacent to the northwest stairs (see figure 2). This is in the vicinity of the cracks in the interior loadbearing walls of the women's restroom and locker room in the northwest corner. Destructive investigation would be required to develop a plan to address the problem.
- Existing drawings indicate no steel reinforcing in the masonry walls, consistent with construction practice at the time of construction.
- Brick pilasters at 29'-4" on center provide additional bracing for the walls. There is some separation from the main wall at the control joints installed at one side of a number of the pilasters (see figure 4).
- The roof and floor over the boiler room are supported by steel trusses. The remaining floor is slab on grade. The gym floor slab has been damaged by leaks in steam lines below. Removal of gym flooring is required to investigate extent of slab damage.
- The roof is a retrofit low slope metal roof system over 2-3/4" metal deck.
- Retaining wall at northeast corner of the building is showing signs of distress. A slight bowing and multiple cracks were observed (see figure 5). Reconstruction of the retaining wall may be required. Destructive investigation would be required to develop a plan to address the problem.
- The NC building code in effect at the time of construction (prior to 1996) required wind loads to be considered in the structural design but not seismic loads. The current NC building code does not require upgrading the existing building to comply with new seismic loads unless certain repairs, alterations, change of occupancy, or additions are made. While the structure is designed for wind load resistance, it is most likely this structure is NOT designed to resist the seismic loads or meet the seismic detailing requirements of the current NC building code. In keeping with the goal of preparing this building for an additional fifty years of service, seismic retrofitting of all masonry walls is recommended after the repairs indicated above have been completed. Reinforcing steel would be inserted into every concrete masonry wall in the building, extending from the wall footing to the top of the wall. The process would require partial removal of existing roofing

and roof deck and shoring of roof and floor structures while the tops of these walls are exposed, so that the reinforcing steel can be inserted into the cores of the masonry at spacings of 4 feet on center. Removal of approximately 25% of the concrete block faces in these locations will also be required, so that the steel can be guided down the center of the wall and the wall grouted solid after placement. Retrofit reinforcing will also be required at the entire perimeter of every opening in the wall.

B. ENVELOPE & EXTERIOR

- The current metal roofing is at the end of its service life, has been patched, leaks in various locations and needs replacement. Roof replacement required.
- Gutters are leaking and in need of replacement. Replacement is required.
- Exterior soffits are in need of replacement. Replacement is required.
- Some deterioration of mortar joints ranging from moderate to severe is allowing moisture penetration into the wall interior, affecting interior paint and building humidity (see figure 6). A complete repointing is required.
- There is significant water intrusion at the base of the southeast exterior wall of the Gym addition (see figure 7). Additional investigation is required to develop a plan to address the problem.
- There appears to be water intrusion at the top of the brick wall pilasters wall in the northeast exterior wall of the Gym. Additional investigation is required to develop a plan to address the problem.
- Cracks have developed in the concrete support walls in the northeast exterior wall over the basement doors. Additional investigation is required to develop a plan to address the problem.
- Exterior doors and frames are typically uninsulated steel with single pane glass and old, tired panic devices and closers. Doors at the concessions addition have wire glass. Replacement of exterior doors is needed.
- Clerestory windows were replaced with translucent panels during 2007 concessions addition. Floor level windows are single pane steel sash, not energy efficient, original to the building. Replacement of all windows is needed.
- Building door covers are cantilevered concrete, in very poor condition. Removal and replacement are needed.

C. INTERIOR

- Interior walls are typically painted CMU. Retrofitting these walls with seismic reinforcing or concealed utilities is not feasible.
- All locker rooms, showers and toilet rooms are based on 1950s codes and practices. Modernization to current code would require complete gutting of the space, including floor slabs, and complete replacement.
- Hardwood gym flooring is original or very old, cannot be refinished again, is rotten in areas (see figure 8). The floor appears to be separated from the wood

gym flooring at the base of the northeast stairs to the mezzanine (see figure 9). Flooring replacement is required.

- Bleachers need replacement due to worn out mechanisms, motors, etc. Replacement is required.
- Restrooms have painted CMU walls, mosaic tile or quarry tile floors with badly stained mortar. Locker rooms have VCT or applied seamless flooring in poor condition (see figure 10). New floor finishes are required.

IV. BUILDING SYSTEMS

A. PLUMBING

- There is no backflow preventer. One must be provided.
- The domestic hot water heater is Bradford White that was installed in 2014 (see figure 11). During the winter, there is a heat exchanger that provided domestic hot water to a large storage tank located in the basement.
- Water and waste piping are original to the building, per the maintenance staff this is difficult and costly to maintain. Shower plumbing in locker rooms needs replacement.
- Gate valves on the water lines will not shut the water off.
- Sewer lines do not drain reliably.
- Maintenance reports that mud and rust are present in the water lines.
- If a major renovation would take place to this facility, a complete replacement of all plumbing fixtures, piping, water heating units, gas piping, etc. would be recommended.

B. HEATING, VENTILATION & AIR-CONDITIONING

- The boiler is a Weil McLain unit that was installed in 2005 (see figure 12).
- Heat piping is original, leaks and increasingly difficult and costly to maintain per the maintenance department. The piping failed serving the locker room areas so that portion of the system has been disconnected, and stand-alone mini splits were installed for this area.
- Ground mounted, packaged air conditioning units were installed in 2015 to serve the gym (see figure 13). Heat is still provided via the boiler located in the basement.
- Mini Splits were installed in 2008 to serve the concession area. These units are approaching the end of the useful service life of 15 years per ASHRAE.
- Ventilation is needed in shower rooms.
- Measuring/testing wasn't performed, but it appears that the current code required amount of outdoor air is not being provided throughout this facility due to the lack of outdoor air HVAC equipment.

- HVAC controls are rudimentary, with time clock on-off control, no centralized temperature control, no remote monitoring.
- If a major renovation would take place to this facility, a complete replacement of all HVAC equipment including equipment, ductwork, diffusers, etc. would be recommended. This building would require a new dedicated outdoor system, with energy recovery, to provide the code requirement amount of outdoor air into the space. This unit could be located on the roof. Structural analysis would need to be reviewed to provide support and sound dampening. Alternately, it could be located on the ground where the current packaged air conditioning units are located. The heating/cooling for the smaller spaces would be provided by new water source heat pumps. These heat pump units could be installed in closets that would need to be created throughout the facility. The gym could be served by new, large heat pumps, or could be packaged air handling units similar to the current system. These heat pumps, and possible AHUs, would be connected to the new central plant (see description under Campus Assessment for central plant options). A new, campus wide Building Automation system would be provided to control all systems.

C. ELECTRICAL

- Most of the power service is original to the building and requires replacement and upgrades. The original power service to the building is a Trumbull Electric 400A - 208Y/120V panelboard (see figure 14 and 15). Parts/breakers are no longer available, is in very poor condition. Some of the existing panels are in very poor condition and should be replaced. In addition, the overall power available maybe inadequate to a modern educational program. An overall load analysis would need to be performed to determine any available capacity in this system for potential renovation. During most renovation projects a new service and electrical distribution throughout would need to be provided.
- Some electrical panels are in non-secure spaces.
- A new electrical service was provided to the facility 600A -208Y/120V, back feeding to the original electrical equipment (see figure 16)
- There is no surge suppression noted on the facility. It is recommended adding a surge suppression system with the replacement of the electrical distribution equipment.
- No emergency power is provided to this building.
- General lighting throughout the building is fluorescent fixtures and mostly in poor working condition and in need of replacement. Fluorescent lamps are still available today, but it is recommended to replace all of these fixtures with new, high performance LED fixtures. The gym lighting was replaced in recent years (see figure 17).
- Most light switches appear to be original to the facility. It is recommended that all light switches be replaced as they have reached the end of their expected useful life regarding springs and contacts.

- The facility has no automatic lighting controls, and minimum controllability in the space. It is recommended to add occupancy sensors and additional controls throughout the facility. These sensors will save electricity by turning OFF the lights, as well as extend the life of the fixtures.
- All lighting items noted above would be required to be replaced to meet current Energy Conservation Code.
- All emergency egress, and exit signage, are integral battery backup style fixtures. Some of these fixtures appear to have been replaced within the last 10 years. However, the life expectancy of the battery in this type of fixture is typically 5 years, so it is recommended to replace all fixtures.
- The original power and communications service is inadequate for current usage.
- Installing new receptacles in CMU walls is not viable; there are retrofitted surface-mounted power and data conduits throughout the building. Raceways or furred walls may be utilized to conceal utility upgrades.
- The building fire alarm panel is non-addressable type and is a local alarm only, i.e., not connected to any other building. The system appears to be in working order; however, to meet current codes, all fire alarm systems for educational facilities are required to be Voice Evacuation style systems. To meet this requirement, the entire system would need to be replaced with a new, fully addressable system.
- The intercom is receive-only; staff cannot communicate back to the office. A comprehensive upgrade to this system is needed.

V. CODE COMPLIANCE

A. LIFE SAFETY

- Building complies with the allowable height and area permitted by code for this type construction.
- Sprinklers are not present, and the fire area of the main floor is over the 12,000 square foot threshold that now triggers a sprinkler requirement for A-3 occupancies. A complete fire suppression system is required throughout.
- Stair guard rails do not comply with current code. Replace the railings.

B. FIRE PROTECTION

- Sprinklers are not present and are required for the building. A complete fire suppression system is required throughout.
- The fire alarm system is not tied to any of the other campus buildings; it *does not* notify the fire department. Provide new alarm system, integrating all campus buildings.

C. ENERGY CODE

- There is no insulation in the exterior masonry walls; does not meet current code requirements. Retrofitting the interior face of the exterior walls with insulation would provide only partial improvement and could result in condensation issues. Overbuilding the existing building skin with a new insulated finish or veneer would be required; however, it is questionable whether the existing structure will bear such repairs.
- Floor level windows are single pane steel sash, and should be replaced to provide better thermal performance and lower solar heat gain; does not meet current code requirements. Replacement of all windows is needed.
- Exterior doors are not thermally broken, without insulated glazing, does not meet current code requirements. Replacement of all exterior doors is needed.

D. PLUMBING CODE

- The bathroom fixture count is inadequate to meet current code requirements. Additional bathrooms are required; an addition to the building would be advisable.
- Health regulations no longer permit open showers without stalls (see figure 18).

E. ACCESSIBILITY

- Group bathrooms in the locker rooms are not accessible and too small to be reconfigured for accessibility (see figure 19). Relocation of bathrooms to an addition should be considered.
- Curbs at shower rooms make them inaccessible (see figure 20).
- Bleachers do not meet ADA requirements. Replacement bleachers are needed.

VI. PROGRAM ASSESSMENT

A. INSTRUCTIONAL SPACES

- Gymnasium is adequately sized with a full size court and seating for approximately 2,000.
- Scheduling of activities for current student population is more than challenging with one gym. Auxiliary gym is required.
- The support spaces that should accompany a gymnasium (locker rooms, training room, coaches' offices, uniform and equipment storage, laundry, etc.) are either critically undersized or located elsewhere, too far from the gym. A complete gutting and retrofit of these spaces plus an additional 3,000 SF are required to bring the building up to current standards.
- Women's weight room is critically undersized.



Fig. 1: Plumb bob showing extent of bowing at pilaster



Fig. 2: Cracking at mezzanine slab



Fig. 3: Cracking at load-bearing CMU

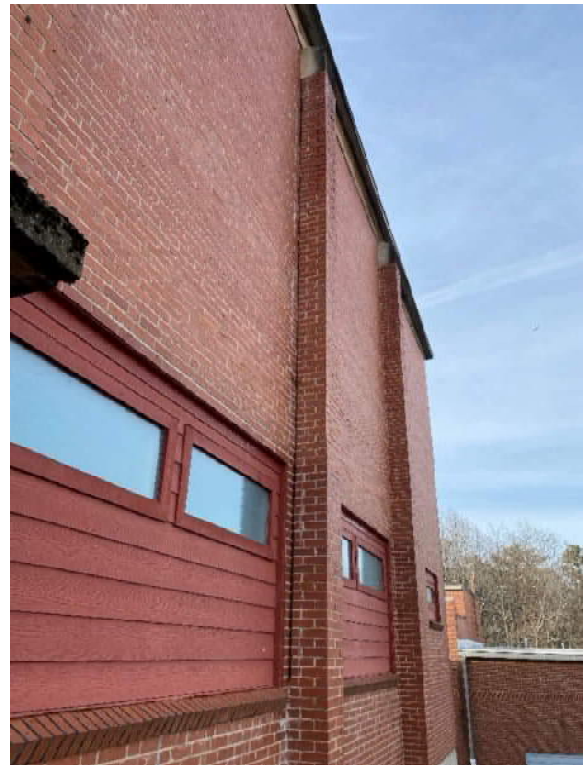


Fig. 4: Separation of pilasters from wall at control joints.



Fig. 5: Deteriorated retaining wall beside Gymnasium



Fig. 7: Wall damage, lower level of Gymnasium.



Fig 6: Extensive moisture penetration at mortar joints in walls, pilasters, sills.



Fig. 8: Rotted gym flooring

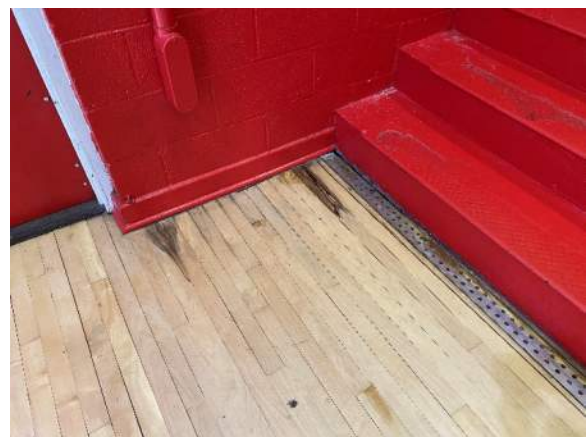


Fig. 9: Rotted gym flooring and separation



Fig. 10: Deteriorated flooring at locker room.



Fig. 11: Water heaters



Fig. 12: Boiler



Fig. 13: AC units



Fig. 14: Existing service



Fig. 15: Existing main panel



Fig 16: Existing new service



Fig. 17: Existing gym lighting



Fig. 18: Shower room, no stalls



Fig. 19: Non-accessible bathrooms in locker room.



Fig. 20: Curb at shower room

[CLICK FOR GYMNASIUM BUILDING COST SUMMARY](#)

DESCRIPTIONS OF APPENDICES

APPENDIX A CAMPUS MAP

APPENDIX B BUILDING CONDITIONS MATRIX

This “heat map” matrix is a simplified graphical representation of the relative scope and difficulty of the recommended renovations for each building.

APPENDIX C INITIAL PROGRAM ANALYSIS SPREADSHEET

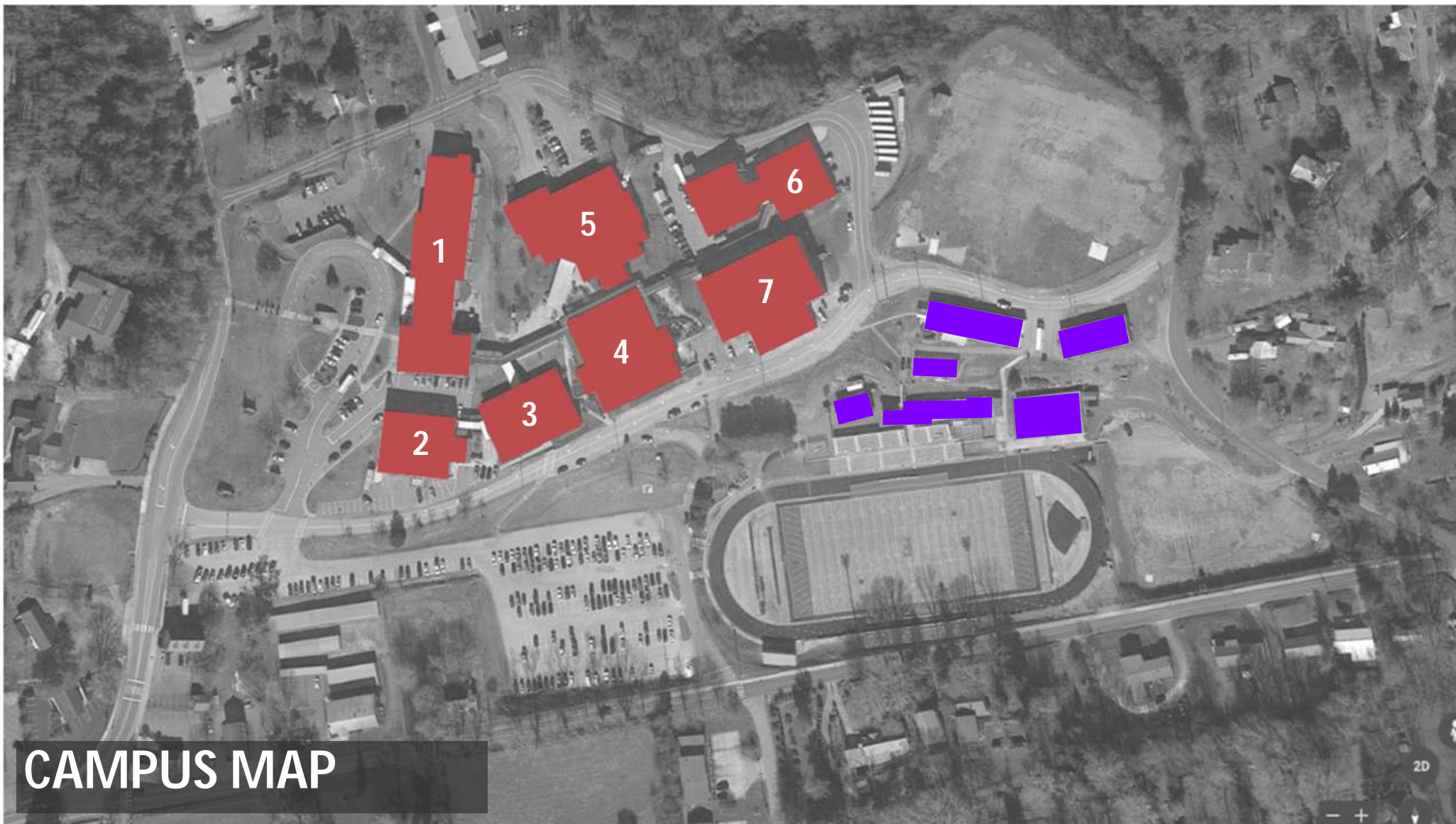
This spreadsheet documents the sizes and quantities of existing key program spaces on the campus, as compared to the general recommendations of the North Carolina Department of Public Instruction (NCDPI) for a 1,200 student high school.

APPENDIX D SPACE UTILIZATION PLANS

These simplified floor plans of the primary campus buildings show how existing general classroom, enrichment and core spaces are distributed throughout the campus, and illustrate whether or not they are adequately sized by NCDPI standards for a 1,200 student high school.

APPENDIX E ESTIMATES OF PROBABLE COST

The design cost estimates included here represent a professional opinion of probable costs based on available construction industry data and a professional understanding of current construction market conditions. Estimates are based on the scope of recommended work described herein.



CAMPUS MAP

BUILDING LEGEND

- | | |
|--------------------------------|--|
| 1 MAIN BUILDING, 1952 | <i>Elevation: lower floor 2016.12, upper floor 2118.04</i> |
| 2 FINE ARTS BUILDING, 1970 | <i>Elevation: lower floor 2103.07, upper floor 2116.13</i> |
| 3 ENGLISH BUILDING, 2000 | <i>Elevation: lower floor 2104.46, upper floor 2117.77</i> |
| 4 CAREERS CENTER, 1972 | <i>Elevation lower floor 2109.24, upper floor 2121.27</i> |
| 5 MEDIA CENTER/CAFETERIA, 1985 | <i>Elevation: 2121.58</i> |
| 6 VOCATIONAL BUILDING, 1992 | <i>Elevation lower floor 2097.19, upper floor 2109.97</i> |
| 7 GYMNASIUM, 1954 | <i>Elevation 2109.6</i> |

■ Denotes buildings to be displaced by stadium construction

OVERALL CAMPUS



CURRENTLY ADEQUATE



MODERATE WORK



EXTENSIVE WORK

	Main	Fine Arts	English	Careers	Media/Café	Vocational	Gymnasium
BUILDING CONDITIONS							
Structure	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Seismic Reinforcing	EXTENSIVE WORK	EXTENSIVE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Settlement Issues	MODERATE WORK	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	CURRENTLY ADEQUATE	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Envelope	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Interior	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
BUILDING SYSTEMS							
Plumbing	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
HVAC	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Electrical	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
CODE COMPLIANCE							
Life Safety	EXTENSIVE WORK	MODERATE WORK	CURRENTLY ADEQUATE	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Fire Protection	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK	MODERATE WORK	MODERATE WORK	EXTENSIVE WORK
Energy Code	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK	EXTENSIVE WORK	MODERATE WORK	EXTENSIVE WORK
Plumbing Code	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK
Accessibility	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK	EXTENSIVE WORK



QUANTITY	ROOM	DPI SF	TOTAL	CURRENT QUANTITY	CURRENT SF	ADEQUATE?	PROGRAM QUANTITY	PROGRAM SF	NOTES
ACADEMIC									
10	English	850	8,500	7	5,936	NO			Classroom sizes adequate lacking three classrooms
3	Foreign Language	850	2,550	2	1,760	NO			Classroom sizes adequate, lacking one classroom
8	Social Studies	850	6,800	7	6,028	NO			Classroom sizes adequate, lacking one classroom
9	Math	850	7,650	9	7,566	NO			Enough classrooms, but one 25% undersized
1	Math/Sci Computer	850	850	1	645	NO			25% undersized
7	Phys Science/Biology Labs	1,200	8,400	6	6,842	NO			4 of 6 10--23% undersized, lacking one lab
2	Chemistry Labs	1,500	3,000	1	1,068	NO			30% undersized, lacking one lab
4	Prep Rooms	250	1,000	0		NO			No secure prep rooms
1	Chemical Storage	100	100	1	50	NO			
SUBTOTAL			38,850		29,895				SHORT 8,955 SF
RESOURCE/EXCEPTIONAL									
5	Resource Room	450	2,250	4	2,473	NO			EC and ESL, all adequately sized, lacking one room
2	Exceptional S/C	1,400	2,800	2	1,429	NO			Enough rooms, but 45% & 55% undersized
0	Credit Recovery	0	0	1	848	YES			
1	In-School Suspension	750	750	1	365	NO			51% undersized
SUBTOTAL			5,800		5,115				SHORT 685 SF
ARTS EDUCATION									
1	Art	1,400	1,400	1	1,517	YES			
1	Kiln/Storage	200	200	0	0	NO			Kilns unenclosed, in art room
1	Band	2,100	2,100	1	1,605	NO			23% undersized
1	Ensemble/Practice	300	300	3	294	YES			
1	Band Uniforms	400	400	0					
1	Instrument Storage	400	400	1	500				
1	String Instrument Storage	150	150	0					
1	Band Office/Workroom	250	250	1	209				
1	Band Stor/Library	150	150	0					
1	Chorus	1,200	1,200	1	1,150	YES			
1	Chorus Office	0	0						
1	Chorus Storage	200	200	1	148	NO			
2	Dance/Drama Classroom	1,800	3,600	0	0				sharing tiered room with Chorus
SUBTOTAL			10,350		5,423				SHORT 4,927 SF
AUDITORIUM									
1	Seating (1,200)	5,400	5,400	1	4,851	NO			**DPI only recommends 5,400, seating for 600; 10,800 required to seat 1,200
1	Stage/Dressing/Storage	4,000	4,000	0		NO			Inadequate, and storage/dressing is at stage wings
1	Lobby	1,200	1,200	1	540	NO			Critically undersized, and no bathrooms
SUBTOTAL			10,600		5,391				SHORT 5,209 SF

GENERAL NOTES

- NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION RECOMMENDATIONS ARE DRAWN FROM NCDPI FACILITY SPACE PROFILES FOR 1,200 STUDENT HIGH SCHOOL
- INITIAL ANALYSIS COVERS PRIMARY TEACHING AND ENRICHMENT SPACES, CORE SPACES
- CURRENT ESTIMATE OF SHORTFALL FOR PRIMARY TEACHING AND ENRICHMENT SPACES, CORE SPACES: **41,637 SF**

FRANKLIN HIGH SCHOOL
PROGRAM ANALYSIS

PROGRAMMING SESSION
02/23/22

QUANTITY	ROOM	DPI SF	TOTAL	CURRENT QUANTITY	CURRENT SF	ADEQUATE?	PROGRAM QUANTITY	PROGRAM SF	NOTES
CAREER TECHNICAL									
4	Marketing/Computers	1,200	4,800	2	2,035	YES/NO			One adequate at 7% undersized, other inadequate at 24% undersized
1	Business	1,000	1,000	1	821	NO			18% undersized
1	Family & Con. Science	1,400	1,400	3	3,330	NO			3 rooms, each is 20% undersized
1	Health Occupations	1,400	1,400	2	2,491	YES/NO			One adequate at 8% undersized, other inadequate at 14% undersized
1	AG/Trade & Indust	3,000	3,000	1		YES			Ag/aquaculture building will be displaced by stadium construction
2	Trade & Indust	2,500	5,000	3	7,281	YES			
1	Technology	2,000	2,000						
2	Communications	1,500	3,000	1	1,310				Yearbook, 13% undersized
3	Vocational Classrooms	750	2,250	4	3,074	YES			
1	Faculty Office	250	250	3	300	YES			
SUBTOTAL			24,100		20,642				SHORT 3,458 SF
MEDIA CENTER									
1	Media	6,000	6,000	1	5,000	YES			Somewhat undersized, but may suit actual need
1	Media Office	338	338	1	145	NO			57% undersized
1	Workroom	688	688	1	640	YES			Just slightly undersized
1	Conf/Small Group	200	200	1	208	NO			Room is adequate, lacking one room
1	Equip Storage	338	338	2	444	YES			
1	Periodical Storage	219	219	1	365	YES			
1	Production	438	438	0					
1	Video Production	1,000	1,000	1	574	NO			42% undersized
1	Professional Area	219	219	0					
2	Computer Rooms	850	1,700	1	861	NO			Room is adequate, lacking one room
1	Book Room	1,250	1,250	0					
SUBTOTAL			12,390		8,237				SHORT 4,153 SF
PHYSICAL EDUCATION									
1	Main Gym	12,500	12,500	1	10,800	YES			Adequate when balcony seating is included
1	Auxiliary Gym	6,500	6,500	0	0	NO			Aux gym lacking, required
1	Concessions/Lobby	2,000	2,000	1	3,410	YES			
4	Locker/Shower Rooms	1,300	5,200	4	3,990	NO			Undersized at Gym, facilities at stadium not shown, will be displaced by construction
2	Coach Office/Shower	400	800						At stadium field house, will be displaced by construction
1	Training	400	400						At stadium field house, will be displaced by construction
1	Laundry	200	200						At stadium field house, will be displaced by construction
1	Equip. Storage	1,500	1,500						At balcony, poor access
1	Referees	200	200						
1	Weight Room	1,600	1,600	2	4,720	YES/NO			Women's critically undersized, Men's 4,000 SF will be displaced by stadium work
1	Wrestling	2,000	2,000	0	0	NO			
2	Health/PE Classroom	750	1,500	2	1,568	YES			One adequate, one in Gym slightly undersized
SUBTOTAL			34,400		24,488				SHORT 9,912 SF
FOOD SERVICE									
1	Dining (3 Servings)	7,000	7,000	1	3,150	NO			Critically undersized
1	Kitchen	2,880	2,880	1	1,776	NO			Critically undersized
1	Serving (3 Lines)	940	940	1	856	NO			Slightly inadequate, 9% undersized
SUBTOTAL			10,820		5,782				SHORT 5,038 SF

QUANTITY	ROOM	DPI SF	TOTAL	CURRENT QUANTITY	CURRENT SF	ADEQUATE?	PROGRAM QUANTITY	PROGRAM SF	NOTES
ADMINISTRATION									
1	Principal	250	250						
4	Asst. Principal	150	600						
1	Reception	500	500						
2	Secretary	150	300						
1	SIMS	200	200			NOT ANALYZED			
2	Bookkeep/Attendance	120	240						
1	Health	200	200						
1	Office Workroom	338	338						
1	Conference	250	250						
1	Records	238	238						
1	Office Storage	150	150						
1	SRO	150	150						
	SUBTOTAL		3,416			0			
GUIDANCE									
1	Secretary/Info Center	1,000	1,000						
1	Conference/Testing	250	250						
5	Counselor Office	150	750			NOT ANALYZED			
1	Vocational Counselor	150	150						
1	Other Student Services	200	200						
1	Student Offices	1,000	1,000						
	SUBTOTAL		3,350			0			
STAFF SUPPORT									
3	Staff Workrooms	450	1,350						
1	Staff Lounge	900	900			NOT ANALYZED			
1	Itinerant Staff Offices	1,000	1,000						
1	Volunteers	0	0						
	SUBTOTAL		3,250			0			
GENERAL, STORAGE									
0	Maintenance	0	0			NOT ANALYZED			<i>No DPI recommendation for Maintenance Office</i>
1	General Storage	1,350	1,350						
	SUBTOTAL		1,350			0			
TOTAL NET SQUARE FEET			158,676						
Walls, Toilets, Circulation, Mechanical			58,710						
GRAND TOTAL			217,386						
	SF Per Student		181						
	Total Teaching Stations		63						



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - Campus Renovations

Stage of Design: Schematic Design

Gross Area (SF): 207181

<u>SUMMARY</u>			
Description	Total Estimated Cost	%	Cost Per Gross Sq. Ft.
<u>SUMMARY - (existing buildings up to current code + 50 year life)</u>			
1. Building 1 - Main Bldg, 1952	\$14,109,285		
2. Building 2 - Fine Arts, 1970	\$6,303,861		
3. Building 3 - English Bldg, 2000	\$2,365,668		
4. Building 4 - Careers Center, 1972	\$5,316,529		
5. Building 5 - Media & Cafeteria, 1985	\$4,883,794		
6. Building 6 - Vocational Ed., 1992	\$2,171,248		
7. Building 7 - Gymnasium, 1954	\$10,282,517		
8. Building 8 - Agriculture, demolished	\$67,235		
9. Building 9 - Weight Room, demolished	\$50,000		
10. Building 10 - Field House, demolished	\$132,632		
** . Modulares for CR space while renovating	\$8,790,000		
COST OF WORK (Present Day Value)	\$54,472,769		
Additional Building & Site SF per NCDPI Standards	\$21,000,000		
Additional Building & Site for MCS Draft Program	\$12,225,000		
Design Contingency	\$5,447,277		
Subtotal	\$93,145,046		
Contractor Field Overhead (General Conditions)	\$7,451,604		
Bond and Insurance	\$2,565,215		
Contractor Home Office Overhead, Profit, and Risk	\$3,610,665		
Subtotal	\$106,772,529		
Escalation (Present Day to Midpoint)	\$17,670,854		
Construction / Owner Contingency	\$6,222,169		
TOTAL	\$130,665,552		
New Stadium, press box, fieldhouse, concessions, restrooms - 2500 home seats, 1000 visitors	\$14,000,000		



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - Campus Renov.Main Bldg

Stage of Design: Schematic Design

Gross Area (SF): 207181

SUMMARY

Description		Total Estimated Cost	%	Cost Per Gross Sq. Ft.
A10	Foundations	\$265,750	1.88	\$0.00
A20	Basement Construction	\$26,000	0.18	\$0.00
B10	Superstructure	\$1,454,550	10.31	\$0.00
B20	Exterior Enclosure	\$1,435,000	10.17	\$0.00
B30	Roofing	\$751,660	5.33	\$0.00
C10	Interior Construction	\$568,100	4.03	\$0.00
C20	Stairs	\$79,800	0.57	\$0.00
C30	Interior Finishes	\$687,400	4.87	\$0.00
D10	Conveying	\$150,000	1.06	\$0.00
D20	Plumbing	\$856,000	6.07	\$0.00
D30	HVAC	\$1,883,200	13.35	\$0.00
D40	Fire Protection	\$293,300	2.08	\$0.00
D50	Electrical	\$1,455,200	10.31	\$0.00
E10	Equipment	\$214,000	1.52	\$0.00
E20	Furnishings	\$992,000	7.03	\$0.00
F10	Special Construction		0.00	\$0.00
F20	Selective Building Demolition	\$300,200	2.13	\$0.00
G10	Site Preparation	\$420,000	2.98	\$0.00
G20	Site Improvements	\$1,800,125	12.76	\$0.00
G30	Site Mechanical Utilities	\$312,000	2.21	\$0.00
G40	Site Electrical Utilities	\$165,000	1.17	\$0.00
G90	Other Site Construction		0.00	\$0.00
COST OF WORK (Present Day Value)		\$14,109,285		

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
A10	Foundations				\$265,750
A1010	Standard Foundations				\$143,350
A10.1	Expose Footings for Inspections	300	cy	\$15.00	\$4,500
A10.2	Clean Foundations	900	lf	\$4.00	\$3,600
A10.3	New Waterproofing	2,700	sf	\$7.50	\$20,250
A10.4	New Drainage	1,000	lf	\$40.00	\$40,000
A10.5	Repair Cracks/Settlement	1	ls	\$30,000.00	\$30,000
A10.6	Backfill	300	cy	\$25.00	\$7,500
A10.7	Reinforce SOG perimeter for LBMS, grout	50	cy	\$750.00	\$37,500
A1030	Slab on Grade				\$122,400
A10.8	Slab Demolition for new plumbing, elec	5,400	sf	\$10.00	\$54,000
A10.9	Slab on Grade Replacement	5,400	sf	\$9.00	\$48,600
A10.10	New Equipment Pads	1,200	sf	\$9.00	\$10,800
A10.11	New Entry Slab/Ramps	600	sf	\$15.00	\$9,000
A20	Basement Construction				\$26,000
A2020	Basement Walls				\$26,000
A20.1	Expose and Clean Walls	4,000	sf	\$3.00	\$12,000
A20.2	Patch and Repairs	4,000	sf	\$2.00	\$8,000
A20.3	New Sealants	4,000	sf	\$1.50	\$6,000
B10	Superstructure				\$1,454,550
B1010	Floor Construction				\$831,150
B10.1	New Supports for 2nd Floor	16	ea	\$8,000.00	\$128,000
B10.2	New Buttresses for Exterior Wall, 2x2x24"	36	ea	\$2,400.00	\$86,400
B10.3	New Support for Roof @ 4" Wall	16	ea	\$8,000.00	\$128,000
B10.4	Repairs to existing concrete floors	42,500	sf	\$1.50	\$63,750
B10.5	Structural Steel Repairs /Reinforcing	42,500	sf	\$10.00	\$425,000
B1020	Roof Construction				\$623,400
B10.6	Remove existing metal roof & structure	24,800	sf	\$6.00	\$148,800
B10.7	New topping on existing Gypsum Conc roof	24,800	sf	\$2.00	\$49,600
B10.8	Structural Steel Repairs /Reinforcing	42,500	sf	\$10.00	\$425,000

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
B20	Exterior Enclosure				\$1,435,000
B2010	Exterior Walls				\$1,062,600
B20.1	Power wash Exterior	42,800	sf	\$1.00	\$42,800
B20.2	Re caulk Exterior	42,800	sf	\$1.50	\$64,200
B20.3	New Load-Bearing Metal Studs-Basement	7,800	sf	\$6.00	\$46,800
B20.4	New Load-Bearing Metal Studs- 1st flr	10,800	sf	\$6.00	\$64,800
B20.5	New LB MS at hallways	14,400	sf	\$6.00	\$86,400
B20.6	Removal of portions of SOD and Roof	21,400	sf	\$3.00	\$64,200
B20.7	Removal of portion of Extr Wall	8,000	sf	\$8.00	\$64,000
B20.8	Shoring and Supports	21,400	sf	\$6.00	\$128,400
B20.9	Reinforcing to existing masonry wall	33,000	sf	\$9.00	\$297,000
B20.10	Tuck point Existing Masonry	24,000	sf	\$2.50	\$60,000
B20.11	Repairs & Replacement of Walls	8,000	sf	\$18.00	\$144,000
B2020	Exterior Windows				\$312,400
B20.12	New Windows	3,200	sf	\$65.00	\$208,000
B20.13	New Louvers	8	ea	\$1,800.00	\$14,400
B20.14	New Canopies	6	ea	\$15,000.00	\$90,000
B2030	Exterior Doors				\$60,000
B20.15	New Door Entries	8	ea	\$7,500.00	\$60,000
B30	Roofing				\$751,660
B3010	Roof Coverings				\$744,160
B30.1	New MOD BIT Roof	24,800	sf	\$28.00	\$694,400
B30.2	New Roof Curbs & Vents	1	ls	\$15,000.00	\$15,000
B30.3	New access ladders	2	ea	\$1,900.00	\$3,800
B30.4	Flashing and Gutters	1,200	lf	\$15.00	\$18,000
B30.5	Downspouts	1,080	lf	\$12.00	\$12,960
B3020	Roof Openings				\$7,500
B30.6	New roof opening	1	ea	\$7,500.00	\$7,500
C10	Interior Construction				\$568,100
C1010	Partitions				\$359,300

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
C10.1	New Demising partitions, to deck	10,800	sf	\$16.00	\$172,800
C10.2	Insulation & GWB exterior walls	18,600	sf	\$9.50	\$176,700
C10.3	New Toilet Room Walls	350	sf	\$28.00	\$9,800
C1020	Interior Doors				\$151,200
C10.4	New Interior Doors & Hardware	72	ea	\$2,100.00	\$151,200
C1030	Fittings				\$57,600
C10.5	New toilet Partitions/ specialties	48	ea	\$1,200.00	\$57,600
C20	Stairs				\$79,800
C2010	Stair Construction				\$64,800
C20.1	New Stair Railings-pickets	480	lf	\$135.00	\$64,800
C2020	Stair Finishes				\$15,000
C20.2	New Stair Finishes	1	ls	\$15,000.00	\$15,000
C30	Interior Finishes				\$687,400
C3010	Wall Finishes				\$88,200
C30.1	Wall Finishes	29,400	sf	\$3.00	\$88,200
C3020	Floor Finishes				\$385,200
C30.2	Floor Finishes	42,800	sf	\$9.00	\$385,200
C3030	Ceiling Finishes				\$214,000
C30.3	Ceiling Finishes	42,800	sf	\$5.00	\$214,000
D10	Conveying				\$150,000
D1010	Elevators & Lifts				\$150,000
D10.1	New elevator	1	ea	\$125,000.00	\$125,000
D10.2	New elevator shaft	1	ea	\$25,000.00	\$25,000
D20	Plumbing				\$856,000
D2010	Plumbing Fixtures				\$856,000
D20.1	Plumbing Replacements & Adds	42,800	sf	\$20.00	\$856,000
D30	HVAC				\$1,883,200
D3010	Energy Supply				\$1,626,400
D30.1	New HVAC Systems-avg cost	42,800	sf	\$38.00	\$1,626,400
D3060	Controls & Instrumentation				\$192,600

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
D30.2	New controls	42,800	sf	\$4.50	\$192,600
D3070	System Testing & Balancing				\$64,200
D30.3	New Test & Balance	42,800	sf	\$1.50	\$64,200
D40	Fire Protection				\$293,300
D4010	Sprinklers				\$203,300
D40.1	New Sprinkler System	42,800	sf	\$4.75	\$203,300
D4090	Other Fire Protection Systems				\$90,000
D40.2	Fire Pump	1	ea	\$90,000.00	\$90,000
D50	Electrical				\$1,455,200
D5010	Electrical Service & Distribution				\$770,400
D50.1	Electrical Service & Distribution	42,800	sf	\$18.00	\$770,400
D5020	Lighting and Branch Wiring				\$385,200
D50.2	Lighting & Branch Wiring	42,800	sf	\$9.00	\$385,200
D5030	Communications & Security				\$299,600
D50.3	Communication & Security	42,800	sf	\$7.00	\$299,600
E10	Equipment				\$214,000
E1010	Commercial Equipment				\$107,000
E10.1	Commercial Equipment	42,800	sf	\$2.50	\$107,000
E1020	Institutional Equipment				\$107,000
E10.2	Institutional Equipment	42,800	sf	\$2.50	\$107,000
E20	Furnishings				\$992,000
E2010	Fixed Furnishings				\$350,000
E20.1	Fixed Furnishing Casework	1	ls	\$350,000.00	\$350,000
E2020	Movable Furnishings				\$642,000
E20.2	New student furniture	42,800	sf	\$15.00	\$642,000
F20	Selective Building Demolition				\$300,200
F2010	Building Elements Demolition				\$125,000
F20.1	Misc Demolition	1	ls	\$125,000.00	\$125,000
F2020	Hazardous Components Abatement				\$175,200
F20.2	Asbestos Bldg Materials removal	43,800	sf	\$4.00	\$175,200

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
G10	Site Preparation				\$420,000
G1010	Site Clearing				\$150,000
G10.1	Site Demolition, parking, sidewalks	6	ac	\$25,000.00	\$150,000
G1020	Site Demolition and Relocations				\$90,000
G10.2	Relocate Site Utilities	1	ls	\$90,000.00	\$90,000
G1030	Site Earthwork				\$180,000
G10.3	Site Grading & Backfills	6	ac	\$30,000.00	\$180,000
G20	Site Improvements				\$1,800,125
G2010	Roadways				\$756,000
G20.1	New Entry Road	14,000	sy	\$54.00	\$756,000
G2020	Parking Lots				\$525,000
G20.2	New parking - graded and level - HC access, 600 spaces	15,000	sy	\$35.00	\$525,000
G2030	Pedestrian Paving				\$106,125
G20.3	Sidewalks	13,500	sf	\$6.75	\$91,125
G20.4	Ramps & Handrails	1	ls	\$15,000.00	\$15,000
G2040	Site Development				\$288,000
G20.5	Benches, Seating	1	ls	\$45,000.00	\$45,000
G20.6	Canopy	1,800	sf	\$135.00	\$243,000
G2050	Landscaping				\$125,000
G20.7	Landscaping	1	ls	\$125,000.00	\$125,000
G30	Site Mechanical Utilities				\$312,000
G3010	Water Supply				\$117,000
G30.1	New service line	600	lf	\$140.00	\$84,000
G30.2	New BF preventer	1	ea	\$15,000.00	\$15,000
G30.3	New hydrants	4	ea	\$4,500.00	\$18,000
G3020	Sanitary Sewer				\$45,000
G30.4	Rework existing sanitary systems	1	ls	\$45,000.00	\$45,000
G3030	Storm Sewer				\$125,000
G30.5	Rework / Replace Storm Water System	1	ls	\$125,000.00	\$125,000
G3060	Fuel Distribution				\$25,000

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
G30.6	NEw gas service	1	ls	\$25,000.00	\$25,000
G40	Site Electrical Utilities				\$165,000
G4010	Electrical Distribution				\$100,000
G40.1	Rework existing as needed	1	ls	\$100,000.00	\$100,000
G4020	Site Lighting				\$45,000
G40.2	Site Lighting	1	ls	\$45,000.00	\$45,000
G4030	Site Communications & Security				\$20,000
G40.3	Rework existing as needed	1	ls	\$20,000.00	\$20,000
G90	Other Site Construction				\$0
G9010	Services and Pedestrian Tunnels				\$0
	Item 1				
	Item 2				
	Item 3				
G9090	Other Site Systems & Equipment				\$0
	Item 1				
	Item 2				
	Item 3				



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov.-Bld.2 Fine Arts

Stage of Design: Schematic Design

Gross Area (SF): 207181

<u>SUMMARY</u>				
	Description	Total Estimated Cost	%	Cost Per Gross Sq. Ft.
A10	Foundations		0.00	\$0.00
A20	Basement Construction	\$184,000	2.92	\$11.03
B10	Superstructure	\$500,000	7.93	\$29.98
B20	Exterior Enclosure	\$1,391,800	22.08	\$83.46
B30	Roofing	\$296,300	4.70	\$17.77
C10	Interior Construction	\$116,000	1.84	\$6.96
C20	Stairs		0.00	\$0.00
C30	Interior Finishes	\$756,985	12.01	\$45.39
D10	Conveying	\$150,000	2.38	\$8.99
D20	Plumbing	\$333,520	5.29	\$20.00
D30	HVAC	\$816,984	12.96	\$48.99
D40	Fire Protection		0.00	\$0.00
D50	Electrical	\$583,660	9.26	\$35.00
E10	Equipment	\$426,500	6.77	\$25.58
E20	Furnishings	\$166,760	2.65	\$10.00
F10	Special Construction		0.00	\$0.00
F20	Selective Building Demolition	\$81,352	1.29	\$4.88
G10	Site Preparation		0.00	\$0.00
G20	Site Improvements	\$425,000	6.74	\$25.49
G30	Site Mechanical Utilities	\$75,000	1.19	\$4.50
G40	Site Electrical Utilities		0.00	\$0.00
G90	Other Site Construction		0.00	\$0.00
COST OF WORK (Present Day Value)		\$6,303,861	100.00	\$378.02

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
A20	Basement Construction				\$184,000
A2010	Basement Excavation				\$144,000
A20.1	Excavation & Waterproofing	6,000	sf	\$24.00	\$144,000
A2020	Basement Walls				\$40,000
A20.2	New Drainage System	1	ls	\$40,000.00	\$40,000
B10	Superstructure				\$500,000
B1010	Floor Construction				\$500,000
B10.1	Structural Integrity Reinforcing	1	LS	\$500,000.00	\$500,000
B20	Exterior Enclosure				\$1,391,800
B2010	Exterior Walls				\$1,336,000
B20.1	New Siding, Insulation, waterproofing	8,000	sf	\$65.00	\$520,000
B20.2	New entry, toilet rooms	1,600	sf	\$450.00	\$720,000
B20.3	Patching & Tuck pointing	8,000	sf	\$12.00	\$96,000
B2020	Exterior Windows				\$32,200
B20.4	New extr. Windows	24	ea	\$875.00	\$21,000
B20.5	New Louvers	4	ea	\$2,800.00	\$11,200
B2030	Exterior Doors				\$23,600
B20.6	New Entry	8	ea	\$2,950.00	\$23,600
B30	Roofing				\$296,300
B3010	Roof Coverings				\$281,400
B30.1	New TPO Insulation & Roofing	9,800	sf	\$28.00	\$274,400
B30.2	New Flashings	200	lf	\$35.00	\$7,000
B3020	Roof Openings				\$14,900
B30.3	New Hatch	1	ea	\$8,500.00	\$8,500
B30.4	New Ladders	2	ea	\$3,200.00	\$6,400
C10	Interior Construction				\$116,000
C1010	Partitions				\$12,000
C10.1	Fire rated Walls at Stage	400	sf	\$30.00	\$12,000
C1020	Interior Doors				\$84,000
C10.2	Replace all interior doors	40	ea	\$2,100.00	\$84,000

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
C1030	Fittings				\$20,000
C10.3	Misc Fitting Replacements	40	ea	\$500.00	\$20,000
C30	Interior Finishes				\$756,985
C3010	Wall Finishes				\$166,760
C30.1	Painting	16,676	sf	\$2.00	\$33,352
C30.2	Patch & Repairs	16,676	sf	\$8.00	\$133,408
C3020	Floor Finishes				\$197,172
C30.3	Abatement	16,676	sf	\$5.00	\$83,380
C30.4	New VCT	14,176	sf	\$4.50	\$63,792
C30.5	New Stage Wood	2,500	sf	\$20.00	\$50,000
C3030	Ceiling Finishes				\$393,053
C30.6	Remove existing ceilings	16,676	sf	\$8.00	\$133,408
C30.7	New fireproofing/ceilings	16,676	sf	\$10.97	\$182,936
C30.8	New ACT ceilings & Clouds	16,676	sf	\$4.60	\$76,710
D10	Conveying				\$150,000
D1010	Elevators & Lifts				\$150,000
D10.1	Elevator - new for ADA accessibility	1	ea	\$115,000.00	\$115,000
D10.2	ADA Accessibility at other locations	1	ls	\$35,000.00	\$35,000
D20	Plumbing				\$333,520
D2010	Plumbing Fixtures				\$333,520
D20.1	Replace Plumbing System	16,676	sf	\$20.00	\$333,520
D30	HVAC				\$816,984
D3010	Energy Supply				\$816,984
D30.1	Replace HVAC System - 1st Floor	6,960	sf	\$36.00	\$250,560
D30.2	Replace HVAC System - 2nd floor	9,716	sf	\$48.00	\$466,368
D30.3	New controls	16,676	sf	\$6.00	\$100,056
D50	Electrical				\$583,660
D5010	Electrical Service & Distribution				\$583,660
D50.1	Replace/ Upgrade & Revise Electrical	16,676	sf	\$35.00	\$583,660

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
E10	Equipment				\$426,500
E1020	Institutional Equipment				\$426,500
E10.1	New Curtains	1	ls	\$60,000.00	\$60,000
E10.2	New Stage Lighting	1	ls	\$90,000.00	\$90,000
E10.3	New Seating	700	ea	\$395.00	\$276,500
E20	Furnishings				\$166,760
E2020	Movable Furnishings				\$166,760
E20.1	New FF&E	16,676	sf	\$10.00	\$166,760
F20	Selective Building Demolition				\$81,352
F2010	Building Elements Demolition				\$33,352
F20.1	Misc Building Demolition	16,676	sf	\$2.00	\$33,352
F2020	Hazardous Components Abatement				\$48,000
F20.2	Abatement	1	LS	\$48,000.00	\$48,000
G20	Site Improvements				\$425,000
G2040	Site Development				\$400,000
G20.1	Site Development	1	ls	\$400,000.00	\$400,000
G2050	Landscaping				\$25,000
G20.2	Landscaping	1	ls	\$25,000.00	\$25,000
G30	Site Mechanical Utilities				\$75,000
G3010	Water Supply				\$75,000
G30.1	Misc Repairs & Replacements	1	LS	\$75,000.00	\$75,000



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov.-Bld 3 English

Stage of Design: Schematic Design

Gross Area (SF): 207181

SUMMARY			
	Description	Total Estimated Cost	% Cost Per Gross Sq. Ft.
A10	Foundations		0.00 \$0.00
A20	Basement Construction		0.00 \$0.00
B10	Superstructure	\$40,000	1.69 \$2.50
B20	Exterior Enclosure	\$214,368	9.06 \$13.38
B30	Roofing	\$282,900	11.96 \$17.65
C10	Interior Construction	\$50,000	2.11 \$3.12
C20	Stairs	\$45,000	1.90 \$2.81
C30	Interior Finishes	\$135,225	5.72 \$8.44
D10	Conveying	\$25,000	1.06 \$1.56
D20	Plumbing	\$20,000	0.85 \$1.25
D30	HVAC	\$721,125	30.48 \$45.00
D40	Fire Protection		0.00 \$0.00
D50	Electrical	\$416,800	17.62 \$26.01
E10	Equipment		0.00 \$0.00
E20	Furnishings	\$160,250	6.77 \$10.00
F10	Special Construction		0.00 \$0.00
F20	Selective Building Demolition		0.00 \$0.00
G10	Site Preparation		0.00 \$0.00
G20	Site Improvements	\$255,000	10.78 \$15.91
G30	Site Mechanical Utilities		0.00 \$0.00
G40	Site Electrical Utilities		0.00 \$0.00
G90	Other Site Construction		0.00 \$0.00
COST OF WORK (Present Day Value)		\$2,365,668	\$147.62

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
B10	Superstructure				\$40,000
B1010	Floor Construction				\$15,000
B10.1	Revise adjacent Walkways & Fireproof	1	ls	\$15,000.00	\$15,000
B1020	Roof Construction				\$25,000
B10.2	Revise adjacent Walkways & connections	1	ls	\$25,000.00	\$25,000
B20	Exterior Enclosure				\$214,368
B2010	Exterior Walls				\$214,368
B20.1	Clean & Repoint existing masonry	13,398	sf	\$12.00	\$160,776
B20.2	New caulking	13,398	sf	\$4.00	\$53,592
B30	Roofing				\$282,900
B3010	Roof Coverings				\$274,400
B30.1	New Roofing	9,800	sf	\$28.00	\$274,400
B3020	Roof Openings				\$8,500
B30.2	New roof hatch	1	ea	\$8,500.00	\$8,500
C10	Interior Construction				\$50,000
C1010	Partitions				\$25,000
C10.1	Misc Repairs	1	ls	\$25,000.00	\$25,000
C1020	Interior Doors				\$25,000
C10.2	Misc Repairs & Hardware	1	ls	\$25,000.00	\$25,000
C30	Interior Finishes				\$135,225
C3010	Wall Finishes				\$32,050
C30.1	Repainting	16,025	sf	\$2.00	\$32,050
C3020	Floor Finishes				\$87,150
C30.2	Cleaning & Patching	16,025	sf	\$1.00	\$16,025
C30.3	New Carpet	4,025	sf	\$5.00	\$20,125
C30.4	New VCT	12,000	sf	\$4.25	\$51,000
C3030	Ceiling Finishes				\$16,025
C30.5	Misc Patch & Repairs	16,025	sf	\$1.00	\$16,025
D10	Conveying				\$25,000
D1010	Elevators & Lifts				\$25,000

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
D10.1	Elevator Service	1	ls	\$25,000.00	\$25,000
D20	Plumbing				\$20,000
D2010	Plumbing Fixtures				\$20,000
D20.1	Misc Repairs/Replacements	1	ls	\$20,000.00	\$20,000
D30	HVAC				\$721,125
D3010	Energy Supply				\$721,125
D30.1	New HVAC System	16,025	sf	\$45.00	\$721,125
D50	Electrical				\$416,800
D5010	Electrical Service & Distribution				\$33,013
D50.1	Misc Repairs to Panels	1	ls	\$20,000.00	\$20,000
D50.2	Cleaning & Storage item removal for access	1	ls	\$5,000.00	\$5,000
D50.3	Surge Protection	16,025	sf	\$0.50	\$8,013
D5020	Lighting and Branch Wiring				\$247,575
D50.4	New LED lighting	16,025	sf	\$12.00	\$192,300
D50.5	Emergency Lighting	16	ea	\$450.00	\$7,200
D50.6	Lighting Controls	16,025	sf	\$3.00	\$48,075
D5030	Communications & Security				\$60,094
D50.7	Replacement Systems	16,025	sf	\$3.75	\$60,094
D5090	Other Electrical Systems				\$76,119
D50.8	Fire Alarm System & connections	16,025	sf	\$4.75	\$76,119
G20	Site Improvements				\$255,000
G2030	Pedestrian Paving				\$24,000
G20.1	New sidewalks and drainage	1	ls	\$24,000.00	\$24,000
G2040	Site Development				\$216,000
G20.2	New connection to new buildings	2,400	sf	\$90.00	\$216,000
G2050	Landscaping				\$15,000
G20.3	Landscaping	1	ls	\$15,000.00	\$15,000



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov.- Bld 4 Career Ctr

Stage of Design: Schematic Design

Gross Area (SF): 207181

SUMMARY				
	Description	Total Estimated Cost	%	Cost Per Gross Sq. Ft.
A10	Foundations	\$59,400	1.12	\$2.71
A20	Basement Construction	\$106,320	2.00	\$4.85
B10	Superstructure	\$444,000	8.35	\$20.27
B20	Exterior Enclosure	\$858,084	16.14	\$39.18
B30	Roofing	\$296,300	5.57	\$13.53
C10	Interior Construction	\$50,000	0.94	\$2.28
C20	Stairs	\$15,000	0.28	\$0.68
C30	Interior Finishes	\$276,125	5.19	\$12.61
D10	Conveying	\$25,000	0.47	\$1.14
D20	Plumbing	\$438,000	8.24	\$20.00
D30	HVAC	\$985,500	18.54	\$45.00
D40	Fire Protection		0.00	\$0.00
D50	Electrical	\$1,078,100	20.28	\$49.23
E10	Equipment	\$88,000	1.66	\$4.02
E20	Furnishings	\$369,000	6.94	\$16.85
F10	Special Construction		0.00	\$0.00
F20	Selective Building Demolition	\$80,700	1.52	\$3.68
G10	Site Preparation		0.00	\$0.00
G20	Site Improvements	\$147,000	2.76	\$6.71
G30	Site Mechanical Utilities		0.00	\$0.00
G40	Site Electrical Utilities		0.00	\$0.00
G90	Other Site Construction		0.00	\$0.00
COST OF WORK (Present Day Value)		\$5,316,529		\$242.76

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
A10	Foundations				\$59,400
A1030	Slab on Grade				\$59,400
A10.1	SOG Repairs - & Columns, & Plumbing	9,900	sf	\$6.00	\$59,400
A20	Basement Construction				\$106,320
A2010	Basement Excavation				\$76,320
A20.1	Excavation & Waterproofing	3,180	sf	\$24.00	\$76,320
A2020	Basement Walls				\$30,000
A20.2	New Drainage System	1	ls	\$30,000.00	\$30,000
B10	Superstructure				\$444,000
B1020	Roof Construction				\$444,000
B10.1	New Roof & Flashings	12,000	sf	\$28.00	\$336,000
B10.2	Decking Repairs	12,000	sf	\$1.00	\$12,000
B10.3	Roof Demolition	12,000	sf	\$8.00	\$96,000
B20	Exterior Enclosure				\$858,084
B2010	Exterior Walls				\$744,720
B20.1	Add vertical reinforcing at per floor/ drilled	136	ea	\$2,400.00	\$326,400
B20.2	New weeps, patching masonry repairs	12,720	sf	\$26.00	\$330,720
B20.3	Waterproofing & Sealants	21,900	sf	\$4.00	\$87,600
B2020	Exterior Windows				\$79,764
B20.4	New Windows	1,020	sf	\$75.00	\$76,500
B20.5	Caulking & Sealant	68	ea	\$48.00	\$3,264
B2030	Exterior Doors				\$33,600
B20.6	New Door & Entry	8	ea	\$4,200.00	\$33,600
B30	Roofing				\$296,300
B3010	Roof Coverings				\$281,400
B30.1	New TPO Insulation & Roofing	9,800	sf	\$28.00	\$274,400
B30.2	New Flashings	200	lf	\$35.00	\$7,000
B3020	Roof Openings				\$14,900
B30.3	New Hatch	1	ea	\$8,500.00	\$8,500
B30.4	New Ladders	2	ea	\$3,200.00	\$6,400

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
C10	Interior Construction				\$50,000
C1010	Partitions				\$25,000
C10.1	Misc Repairs	1	ls	\$25,000.00	\$25,000
C1020	Interior Doors				\$25,000
C10.2	Misc Repairs & Hardware	1	ls	\$25,000.00	\$25,000
C30	Interior Finishes				\$276,125
C3010	Wall Finishes				\$65,700
C30.1	Repainting	21,900	sf	\$2.00	\$43,800
C30.2	Repairs & Patching	21,900	sf	\$1.00	\$21,900
C3020	Floor Finishes				\$106,400
C30.3	Cleaning & Patching	21,900	sf	\$1.00	\$21,900
C30.4	New Carpet	1,600	sf	\$5.00	\$8,000
C30.5	New VCT	18,000	sf	\$4.25	\$76,500
C3030	Ceiling Finishes				\$104,025
C30.6	New Ceilings	21,900	sf	\$4.75	\$104,025
D10	Conveying				\$25,000
D1010	Elevators & Lifts				\$25,000
D10.1	Elevator Service	1	ls	\$25,000.00	\$25,000
D20	Plumbing				\$438,000
D2010	Plumbing Fixtures				\$438,000
D20.1	New Plumbing System	21,900	sf	\$20.00	\$438,000
D30	HVAC				\$985,500
D3010	Energy Supply				\$985,500
D30.1	New HVAC System	21,900	sf	\$45.00	\$985,500
D50	Electrical				\$1,078,100
D5010	Electrical Service & Distribution				\$891,950
D50.1	New Electrical Service	21,900	sf	\$40.00	\$876,000
D50.2	Cleaning & Storage item removal for access	1	ls	\$5,000.00	\$5,000
D50.3	Surge Protection	21,900	sf	\$0.50	\$10,950
D5030	Communications & Security				\$82,125

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
D50.4	Replacement Systems	21,900	sf	\$3.75	\$82,125
D5090	Other Electrical Systems				\$104,025
D50.5	Fire Alarm System & connections	21,900	sf	\$4.75	\$104,025
E10	Equipment				\$88,000
E1020	Institutional Equipment				\$88,000
E10.1	New Residential Appliances	1	LS	\$60,000.00	\$60,000
E10.2	New Hoods & Venting	8	EA	\$3,500.00	\$28,000
E20	Furnishings				\$369,000
E2010	Fixed Furnishings				\$150,000
E20.1	New casework per classroom	10	ea	\$15,000.00	\$150,000
E2020	Movable Furnishings				\$219,000
E20.2	New FF&E	21,900	sf	\$10.00	\$219,000
F20	Selective Building Demolition				\$80,700
F2010	Building Elements Demolition				\$65,700
F20.1	Selective Demolition	21,900	sf	\$3.00	\$65,700
F2020	Hazardous Components Abatement				\$15,000
F20.2	Misc Abatement, 1972 bldg	1	ls	\$15,000.00	\$15,000
G20	Site Improvements				\$147,000
G2030	Pedestrian Paving				\$24,000
G20.1	New sidewalks and drainage	1	ls	\$24,000.00	\$24,000
G2040	Site Development				\$108,000
G20.2	New connection to new buildings	1,200	sf	\$90.00	\$108,000
G2050	Landscaping				\$15,000
G20.3	Landscaping	1	ls	\$15,000.00	\$15,000



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov- Bld 5 Media/Cafe

Stage of Design: Schematic Design

Gross Area (SF): 207181

SUMMARY				
Description		Total Estimated Cost	%	Cost Per Gross Sq. Ft.
A10	Foundations	\$21,400	0.44	\$1.00
A20	Basement Construction	\$54,744	1.12	\$2.56
B10	Superstructure	\$154,000	3.15	\$7.20
B20	Exterior Enclosure	\$412,800	8.45	\$19.29
B30	Roofing	\$321,100	6.57	\$15.00
C10	Interior Construction	\$50,000	1.02	\$2.34
C20	Stairs		0.00	\$0.00
C30	Interior Finishes	\$293,150	6.00	\$13.70
D10	Conveying		0.00	\$0.00
D20	Plumbing	\$144,000	2.95	\$6.73
D30	HVAC	\$963,000	19.72	\$45.00
D40	Fire Protection	\$158,700	3.25	\$7.42
D50	Electrical	\$1,193,800	24.44	\$55.79
E10	Equipment	\$489,000	10.01	\$22.85
E20	Furnishings	\$439,000	8.99	\$20.51
F10	Special Construction		0.00	\$0.00
F20	Selective Building Demolition	\$32,100	0.66	\$1.50
G10	Site Preparation		0.00	\$0.00
G20	Site Improvements	\$157,000	3.21	\$7.34
G30	Site Mechanical Utilities		0.00	\$0.00
G40	Site Electrical Utilities		0.00	\$0.00
G90	Other Site Construction		0.00	\$0.00
COST OF WORK (Present Day Value)		\$4,883,794		\$228.21

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
A10	Foundations				\$21,400
A1030	Slab on Grade				\$21,400
A10.1	SOG Repairs for Plumbing	21,400	sf	\$1.00	\$21,400
A20	Basement Construction				\$54,744
A2010	Basement Excavation				\$39,744
A20.1	Excavation & Waterproofing	1,656	sf	\$24.00	\$39,744
A2020	Basement Walls				\$15,000
A20.2	New Drainage System	1	ls	\$15,000.00	\$15,000
B10	Superstructure				\$154,000
B1020	Roof Construction				\$154,000
B10.1	New Roof Prep & Flashings	22,000	sf	\$1.00	\$22,000
B10.2	Roof Demo	22,000	sf	\$6.00	\$132,000
B20	Exterior Enclosure				\$412,800
B2010	Exterior Walls				\$256,800
B20.1	New weeps, patching masonry repairs	21,400	sf	\$8.00	\$171,200
B20.2	Waterproofing & Sealants	21,400	sf	\$4.00	\$85,600
B2020	Exterior Windows				\$114,000
B20.3	New Windows/clearstory	1,200	sf	\$75.00	\$90,000
B20.4	Caulking & Sealant	1	ls	\$24,000.00	\$24,000
B2030	Exterior Doors				\$42,000
B20.5	New Door & Entry	10	ea	\$4,200.00	\$42,000
B30	Roofing				\$321,100
B3010	Roof Coverings				\$309,400
B30.1	New TPO Insulation & Roofing	9,800	sf	\$28.00	\$274,400
B30.2	New Flashings	600	lf	\$35.00	\$21,000
B30.3	Roof Drains & Piping	14	ea	\$1,000.00	\$14,000
B3020	Roof Openings				\$11,700
B30.4	New Hatch	1	ea	\$8,500.00	\$8,500
B30.5	New Ladders	1	ea	\$3,200.00	\$3,200
C10	Interior Construction				\$50,000

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
C1010	Partitions				\$25,000
C10.1	Misc Repairs	1	ls	\$25,000.00	\$25,000
C1020	Interior Doors				\$25,000
C10.2	Misc Repairs & Hardware	1	ls	\$25,000.00	\$25,000
C30	Interior Finishes				\$293,150
C3010	Wall Finishes				\$64,200
C30.1	Repainting	21,400	sf	\$2.00	\$42,800
C30.2	Repairs & Patching	21,400	sf	\$1.00	\$21,400
C3020	Floor Finishes				\$132,650
C30.3	Cleaning & Patching	21,400	sf	\$1.00	\$21,400
C30.4	New Carpet	1,400	sf	\$5.00	\$7,000
C30.5	New VCT	17,000	sf	\$4.25	\$72,250
C30.6	New Quarry Tile/Repairs	2,000	sf	\$16.00	\$32,000
C3030	Ceiling Finishes				\$96,300
C30.7	New Ceilings/Tile Replacement	21,400	sf	\$4.50	\$96,300
D20	Plumbing				\$144,000
D2010	Plumbing Fixtures				\$144,000
D20.1	New Plumbing/Repairs	21,900	sf	\$5.00	\$109,500
D20.2	Grease Trap	1	ea	\$9,500.00	\$9,500
D20.3	New Plumbing Bathrooms fixtures to meet code	10	ea	\$2,500.00	\$25,000
D30	HVAC				\$963,000
D3010	Energy Supply				\$963,000
D30.1	New HVAC System	21,400	sf	\$45.00	\$963,000
D50	Electrical				\$1,193,800
D5010	Electrical Service & Distribution				\$947,700
D50.1	New Electrical Service	21,400	sf	\$40.00	\$856,000
D50.2	New Electrical Room	180	sf	\$450.00	\$81,000
D50.3	Surge Protection	21,400	sf	\$0.50	\$10,700
D5030	Communications & Security				\$80,250
D50.4	Replacement Systems	21,400	sf	\$3.75	\$80,250

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
D5090	Other Electrical Systems				\$165,850
D50.5	Fire Alarm System & connections	21,400	sf	\$4.75	\$101,650
D50.6	Intercom System	21,400	sf	\$3.00	\$64,200
E10	Equipment				\$489,000
E1020	Institutional Equipment				\$489,000
E10.1	New Cafeteria Eqp	1	LS	\$450,000.00	\$450,000
E10.2	New Hoods & Venting	2	EA	\$19,500.00	\$39,000
E20	Furnishings				\$439,000
E2010	Fixed Furnishings				\$225,000
E20.1	New media & CR casework	1	ls	\$225,000.00	\$225,000
E2020	Movable Furnishings				\$214,000
E20.2	New FF&E	21,400	sf	\$10.00	\$214,000
F20	Selective Building Demolition				\$32,100
F2010	Building Elements Demolition				\$32,100
F20.1	Selective Demolition	21,400	sf	\$1.50	\$32,100
G20	Site Improvements				\$157,000
G2030	Pedestrian Paving				\$34,000
G20.1	New sidewalks and drainage	1	ls	\$24,000.00	\$24,000
G20.2	Loading Dock Repairs	1	ls	\$10,000.00	\$10,000
G2040	Site Development				\$108,000
G20.3	New connection to new buildings	1,200	sf	\$90.00	\$108,000
G2050	Landscaping				\$15,000
G20.4	Landscaping	1	ls	\$15,000.00	\$15,000



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov.- Bld 6-Voc Ed

Stage of Design: Schematic Design

Gross Area (SF): 207181

SUMMARY

Description		Total Estimated Cost	%	Cost Per Gross Sq. Ft.
A10	Foundations		0.00	\$0.00
A20	Basement Construction		0.00	\$0.00
B10	Superstructure	\$75,000	3.45	\$4.58
B20	Exterior Enclosure	\$351,080	16.17	\$21.43
B30	Roofing	\$468,140	21.56	\$28.58
C10	Interior Construction	\$40,000	1.84	\$2.44
C20	Stairs	\$10,000	0.46	\$0.61
C30	Interior Finishes	\$89,735	4.13	\$5.48
D10	Conveying	\$25,000	1.15	\$1.53
D20	Plumbing	\$22,500	1.04	\$1.37
D30	HVAC	\$163,800	7.54	\$10.00
D40	Fire Protection		0.00	\$0.00
D50	Electrical	\$420,143	19.35	\$25.65
E10	Equipment		0.00	\$0.00
E20	Furnishings	\$122,850	5.66	\$7.50
F10	Special Construction		0.00	\$0.00
F20	Selective Building Demolition		0.00	\$0.00
G10	Site Preparation		0.00	\$0.00
G20	Site Improvements	\$383,000	17.64	\$23.38
G30	Site Mechanical Utilities		0.00	\$0.00
G40	Site Electrical Utilities		0.00	\$0.00
G90	Other Site Construction		0.00	\$0.00
COST OF WORK (Present Day Value)		\$2,171,248		\$132.55

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
B10	Superstructure				\$75,000
B1010	Floor Construction				\$50,000
B10.1	Misc Structural Repairs	1	ls	\$50,000.00	\$50,000
B1020	Roof Construction				\$25,000
B10.2	Revise adjacent Walkways & connections	1	ls	\$25,000.00	\$25,000
B20	Exterior Enclosure				\$351,080
B2010	Exterior Walls				\$262,080
B20.1	Clean & Repoint existing masonry	16,380	sf	\$12.00	\$196,560
B20.2	New caulking	16,380	sf	\$4.00	\$65,520
B2020	Exterior Windows				\$36,000
B20.3	New Windows	480	sf	\$75.00	\$36,000
B2030	Exterior Doors				\$53,000
B20.4	New roll-up doors	5	ea	\$8,600.00	\$43,000
B20.5	New Extr Doors	4	ea	\$2,500.00	\$10,000
B30	Roofing				\$468,140
B3010	Roof Coverings				\$458,640
B30.1	New Roofing	16,380	sf	\$28.00	\$458,640
B3020	Roof Openings				\$9,500
B30.2	New roof hatch/ladder	1	ea	\$9,500.00	\$9,500
C10	Interior Construction				\$40,000
C1010	Partitions				\$25,000
C10.1	Misc Repairs	1	ls	\$25,000.00	\$25,000
C1020	Interior Doors				\$15,000
C10.2	Misc Repairs & Hardware	1	ls	\$15,000.00	\$15,000
C30	Interior Finishes				\$89,735
C3010	Wall Finishes				\$32,760
C30.1	Repainting	16,380	sf	\$2.00	\$32,760
C3020	Floor Finishes				\$40,950
C30.2	Cleaning & Patching	16,380	sf	\$2.50	\$40,950
C3030	Ceiling Finishes				\$16,025

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
C30.3	Misc Patch & Repairs	16,025	sf	\$1.00	\$16,025
D10	Conveying				\$25,000
D1010	Elevators & Lifts				\$25,000
D10.1	Elevator Service	1	ls	\$25,000.00	\$25,000
D20	Plumbing				\$22,500
D2010	Plumbing Fixtures				\$22,500
D20.1	Misc Repairs/Replacements	1	ls	\$5,000.00	\$5,000
D20.2	New Womens toilets	5	ea	\$3,500.00	\$17,500
D30	HVAC				\$163,800
D3010	Energy Supply				\$163,800
D30.1	Misc HVAC System repairs	16,380	sf	\$10.00	\$163,800
D50	Electrical				\$420,143
D5010	Electrical Service & Distribution				\$28,013
D50.1	Misc Repairs to Panels	1	ls	\$20,000.00	\$20,000
D50.2	Surge Protection	16,025	sf	\$0.50	\$8,013
D5020	Lighting and Branch Wiring				\$252,900
D50.3	New LED lighting	16,380	sf	\$12.00	\$196,560
D50.4	Emergency Lighting	16	ea	\$450.00	\$7,200
D50.5	Lighting Controls	16,380	sf	\$3.00	\$49,140
D5030	Communications & Security				\$61,425
D50.6	Replacement Systems	16,380	sf	\$3.75	\$61,425
D5090	Other Electrical Systems				\$77,805
D50.7	Fire Alarm System & connections	16,380	sf	\$4.75	\$77,805
G20	Site Improvements				\$383,000
G2010	Roadways				\$200,000
G20.1	Roadway Repairs Regrading Retaining Walls	1	ls	\$200,000.00	\$200,000
G2030	Pedestrian Paving				\$24,000
G20.2	New sidewalks and drainage	1	ls	\$24,000.00	\$24,000
G2040	Site Development				\$144,000
G20.3	New connection to new buildings	1,600	sf	\$90.00	\$144,000

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
G2050	Landscaping				\$15,000
G20.4	Landscaping	1	ls	\$15,000.00	\$15,000



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov. Gymnasium

Stage of Design: Schematic Design

Gross Area (SF): 207181

SUMMARY				
	Description	Total Estimated Cost	%	Cost Per Gross Sq. Ft.
A10	Foundations	\$237,871	2.31	\$10.91
A20	Basement Construction		0.00	\$0.00
B10	Superstructure	\$664,992	6.47	\$30.50
B20	Exterior Enclosure	\$470,945	4.58	\$21.60
B30	Roofing	\$404,664	3.94	\$18.56
C10	Interior Construction	\$360,840	3.51	\$16.55
C20	Stairs	\$20,495	0.20	\$0.94
C30	Interior Finishes	\$504,739	4.91	\$23.15
D10	Conveying		0.00	\$0.00
D20	Plumbing	\$479,666	4.66	\$22.00
D30	HVAC	\$1,002,938	9.75	\$46.00
D40	Fire Protection	\$114,466	1.11	\$5.25
D50	Electrical	\$959,332	9.33	\$44.00
E10	Equipment	\$490,568	4.77	\$22.50
E20	Furnishings	\$212,579	2.07	\$9.75
F10	Special Construction		0.00	\$0.00
F20	Selective Building Demolition		0.00	\$0.00
G10	Site Preparation	\$1,183,424	11.51	\$54.28
G20	Site Improvements	\$3,025,000	29.42	\$138.74
G30	Site Mechanical Utilities	\$150,000	1.46	\$6.88
G40	Site Electrical Utilities		0.00	\$0.00
G90	Other Site Construction		0.00	\$0.00
COST OF WORK (Present Day Value)		\$10,282,517		\$471.61

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
G10	Site Preparation				\$1,183,424
G1020	Site Demolition and Relocations				\$474,424
G10.1	Site Demolition	2	ac	\$150,000.00	\$300,000
G10.2	Building Demolition	21,803	sf	\$8.00	\$174,424
G1030	Site Earthwork				\$600,000
G10.3	Site Earthwork	2	ac	\$300,000.00	\$600,000
G1040	Hazardous Waste Removal				\$109,000
G10.4	Hazardous Material Abatement	21,800	sf	\$5.00	\$109,000
G20	Site Improvements				\$3,025,000
G2010	Roadways				\$125,000
G20.1	New Roadway & Connections	1	ac	\$125,000.00	\$125,000
G2020	Parking Lots				\$2,700,000
G20.2	New Parking Requirements	300	sp	\$9,000.00	\$2,700,000
G2030	Pedestrian Paving				\$25,000
G20.3	Sidewalks	1	ls	\$25,000.00	\$25,000
G2040	Site Development				\$150,000
G20.4	Site Development - Retaining Walls	1	LS	\$150,000.00	\$150,000
G2050	Landscaping				\$25,000
G20.5	Landscaping	1	ls	\$25,000.00	\$25,000
G30	Site Mechanical Utilities				\$150,000
G3010	Water Supply				\$150,000
G30.1	New Water & Fire Lines, All Utilities	1	ls	\$150,000.00	\$150,000



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov.- AG Bldg

Stage of Design: Schematic Design

Gross Area (SF): 207181

<u>SUMMARY</u>			
	Description	Total Estimated Cost	% Cost Per Gross Sq. Ft.
A10	Foundations		0.00 \$0.00
A20	Basement Construction		0.00 \$0.00
B10	Superstructure		0.00 \$0.00
B20	Exterior Enclosure		0.00 \$0.00
B30	Roofing		0.00 \$0.00
C10	Interior Construction		0.00 \$0.00
C20	Stairs		0.00 \$0.00
C30	Interior Finishes		0.00 \$0.00
D10	Conveying		0.00 \$0.00
D20	Plumbing		0.00 \$0.00
D30	HVAC		0.00 \$0.00
D40	Fire Protection		0.00 \$0.00
D50	Electrical		0.00 \$0.00
E10	Equipment		0.00 \$0.00
E20	Furnishings		0.00 \$0.00
F10	Special Construction		0.00 \$0.00
F20	Selective Building Demolition		0.00 \$0.00
G10	Site Preparation		0.00 \$0.00
G20	Site Improvements	\$67,235	100.00 \$11.70
G30	Site Mechanical Utilities		0.00 \$0.00
G40	Site Electrical Utilities		0.00 \$0.00
G90	Other Site Construction		0.00 \$0.00
COST OF WORK (Present Day Value)		\$67,235	\$11.70

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
G20	Site Improvements				\$67,235
G1020	Site Demolition and Relocations				\$12,500
G20.1	Site Demolition	0.50	ac	\$25,000.00	\$12,500
G1030	Site Earthwork				\$37,500
G20.2	Site Earthwork	0.50	ac	\$75,000.00	\$37,500
G1040	Hazardous Waste Removal				\$17,235
G20.3	Hazardous Material Abatement	5,745	sf	\$3.00	\$17,235



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov.- Bldg 9 Weight Rm

Stage of Design: Schematic Design

Gross Area (SF): 207181

<u>SUMMARY</u>			
	Description	Total Estimated Cost	% Cost Per Gross Sq. Ft.
A10	Foundations		0.00 \$0.00
A20	Basement Construction		0.00 \$0.00
B10	Superstructure		0.00 \$0.00
B20	Exterior Enclosure		0.00 \$0.00
B30	Roofing		0.00 \$0.00
C10	Interior Construction		0.00 \$0.00
C20	Stairs		0.00 \$0.00
C30	Interior Finishes		0.00 \$0.00
D10	Conveying		0.00 \$0.00
D20	Plumbing		0.00 \$0.00
D30	HVAC		0.00 \$0.00
D40	Fire Protection		0.00 \$0.00
D50	Electrical		0.00 \$0.00
E10	Equipment		0.00 \$0.00
E20	Furnishings		0.00 \$0.00
F10	Special Construction		0.00 \$0.00
F20	Selective Building Demolition		0.00 \$0.00
G10	Site Preparation		0.00 \$0.00
G20	Site Improvements	\$50,000	100.00 \$13.26
G30	Site Mechanical Utilities		0.00 \$0.00
G40	Site Electrical Utilities		0.00 \$0.00
G90	Other Site Construction		0.00 \$0.00
COST OF WORK (Present Day Value)		\$50,000	\$13.26

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
G20	Site Improvements				\$50,000
G1020	Site Demolition and Relocations				\$12,500
G20.1	Site Demolition	0.50	ac	\$25,000.00	\$12,500
G1030	Site Earthwork				\$37,500
G20.2	Site Earthwork	0.50	ac	\$75,000.00	\$37,500



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov. Bld 10-Fieldhouse

Stage of Design: Schematic Design

Gross Area (SF): 207181

<u>SUMMARY</u>			
	Description	Total Estimated Cost	% Cost Per Gross Sq. Ft.
A10	Foundations		0.00 \$0.00
A20	Basement Construction		0.00 \$0.00
B10	Superstructure		0.00 \$0.00
B20	Exterior Enclosure	\$18,808	14.18 \$3.20
B30	Roofing	\$17,616	13.28 \$3.00
C10	Interior Construction		0.00 \$0.00
C20	Stairs		0.00 \$0.00
C30	Interior Finishes	\$52,848	39.85 \$9.00
D10	Conveying		0.00 \$0.00
D20	Plumbing	\$3,000	2.26 \$0.51
D30	HVAC	\$11,000	8.29 \$1.87
D40	Fire Protection		0.00 \$0.00
D50	Electrical	\$29,360	22.14 \$5.00
E10	Equipment		0.00 \$0.00
E20	Furnishings		0.00 \$0.00
F10	Special Construction		0.00 \$0.00
F20	Selective Building Demolition		0.00 \$0.00
G10	Site Preparation		0.00 \$0.00
G20	Site Improvements		0.00 \$0.00
G30	Site Mechanical Utilities		0.00 \$0.00
G40	Site Electrical Utilities		0.00 \$0.00
G90	Other Site Construction		0.00 \$0.00
COST OF WORK (Present Day Value)		\$132,632	\$22.59

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
B20	Exterior Enclosure				\$18,808
B2010	Exterior Walls				\$8,808
B20.1	Re caulk & seals	5,872	sf	\$1.50	\$8,808
B2030	Exterior Doors				\$10,000
B20.2	Repair & Replace as needed	1	LS	\$10,000.00	\$10,000
B30	Roofing				\$17,616
B3010	Roof Coverings				\$17,616
B30.1	Roof Repairs as needed	5,872	sf	\$3.00	\$17,616
C30	Interior Finishes				\$52,848
C3010	Wall Finishes				\$17,616
C30.1	Painting/Sealant	5,872	sf	\$3.00	\$17,616
C3020	Floor Finishes				\$35,232
C30.2	Sand & Reseal Floor	5,872	sf	\$6.00	\$35,232
D20	Plumbing				\$3,000
D2010	Plumbing Fixtures				\$3,000
D20.1	Repair Fixtures & Faucets	4	ea	\$750.00	\$3,000
D30	HVAC				\$11,000
D3010	Energy Supply				\$11,000
D30.1	Replace exhaust fans	4	ea	\$750.00	\$3,000
D30.2	New Elec Unit Heaters	4	ea	\$2,000.00	\$8,000
D50	Electrical				\$29,360
D5010	Electrical Service & Distribution				\$29,360
D50.1	Misc Repairs & Services	5,872	sf	\$5.00	\$29,360



Building Cost Summary

MBP Project Code: J22032

Date Estimate Prepared: 06/06/2022

Project Title: FHS - C.Renov.-Mod.Swing Space

Stage of Design: Schematic Design

Gross Area (SF): 207181

<u>SUMMARY</u>			
	Description	Total Estimated Cost	% Cost Per Gross Sq. Ft.
A10	Foundations		0.00 \$0.00
A20	Basement Construction		0.00 \$0.00
B10	Superstructure		0.00 \$0.00
B20	Exterior Enclosure		0.00 \$0.00
B30	Roofing		0.00 \$0.00
C10	Interior Construction		0.00 \$0.00
C20	Stairs		0.00 \$0.00
C30	Interior Finishes		0.00 \$0.00
D10	Conveying		0.00 \$0.00
D20	Plumbing		0.00 \$0.00
D30	HVAC		0.00 \$0.00
D40	Fire Protection	\$156,800	1.78 \$7.19
D50	Electrical		0.00 \$0.00
E10	Equipment		0.00 \$0.00
E20	Furnishings		0.00 \$0.00
F10	Special Construction	\$6,983,600	79.45 \$320.35
F20	Selective Building Demolition		0.00 \$0.00
G10	Site Preparation	\$176,600	2.01 \$8.10
G20	Site Improvements	\$710,000	8.08 \$32.57
G30	Site Mechanical Utilities	\$327,000	3.72 \$15.00
G40	Site Electrical Utilities	\$436,000	4.96 \$20.00
G90	Other Site Construction		0.00 \$0.00
COST OF WORK (Present Day Value)		\$8,790,000	\$403.21

LEVEL III COST SUMMARY

Item No.	Description	Quantity	Unit	Total Unit Price	Item Total
F10	Special Construction				\$6,983,600
G1010	Lease Charges-182x65				\$6,393,600
F10.1	Lease Charges-182x65	72.00	mos	\$14,800.00	\$1,065,600
F10.2	Lease Charges-182x65	72.00	mos	\$14,800.00	\$1,065,600
F10.3	Lease Charges-182x65	72.00	mos	\$14,800.00	\$1,065,600
F10.4	Lease Charges-182x65	72.00	mos	\$14,800.00	\$1,065,600
F10.5	Lease Charges-182x65	72.00	mos	\$14,800.00	\$1,065,600
F10.6	Lease Charges-182x65	72.00	mos	\$14,800.00	\$1,065,600
G1010	Lease Charges-48x60				\$241,200
F10.7	Lease Charges-48x60	36.00	mos	\$3,350.00	\$120,600
F10.8	Lease Charges-48x60	36.00	mos	\$3,350.00	\$120,600
G10	Site Preparation				\$176,600
G1010	Delivery & Set-up Charges-182x65				\$66,000
G10.1	Delivery & Set-up Charges-182x65	1.00	ls	\$66,000.00	\$66,000
G1010	Delivery & Set-up Charges-48x60				\$37,600
G10.2	Delivery & Set-up Charges-48x60	1.00	ls	\$37,600.00	\$37,600
G1010	Removal & Cleanup Charges-182x65				\$54,500
G10.3	Removal & Cleanup Charges-182x65	1.00	ls	\$54,500.00	\$54,500
G1010	Removal & Cleanup Charges-48x60				\$18,500
G10.4	Removal & Cleanup Charges-48x60	1.00	ls	\$18,500.00	\$18,500
G20	Site Improvements				\$710,000
G1010	Site Clearing				\$210,000
G20.1	Site Clearing and rough grading	6.00	ac	\$35,000.00	\$210,000
G1020	Site Demolition and Relocations				\$50,000
G20.2	Site Demolition	2.00	ac	\$25,000.00	\$50,000
G1030	Site Earthwork				\$450,000
G20.3	Site Earthwork	6.00	ac	\$75,000.00	\$450,000