BARRY ISETT & ASSOCIATES, INC.

Multidiscipline Engineers & Consultants

Civil
Survey
Land Planning & Development
Grants
Water & Waste Water
Mechanical
Electrical
Plumbing
Structural
Forensics
Traffic
Municipal
Code Review
Facilities Services
Construction Services
Geological
Landscape Architecture
Environmental

Property Condition Assessment

FOR

Lower Milford Elementary School

7350 Elementary Road, Coopersburg PA 18036

DATE: June 5, 2013

BIA PROJECT #: 1046311.006

85 S. Route 100
Allentown, PA 18106
610 • 398 • 0904

1003 Egypt Road
Phoenixville, PA 19460
610 • 935 • 2175

100 W. Broad Street, Suite 200
Hazleton, PA 18201
570 • 455 • 2999

7 Union Square, 3rd Floor
Phillipsburg, NJ 08865
908 • 454 • 9500

www.barryisett.com

TABLE OF CONTENTS

I. Executive Summary

A. General Description

Barry Isett and Associates, Inc. (BIA) performed a visual survey of the subject property on March 27, 2013 and again on April 1, 2013. Mr. Todd Bergey, of Southern Lehigh School District, was present during our walk through to guide us and answer questions.

The building is located at the intersection of Elementary Road and Limeport Pike in Coopersburg, Pennsylvania. For the purpose of this report, North will be considered the front of the building. The building is arranged in a roughly box shape when viewed from aerial imagery with the portion nearest Elementary Road serving as common space including gymnasium, cafeteria and administrative offices. The two wings projecting perpendicular from the front serve as educational space and include classrooms, computer labs and a library. The structure totals approximately 36,000 square feet. The plans that were made available to our office indicate that construction dates to about 1950 with an addition and other improvements added in 1990. To continue adding to the existing school will require extensive earthwork such as grading, backfill and potential retaining walls. These are typically costly items which greatly increase the budget without adding to the value of the education space provided.

The primary structural system for Lower Milford Elementary is masonry block and cast-in-place concrete floor. The roof is pitched and constructed over pre-engineered wooden trusses.

Access to the site is provided by a loop. On the west there is an entrance which accesses both the bus loop and paved parking. Similar to Hopewell, total on-site parking is provided for approximately 80 vehicles.

There are two outbuildings on site including a treatment plant and a maintenance/ storage building.

B. General Physical Condition

Overall the building appeared to be sound and in generally good if aged condition. We were unable to observe components that were not readily visible due to exterior and interior finishes. The primary structural systems of Lower Milford Elementary are generally in fair condition. Long term water infiltration except for some isolated roof leaks are not in evidence. There are several step cracks in interior walls, particularly in the vicinity of the gymnasium.

The building façade is generally in good condition. A small amount of cracking was observed in the façade as well some localized missing mortar joints. Portions of the masonry to the rear in the shaded areas appear not to dry well and water staining and deterioration is visible.

The roof is sheathed with asphalt shingles which in fair condition are nearing the end of its lifecycle. Roof drainage is accomplished through box gutters piped down the exterior of the building to discharge at grade.

The domestic water system is supplied by an on property well and sanitation is treated on site as well. It was reported to us that several years ago pipe breaks occurred that required repair. Maintenance and care of both the well and the sanitary treatment are annual operating expenses for the District. Much of the buildings sanitary piping has been replaced over the years due to accessibility via a crawl space under the entire building. The condition of all the building's piping could not be verified due to accessibility issues.

The HVAC systems appear to be in good operable condition. The building is serviced by a newer 100 ton Trane, air-cooled, screw chiller located adjacent to the lunch room. The chilled water pumps, boilers, hot water pumps and associated equipment are located on the basement level. There are (2) air handling units, utilizing chilled and hot water coils. There are (2) air handlers utilizing hot water heat and direct expansion for cooling; the condensing units are located on grade adjacent to Mechanical Room 167. The air handlers service the library, stage, gym and main office. The classrooms are serviced by unit ventilators utilizing chilled and hot water.

The electrical system, including lighting, appears to be in good operable condition. Recent lighting upgrades were observed.

The fire alarm system and security system appear to be in fair and operable condition. It is a possibility that the alarm system will need to be upgraded to comply with code requirements. The telephone / data systems appear to be in fair condition but may require expansion / adjustments depending on the future upgrades made to the building.

C. Recommendations

An inclusive building shell remediation should be undertaken to ensure the water tight integrity of the building. This program naturally will include re-roofing the entire structure since the roof is near or past its useful life expectancy. We also recommend repairing/replacing steel lintels and pointing masonry as required.

Consideration should be given to upgrade the plumbing fixtures throughout the building. All sanitary piping should be tested for any signs of leaks, cracks, and proper slope. An HVAC inspection is recommended for all equipment. Testing of the lighting fixtures and emergency lighting fixtures is recommended to verify proper operation and any malfunctioning fixtures should be replaced. The security, alarm, and data system should all be tested for proper operation.

II. Purpose and Scope

A. Purpose

This study was conducted in an effort to determine the current condition of the building for the purpose of identifying significant defects and/or items of deferred maintenance that can affect the operation and value of the property. Our scope did not include any demolition or testing of building materials or operation of equipment. Our findings are based solely on the results of our visual survey.

B. Scope and Exceptions

The scope of the assessment includes a visual, non-intrusive and non-destructive evaluation of various external and internal building components. Representative samples of the major building components were observed and physical conditions evaluated. These systems include the building envelope; roofing; and mechanical, electrical, fire protection and plumbing systems. Photographs were taken to provide a record of general conditions of the building, as well as possible specific deficiencies observed. This assessment shall not be construed as a building code, safety, regulatory or environmental compliance inspection.

This report is based upon the physical condition of the components, their ages and their expected useful life. The conclusions presented are based upon our professional judgment. The actual performance of individual components may vary from a reasonably expected standard and will be affected by circumstances that occur after the date of the evaluation. This report does not consider any future programmatic changes and how those would impact systems capacities and distribution.

The report does not identify minor, inexpensive repairs or maintenance items but rather does identify infrequently occurring maintenance items of significant cost, such as roofing, deferred maintenance and repairs and replacements that normally may involve major expense or outside contracting.

The following terms are used throughout the report and are defined as follows:

Excellent: New or like new.

Good: Average to above-average condition for the building system or material assessed with consideration of its age, design, and geographical location. Generally, other than normal maintenance, no work is recommended or required.

Fair: Average condition for the building system evaluated. Satisfactory, however some short term and/or immediate attention is required or recommended, primarily due to the normal aging and wear of the building system, to return the system to a good condition.

Poor: Below average condition for the building system evaluated which would require immediate repair, significant work, or replacement to return the building system or material to an acceptable condition.

Unless stated otherwise in this report, the systems reviewed are considered to be in good condition and their performance appears to be satisfactory.

C. Reliance

The conclusions and recommendations stated herein are intended as guidance and not necessarily a firm course of action except as where explicitly stated as such. BIA makes no warranties, expressed or implied, including without limitation, as to merchantability; or fitness, of the property for a particular purpose. In addition, the information provided within this report is not to be considered legal advice. The results of this assessment

may not be relied upon by any party other than SLSD without prior written consent of BIA.

III. System Description and Observations

A. Structural Frame and Building Envelope

1. Substructure

Description: The primary structural system for Lower Milford Elementary is conventional strip footer. The school was observed to be structurally sound with no failure, or movement of loadbearing elements.

Comments:

- The basement/ crawlspace is reasonable clean and dry, and there is little to no evidence of water infiltration.

2. Superstructure

Description: The primary structural system for Lower Milford Elementary is multiple wythe load bearing masonry walls above grade. The building was observed to be structurally sound with no significant cracking, damage, failure, or movement of loadbearing elements. Access to observe structural elements were somewhat limited due to finishes.

Comments:

- Interior walls near the gymnasium exhibit moderate step cracking which are likely the result of settlement of fill soils. These conditions are likely to have occurred early in the life cycle and do not appear to threaten the structure.

3. Exterior Walls

Description: Lower Milford Elementary is clad with brick over masonry block bearing walls. The façade is generally in good condition but in isolated and shaded areas is experiencing long-term deterioration from wetting and freeze thaw cycle. Localized signs of this deterioration include efflorescence (white mineral deposits from water which is leeching through the wall), loss of mortar, cracking or gapping of mortar joints, random cracking of upper soffit, freeze/thaw pushing of certain elements more than inch out of plane. Expansion joint sealants observed had exceeded its useful life.

The North facade of the School was generally in good condition. An area of cracking and displacement was noted above the cafeteria window. The displacement runs parallel to the top of the window and is likely the result of water trapped behind the brick causing the steel lintel which supports the wall above the window to corrode. This type of compressive failure is typically referred to as rust jacking.

The East facade in the vicinity of the gymnasium was observed to be in fair to good condition. One exception is the downspouts from the rain gutters should be reworked to provide drainage away from the sub and superstructure.

The South façade, particularly the areas in the courtyard between the two wings have areas where the masonry is discolored, stained by soluble salts (efflorescence) and missing mortar joints. These conditions are created by the inability of the masonry to dry because of the amount of shade in these areas. .

Comments:

- Steel lintels should be examined for corrosion and the surrounding masonry for compressive failure.
- Efforts should be made to channel water away from the walls in the courtyard. Drip tubes, flashings and downspouts in the area of the courtyard should be repaired and possible extended.
- Maintenance repairs such as repointing and rebuilding weep holes should be undertaken in the courtyard.
- All downspouts should be routed so as to flow water away from the walls and foundation.

4. Roofing

Description: The roofing at Lower Milford Elementary is asphalt shingle. It is flashed along the gables and bump outs at exterior columns and is very close to the end of its life cycle.

The flashings and terminations were in fair condition. Some of the original detailing was observed not to follow the current standard of practice for water management, yet remains basically serviceable.

Comments:

- The roofing on Lower Milford Elementary should be removed down to deck and replaced. Contingency should be set aside for replacing any deteriorated sheathing or trusses. The longer this replacement is delayed, the greater likelihood of leakage to the interior of the building.
- BIA reviewed the design drawings for the roof trusses and had limited access to the roof framing, however due to the service life and overall condition of the roof when observed for warps or other defects. Without exhaustive examination of the structure and Engineering studies we cannot say for certain, however, based on the service life of the structure to date, the framing appears adequate for the current loads.

Note: The condition of the structural roof framing for the original structure and addition could not be adequately examined under the scope of this project.

B. Mechanical, Electrical, and Plumbing Systems

1. Plumbing

a) Domestic Water System

Description: Domestic water is supplied to the building via an on-site well, 6,000 gallon underground water tank and a domestic water booster pump system. The well fills the water tank and the booster system distributes into multiple distribution pipes to serve the rest of the building. There is a booster tank and pump in the basement.

The building contains (2) sets of gang restrooms and various single use restrooms throughout the building. The restroom types were a combination of both gang and single use. The restrooms contained both floor and wall mounted water closets with flush valves. They also contained wall mounted sinks.

The building contained a small sized kitchen area each with a one (3) compartment sink, one (2) compartment sink, and a hand sink. The dishwasher looks to be in fair condition. Hot water is provided to the restroom lavatories, kitchens, and janitor closets via an oil fired water heater.

Comments:

- All visible domestic water piping, kitchen and restroom fixtures appeared to be in an operational condition with varying degrees of wear and tear. Although the actual age of the fixtures could not be determined through visual inspection, they all appeared to be original and approximately 20 years old.
- The domestic hot water heater appeared to be in good operational condition.
- Overall, the visible portions of the domestic water system appear to be in a functional condition with no issues that require immediate repair. All piping should be pressure tested to verify integrity of all concealed piping.
- Consideration should be given to upgrading the plumbing fixtures with new fixtures and faucets utilizing new low flow devices.

b) Sanitary System

Description: The building is connected to an on-site sewer treatment facility. The buildings sanitary discharges appear to be out the back of the building towards the treatment plant. The existing sanitary piping in the basement level and crawlspace area is pvc. As visual inspection was not possible for all areas of the building, the condition, size, and routing of the sanitary system was not determined.

Comments:

- The sanitary piping system appears to be in good working order with no noted issues or signs of cracks or leakage. All piping should be tested to verify integrity of all concealed piping.

2. Heating, Ventilation, and Air Conditioning

   Description: The building currently has (2) oil fired boilers supplying hot water to the unit ventilators and air handling units located throughout the building. Hot water and chilled water is supplied to a combination of air handling units and perimeter unit ventilators. The building has a total of (2) air handling units with hot and chilled water coils. There are (2) air handling units utilizing hot water coils and dx cooling coils. There is a 10,000 gallon, below grade, fiberglass, double wall fuel tank located in the front of the building by the cafeteria.

   The heating for the building is provided by (2) oil fired boilers located in the basement. The boilers appear to be in good operational condition. There are (2) base mounted suction pumps circulating hot water throughout the building.

   Building cooling is provided via a Trane 100 ton exterior air cooled screw chiller. The air cooled condensers servicing the (2) air handlers are located on grade adjacent to where the air handler units are located. There are (2) base mounted suction pumps circulating chilled water throughout the building.

   There are (4) air handling units located throughout the building with hot water heating and either chilled water or direct expansion cooling coils. There are also unit ventilators located in each classroom utilizing hot and chilled water from the boiler/chiller plants.

   Controls for all space conditioning equipment consist of DDC (direct digital controls) system. This control system is appears to be in good operational condition.

   Comments:

   - A thorough inspection and servicing of all equipment is recommended. The equipment is in good operational condition and had a service life over 10 years.

3. Electrical System

   a) General Power System

      Description: The building electrical power is supplied by PPL. The utilization voltage is 277/460V three phase. The secondary feeder supplies a 2,000 amp, three-phase, main electrical panel located in the basement. This supplies power to various loads throughout the building.

      The existing 60 KW natural gas emergency generator appeared to be in fair operable condition; however the generator is original to the building.

      Electrical feeders on the inside of the building were in primarily EMT conduit.

      Comments:

      - The main distribution panel and other major electrical distribution equipment are roughly 20 years old. All distribution equipment appears to be in good condition with no major issues.

- Useful life of electric equipment, based on industry standards, is approximately 50 years. As such, expected useful life for the electrical distribution equipment is 30 years.

b) Lighting System

Description: The general illumination throughout the building is accomplished through a large mix of styles, fixture types, lamp types and control mechanisms.

The emergency lighting on the interior of the building is provided by ceiling and wall mounted fixtures fed from the emergency generator. It could not be confirmed if the lights and exit signs were provided with remote battery backup.

The exterior lighting system consists of building mounted light fixtures on the building.

Comments:

- The overall condition of the lighting in the building varies, as some areas have undergone renovations in the last 5-10 years. In general the fixtures themselves appear to be in mostly fair condition. However, overall fixture spacing and quantities appear to provide sufficient lighting levels.
- The exterior lighting was observed during day light hours and its function was not verified. Fixture quantity and locations appear to provide minimum required lighting levels at the exits and parking lot.
- Testing of the batteries on all the emergency lighting fixtures should be performed and any malfunctioning fixtures should be replaced. All existing lighting fixtures should be tested to verify proper operation and any malfunctioning fixtures replaced.

C. Life Safety/Fire Protection

1. Alarm Systems

Description: The building appears to have an up to date fire alarm system installed. It is unclear exactly how it is integrated with the security system. Spot-type smoke detectors are located throughout the building. There was not a fully ADA compliant strobe system in place.

Comments:

- The alarm system appears to be in fair. It is likely the building will require a fire alarm upgrade to comply with the latest building code requirements of full strobe coverage and alarm notification. Existing proper operation of the alarm systems was not verified. The alarm system should be tested to confirm it is operating correctly in its current state.

D. Other Systems

1. Security

Description: The security system should be improved upon and upgraded.

Comments:

- The security alarm system appears to be in fair condition. Proper functioning of the alarm system was not tested.

2. Telephone / Data System

Description: The building is provided with telephone/data service with telephone and data jack locations throughout the building at appropriate places.

Comments:

- The telephone/data system appears to be fair condition. It may require expansion/adjustments depending on the building use.

3. Kitchen

Description: The galley style kitchen provides lunch for the student body and consists of walk in coolers, dry good storage and preparation areas.

Comments:

- If the school population is expanded, a larger kitchen will need to be constructed.
- Working space in the kitchen is extremely tight and food preparation areas are uncomfortably close to the dishwashing/ clean up stations.
- The current configuration does not provide an office for the kitchen manager.

E. Site Improvements

1. Asphalt Paving:

Descriptions: Vehicle and limited pedestrian access to the school are accomplished with asphalt paving.

Comments:

- The asphalt paving on site has reached the end of its useful life. Widespread alligator cracking and the formation of potholes are in evidence.

2. Concrete Paving

Description: Access to the main entrance is constructed of concrete paving.

Comments:

- The concrete paving on site was observed to have heaved in several locations. This is most likely the result of placing the concrete on expansive soils. During the time of the initial construction at Lower Milford it was common to used slag from Bethlehem Steel for sub-base material. This slag has proven unsuitable for

such uses over time due to its expansive nature and relatively low bearing capacity.
- The concrete paving has spalled, particularly at the edges.
- In general, ADA access does not meet current code.

F. ADA Compliance

Description: Generally Lower Milford Elementary was constructed before accessibility guidelines became codified. As such, much of the construction is grandfathered until renovations are made.
Comments:

- When renovating, 20% of the construction value must be upgrades to Accessibility.
- Access into the school, as well as emergency egress from the various wings does not meet current accessibility guidelines.
- The restrooms configurations do not meet current ADA guidelines both in fixture count and physical configuration, although upgrades have been made over the years in an attempt to provide accessible fixtures.

IV. Opinions of Probable Cost

Reference the spreadsheet provided separately for specific costing.

Based on our observations, items not listed are understood to not require immediate replacement / repair. However, based on Owner's program and use, building systems may require upgrades and / or replacement. Beyond functionality, Owner may want to upgrade the existing systems to meet the needs of the future use.

The probable costs should be used only as budgetary figures. The contingency figures are included to account for items which are either unknown or are not known in sufficient detail to quantify the associated costs. In providing opinions of probable cost, Client understands that the consultant has no control over the cost or availability of labor, equipment, materials, or over market conditions or the contractor's method of pricing. The consultant makes no warranty, express or implied, that the cost of the Work will not vary from the consultant's opinion of probable construction cost. In addition, these costs refer to direct costs only. We define direct costs as the cost of labor and material actually incorporated into the project. We exclude such indirect costs as design, finance charges, permits/inspections, legal fees, insurance, taxes, bonding, etc.

V. Limitations

Condition assessments are observational in nature. Information contained in this report was obtained by means of site observations, interviews and Client-provided documents. Evaluation by visual observation is specifically limited to those items or components that are readily accessible and visible to the unaided eye. No testing, either destructive or non-destructive, was performed, and no calculations were performed to determine capacities of existing building systems. The observation of concealed or inaccessible areas of the subject property, which would have required the use of destructive investigation, was beyond the contracted scope of this assessment. The information presented in this report represents the condition of the subject property at the time of BIA's site visit; other problems

may develop with time that were not evident at the time of this assessment. No other expressed or implied warranty is made regarding the content of this assessment.

The section “Out of Scope Considerations” of the ASTM “Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process” (ASTM E 2018-01) is incorporated by reference.

Items identified as requiring action are so noted. BIA’s conclusions and recommendations should not be construed in any way to constitute a warranty or guarantee regarding the current or future performance of the facility.

This report is intended to be read in whole. Information provided in the various sections is complementary and in some instances provides additional explanation of information concerning the assessment. Therefore, interpretations and conclusions drawn by reviewing only specific sections are the sole responsibility of the user. Should you have any further questions, please do not hesitate to contact our office.

VI. Qualifications

We have performed our services and prepared this report in accordance with generally accepted engineering and construction practices. We make no other warranties either expressed or implied, as to the character and nature of such services and product. The findings, conclusions, and recommendations of this report are based only on our visual observations. Our findings do not include any demolition, equipment start-up or testing of building materials and building components. Reports and other information prepared by others and provided by the Client for our reference were assumed to be accurate. If you have any further questions, please do not hesitate to contact our office.

VII. Photographs

Front view including sidewalks and partial view of gables.

Concrete walk with covered swale for rain leader.

Asphalt paving, typical. Note the extensive alligator cracking.

Side entrance. Note the step which limits accessibility.

Soluble salts resulting from saturation of mortar of extended periods.

Masonry in area between wings exhibiting staining/loss of mortar resulting from excessive time between drying.

Side exit

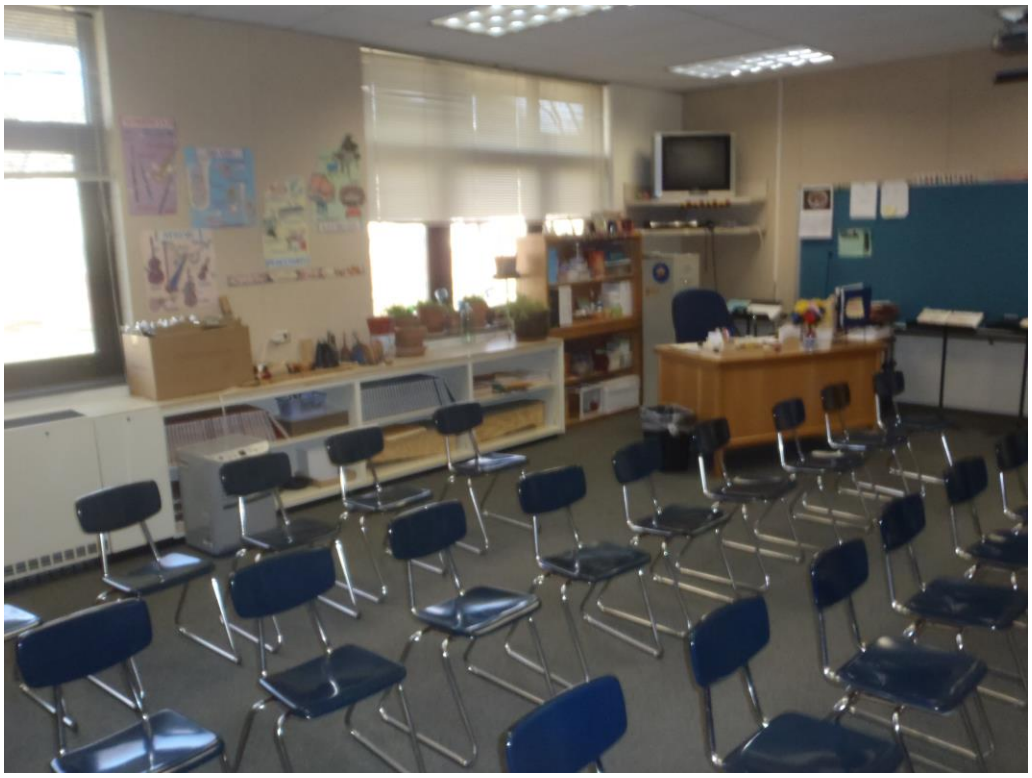
Roofing over wing from the courtyard

Roof Framing, typical

Boilers

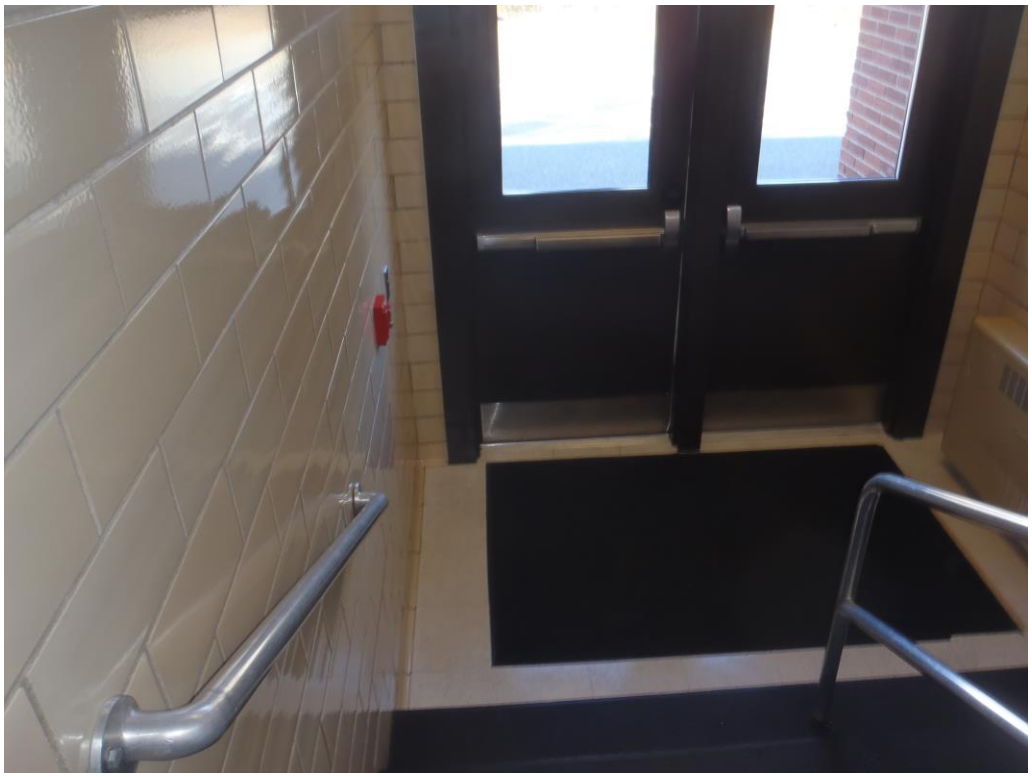
Plumbing Chase

Water Damage



Music Room

Restroom, typical



Path of egress from classroom wing

Lower Milford Elementary

Div	Description		Value	Age	Service Life
				In years	
4	Masonry Repairs			63	
	Lintels		$22,500	63	
	Pointing		$30,000	50	
	Misc. Reconstruction		$25,000	varies depending on wing	
		Total	$77,500		
7	Replace Shingle Roof			23	20-25
	Asphalt Shingle Roof, includes demo		$220,000		
	Remedial Sheathing/ Framing		$30,000		
		Total	$250,000		
9	Class Room Cabinets			63	20-25
	Demolition		$8,750		
	Sinks (25)		$16,250		
	Cabinets/ counters (25)		$43,750		
		Total	$68,750		
23	Convert Existing Bathrooms to ADA, understanding the loss of 1			63	20-25
	Includes 1 Boys and one Girls				
	General Conditions		$12,000		
	Selective Demo		$10,000		
	Temp Facilities and Controls		$4,500		
	Tiling		$22,500		
	Painting		$3,000		
	Toilet Compartments and Accessories		$25,000		
	Plumbing		$13,000		
	HVAC		$20,000		
	Fire Protection		$4,500		
	Electrical and Lighting		$13,500		
	Allowances for Unforeseen		$17,500		
		Total	$145,500		
23	Convert Classrooms to Provide adequate Fixture Count including ADA			N/A	
	Includes 1 Boys and one Girls				
	General Conditions		$25,000		
	Selective Demo		$14,000		
	Temp Facilities and Controls		$14,000		
	Demolish and Repair Concrete Slab/ Floor		$75,000		
	Underslab piping, service/ sanitary		$44,000		
	Tiling		$40,000		
	Painting		$5,000		
	Toilet Compartments and Accessories		$25,000		
	Plumbing		$26,000		
	Hot Water Heater and associated Piping		$22,000		
	HVAC		$40,000		
	Fire Protection		$7,000		
	Electrical and Lighting		$48,000		
	Allowances for Unforeseen		$60,000		
			$445,000		

26	Upgrade Electrical System			20+	20-25
	Selective Demolition Existing Electrical System		$38,750		
	Install New		$270,000		
		Total	$308,750		
32	Asphalt Paving			40-20	20-25
	Remove Existing Paving and excavate to subgrade. Haul offsite.		$70,000		
	6" 2A Sub-base		$72,250		
	4" 25mm Base Course		$102,000		
	1.5" 9.5 mm wearing course		$76,500		
		Total	$320,750		
32	Concrete Paving includ			20+	20-25
	Remove Existing Concrete Paving and excavate to subgrade. Haul offsite.		$8,500		
	6" AASHTO 57 Drainage Course		$8,500		
	6" Class A Concrete Walks		$8,500		
		Total	$25,500		
	New 500' deep well and pump		$20,000		
	New waste treatment plant (3,000 gallon/day)		$795,000	35	20-25
	Kitchen		$225,000	20-40	20-25
	Contingency		$385,000		
		Grand Total=	**$2,681,750**		