HOLBROOK MIDDLE SCHOOL

ASSESSMENT REPORT

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HOLBROOK MIDDLE SCHOOL BUILDING ASSESSMENT

The following is a summary of our findings related to Holbrook Middle School. This report should be used as a tool and continue to grow in depth as we move forward. Input for this report was compiled based on observation from site visits, potential needs by staff, and the Maine Department of Education database, etc. Many of the tasks are specific while other projects are common for all spaces. The scope of the projects/items has not been fully developed and will need to be further investigated prior to design.

The estimates were established based on square foot, per linear foot, and allowance costs obtained during past projects, or from other sources such as RS Means. EUL = Estimated Useful Life of site or building component.

Each of the tasks is ranked based on priority. Priority 1 shall mean currently critical and should be dealt with immediately. Priority 2 tasks shall be those that are considered potentially critical and should be addressed within the first year or so. Priority 3 projects are deemed necessary, but can wait a few years, until years two to five. Priority 4 issues are those that are recommended because they make sense and could reduce overall maintenance costs. Priority 5 includes those projects that are either in very good condition or no action is anticipated for 10-15 years unless modifications affecting them are undertaken.

The Holbrook Middle School campus of approximately 19 acres is located on Route 46 in Holden, Maine. The school currently serves 230± students, grades 5 – 8, with 35± staff. The initial building was constructed in 1968 with 22,932 sf and contained ten classrooms. In 1974, four classrooms of 4,554 sf were added to the west classroom wing. A small addition to expand the Superintendant's Office was added in 1988. In 1995 there was 8,406 sf added over both levels. This work included two classrooms at the east end of original building and a gymnasium with stage south of the present day cafeteria. The original structure, renovated in 1995, includes the existing cafeteria, kitchen, library, and administration space. In 2000 six classrooms of 7,995 sf were added. The total square footage of the school is now at 43,857 sf.

The site includes several athletic fields, playground, parking, as well as on-site water and septic. The School Superintendant's Office is located within the building and a Storage/Maintenance garage is also on the property. A community building used as a food pantry and managed by other then school personal is also located on the property. There is a large 5,000 gallon above ground oil tank located next to the Maintenance building. For the purpose of this report mainly the middle school building will be evaluated.

I. SITE

A. Site Condition – Sidewalks/Pavement

There are two parking lots located at the south entrance and an access drive that leads to an upper parking lot to serve the athletic fields. In front of the main entrance is a student/bus drop that enters and departs from Route 46. The site distance to the entrance is poor and is on a steep hill with a turn. During

drop-off/pickup the traffic is backed up on the shoulder of Route 46. This creates a potential hazardous situation.

Access in and out of the school is very dangerous. At the entrance at Route 46 the sight distance is very limited. This should be reviewed clearly with the Town and State of Maine Department of Transportation. The "knoll" at the entrance should be redesigned for safety purposes.

There is insufficient area for proper drop-off/pick up of students by either bus or by parents. This zone should be redesigned to minimize crossing pedestrian traffic and improve safety. This may be difficult given the space at the front entrance.

The existing parking area is insufficient for events, especially those being held at the gymnasium. The parking area should be expanded, however the existing nearby grade is severe, and an expansion would be costly.

There are paved sidewalks located around the building and to the ball fields. The pavement is in fair to good condition with cracks that have recently been sealed. The paved sidewalks on the north and east sides are in good condition. An access road to the east of the upper parking lot has recently been rehabbed and drainage added. The drainage ditch along Rte. 46 on the upper end of the drop off area was filled with water due to collection of debris at the culvert.

Action: Conduct a study to develop drop-off/pickup plan and associated costs. *Priority:* 1 $ 5,000

Action: Reconfigure Drop-off/Pickup Area. *Priority:* 1 $150,000

Action: Reditch along the main road to improve drainage. *Priority:* 3 $ 10,000

Action: Maintain existing pavement. Applying a rubberized sealant would extend the life of the pavement surface. *Priority:* 2 $ 2,000/yr

Action: Pave remaining sidewalk areas (1" overlay) *Priority:* 1 $ 15,000

Action: Pave drive and parking areas (1 ½" overlay) *Priority:* 1 $ 65,000

Action: Pavement Marking/Restripe *Priority:* 3 $ 5,000

Action: Improve Route 46 sight distance (MDOT/Town). *Priority:* 2 $200,000

Action: Expand existing limited parking. *Priority:* 3 $200,000

B. Exterior Ramps and Stairs

The south gym exit concrete stairs and brick retaining wall are starting to degrade with broken concrete treads and brick joint failure. The railings at the stairs leading to the front cafeteria entrance have heaved from frost and are tilting up. The rear gym entrance has a set of concrete stairs along with a paved ADA walkway. The large roof structure located next to the entrance walkway empties water runoff and snowmelt onto the surface, causing a great deal of work to keep it de-iced in the winter.

Action: Re-hab the concrete treads at the south gym entrance, along with repointing of brick retaining wall.	*Priority*: 1	$ 5,000
Action: Reset railings at the cafeteria entrance.	*Priority:* 1	$ 2,500
Action: Install gutters/snow guards at entrance area.	*Priority:* 2	$ 5,000

C. Site Signage

There is not any signage located along the road to identify the school; instead there is the name of the school located on the gymnasium south facing wall. There is not any exterior signage that defines the main entrance to the office or other directional signage to navigate around the complex including the athletic fields or gym entrance. Consider installing signage to better improve and define the main entrance. Handicap parking signs are in place for the back parking lot. Recommend installing new signs and painted parking spaces near main entrance.

Action: Install signage.	*Priority*: 2	$ 15,000
Action: Provide striping for new parking layout.	*Priority:* 2	$ 10,000

D. Site Lighting

Site lighting consists of 6 pole mounted high pressure sodium lights in the lower parking lot and student drop-off area. There are surface mounted lights located under the entrance canopy and around the building entrances, the library entrance and along the west side of the school. The upper parking lot at the athletic fields has inadequate lighting with 2 pole mounted area floodlights. Consider adding more lighting to cover the area along with pathway lighting.

Action: Replace exterior fixtures with LED lighting (6).	*Priority*: 1	$ 12,000
Action: Add additional site lighting to upper lot (6).	*Priority:* 2	$ 36,000

E. Landscaping

The landscaping consists of various trees and shrubbery located around the site. The grass areas are well maintained.

Action: No Action at this time.

F. Utilities

1. Water

The water is supplied by a well drilled in 1968 and located near the front entrance of the school. A 2" water line enters the building inside the mechanical room. The well pump and five water pressure tanks to maintain system pressure were replaced in 2002 and appear to be in good condition. The water is treated through a filtering system and a water softener and tested per State of Maine drinking water requirements.

Action: Replace well pressure tanks. *Priority:* 4 $ 3,000

2. Sewer System

The sewer system consists of an onsite-engineered system installed in 1974. Plans show the system consists of a 4000-gallon septic tank connected to a 5' diameter pump station with dual alternating pumps that were replaced in 2004 and 2006 respectively. The effluent is then pumped through a 2" force main to a disposal field located under the ball field to the north of the building. There is a backup plan on file done in 2000 for a replacement system.

The disposal fields and pump station are at the end of their useful life. The force main runs under the 1974 addition and had a break in the line under the slab in the recent past few years. Recommend an engineering review of the pump station to evaluate any immediate concerns. Also consideration of replacing the entire system due to the age. Assure grease traps are emptied in a timely manner and maintained and inspected on a regular schedule.

Action: Replace pump station, new force main, etc. *Priority*: 1 $ 30,000

Action: Replace disposal fields. *Priority:* 3 $100,000

Action: Maintain grease traps *Priority:* 1 $ 1,000/yr

3. Drainage and Storm Water

Overall site appears to be well drained of storm water. The north side parking lot and building have a series of catch basins that drain to the east of the building into the ditching along the side of the road. However, the school sits on the side of a hill and the building has many pitched roofs that drain away from the building and in some cases down the lower parking lot.

Action: Recommend roof drainage systems to divert water from paved areas (Allowance). *Priority:* 1 $ 20,000

Action: Clean catch basins annually. *Priority:* 1 $ 1,000/yr

4. Electrical

The primary electric service is fed from an overhead line along Route 46 to pole mounted transformers near the gymnasium. From there, the line drops

underground to the electrical entrance located in a room off from the gymnasium.

Action: See Electrical Section below.

5. Gas
Propane gas is used in the building for cooking in the Kitchen. These areas are serviced by a 250-gallon propane tank located outside the kitchen area. The tanks are owned and maintained by the fuel company. The tank appears to be close to the building and doors/windows.

Action: Relocate tanks if clearances are not met. Priority: 1 $ 2,000

II. BUILDING ENVELOPE

A. Building Façade

The original building and classroom additions are wood wall construction with vinyl siding completed in 2012. The 1995 gym addition is metal stud framed walls with standing seam and brick facades. The brick wall joints are failing in some areas. Most of the building has metal clad trim, in good condition. The front student drop-off area has a sloping shed roof along the walkway and entrances framed with 6"x6" posts. We expect the insulation within the walls to vary given the different ages of construction. The soffit areas should be inspected to insure proper attic ventilation.

As previously mentioned, the school has no designated front entrance. Consider modifying the front entrance space to delineate doors to be used by visitors to improve direction and security. This modification may be incorporated with proposed Building Security which is addressed later in the narrative.

Action: Maintain siding as needed. Re-point brick joints as needed.
Priority: 3 $ 10,000

Action: Front entry expansion/security, see building section below.

B. Building Structure

In the interconnecting corridor of the original building near the office and 2000 addition, there are three large stress cracks visible in the exterior hall walls.
Action: We recommend performing a structural analysis in areas with visible signs of stress cracks or damage. *Priority*: 2 $ 5,000

C. Windows

The majority of the windows in the classrooms were installed in 2000 at the new addition, and as replacements in the older additions, and are a combination vinyl clad awning and fixed window by Anderson in fair condition. Some of the hardware handles do not work. The Administration and central office windows

were replaced in 2000/2001 and are vinyl double-hung in fair condition, however not all of the windows are easy to open and close. The windows in the gym, library, and cafeteria were installed in 1995 and are double hung vinyl. Instances of cold air infiltration were reported in some of the classrooms. Six fixed Plexiglas skylight windows are present in the second floor library roof. There were no reports of major failure and they are in good condition.

Replace the exterior vinyl windows (190±) with new vinyl single-hung replacement windows. Consider replacement within the next few years as the windows will be at the end of their useful life. Modern windows are much improved with higher R-values and should improve energy savings. Consider replacing the skylights with new high R-value skylights.

Action: Replace 1995 windows (80±) *Priority:* 2 $ 70,000

Action: Replace all other windows (110±) *Priority:* 3 $ 90,000

D. Exterior Doors

Insulated steel doors with wood and steel frames, some with windows are located around the school. The drop off entrance, cafeteria, and west entrance to original classroom building has wood framing and steel doors with center and sidelights included. Appropriate door hardware, such as closures and lever door handles are in place. These doors and frames are in fair to poor condition with some rot in frames and rust on doors. Recommend the replacement of 3 sets of double doors and frames. The rest of the double entry doors (7) with steel frames and single steel doors (6) and frames are in good condition. Continue to maintain rusted edges with paint to add longevity. Consider adding card reader devices at all exterior doors for added building security.

Action:

Replace exterior double doors (3). *Priority:* 2 $ 60,000

E. Roof

The majority of the classroom roofs consist of wood truss systems with asphalt shingles. The center flat roof between the classrooms is rubber membrane; the section over the 68/74 center hallway was leaking and replaced in 2018. The roof leaked over the winter of 2019 and is currently being replaced by another contractor. The library/administration roof is framed with arched glulams and covered with asphalt shingles on the east side office and canopy, and standing seam over the library area. Standing seam metal roofing is on the west side, except for a rubber membrane in (2011) and recently (2019) installed over the Superintendent's office and administration area due to many leaks. New rigid insulation was added between the metal seams to provide a surface and increase R-value. There is leaking noted over the drop off entrance and upper office area which consists of asphalt shingling. The gym roof consists of trusses with standing seam metal roof. The west side of the gym consists of a mezzanine over

the stage with sloped roof and a flat framed area either side of that with rubber membrane. The shingles on the north side of the 2000 building ware replaced in 2013; the south side roof shingles are in poor condition with severe cupping. The original 68/74 classroom building has shingles replaced in 2015/2016 and is in good condition. The areas of leaking over the Superintendent's Office should be investigated for heat loss; as noted the area was not well insulated. There was no attic access available to investigate insulation and ventilation requirements in the trussed roof areas.

Action: Replace older shingles over the 2000 addition and east side drop-off area. *Priority:* 1 $ 25,000

Action: Add attic access panels in trussed areas. Investigate ventilation and insulation problems over the Superintendent's Office. *Priority:* 2 $ 5,000

F. Chimney

A brick chimney is present in the boiler room and exits thru the roof above. The chimney appears to be in good condition; however we recommend an inspection of the lining inside the chimney.

Action: Inspect the chimney lining and repoint exterior chimney masonry block. *Priority:* 1 $ 10,000

G. Boiler Room

The original boiler room is located under the 1968 wing. The boiler room is in fair condition. The ceiling has several holes and penetrations that need to be addressed. Building code requires boiler rooms to be completely sealed and fire rated.

Action: Install new fire rated ceiling assembly and seal all penetrations. *Priority:* 1 $ 10,000

III. INTERIOR FINISHES

A. Floors

The school has a combination of flooring. Most hallways, classrooms and the cafeteria have well maintained, vinyl composite tile (VCT) in good to fair condition. 3-4 classrooms in the older building have carpet in fair condition. The restrooms have ceramic tile in fair to good condition. Carpet is in place in the library, upper office, and cafeteria and is in fair condition. The gymnasium basketball court consists of a standard maple sports plank floor with a urethane finish and appears to be in good condition. The adjacent stage has a stained wood floor in good condition. The kitchen has VCT tile in poor condition and the dish room has painted concrete in poor condition. Locker rooms have exposed painted concrete in good condition, recommend repainting.

Action: Replace Carpet & Tile in (4) classrooms with asbestos tile under carpet. *Priority:* 1 $ 54,000

Action: Replace asbestos tile in (2) classrooms. *Priority:* 1 $ 27,000

Action: Replace Cafeteria carpeting with tile. *Priority:* 1 $ 20,000

Action: Replace older VCT in original classrooms as needed. *Priority:* 2 $ 110,000

Action: Replace VCT in remaining school areas. *Priority:* 3 $ 70,000

Action: Refinish gym floor. *Priority:* 1 $ 3,000/yr

Action: Repair, refinish stage floor *Priority:* 4 $ 20,000

Action: Replace library and classroom flooring. *Priority:* 2 $ 25,000

Action: Replace kitchen flooring with quarry tile. *Priority:* 3 $ 10,000

B. Walls

The walls throughout the school consist mostly of drywall and CMU (Concrete Masonry Unit) which appear to be in good condition. The older 1968 walls have painted CMU block the hallways. The 2000 addition has painted drywall in the hallway. The 68/74 classrooms have paneling halfway up the walls with drywall above. Many of the classrooms have wood bookcases on the exterior walls in fair condition. Some of the classrooms have built-in cabinet and storage areas. Also in the 1960s' wing hallway, numerous vertical stress cracks in the drywall are visible. The locker rooms, cafeteria and kitchen walls are exposed painted CMU walls in good condition. The gymnasium walls have wood paneling and insulated sound board above in good condition. The student restrooms in all wings have drywall with ceramic tile wainscoting below; all rooms are in good condition.

Action: Remove exposed paneling in 1960s' wings, replace with drywall. *Priority:* 2 $ 30,000

Action: Continue to maintain drywall patch/paint *Priority:* 1 $ 3,000

C. Classroom Storage

The classrooms have a variety of storage in place. Most are wooden closets, cubbies and bookshelves built in place and appear to be in good to fair condition. The storage in the 1960s' wings is showing extreme signs of wear and is in poor condition. We recommend complete renovation of these storage areas.

Action: Remove and replace existing closets/cubbies/countertops in approximately 6 classrooms. *Priority:* 3 $ 30,000

D. Ceilings

The ceilings consist of mostly suspended acoustical tile grid system in good to fair condition. There are a number of stained tiles due to of roof leaks. We recommend replacement after roof repairs are finished. The kitchen has painted drywall. The gymnasium and cafeteria ceiling have stained and varnished knotty pine boards within the glulam arches. The library's vaulted ceiling also has a knotty pine finish. All wood on the ceilings is in good condition, however for the purpose of this report it is recommended the substructure be brought up to current fire code. This would include removal and/or concealing exposed wood.

Action: Replace/install suspended ceilings as they fail. *Priority:* 1 $ 2,000/yr

Action: Remove/conceal exposed wood ceilings and replace with fire rated drywall.
Priority: 2 $ 60,000

Action: Continue to maintain drywall patch/paint *Priority:* 1 $1,000/yr

E. Interior Doors

Interior doors consist mostly of solid wood doors with metal frames in the classrooms and other various rooms. Some of the doors have delaminated in the older section and replacement should be considered. The mechanical areas consist of hollow metal doors with hollow metal frames. Some of the doors have windows with tempered glass. Hardware is specific to the use. The doors and hardware appear in good condition, although some updates from knobs to levers should be completed.

Action: Replace delaminated classroom and storage doors (15).
Priority: 2 $ 15,000

Action: Update classroom door hardware (30±) *Priority:* 3 $ 18,000

F. Restrooms

Student multi-stall restrooms, as well as a few single use restrooms are placed throughout the facility. Most of the restrooms appear to be in fair to good condition. The flooring, walls, and ceilings have been addressed earlier in this narrative. Restroom plumbing fixtures are separated by partitions; the majority are solid plastic composite. For the most part the restroom plan and fixtures meet the standards for handicap accessibility; however several conflicting clearance issues were noticed. The entrance to the girl's restroom in the classroom hall is obstructed by a sloping ramped floor. Recommend redesign for a level landing to meet ADA requirements. The 1968 restrooms and shower areas within the gymnasium locker rooms are dated and do not meet ADA requirement. It was noted that not all restrooms had the appropriate grab bars and some toilet accessories mounting heights were not current with ADA code. In addition, the

installation of a molded wrap on the exposed drain piping under the restroom lavatories is required.

Action: Renovate entrance to girl's restroom to be fully ADA compliant.
Priority: 2 $ 25,000

Action: Renovate gymnasium restrooms and shower areas to be full ADA compliant.
Priority: 2 $ 120,000

Action: Install molded wrap throughout *Priority:* 2 $ 10,000

G. Kitchen and Cafeteria

The Kitchen is a full commercial kitchen with appliances, walk-in freezers, coolers, ranges, ventilation hoods, wash stations, and serving lines. The walls are painted CMU block and the floors are VCT tile/painted concrete. The condition and operation of equipment and interiors appear to be in good order. The counter spaces are laminate surface and hard to clean and noted on health inspection. The kitchen's domestic hot water is served via water heater in boiler room. The hot water tank is an 80-gallon unit that is beyond its useful life; additionally the tank does not appear to have a thermostatic mixing valve, which is required by the state plumbing code. The kitchen hood did not appear to be working when tested. The kitchen hood does not meet current guidelines for clearances over appliances. The kitchen hood and makeup air unit should be studied further to ensure adequate ventilation and exhaust rates are being met.

Action: Install a commercial hot water tank with thermostatic mixing valve designed for kitchen equipment**.** *Priority:* 2 $ 20,000

Action: Provide ventilation study and replace hood system.
Priority: 1 $ 50,000

Action: Install new cleanable kitchen work surface with under storage.
Priority: 1 $ 10,000

IV. ACCESSIBILITY/LIFE SAFETY/BUILDING SECURITY

A. Handicap Accessibility

Currently most spaces within the school are accessible, via doors, hallways, ramps and an elevator. The bleachers in the gymnasium may need to be modified to accommodate wheelchair accessibility. The stage is designed on one side with a level entrance. As previously mentioned in this narrative, the campus has several areas which do not meet standards for ADA. The compliance problems with the site, some of the restrooms, the locker rooms, etc. should be addressed, see full narrative for recommend solutions.

B. Elevator

There is an elevator located adjacent to the student drop-off entrance that provides access to the upper level classrooms and administration. The elevator was installed in 1995; staff has had to replace parts in 2012 when it became unserviceable.

Action: Recommend cab update/upgrades to existing elevator.

Priority: 3 $ 20,000

C. Building Security

The Front Entrance is non-secure in the present configuration. Once visitors enter the building, they are left free to check into the office, which is located off from the Lobby. Any visitor could roam the school once in the Lobby before registering at the front office. Other doors around the building should be secured with access control hardware. Recommend controlled security and implementing a card-reading system.

Action: Re-configure the Front Entrance to provide check-in before entering the school. *Priority:* 1 $200,000

D. Fire Alarm System

The fire alarm control panel is located in the office area. The panel controls devices, such as smoke alarms, pull stations, strobe lights, etc. throughout the main school building. The fire alarm panel is in good condition; however it is not an addressable system per code. There were several outdated devices, as well as some of the pull stations were not mounted at the code required height. Note: There is no sprinkler system in the building.

Action: Provide new compliant addressable fire alarm system with wiring, devices, etc. *Priority:* 1 $ 80,000

E. Security System

The security system consists of limited monitoring cameras and alarm devices. The system is continually being upgraded with new devices, as required. The aged system was upgraded in 2012 and requires replacement.

Action: Recommend installation of new video IP system with access control; including card readers, camera, etc. for adequate security.

Priority: 1 $ 80,000

Action: Implement card reader system at critical doors (6). *Priority:* 1 $ 20,000

Action: Install security cameras at key locations. *Priority:* 1 $ 20,000

Action: Add two security cameras. *Priority:* 1 $ 2,000

F. Sprinkler System

There is no sprinkler system in place at the school. We recommend the installation of a NFPA 13 system including sprinkler piping, sprinkler heads, dedicated well, well house, fire pump, dedicated generator, and a buried water storage tank.

Action: Pump, storage, generator, etc.	*Priority:* 1	$450,000
Action: Sprinkler system	*Priority:* 3	$150,000

V. ELECTRICAL (*Service-Panels-Lighting/Switching)*

A. Emergency Generator

The emergency generator is a Diesel powered 125kw and was installed in 2006. The generator is located behind the southwest corner of the gymnasium. The generator is designed to automatically run once there is a loss of power and service the entire building during power outages. Coordinate generator sizing with Sprinkler System. Generator cost included above if sprinklered. Provided here if sprinklering is not completed.

Action*:* Continue to maintain and service generator per specifications. Exercise generator on a regular schedule.	*Priority:* 1	$ 1,200/yr
Action: New full load generator.	*Priority:* 3	$175,000

B. Lighting Fixtures

A variety of lighting fixtures are in place throughout the classrooms and common areas. The majority of the lighting fixtures are fluorescent fixtures and appear to be in fair condition. Energy savings can be improved with newer LED style light fixtures that also come with occupancy sensors to shut down lighting when not being used. Replacement should result in noticeable energy savings. The existing lights also do not meet current lighting guidelines for educational buildings.

Action*:* Replace interior lighting with LED fixtures throughout.	*Priority:* 3	$120,000

C. Lighting Controls

Lighting controls, as mentioned, above can be incorporated in new fixtures. Sensors can be installed to control lighting for daylight harvesting and unoccupied periods.

Action: Add occupancy sensors, etc.	*Priority:* 3	$ 20,000

D. Electrical

The primary electric service is fed from an overhead line along Route 46 to a pole set at the corner of the property, and along to a pole with transformer located by southwest corner of the gym. From there, the line drops underground to a secondary load into an electrical room off from the gym to an 800amp disconnect switch. The power then is fed underground to the 120/208 three phase Main Distribution Panel (MDP), which is located in a storage room near the gymnasium. The MDP feeds all branch panelboards throughout the building. The panelboards appear to be in fair condition; however a few code related concerns were present. The panel covers and lack of lockable doors are code deficiencies. There is also a lack of general use receptacles and circuits available.

Recommend a detailed evaluation of the system to ascertain any potential failures to the system. Also consider a Power Monitoring System that would provide valuable information for energy usage. The conduits and raceways within the boiler room need to be replaced due to severe corrosion and damage. We also recommend replacing sub panel doors with a lockable panel door. There are several pipes that are over the conduits, raceway, and MDP. The pipes should be relocated out of the working space required at all electrical panels or disconnect switches.

Action: Install new electrical entrance, MDP, etc.	*Priority:*	1	$ 25,000
Action: Install new circuits and receptacles where required.	*Priority:*	2	$ 25,000
Action: Repair existing code deficiencies where required.	*Priority:*	2	$100,000

E. Data/Communications

The voice and data systems appear to be in fair condition and should be updated. PA system appears to be in working order.

Action: Install new communications system.	*Priority:*	2	$ 50,000

VI. HEATING (*Boilers-Fuel Tanks-Piping/Coils-Terminal Units/Pumps/Controls)*

A. Boiler

There is a single oil fired 1995 HB Smith boiler that heats the entire building, as well as the domestic hot water. The boiler is fueled by No. 2 heating oil from an above ground 5,000-gallon storage tank that was installed in 1998. As part of the heating plant, there are numerous pumps, tanks, and supply and return piping. Replace the original boiler as it is at the end of its useful life with two or three smaller boilers to increase efficiency, give redundancy and save energy. Continue to maintain equipment per specifications according to Operation and Maintenance manuals. The pumps that distribute the hydronic heat to each wing are single speed. We recommend replacing the pumps with new variable speed pumps,

which will reduce energy consumption. The combustion and ventilation air is provided by two small louvers, which do not meet current guidelines.

Action: Replace original boiler and burner. *Priority:* 2 $100,000

Action: New piping and controls. *Priority:* 2 $100,000

Action: The above ground oil tank is beyond its useful life and should be replaced. The tank should have a secondary containment wall constructed as well. *Priority:* 2 $ 100,000

Action: Install propane tank farm (tanks owned by utility) and piping. *Priority:* 2 $ 20,000

B. Hydronic Pumps

As mentioned above, pumps are included in the heating delivery system. The pumps are located in the Boiler Room.

Action: Replace pumps with variable speed pumps. *Priority:* 2 $ 50,000

C. Oil and Gas Burners

As mentioned above, oil burners are part of the boiler and hot water heating systems.

Action: Replace burners as part of new boilers project.

D. Boiler Exhaust

The boiler is exhausted through a masonry flue chimney through the roof. The chimney appears to be lined but could not verify at this time. Boiler breaching was in poor condition and should be replaced as part of the larger boiler replacement project.

Action: Inspect chimney for any defects or combustible deposits, and repair as stated previously.

E. Hydronic System

The hydronic heating system consists of water being heated through the boiler and hot water being distributed through piping to various air handlers, unit ventilators, finned tube radiators, and cabinet heaters and then being recirculated back to the boiler. The system is made up of numerous valves, pumps, dampers, etc. The system has original piping which should be replaced as required. Schedule regular maintenance as required.

Action: Replace piping and valves within the boiler room. *Priority:* 2 $ 50,000

Action: Replace system piping as required. *Priority:* 4 $200,000

F. Unit Heaters and Cabinet Univents

The Classrooms are heated with unit ventilator heaters. They supply both heat and ventilation to the Classrooms. The unit provides conditioned air during heating season for ventilation. Proper ventilation and heating in the Classroom is important for conducive learning. The unit consists of a fan, coil, filter, controls, and dampers. The controls are currently on direct digital controls (DDC) after the coil freeze ups last winter. There are reports of erratic temperature fluctuations in classrooms, along with loud fan noise, which is a common complaint. Dampers are not operating properly as some are stuck open/close. Actuators and linkages need servicing. Motors and fans are in need of servicing. The unit ventilators have reached their useful life and should be replaced with high efficiency units and controls.

Action: Replace Unit heaters throughout the building. *Priority:* 3 $125,000

G. Finned Tube Radiation and Convectors

Fin tube radiation is installed in a few locations within the building to provide heat delivered from the boiler through a system of hot water piping. Fin tube radiation has slotted covers over them to protect the equipment. The heating element should be cleaned once a year. More frequent cleanings should occur if the heating element appears to have a build-up of contaminants. Remove any dirt by brushing or vacuuming the heating element. High-pressure air may be blown through the heating element to dislodge any build-up contaminants. Check to see if all air bleeder valves working properly and operate occasionally.

Action: Continue annual maintenance to extend life. *Priority:* 1 $ 4,000/yr

VII. COOLING (*Chillers/Condensers-Piping/Coils-Terminal Units)*

Condensing Units, and Mini Split unit Heat Pumps

There is no cooling or central system for cooling in the building. There are several window A/C units placed in some offices.

Action: Unless a request for cooling is presented, a cooling system is not required. We recommend regular maintenance of the window A/C units. *Priority:* 2 $ 1,000/yr

VIII. VENTILATION (*Air Handlers-Fans-Ductwork-Filters)*

A. Ventilation Units

The ventilation for the classrooms are served via the unit ventilators as mentioned above. There is an Energy Recovery Ventilator (ERV) located near the administration offices; however it did not appear to be working during our visit. Recommend evaluation of each unit by a qualified HVAC technician to determine if current operation is in proper sequence, determine any worn parts,

and determine if unit is operating at maximum efficiency. Also, recommend a scheduled preventive maintenance program be set up by a qualified contractor to be performed at least once a year. Preventative maintenance should include changing air filters, cleaning air ducts, and external and internal components of the system, replacing any worn parts. A proper maintenance and inspection program will extend the useful life of the equipment.

Action: Detailed HVAC Evaluation *Priority:* 2 $ 5,000

B. Exhaust Fans

Exhaust fans are located throughout the building and restrooms. Recommend regular service, which would include servicing the motors, belts, and cleaning. Check to hear any abnormal noises.

Action: Exhaust Fan regular maintenance. *Priority:* 4 $ 5,000/yr

C. CO2 Control

Provide CO2 control for HVAC to provide ventilation only when required. The CO2 control is required to meet IAQ requirements.

Action: Add CO2 demand control for HVAC ventilation. *Priority:* 3 $ 12,000

D. Boiler Room Combustion Air System

The Boiler Room combustion air is provided via louvers as stated above. The existing louvers do not meet current guidelines and should be replaced with larger units. Verify link/dampers/controls are working properly. Verify CO detector is installed within the Boiler Room and proper operating condition.

Action: Continue maintenance add CO detector as required.
Priority: 1 $ 4,000

Action: Install new combination ventilation air system. *Priority:* 2 $ 15,000

IX. BUILDING AUTOMATION SYSTEM

At present, the building HVAC is controlled by individual thermostats and limited CO2 sensors which control temperature and ventilation levels. This relies on individuals to set temperatures as needed but may not be the most efficient operation for energy savings. Recommend systems be updated, and modify as required to reduce energy levels. The controls are being updated currently.

Action: Review controls, schedules, and modify as required. *Priority:* 4 $ 5,000

X. PLUMBING (*Water Service-Piping-Sewer/Piping-Pump Stations-Fixtures-Domestic Water Heating & Scald Protection)*

A. Domestic Hot Water System

The domestic hot water system includes two 80-gallon, indirect fired hot water heaters. The indirect fired tanks supply all hot water for the building. The indirect tanks require the boilers to produce hot water for the coils, which heat the water within the tanks. This requires firing of the boilers to produce hot water. The tanks should be checked for corrosion as part of regular maintenance. The pipes should also be checked for corrosion issues. Observed some missing insulation on piping in the Boiler Room at the hot water tank.

Action: Inspect tanks and piping for corrosion.

Priority: 1 $ 2,000

Action: Replace tanks with instantaneous on demand hot water system with master mixing valve. The on demand unit will help to reduce energy consumption.

Priority: 1 $ 15,000

B. Plumbing Fixtures

The plumbing fixtures appear to be in good condition overall. The number of plumbing fixtures throughout the building appears to meet the plumbing code requirements. Replace individual fixtures on an as needed basis or as part of larger restroom renovation projects.

Action: Continue to maintain fixtures. *Priority:* 2 $ 1,000/yr

Action: Install low flow plumbing fixtures when required. *Priority:* 2 $ 3,000/fixture

Limitations

The following are some limitations inherent in this type of inspection. Please note them carefully.

A single project that incorporates several of the task items would certainly be less expensive than completing each task one at a time. Estimated costs have been determined from our experience with removal, disposal, undiscovered deterioration, and installation of listed items, as well as input from local contractors/suppliers/engineers and RS Means Cost Data Guides.
The assessment is not a formal repair and replacement schedule and should not be used as an exact replacement schedule. The assessment is an estimate of anticipated needed replacements/repairs for the property over time and their costs and replacement needs can be shifted based on funds available.

The goal of the assessment is not to set the replacement times; it is to have funds available to replace items as needed. The assessment should not be used to mandate replacement time for all building components.

This inspection report is limited to observations made from visual evidence and discussions with the Owner's Representative. No destructive or invasive testing was performed. The report is not to be considered a guarantee of condition and no warranty is implied.

As Engineers, our responsibility is to evaluate available evidence relevant to the major systems in this building. We are not, however, responsible for conditions that could not be seen or were not within the scope of our service at the time of the inspection.

It should not be assumed that no rot exists in any of the inaccessible areas, such as wood foundations in contact with the ground. Rot can result from moisture accumulating underneath the siding, behind trim, beneath the roof surface, or within wall cavities should the normal drying process be restricted by insulation or other obstacles.

Our investigation of the mechanical and electrical systems is limited to the visible components. A larger portion of the mechanical and electrical systems is hidden behind walls and ceilings, and, obviously, all the conditions relating to these unseen areas cannot be known. While some deficiencies in the systems are readily discernible, not all conditions that can lead to the interruption of electrical service or that are hazardous can be identified.

While some references to hazardous materials may be made, our report is **not a complete investigation** for toxic wastes in the building or adjacent soils, hazardous materials, or public records affecting this property. We suggest that a specialized company be consulted to perform a thorough report of hazardous materials.

While some references to handicap accessibility may be made, our report is **not** intended to be a complete investigation for conformance to the Americans with Disabilities Act (ADA) or any other State or Federal handicap accessibility standards. Such an investigation is beyond the scope of this inspection.

While we often comment on major code violations, this report should not be construed as a specific code compliance investigation. This property is also subject to many local and state ordinances and codes, which do change from time to time. The judgment and decisions made by local code and fire officials can vary significantly from one community to the next.

For the purposes of this report, we recommend that 20% be added to the totals to cover construction contingencies and price changes over the next few years. As this report evolves in the future, the unknowns will become less and the contingency can be lowered. We also recommend that 10% be included to cover the cost of design work, bidding services, and construction administration. We assume some of the projects be packaged together for bid, while others may be administered by in-house staff.

HOLBROOK MIDDLE SCHOOL

SUMMARY BY PRIORITY

HOLBROOK MIDDLE SCHOOL ASSESSMENT
SUMMARY BY PRIORITY

Note: Priority number is years from date of list.
Cost data is dollar value as of list date.

Date: 11/5/2019

Priority	Section	Brief Description of Item	Cost	Subtotal
1	I	Conduct a study to develop drop-off/pickup plan and associated costs	$5,000	
1	I	Reconfigure Drop-off/Pickup Area.	$150,000	
1	I	Pave remaining sidewalk areas (1" overlay)	$15,000	
1	I	Pave drive and parking areas (1 1/2" overlay)	$65,000	
1	I	Rehab concrete treads at south gym entrance, repoint brick retaining wall	$5,000	
1	I	Reset railings at cafeteria entrance	$2,500	
1	I	Replace exterior lighting fixtures with LED lighting (6).	$12,000	
1	I	Replace sewer system pump station, new force main, etc.	$30,000	
1	I	Maintain sewer system grease traps (yearly allowance)	$1,000	
1	I	Recommend roof drainage system to divert water from paved areas. (Allowance)	$20,000	
1	I	Clean catch basins annually (yearly allowance)	$1,000	
1	I	Relocate Propane tank if clearances are not met.	$2,000	$308,500
1	II	Replace older shingles on 2000 addition roof and east side drop off area	$25,000	
1	II	Inspect chimney lining and repoint exterior chimney masonry block.	$10,000	
1	II	Install new fire rated ceiling assembly and seal all penetrations in Boiler Room	$10,000	$45,000
1	III	Replace Carpet & Tile in (4) classrooms with asbestos tile under carpet.	$54,000	
1	III	Replace asbestos tile in (2) classrooms.	$27,000	
1	III	Replace Cafeteria carpeting with tile.	$20,000	
1	III	Refinish gym floor (yearly allowance)	$3,000	
1	III	Continue to maintain wall drywall patch/repair (yearly allowance)	$3,000	
1	III	Replace suspended ceilings as they fail. (yearly allowance)	$2,000	
1	III	Continue to maintain ceiling drywall patch/repair (yearly allowance)	$1,000	
1	III	Provide kitchen ventilation study and replace hood system.	$50,000	
1	III	Install new cleanable kitchen work surface with under storage.	$10,000	$170,000
1	IV	Reconfigure Front Entrance to provide check-in before entering the school.	$200,000	
1	IV	Provide new compliant addressable fire alarm system.	$80,000	
1	IV	Recommend installation of new video IP system with access control, including card readers, camera, etc. for adequate security.	$80,000	
1	IV	Implement card reader system at critical doors.	$20,000	
1	IV	Install security cameras at key locations	$20,000	
1	IV	Pump, storage, generator, etc for Sprinkler System.	$450,000	
1	IV	Sprinkler System	$150,000	$1,000,000
1	V	Maintain and service generator (yearly allowance).	$1,200	
1	V	Install new electrical entrance, MDP, etc.	$25,000	$26,200
1	VI	Continue fin tube radiation annual maintenance (yearly allowance)	$2,000	$2,000
1	VIII	Continued maintenance of Boiler Room Combustion Air System/add CO_2 detector as required.	$4,000	$4,000
1	X	Inspect water tanks and piping for corrosion	$2,000	
1	X	Replace water tanks with instantaneous on demand hot water system	$15,000	$17,000
				$1,572,700
2	I	Maintain existing paving, apply rubberized sealant (yearly allowance)	$2,000	
2	I	Improve Route 46 sight distance.	$200,000	
2	I	Install gutters/snow guards at entrance area.	$5,000	
2	I	Install site signage.	$15,000	
2	I	Provide striping for new parking layout.	$10,000	
2	I	Add additional lighting to upper parking lot (6).	$36,000	$268,000
2	II	Structural analysis of interconnecting corridor.	$5,000	
2	II	Replace 1995 windows 80±	$70,000	
2	II	Replace exterior double doors (3)	$60,000	
2	II	Add attic access panels in trussed areas; investigate ventilation and insulation problems over Superintendent's Office.	$5,000	
2	II	Replace older VCT flooring in original classrooms as needed.	$110,000	
2	II	Replace library and classroom flooring.	$25,000	$275,000
2	III	Remove exposed paneling in 1960's wings, replace with drywall.	$30,000	
2	III	Remove/conceal exposed wood ceilings and replace with dire rated drywall	$60,000	

Priority	Section	Brief Description of Item	Cost	Subtotal
2	III	Replace delaminated classroom/ storage doors(15).	$15,000	
2	III	Renovate entrance to girls restroom to be fully ADA compliant	$25,000	
2	III	Renovate gymnasium restrooms and shower areas to be fully ADA compliant.	$120,000	
2	III	Install molded wrap under restroom lavatories	$10,000	
2	III	Install commercial hot water tank with thermostatic mixing valve for kitchen equipment.	$20,000	$280,000
2	V	Install new electrical circuits and receptacles where required.	$25,000	
2	V	Repair existing electrical code deficiencies.	$100,000	
2	V	Install new communications system.	$50,000	$175,000
2	VI	Replace original boiler and burner.	$100,000	
2	VI	Install new heating piping pumps and controls.	$100,000	
2	VI	Replace above ground oil tank, construct secondary containment wall.	$100,000	
2	VI	Install propane tank farm (tanks owned by utility) and piping.	$20,000	
2	VI	Replace hydronic pumps with variable speed pumps	$50,000	
2	VI	Replace piping and valves within the Boiler Room	$50,000	$420,000
2	VII	Perform regular maintenance of window A/ C units (yearly allowance)	$1,000	$1,000
2	VIII	Detailed HVAC evaluation	$5,000	$5,000
2	VIII	Install new combination ventilation air system.	$15,000	$15,000
2	X	Continue to maintain plumbing fixtures (yearly allowance)	$1,000	
2	X	Install low flow plumbing fixtures when required (per fixture allowance)	$3,000	$4,000
				$1,443,000
3	I	Regrade ditch along the main road to improve drainage.	$10,000	
3	I	Pavement markings/ restripe	$5,000	
3	I	Expand existing limited parking.	$200,000	
3	I	Replace sewer system disposal fields.	$100,000	$315,000
3	II	Maintain siding, re-point brick joints as needed.	$10,000	
3	II	Replace windows 110± (those installed after 1995)	$90,000	
3	II	Replace VCT in remaining school areas.	$70,000	$170,000
3	III	Replace kitchen flooring with quarry tile.	$10,000	
3	III	Remove and replace existing closets/ cubbies/ countertops in 6 classrooms	$30,000	
3	III	Update classroom door hardware (30±).	$18,000	$58,000
3	IV	Recommend cab update/ upgrades to existing elevator.	$20,000	$20,000
3	V	New full load generator.	$175,000	
3	V	Replace interior lighting throughout.	$120,000	
3	V	Add lighting occupancy sensors.	$20,000	$315,000
3	VI	Replace Unit Heaters throughout the building.	$125,000	$125,000
3	VIII	Add CO2 demand control for HVAC ventilation.	$12,000	$12,000
				$1,015,000
4	I	Replace well pressure tanks.	$3,000	$3,000
4	II	Repair and refinish stage floor	$20,000	$20,000
4	VI	Replace Hydronic System piping as needed.	$200,000	$200,000
4	VIII	Exhaust fan regular maintenance (yearly allowance).	$5,000	$5,000
4	IX	Review Building Automation System controls and schedules, modify as required	$5,000	$5,000
				$233,000
5				
				$0
		Total Priorities 1 thru 5		**$4,263,700**

Section	Description
I	Site
II	Building Envelope
III	Interior Finishes
IV	Accessibility/ Life Safety/ Building Security
V	Electrical
VI	Heating
VII	Cooling
VIII	Ventilation
IX	Building Automation System
X	Plumbing

HOLBROOK MIDDLE SCHOOL

SITE MAP

Holbrook Middle School Site

HOLBROOK MIDDLE SCHOOL

PHOTOS

Paving with Sealant

Paving with Sealant

Drainage issue at main road

Exterior Concrete Steps

Exterior Steps

Parking Lot Lighting

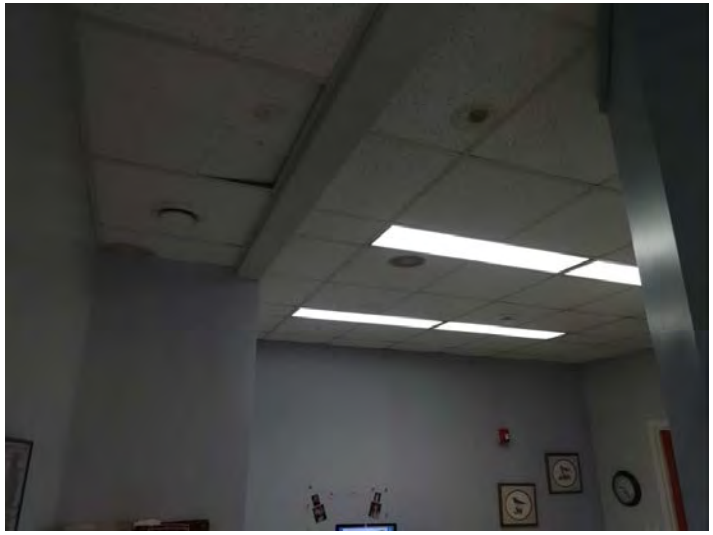
Exterior Brick

Stress Crack in Hallway

Gutter

Mechanical Room Entrance

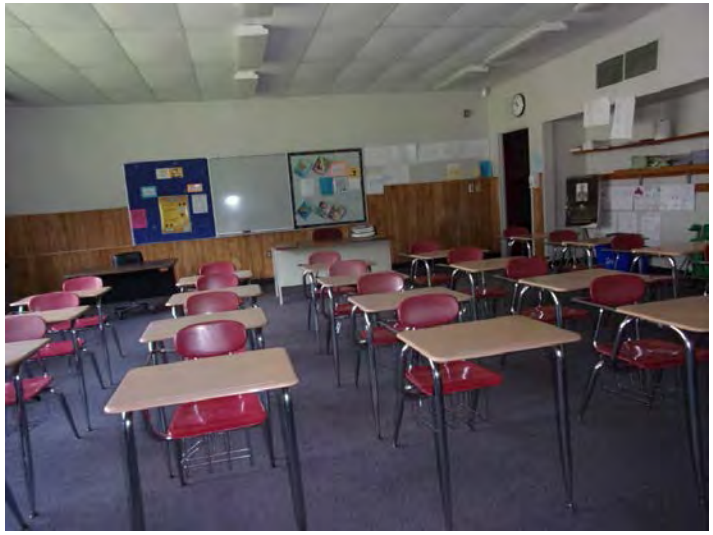
Rubber Membrane Roof



Ceiling Tile

Roofing

Interior Hallway



Classroom with wood panels

Stained Ceiling Tile

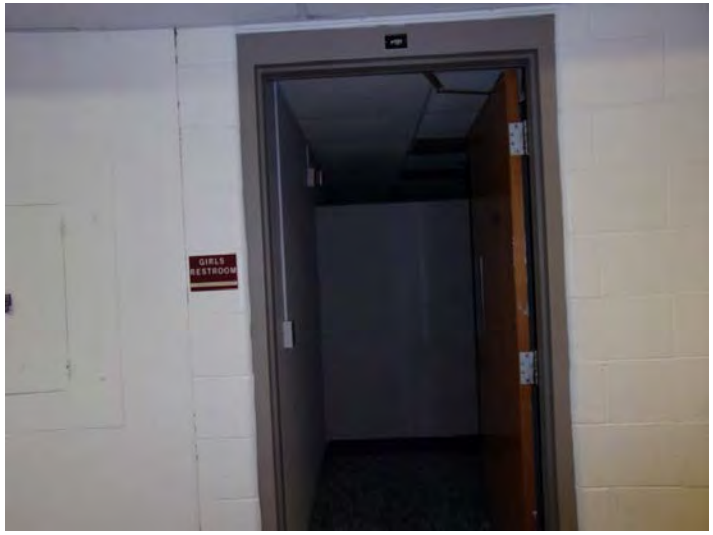
Ceiling Tile Stains

Library

Restroom Door

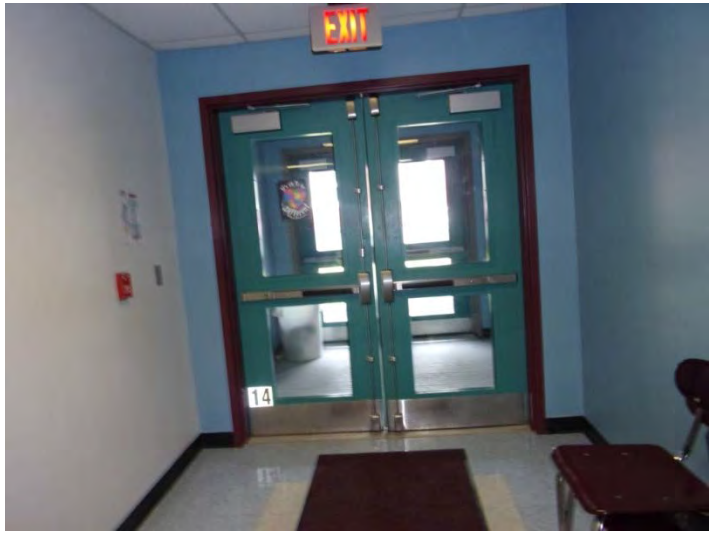
Restroom

Restroom stall



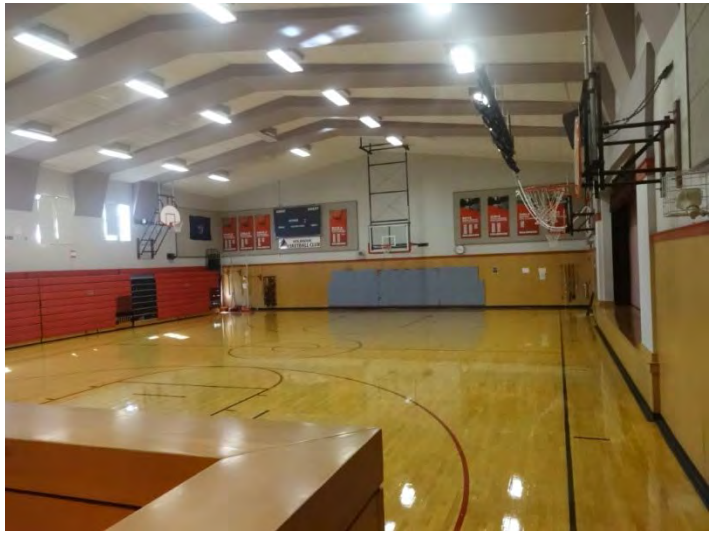
Restroom Door

Kitchen Hood



Building Exit

Generator



Gymnasium

Electrical

Pumps

Boiler Exhaust

Interior Heating

Interior Heating

Classroom Heating