



MEETING AGENDA

April 29, 2019

6:30 PM

High School Library

- 1 | Review / Approve April 15 Meeting Summary
- 2 | Small Group Discussion | Elementary Needs & Priorities
- 3 | Review High School Needs
- 4 | Tour High School
- 5 | Small Group Discussion | High School Needs & Priorities (if time)
- 6 | Adjournment



REVIEW / APPROVE APRIL 15 MEETING SUMMARY

TAB 4



MEETING SUMMARY

April 15, 2019

Elementary School Library

Learning Today, Leading Tomorrow

OVERVIEW

The meeting started off talking about the enrollment projections for the school district. The study comes from Applied Population Laboratory and predicts small growth in the school districts attendance over the next three school years.

Before touring the Elementary School, Bray Architects presented the existing conditions report, which included: A building system evolution diagram, existing site plan and floor plan, building system summary, preliminary needs assessment, ADA assessment, roof plan, exterior door and window analysis, and engineer reports.

After the presentation and brief discussion of the existing conditions report, the group took a tour of the entire Elementary School. The tour, which was the main focus of the meeting, was led by Elementary School principal Beth Hellpap. Committee members observed the following:

- Areas of need as identified in the existing conditions report
- Teaching and learning spaces that are serving the school well and those that could use improvement
- All areas of the building (special ed spaces, bathrooms, shared cafeteria/ gym, etc.) that support students everyday

The meeting closed with a video tour of the school including the roof and an overview of the site and traffic flow during pick up.

Committee members were charged with bringing to the next meeting their thoughts on preliminary needs in the areas of safety/ security, infrastructure, educational spaces, and site.



NEXT MEETING >>>

Monday, April 29| 6:30-8:30 PM

High School - Library

- Small Group Discussion | Elementary Needs & Priorities
- Presentation | High School Existing Conditions Report
- Presentation | STEAM Advisory Committee Update
- High School Tour | Infrastructure Needs Focus
- Small Group Discussion | Elementary Needs & Priorities

FOR MORE INFORMATION:

Contact Janel DeZarn-Vert jdezarn@columbus.k12.wi.us

Visit www.columbus.k12.wi.us



ELEMENTARY NEEDS & PRIORITIES

COMMUNITY FACILITY ADVISORY COMMITTEE (FAC)
COLUMBUS SCHOOL DISTRICT
COLUMBUS, WISCONSIN

Bray Associates Architects, Inc.
Davenport | Milwaukee | Sheboygan



Monday | April 15, 2019

PRELIMINARY NEEDS SUMMARY

Area of Need	Columbus Elementary School
Safety / Security	
Infrastructure	
Educational	
Site	
Other	

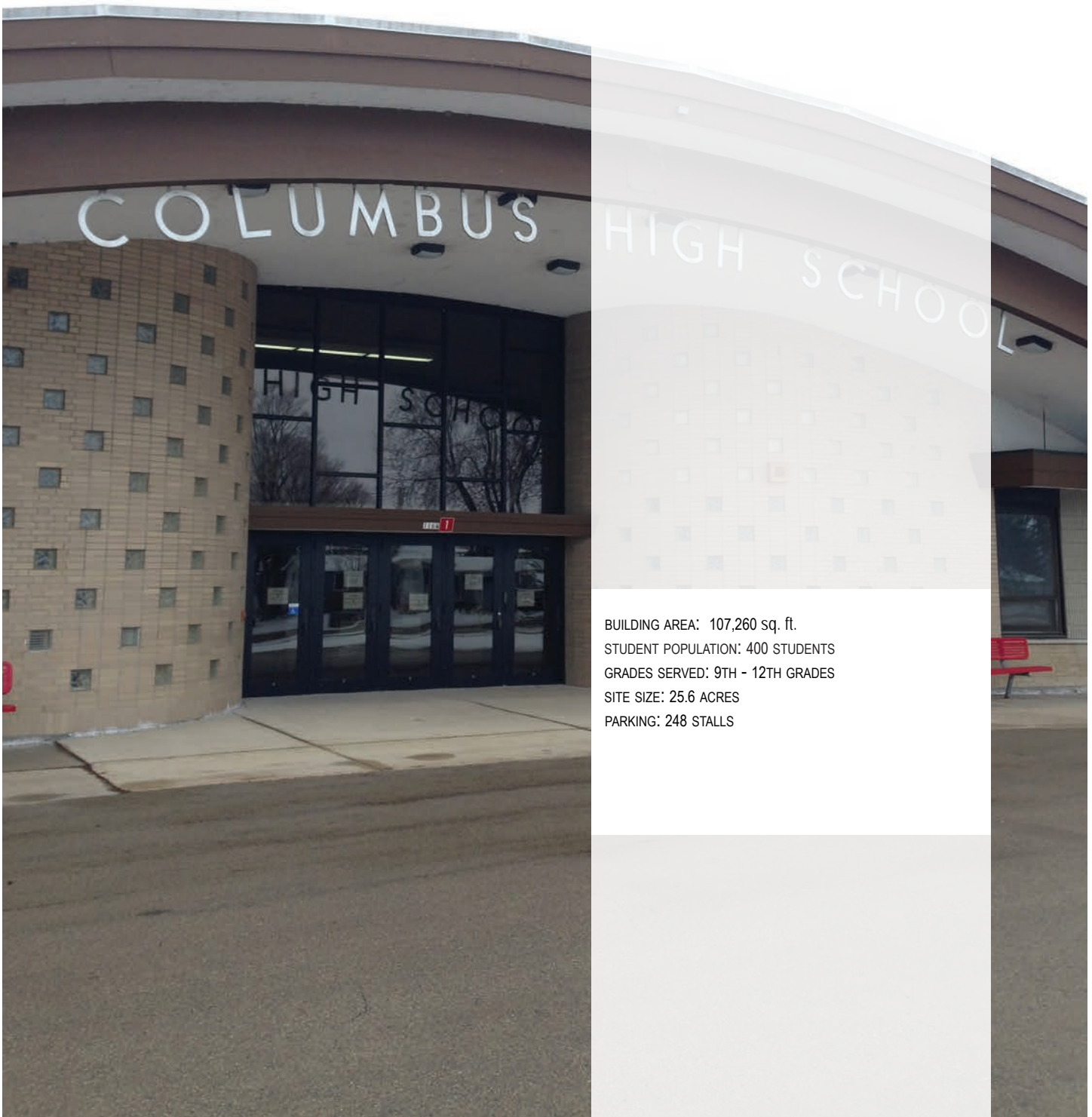


HIGH SCHOOL NEEDS

TAB 5&6

3 COLUMBUS HIGH SCHOOL

Columbus High School provides a comprehensive program for 9th through 12th grade students.



BUILDING AREA: 107,260 sq. ft.
STUDENT POPULATION: 400 STUDENTS
GRADES SERVED: 9TH - 12TH GRADES
SITE SIZE: 25.6 ACRES
PARKING: 248 STALLS

COLUMBUS HIGH SCHOOL: BUILDING EVOLUTION

Columbus High School was originally constructed in 1957. There has been two addition to the original building in 1964 and a larger one in 1980.

The following building evolution diagram outlines the building's development over time.



Columbus High School Main Office

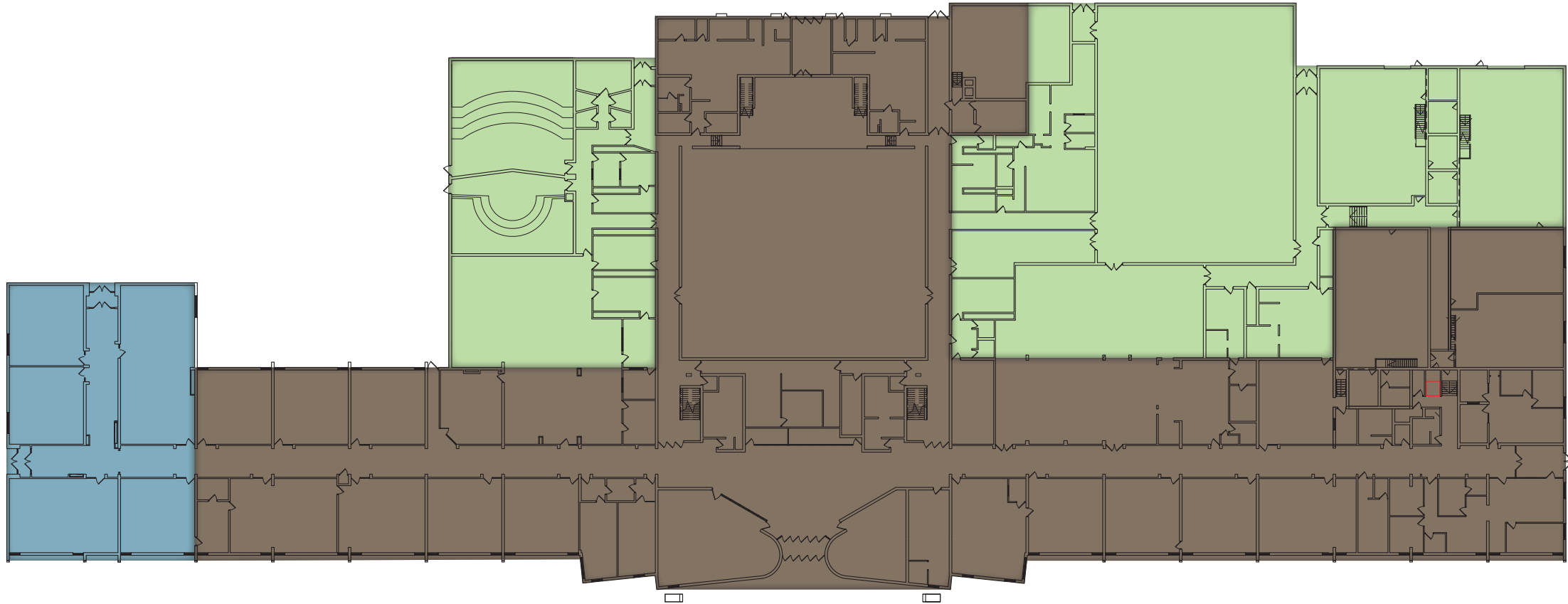


Columbus High School Classroom



Columbus High School Corridor

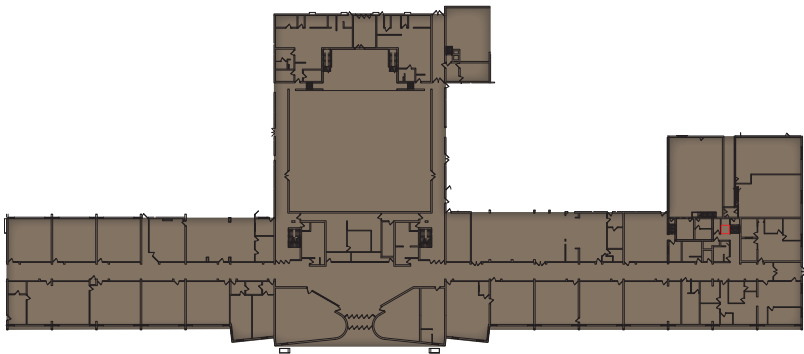




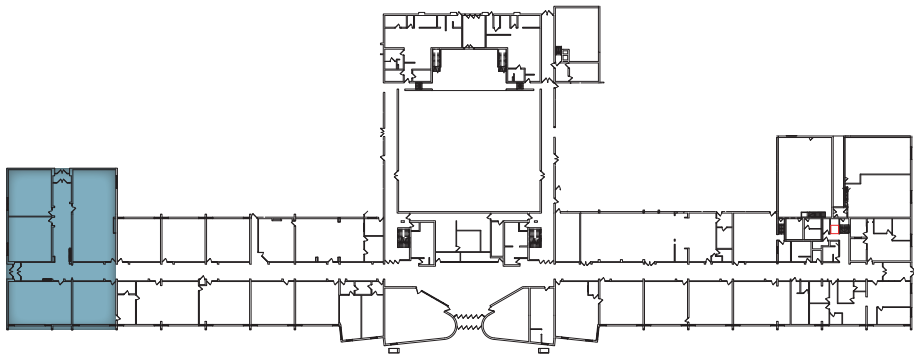
■ = 1957 - Original Building

■ = 1964 - Classroom Addition

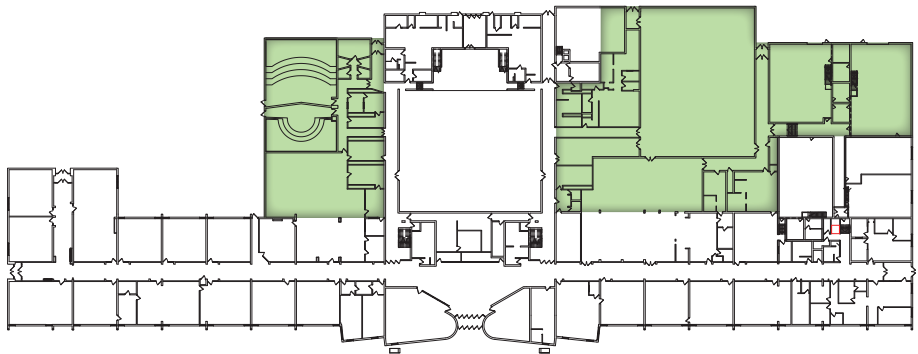
■ = 1980 - Shops/Music/Gym Addition



1957



1964



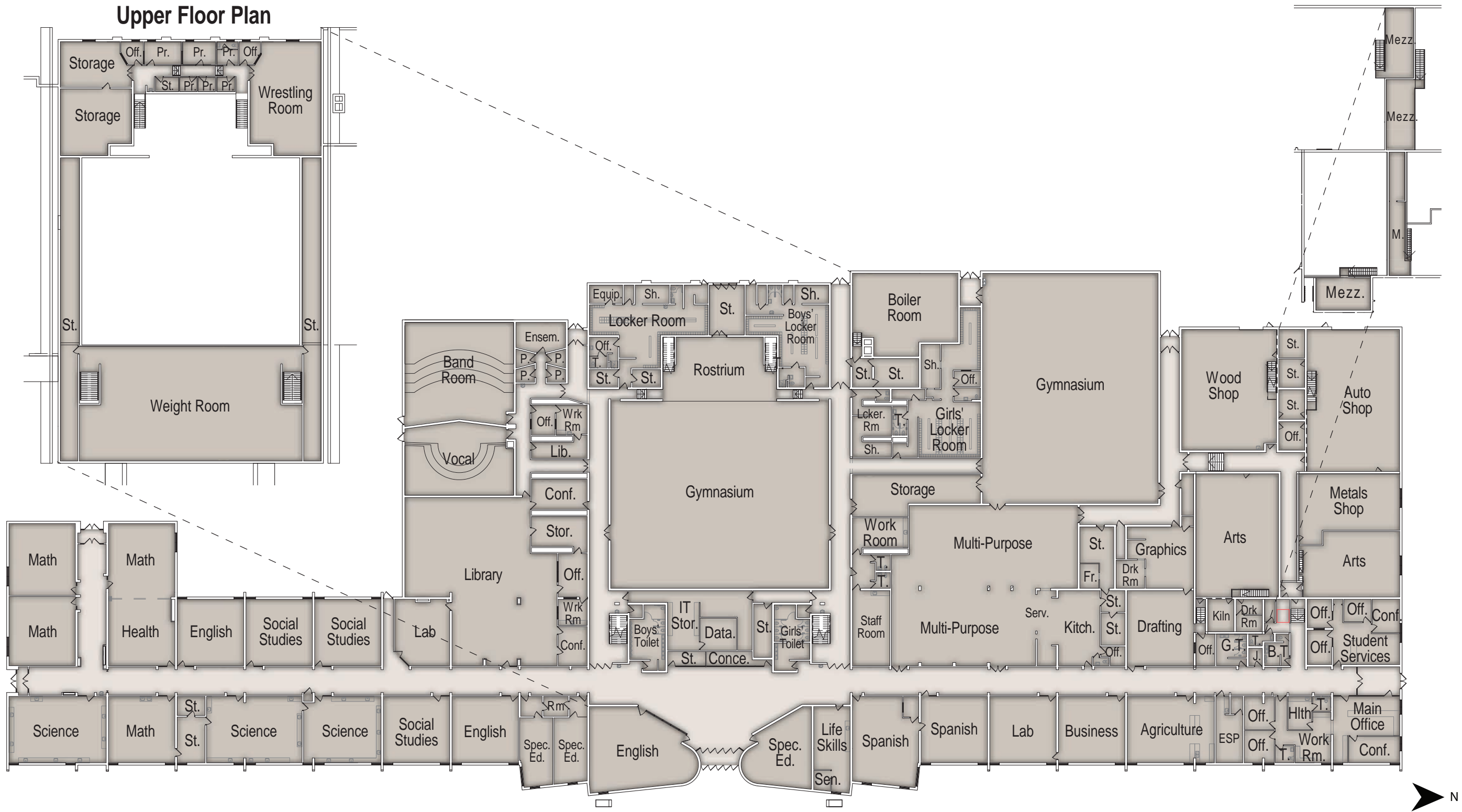
1980





SITE PLAN
not to scale





Columbus High School

FIRST FLOOR PLAN
not to scale



COLUMBUS HIGH SCHOOL: BUILDING SYSTEMS SUMMARY

The following is summary of Plumbing, HVAC and Electrical needs. This is not intended to be a comprehensive list, but a summary of existing building system needs and possible recommendations as identified by the engineering team. Full engineers' reports are located later in this document.

High School	Analysis	Recommendations
Building Systems		
Plumbing		
Domestic Water		
Water Service	Supplied by a 3" domestic water service that is metered in a pit outside the facility. Water pressure appears to be adequate.	For an addition, a new water service for new fire protection and a new domestic water meter would be required.
Water Distribution Piping	Some galvanized piping, majority of it in the main mechanical room. Backflow preventers that need annual testing are present.	Replace galvanized piping. Exact amount needs further verification. Continue to test and service backflow preventers annually.
Fire Sprinkler System	No automatic system is present. Some remote hose cabinets in the 1957 portion.	
Sanitary and Storm Piping		
Sanitary Waste	Majority of sanitary piping is cast iron.	Continue to monitor, replace existing when problems arise.
Sanitary Waste and Vent Piping	Vent piping in the original building is mostly galvanized but is in good condition. Modifications to existing piping include utilizing schedule 40 PVC piping for replacement.	Continue to monitor, replace existing when problems arise.
Kitchen Equipment	An interior grease interceptor is present, appears to be undersized. Dish machine's waste discharge is PVC which is not recommended.	Replace existing grease interceptor with new properly sized per kitchen equipment.
Art Room Equipment	Solid interceptors installed do not meet clearance required for servicing.	Relocate solid interceptor for proper clearance for servicing.
Shops	Catch basin is present.	
Lab Areas	Problems reported with existing acid waste piping and acid neutralization basin.	Replace existing as required.
Storm System	Some storm conductor piping are without insulation. Storm drains on the roof are in poor condition.	Drains need to be cleaned of dirt and debris to protect roof membrane. Monitor for leaking or stoppages.
Plumbing Equipment		
Water Heater	(3) HTP gas water heater units serve the general hot water system, 2 years old.	
Water Softener	(1) Hellenbrand water softener, 2 years old.	
Air Compressors	(1) air compressor serving the compressed air piping in shop area, original to installation.	Replace air compressor and dryer/ filter and piping with automatic isolation valves for each shop classroom
Plumbing Fixtures		
Plumbing Fixtures	Many existing fixtures were replaced in 2000, Main toilet rooms have ADA compliant fixtures. Water efficient faucets are no utilized in the building.	Existing toilet room fixtures need upgrades. Toilet rooms to be ADA compliant.
Water Closets	Majority are flush valve style, are in fair condition.	
Urinals	Majority are flush valve style, are in fair condition.	
Science Rooms	Natural gas has been provide in the main science rooms. Sinks and faucets in fair to good condition. All had eye washing stations but did not provide valves to temper water, not a code issue just recommended.	Possible upgrade to add mixing valves c to eye-wash units.
Locker Rooms	In poor to fair condition. Some piping replacement has been done in this area.	Toilet Room fixtures and gang showers should be replaced.
Janitorial Sinks	Stone service sinks with wall mounted faucets. Fixtures appear to be in fair to good condition.	
Drinking Fountains	Shortage of drinking fountains in the facility	Add additional drinking fountains, unknown how many are needed at this time.
Kitchen Equipment	Appears to be old but in good condition.	

COLUMBUS HIGH SCHOOL: BUILDING SYSTEMS SUMMARY

High School	Analysis	Recommendations
HVAC		
Heating System		
Boiler Plant	Served by one plant that consists of (4) Patterson Kelly hot water boilers. Three are PK Thermific boilers, installed in 2002, they have a 20 year life expectancy. The other is a PK Mach boiler, installed in 2016. There is no reserve capacity.	Continue preventative maintenance on the system. Plans should be made to replace the PK Thermific Boilers. Any addition or construction may require the addition of boiler capacity.
Piping and Pumping	A single circuit system with a stand-by pump. Each base mounted pump has a VFD, installed in 2016.	
Ventilation and Air Conditioning Systems		
Air Handling Units	(3) systems provide ventilation for the facility. Hot water unit ventilators, single zone variable volume systems and constant volume air handling systems.	Continue preventative maintenance on the systems.
	Unit ventilators serve the classrooms. Installed in 2016, are in good condition with life expectancies of 20 years.	
	Two single zone variable volume indoor air handling units serve the gym. Installed in 2016, are in good condition with life expectancies of 25 years. A room thermostat is used to control the temperature.	
	Constant volume indoor air handling units serve the library, cafeteria and music areas. Installed in 2016, are in good condition with life expectancies of 25 years. There are individual room temperature controls.	
	Constant volume air handling units serve the tech shops. A room thermostat is used to control the temperature. Original to the building, are in poor condition with exceeded their life expectancy and are not run due to noise.	Plans should be made to replace air handling units.
Door Transfer Grilles	Door transfer grilles are currently utilized to transfer relief air from the classrooms to the corridor.	With any remodel, plans should be made to replace the door transfer grille relief system with a code approved system.
Control Systems		
System	A Reliable digital control system serves the building.	Continue to maintain and operate the control system.



COLUMBUS HIGH SCHOOL: BUILDING SYSTEMS SUMMARY

High School	Analysis	Recommendations
Electrical		
Electric Service		
Utility Service	New service was recently added to feed the chiller. Existing old style switchgear was not removed or replaced. Utility demand was no available.	Recommended removal of the old switch gear and feeding loads with a new I-Line panel and breakers. Add a new surge suppression device.
Panelboards		
	Panels are limited and do not have room for future additions. Original panels were noted.	Upgrades on panels can be done if additional circuits are required in the building. Plan to update existing panelboards.
Generator		
	An Ona natural gas generator provides backup power to life safety and non-life safety loads, appears to be part of the original building construction.	Plan to update the existing generator in the near future. Life safety and non-life safety loads must be separated to comply with code, two transfer switches and two panels are required.
Light Fixtures & Controls		
Interior Lighting	Lighting is fluorescent light fixtures with T8 lamps and ballasts. Exit lights have been replaced with LED. In the gym, new Fluorescent T8 high bay fixtures. In the classrooms, lighting motions sensors were added. Some corridors do not have clear views of exit lights.	Replace with LED when fluorescents fixtures begin to fail.
Exterior Lighting	New LED lighting replaced the existing HPS fixtures.	
Emergency Egress Lighting	Not verified if the proper egress lighting was present.	Upgrade entire building with proper egress lighting. More complete building evaluation is needed.
Data, Telephone		
	Phone system is Mitel IP based and is linked to the Elementary and Middle Schools; wireless connection; classrooms and offices have Cat 5 data drops; Data racks are full, no additional cabling can be added. IDF rack is wall mounted. A new room for the MDF was set up.	Additional drops are desired in classroom areas.
Access Control System		
	A new "Tri Ad" IP Keyless entry system was recently added.	Add to existing system as required.
Intercom System		
	A simplex system was updated in 2015.	Add to existing system as required.
Clock System		
	New American Time battery clocks are present.	Add as required
CCTV System		
	IP CCTV system which was recently upgraded. Noted: CCTV on exterior of the building is lacking.	Add to existing system as required.
Fire Alarm System		
	A Simplex 4005 fire alarm system panel is currently installed. Areas of the facility do not meet code with regards to annunciation.	Horn and strobe devices can be added to all occupied locations to complete code. More complete study to determine additional equipment needed.

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COLUMBUS HIGH SCHOOL: NEEDS ASSESSMENT

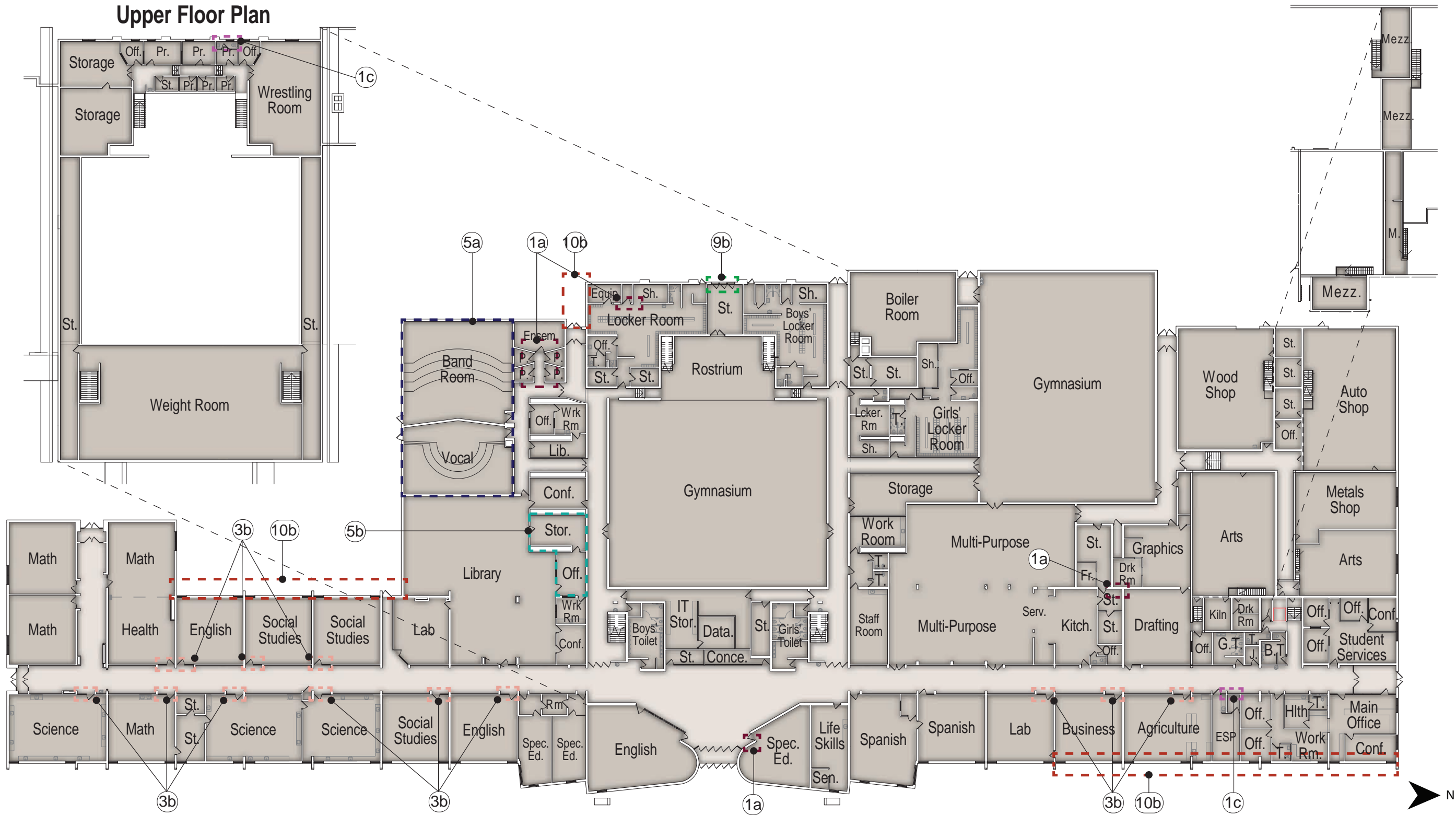
The following is a summary of potential improvements at Columbus High School. This is not intended to be a comprehensive list. The following information was obtained through notations made by Bray Architects at extensive tours of the building and grounds, as well as needs identified by District staff.

No.	High School	Type / Material	Area / Location	Analysis	Identified in Plans
Infrastructure Improvement					
Building Interior					
1	Walls				
a	Walls	CMU block	building	majority in good condition; minimal cracking/bubbling	x
b	Walls	tile	building	majority in good condition	
c	Walls	Gypsum	building	majority in good condition; some damaged	x
d	Walls	Modular brick	building	majority in good condition	
2	Window Interior & Openings				
a	Interior Window Sills	CMU	building	majority in good condition	
3	Interior Doors				
a	Interior Doors	wood	building	majority in good condition	
b	Interior Doors	wood w/side transom	classrooms	majority in good condition; grilles degraded/damaged	
c	Interior Doors	hollow metal	bathrooms/service areas/shops	generally in need of refinishing	
4	Ceilings				
a	Ceilings	acoustical tile	building	majority in poor condition; some new	
5	Flooring				
a	Flooring	carpet	offices/library/music	majority in good condition; some runs/tears, fraying, worn	x
b	Flooring	VCT	building	majority in good condition; minimal cracking, separating seams and / or missing	x
c	Flooring	concrete	locker rooms/shops	majority in good condition	
d	Flooring	ceramic tile	vestibules/locker rooms/bathrooms	majority in good condition	
e	Flooring	rubber/LVT	classrooms	majority in good condition	
f	Transitions	VCT to rubber/LVT	classrooms	majority in poor condition	
g	Base	tile	building	majority in good condition	
h	Base	rubber	building	majority in good condition	
6	Miscellaneous				
a	Casework	laminate & wood / veneer	building	majority in good condition	
b	Drinking Fountains	metal	building	broken and / or dented	x

COLUMBUS HIGH SCHOOL: NEEDS ASSESSMENT

No.	High School	Type / Material	Area / Location	Analysis	Identified in Plans
Building Exterior / Envelope					
7	Walls				
a	Exterior Foundation Walls	concrete	building	overall in good condition	
b	Exterior Walls	brick	building	overall in good condition	
8	Windows				
a	Windows	-	building	majority in good condition	
9	Doors				
a	Exterior Doors - Hollow Metal	hollow metal	building	majority in good condition; bottom rusting out	see door analysis
b	Exterior Doors - Wood	wood	rostrum storage	poor condition	x
10	Roof				
a	Roof	-	building	see roof report	
b	Roof - Soffits	wood/steel	building	warped, damaged, rusting, failing awning	x
11	Miscellaneous				
a	Facade	metal	building	good condition	
Site Development - Unverified					
12	Asphalt / Paving				
a	Parking Lots	asphalt	site	good condition appears to be new	
b	Hard Surface Play Areas	asphalt	site	good condition appears to be new	
13	Site Concrete				
a	Walkways	concrete	site	visibly worn, stained and cracked	x
14	Greenspace				
a	No improvements needed	-	site	good condition	





FIRST FLOOR PLAN - EAST
not to scale

Columbus High School



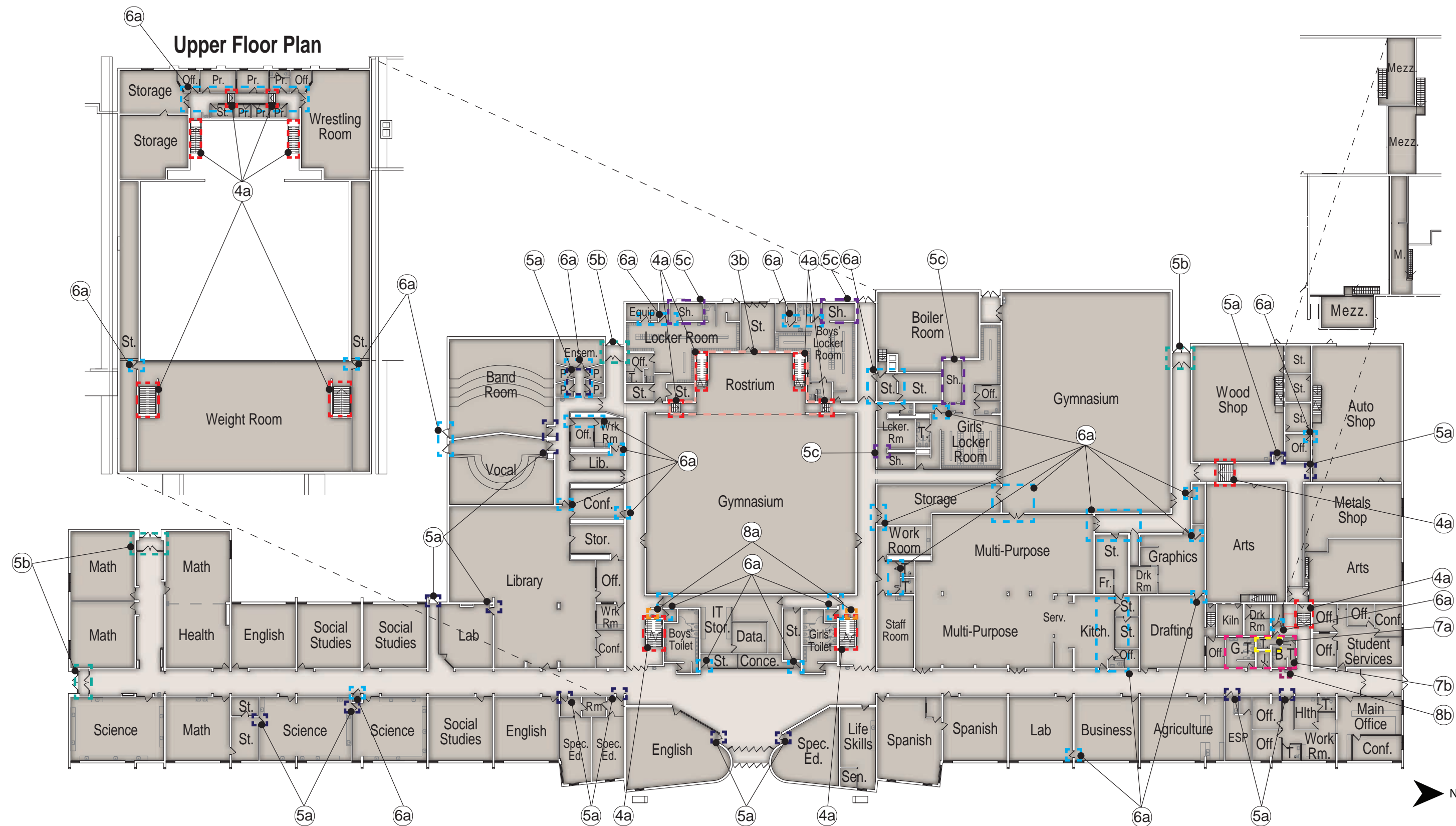
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COLUMBUS HIGH SCHOOL: ADA ACCESSIBILITY ASSESSMENT

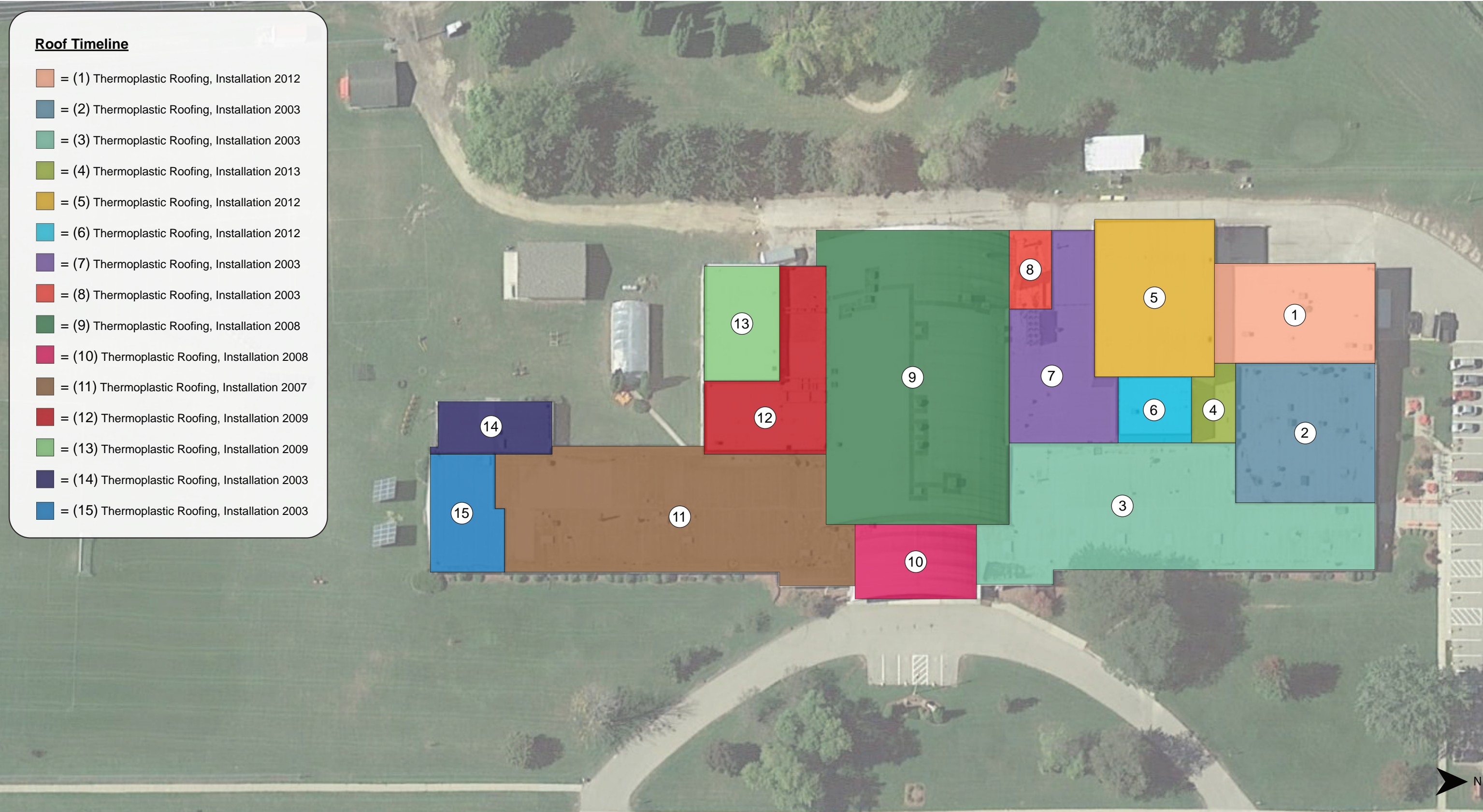
The following is an analysis of Columbus High School in regards to meeting building code requirements under the Americans with Disability Act (ADA) and regulated by the American National Standard (ANSI) Accessible and Usable Buildings and Facilities. This is not intended to be a comprehensive list, but an analysis as identified by Bray Architects and engineers gathered through extensive tours and assessment of the existing building facility.

No.	High School	Area / Location	Analysis	Potential Solution	Identified in Plans
ADA Accessibility					
1	Building Entrance				
a	Accessible Route of Travel	building	there are ADA compliant accessible routes of travel into the building	none	
2	Parking				
a	ADA Parking Stalls	parking lots	there are designated ADA compliant stalls	none	
3	Ramps & Lifts				
a	Accessible Routes of Travel Between Floor Levels - Ramps				
b	Accessible Routes of Travel Between Floor Levels - Lifts	Rostrum to Upper Floor	ADA lift access to Upper Floor from Rostrum, no ADA access to Rostrum	ADA compliant lift or ramp to Rostrum	x
c	Accessible Routes of Travel Between Floor Levels - Elevators	-	-	-	
4	Railings				
a	Stair Railings	building	Generally do not meet ADA requirements.	Replace as needed	x
b	Ramp Railings				
5	Manuevering, Thresholds, & Push / Pull				
a	Push / Pull	building	Typically meet ADA requirements; several doors are not complaint.	Alter wall/door location to meet ADA	x
b	Manuevering	vestibules/bathrooms	Typically non-ADA compliant	Move/remove walls to meet ADA	x
c	Thresholds	showers	Typically non-ADA compliant	Alter thresholds to meet ADA	x
6	Door Hardware & Panic Hardware				
a	Door Hardware	building	Generally compliant hardware; some doors do not meet ADA requirements	Replace has needed	x
7	Restrooms				
a	5'-0" Wheelchair Clearance	building			x
b	ADA Accessible Stall	building			x
c	Unisex Restrooms				
d	Grab Bars				
e	Showers	building	Typically non ADA compliant	Alter threshold to meet ADA	x
8	Drinking Fountains & Protruding Objects				
a	Drinking Fountains	Gym alcoves	drinking fountain is not at ADA accesible	relocate drinking fountain to ADA compliant location	x
b	Protruding Objects	Main Entrance hallway	drinking fountain protrudes into hallway	Add wing walls to meet ADA	x
9	Casework, Transaction Counters, & Counters with Sinks				
a	Transaction Counters	library / office	ADA complaint		
b	Workstation Counters	building	ADA complaint		
c	Counters with Sinks	building	ADA complaint		





FIRST FLOOR PLAN - EAST
not to scale



ROOF PLAN
not to scale



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COLUMBUS HIGH SCHOOL: EXTERIOR DOOR ANALYSIS

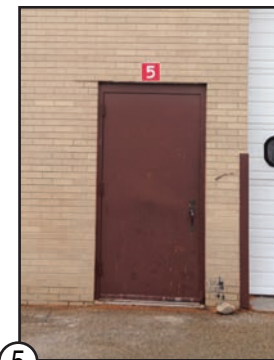
High School			
No.	Door Type	Frame Type	Visual Condition
1	Aluminum	Aluminum	Good
2	Aluminum	Aluminum	Good
3	Overhead Door - Aluminum	NA	Fair
4	Hollow Metal	Hollow Metal	Fair
5	Hollow Metal	Hollow Metal	Fair
6	Overhead Door - Aluminum	NA	Good
7	Hollow Metal	Hollow Metal	Good
8	Hollow Metal	Hollow Metal	Fair
9	Hollow Metal	Hollow Metal	Poor
10	Hollow Metal	Hollow Metal	Poor
11	Wood	Wood	Poor
12	Hollow Metal	Hollow Metal	Fair
13	Hollow Metal	Hollow Metal	Fair
14	Hollow Metal	Hollow Metal	Good
15	Hollow Metal	Hollow Metal	Good
16	Hollow Metal	Hollow Metal	Good
17	Hollow Metal	Hollow Metal	Poor
18	Hollow Metal	Hollow Metal	Fair



1 ALUMINUM DOORS & ALUMINUM FRAME



3 OVERHEAD DOOR - ALUMINUM



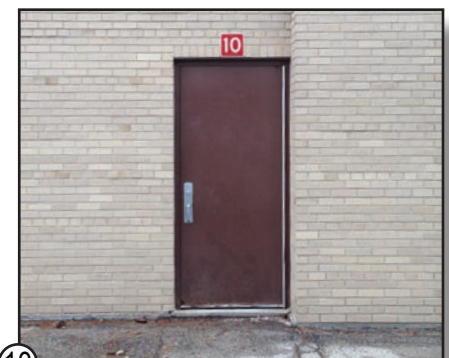
5 HOLLOW METAL DOOR & HOLLOW METAL FRAME



18 HOLLOW METAL DOORS & HOLLOW METAL FRAME

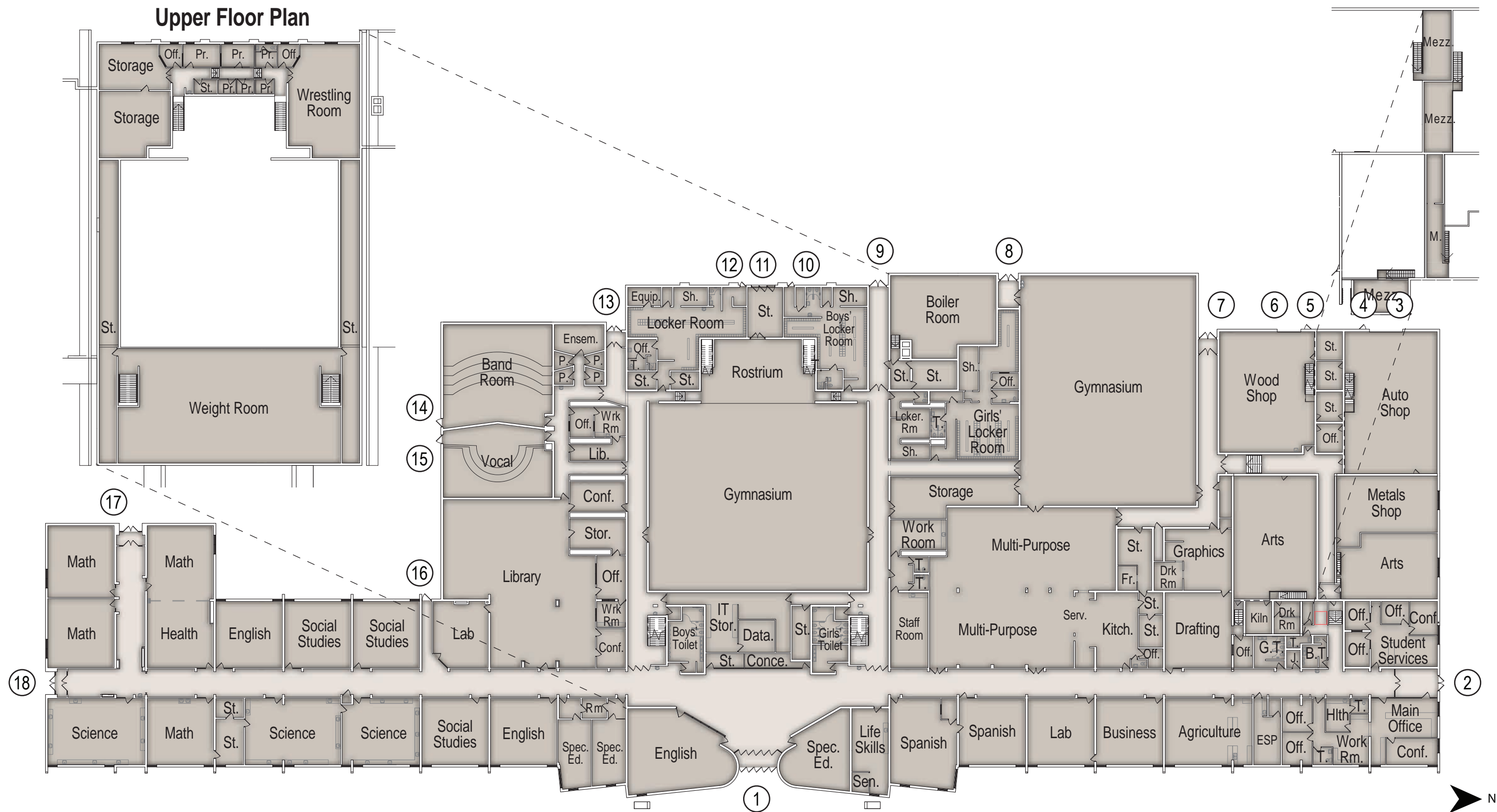


11 WOOD DOORS & WOOD FRAME



10 HOLLOW METAL DOOR & HOLLOW METAL FRAME





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COLUMBUS HIGH SCHOOL: WINDOW ANALYSIS

High School		
No.	Window Type	Consider Replacement
1	Aluminum w/ Double Pane	
2	Aluminum w/ Double Pane	
3	Aluminum w/ Double Pane	Poor window seal and locks
4	Aluminum w/ Double Pane	
5	Aluminum w/ Double Pane	
6	Aluminum w/ Double Pane	
7	Aluminum w/ Double Pane	
8	Aluminum w/ Double Pane	



① ALUMINUM W/ DOUBLE PANE



② ALUMINUM W/ DOUBLE PANE



③ ALUMINUM W/ DOUBLE PANE



⑧ ALUMINUM W/ DOUBLE PANE

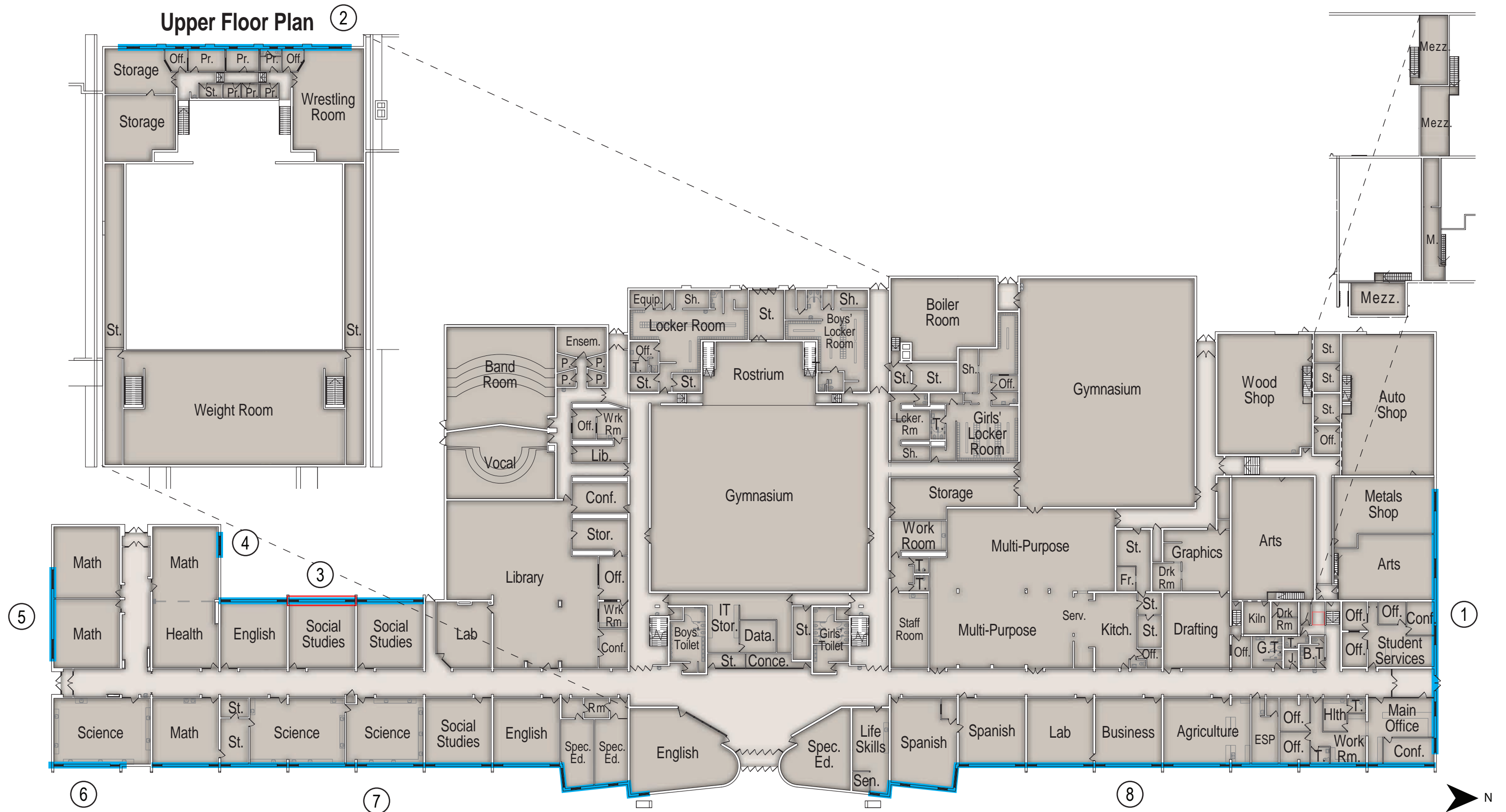


⑥ ALUMINUM W/ DOUBLE PANE



④ ALUMINUM W/ DOUBLE PANE





Plumbing System Review:

The following report is the result of a site visit by Justin Monk of Muermann Engineering, LLC that occurred on March 6, 2019. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The Building is roughly 60 years old with the last building addition completed in 1978.

Domestic Water

Observations

- A. The existing building is provided with a 3" domestic water service that is metered in a pit outside the facility. At this time we were unable to verify the condition of the meter pit. It is likely that the service is adequate for the building.
- B. Water pressure in the building appears to be adequate.
- C. Some galvanized piping still remains in the building. The majority of this piping appears to be in the main mechanical room.
- D. The building has backflow preventers that require annual testing.
- E. The building does not have an automatic fire sprinkler system. Some remote hose cabinets exist in the 1957 portion of the building with is currently connected to the domestic water system. The existing water service is not large enough to support a new fire protection system.

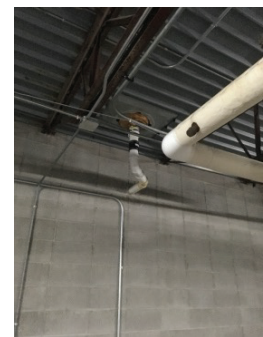
Recommendations

- A. Replace remaining galvanized domestic water piping. The amount of existing galvanized piping cannot be estimated at this time.
- B. Continue to test and service backflow preventers annually.
- C. If the building were to be expanded, a new water service would be required to accommodate a new fire protection system. In this scenario, the facility would also require a new domestic water meter and supply.

Sanitary and Storm Piping

Observations

- A. The majority of all sanitary piping is cast iron. Vent piping in the original building is mostly galvanized but appears to be in good condition. Modifications have been done to the existing piping utilizing schedule 40 PVC piping for replacement.
- B. Some storm conductors piping are without insulation.
- C. The staff reports a problem with the existing acid waste piping and acid neutralization basin. The system is solely designated for the lab areas.



Uninsulated Storm
Conductor Piping

- D. The kitchen has an interior grease interceptor. The interceptor is maintained yearly, however the interceptor appears to be undersized per the kitchen equipment and washing load. Drain piping serving the dish machine's waste discharge is PVC which is not recommended for waste temperatures at or over 140 degree Fahrenheit.
- E. Storm drains on the roof are in poor condition. Many of the domes are broken and some are filled with debris. The drains need to be cleaned of dirt and debris to maintain the integrity of the roof membrane.
- F. Drainage problems within the facility were not reported by the staff.
- G. Catch basin located in shop areas.
- H. Sanitary ejector pump serving lower level mechanical / boiler room appears to be recently replaced.
- I. Solid interceptors installed under art sinks do not meet clearance required for servicing.



Solids Interceptor

Recommendations

- A. Continue to monitor the existing sewer. Replace existing sewer sanitary and vent piping as problems arise.
- B. Replace existing acid waste piping and acid neutralization basin as required.
- C. Replace the existing grease interceptor with new properly sized per the kitchen equipment and washing load. All waste receiving temperature at or over 140 degree Fahrenheit.
- D. Maintain roof drains.
- E. Continue to monitor storm system for leaking or stoppages.
- F. Relocate solid interceptor serving art room sink to provide proper clearance for servicing.

Plumbing Equipment

Observations

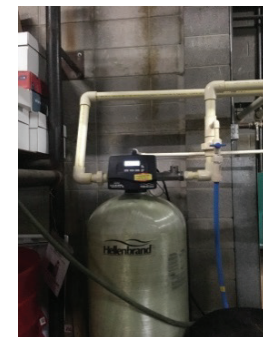
- A. There are (3) HTP gas 100-gallon at 120 degree water heater units serving the general hot water system; they are 2 years old.
- B. There is (1) Hellenbrand 150gpm water softener unit serving the general hot water system that is 2 years old.
- C. There is (1) air compressor of an unknown brand serving the compressed air piping in shop areas. It is original to installation.

Recommendations

- A. Replace air compressor and dryer / filter and piping with automatic isolation valves for each shop classroom.



Water Heater



Water Softener



Observations

- A. Many of the existing fixtures in the building were replaced in the year 2000. Main toilet rooms have been provided with ADA compliant self-closing lavatories.
- B. The majority of all water closets and urinals are flush valve style fixtures. Existing flush valves are in fair condition.
- C. The staff reported a shortage of drinking fountains in the facility. At first glance this appears to be the case.
- D. Although the main toilet rooms have ADA compliant fixtures, the rooms do not meet the current ADA requirements.
- E. Natural gas has been provided in the main science rooms. Sinks and faucets appear to be in fair to good condition.
- F. All science labs have emergency eye-wash equipment. It did not appear that the eye-wash fixtures were provided with mixing valves to temper water. This is not a code issue, but is recommended.
- G. Kitchen equipment is old but appears to be in good condition.
- H. Locker rooms are in poor to fair condition. Some piping replacement has been done in this area.
- I. Water efficient faucets are not utilized in this building.

Recommendations

- A. Existing toilet room fixtures need additional upgrading.
- B. Add additional drinking fountains or electric water coolers. It is unknown at this time how many would need to be added.
- C. Update toilet rooms to be ADA compliant.
- D. Possible upgrade to add mixing valves c to eye-wash units.
- E. Fixtures including toilet room fixtures and gang showers located in the locker rooms should be replaced.

The following report is the result of a site visit by Jason Testin of Fredericksen Engineering that occurred on March 6, 2019. Site observations, construction plan review, and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1957, with additions being constructed in 1964 and 1980. There were HVAC upgrades performed in 2016.

1.1 Heating System

A. Existing Data

1. One boiler plant serves the building. The boiler plant consists of four Patterson Kelly hot water boilers each fired with natural gas. Three boilers are PK Thermific boilers, installed in 2002. One boiler is a PK Mach boiler, installed in 2016. The three PK Thermific have a capacity of 1,900 MBH and the PK Mach has a capacity of 1,500 MBH.
2. The piping and pumping system for the boilers consists of a single circuit system with a stand-by pump. If the primary pump fails, the secondary (stand-by) pump will provide hot water circulation to the system. Each base mounted pump has a VFD and was installed in 2016.
3. Each boiler has an inline pump to circulate water through each boiler.

B. Observations

1. According to information obtained by the Owner, the boiler plants have no reserve capacity at this point, as all boilers are brought online during periods of colder weather.
2. The boiler plant is in fair condition. The three PK Thermific boilers have exceeded the life expectancy of 20 years.
3. Boiler water chemical systems are in place and appear to function as intended.
4. The Owner has indicated that there are no current concerns or issues with the heating supply system.

C. Recommendations

1. Continue preventative maintenance on the system.
2. Plans should be made for the replacement of the aging PK Thermific boilers.
3. Any future additions or construction may require the addition of boiler capacity to serve the additional spaces.

1.2 Ventilation and Air Conditioning Systems

A. Existing Data

1. There are three systems that provide ventilation for the facility. The three systems are hot water unit ventilators, single zone variable volume systems and constant volume air handling systems.
2. The classrooms are served by unit ventilators. Unit ventilators consist of a supply fan, hot water heating coil, chilled water cooling coil, outside air damper, return air damper and controls. Hot water and chilled water piping is run to each unit ventilator.



3. The gym is served by two single zone variable volume indoor air handling units. Each unit consists of a supply fan, chilled water coil, hot water coil and variable frequency drive. A room thermostat is used to control the temperature of the air supplied to the space.
4. The library, cafeteria and music areas are served by a constant volume indoor air handling units. The unit consists of a supply fan, chilled water coil, hot water coil and variable frequency drive. Hot water booster coils are installed in the ductwork to provide individual room temperature control.
5. The tech shops are served by constant volume air handling units. The units consist of a supply fan and hot water heating coil. A room thermostat is used to control the temperature of the air supplied to the space.

B. Observations

1. The unit ventilators were installed in 2016 and are in good condition. The units have an estimated life expectancy of 20 years.
2. The air handling units serving the gym were installed in 2016 and are in good condition. The units have an estimated life expectancy of 25 years.
3. The air handling units serving the library, cafeteria and music areas were installed in 2016 and are in good condition. The units have an estimated life expectancy of 25 years.
4. The air handling units serving the tech shops are original to the building and are in poor condition. The units have exceeded the estimated life expectancy. The owner indicated that both units are not run due to the noise they create in the space.
5. Door transfer grilles are currently utilized to transfer relief air from the classrooms to the corridor.

C. Recommendations

1. Continue preventative maintenance on the systems.
2. Plans should be made for the eventual replacement of the aging constant volume air handling units serving the tech shops.
3. With any remodel or renovation, plans should be made to replace the door transfer grille relief system with a code approved system. The current building code does not allow transfer air into a path of emergency egress.

1.3 Control Systems

A. Existing Data

1. A Reliable digital control system serves the entire building.

B. Observations

1. Continue preventative maintenance on the system.

C. Recommendations

1. Continue to maintain and operate the control system.

Electrical System Review:

The following report is the result of a site visit by Curt Krupp of Muermann Engineering, LLC that occurred on March 6, 2019. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The Building is roughly 60 years old with the last building addition completed in 1978.

Main Electrical Service

Observations

- A. A new service was recently added to this building to feed the chiller. The service is 277/480 3 phase 4 wire fed from a 300 KVA utility transformer. The service back feeds the existing 208 volt service fed with a large transformer. The existing old style 1600 amp switchgear was not removed or replaced.
- B. The utility demand was not available.

Recommendations

- A. The service can remain in place as it appears to be servicing the school without any issues.
- B. We would recommend removal of the old switchgear and feeding all existing loads with a new I-Line panel and breakers.
- C. We recommend addition of a new surge suppression device.



Electric Service

Panelboards

Observations

- A. The panels in the facility are limited and do not have room for future additions. Panels dating to the original construction were noted.

Recommendations

- A. Panels can remain in place as is. Upgrades on panels can be done if additional circuits are required in classrooms or other spaces. Due to the age of the existing panelboards a plan should be in place to update them. This equipment typically has a useful life of 40 years. Breakers will become hard to find if replacement is required.

Generator

Observations

- A. An Onan 30kw natural gas generator is located in the boiler room to provide backup power to life safety and non-life safety loads. The set is 120/240 volt single phase.
- B. The transfer switch is a 150 amp is updated.
- C. The generator appears to be vintage and part of the original building construction.



Generator



Recommendations

- A. Due to the age of the existing equipment, a plan should be in place to update the existing generator in the near future. This equipment typically has a useful life of 40 years. We estimated the equipment to be 55 plus years old. Any new generator should be located outside the facility.
- B. The generator loads must also be separated into two sets of distribution to comply with code: life safety and non-life safety loads. This will require two transfer switches and two panels.

Interior Lighting and Control

Observations

- A. The interior fluorescent light fixtures contain T8 lamps and ballasts. All exit lights have been replaced with LED type. The gym HID lighting was replaced with new Fluorescent T8 high bay fixtures. Lighting motion sensors were added to classrooms. We did note areas of the corridors where exit lights were not present for clear direction to exits.

Recommendations

- A. A possible option is to replace the interior fixtures with LED. We would recommend waiting until the fluorescent fixture components begin to fail and then do a replacement project.

Emergency Lighting

Observations

- A. We did not test the emergency egress lighting as the building was occupied at time of study. Based on the age of the building and the size of the existing generator we feel the facility is probably lacking in egress lighting as code dictates today.

Recommendations

- A. Upgrade entire building with proper emergency egress lighting. A more complete building evaluation needs to be performed as well as a simulated power outage to determine the exact needs.

Exterior Lighting

Observations

- A. New LED lighting replaced the existing HPS fixtures.

Recommendations

- A. None.

Fire Alarm System

Observations

- A. The system is a Simplex 4005 addressable panel located in the electrical equipment room. We did identify areas of the facility that do not meet code requirements with regards to annunciation. When this system was installed it met current codes. As additional code updates have occurred throughout



Fire Alarm Control Panel

the recent years, it has made many buildings non code compliant.

Recommendations

- A. Additional horn and strobe devices can be added to all occupied areas to bring the system up to complete code compliance. This will require a more in-depth study to determine the areas that need additional equipment added. The system is addressable and devices can be added to the existing system.

Clock System

Observations

- A. New American Time battery clocks are present.

Recommendations

- A. Add as required.

Intercom

Observations

- A. A Simplex system is located near the office and was updated in 2015.

Recommendations

- A. Add to system as required.

Data, Telephone

Observations

- A. The phone system for the district is Mitel IP based and linked to the Elementary and Middle schools. The facility contains wireless access throughout. The classrooms and offices contained Cat 5 data drops. The district indicated additional drops are desired in the classroom areas. Existing data racks are full for the most part, and no additional cabling can be added. One IDF rack is wall mounted and not easily accessible. The IDF in the office area is mounted on a shelf.
- B. A new room designated for the MDF was set up for this facility. This room was provided with air conditioning.

Recommendations

- A. None.

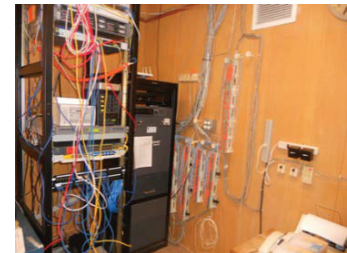
CCTV System

Observations

- A. The facility contains an IP CCTV system which was recently upgraded as part of a state wide security grant.
- B. Owner noted CCTV on exterior of building is lacking.

Recommendations

- A. Add to the existing system as required.



Intercom Head End



Data Rack



Access Control System

Observations

- A. A new "Tri Ad" IP Keyless entry system was recently added as part of a state wide security grant.

Recommendations

- A. Add to the existing system as required.



HIGH SCHOOL NEEDS & PRIORITIES

COMMUNITY FACILITY ADVISORY COMMITTEE (FAC)
COLUMBUS SCHOOL DISTRICT
COLUMBUS, WISCONSIN

Bray Associates Architects, Inc.
Davenport | Milwaukee | Sheboygan



Monday | April 29, 2019

PRELIMINARY NEEDS SUMMARY

Area of Need	Columbus High School
Safety / Security	
Infrastructure	
Educational	
Site	
Other	



THANK YOU

NEXT MEETING

MONDAY MAY 6 - 6:30-8:30

INTERMEDIATE / MIDDLE

SCHOOL LIBRARY