Facility Condition Assessment Summary Report

This report provides a summary of the Facility Condition Index (FCI) value of a school facility and select major building systems. The FCI calculation represents the cost of needed repairs divided by the replacement value. The FCI is a numerical value of condition and helps to identify the need for renewal or replacement of specific parts of the facility. The FCI is particularly useful when comparing similar facilities within the same portfolio.

Kenderton School

Governance	DISTRICT	Report Type	Elementarymiddle
Address	1500 W. Ontario St. Philadelphia, Pa 19140	Enrollment	477
		Grade Range	'00-08'
Phone/Fax	215-400-8340 / 215-400-8341	Admissions Category	Neighborhood
Website	N/A	Turnaround Model	N/A

Building/System FCI Tiers

Facility Condition Index (FCI) = Cost of Assessed Deficiencies / Replacement Value

< 15%	15 to 25%	25 to 45%	45 to 60%	> 60%
Buildings				
Minimal Current Capital Funding Required	Refurbish Systems in building	Replace Systems in building.	Building should be considered for major renovation.	Building should be considered for closing/replacement.
Systems				
Perform routine maintenance on system	System requires minor repairs	System should be studied to determine repair vs. replacement.	System is nearing end of its life expectancy and should be considered for replacement	System should be replaced as part of the Capital Program

Building and Grounds

	FCI	Repair Costs	Replacement Cost
Overall	**49.03%**	**$21,343,136**	**$43,528,968**
Building	49.37 %	$20,993,488	$42,521,981
Grounds	34.72 %	$349,648	$1,006,987

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	89.59 %	$609,876	$680,760
Exterior Walls (Shows condition of the structural condition of the exterior facade)	00.00 %	$0	$3,359,105
Windows (Shows functionality of exterior windows)	211.18 %	$3,461,355	$1,639,054
Exterior Doors (Shows condition of exterior doors)	75.92 %	$100,181	$131,962
Interior Doors (Classroom doors)	179.21 %	$572,470	$319,438
Interior Walls (Paint and Finishes)	00.00 %	$0	$1,202,216
Plumbing Fixtures	31.90 %	$392,527	$1,230,428
Boilers	89.36 %	$1,518,308	$1,699,119
Chillers/Cooling Towers	65.60 %	$1,461,516	$2,227,876
Radiators/Unit Ventilators/HVAC	133.55 %	$5,225,112	$3,912,434
Heating/Cooling Controls	132.68 %	$1,630,079	$1,228,608
Electrical Service and Distribution	110.48 %	$975,324	$882,778
Lighting	08.48 %	$267,752	$3,156,157
Communications and Security (Cameras, Pa System and Fire Alarm)	29.13 %	$344,326	$1,182,194

Please note that some FCIs may be over 100% because there are times when replacing a building system requires that other building systems be upgraded to complete the installation. A FCI of 0.0% represents that there are no current deficiencies with the associated system.

School District of Philadelphia

S431001;Kenderton

Final

Site Assessment Report

January 30, 2017

PARSONS

Table of Contents

Site Executive Summary

The organization of this report, as displayed in the Table of Contents, follows the structure of the associated eCOMET database. The overall node for each school campus begins with the letter "S", which indicates the "Site" label. Each Site is comprised of separate "Building" and "Grounds" nodes; their asset names begin with the letters "B" and "G" respectively. Information rolls up to the Site node from the Building and Grounds nodes. This Site report combines facility information with subsections for the Buildings And Grounds nodes.

The basis for the evaluation of condition is the functional systems and elements of a building and grounds organized according to the UNIFORMAT II Elemental Classification. The grouping of these systems and elements and applying a current replacement value to them develops a representative building cost model. Cost Models are typically developed for similar building types and functions. Evaluation of systems and their elements takes into account their current replacement values, life cycles, installation dates and next renewal dates. Systems and their elements that are within their useful lives are further evaluated to identify current deficient conditions that may have a significant impact on a system's or element's remaining service life, and to determine if they are beyond their predicted expected life. The system's or element's current replacement value is based on RS Means Commercial Cost Data.

Following are the cost model's system details for this facility. The Replacement Value is the amount needed to replace the property of the same present value. The Current Repair Amount, also known as Condition Needs, represents the budgeted contractor installed costs plus owner's soft costs for the repair, replacement or renewal for a component or system level deficiency. It excludes contributing costs for other components or systems that might also be associated with the corrective actions due to packaging the work. Facility Condition Index (FCI) is an industry-standard measurement calculated as the ratio of the repair costs to correct a facility's deficiencies to the facility's Current Replacement Value. Condition Index (CI) for a system is calculated as the sum of a the deficiencies divided by the sum of a system's Replacement Value (both values include soft-cost) expressed as a percentage ranging from 0% 100%.

Gross Area (SF):	91,008
Year Built:	1962
Last Renovation:	
Replacement Value:	$43,528,968
Repair Cost:	$21,343,135.99
Total FCI:	49.03 %
Total RSLI:	68.38 %

Description:

Facility Assessment

August 2015

School District of Philadelphia
Young Scholars Kenderton
1500 W Ontario St.
Philadelphia, PA 19140

91,008 SF / 795 Students / LN 04

GENERAL

The Young Scholars Kenderton Charter School is one of the older schools in service to the Philadelphia communities. This school is part of the Renaissance Turnaround Initiative for the 2013-2014 academic year, and is now operated by Scholar Academies and is identified as B431001. This facility is located at 1500 W Ontario St., Philadelphia, PA. The design of the L-shaped, concrete and steel -framed building includes brick facades with a concrete foundation. Constructed in 1962 the school has had no additions.

The main entrance faces the Western exterior facing North Fifteenth Street. General parking is north of the school. This School serves students in grades K to 6 and has a basement with three stories consisting of a total gross square footage of 91,008 GSF.

This school has several classrooms, a library, kitchen and student commons, three Gym/cafeterias, Auditorium, with supporting administrative spaces.

The information for this report was collected during a site visit on August 28, 2015.

Ms. Tracy MacArthur, Managing Director of Operations, and Mr. Winston Budhai, Building Engineer, accompanied the assessment team on a tour of the school and provided detailed information on the building systems and maintenance history.

Architectural / Structural Systems

Foundations are concrete and appear to be in good condition. Basement walls are concrete and masonry and appear to be in good condition. The superstructure, Floor construction and Roof construction is sound and in good condition.

The exterior brick surfaces are generally in fair to good condition for their age. Several paintings of local individuals that have achieved success are depicted on the side of the school from the main entrance to the parking area. Overall the brick finish is expected to have a life cycle that exceeds the purview of this report. There are no recommendations required at this time.

The exterior windows are a mix of the original industrial aluminum framed single pane applications. Some of the windows are operable while others no longer function. The exterior windows have exceeded the expected life cycle for this type of application. It is recommended that the exterior window system be replaced with units that retain their dimensions and profiles, but that incorporate updated energy-efficient features.

The exterior doors are metal applications with metal frames. The exterior door system for this school is a very high traffic system and as indicated in the photos are showing signs of damage. The doors are in fair condition but are aging at a faster rate than expected based on traffic and condition. The exterior door system, store front and service doors are recommended for upgrade.

The built up roof was installed within the past 15 years as reported by the school. The roof is in fair good condition with few exceptions. Currently there is an active leak that if not repaired soon will start to deteriorate the insulation and the integrity of the classroom finishes. Several sections have major blisters that if not corrected the integrity of this roof will be in question. This deficiency provides a budgetary consideration for built up roof removal and replacement based on the current condition.

There are several movable partitions that remain in classrooms. These wall systems are no longer used and in most cases cannot be used due to damage or wall modifications to support classroom needs. This deficiency provides a budgetary consideration to remove and replace the wall systems with universal removal of the existing movable partitions and upgrades to a permeate wall systems.

A large portion of the interior corridor, exit stair doors are not code compliant. Several doors are typically metal in metal frames with transom lites or sidelights, glass glazing. The older doors are generally in good condition considering the age of the application. To restore the door finishes, universal upgrades are required for the older door applications. Remove and replace original door systems with new code compliant fire rated door system.

Interior doors are a mix of wood in metal frames with glass glazing or metal doors in metal frames. Other interior doors include wooden glass pane doors with original wooden pane frames, hollow metal in hollow metal frames. Doors are generally in good condition considering the age of the application however, several doors are hard to open and in some cases have been re-hung to prevent door jamb issues. Universal upgrades are required for the interior door systems, it is recommended that the interior doors system be removed and replaced with a new modern metal framed wooden door system with consideration for ADA compliance.

A majority of the classrooms have been upgraded with new white board systems. However, several of the classrooms contain chalk boards that are original to the buildings construction. This system is damaged and beyond its expected life, universal upgrades are warranted. Remove and upgrade chalk boards to new marker board systems.

Current requirements for stairs indicate that they have graspable handrails on both sides, that the rails have a specific end geometry, and that the handrails continue horizontally at the landings. In addition, guardrails must prevent the passage of a 4 inch diameter sphere (6 inches in the triangle formed by the lower rail and tread/riser angle). Although the stairs are compliant with the code enforced at the time of construction until a major renovation occurs, they are deficient in handrail and guardrail design relative to current standards. Future efforts should include comprehensive stair railing removal and replacement upgrades.

The vinyl floor finish in most of this school is in very good condition and appears to have part of an isolated upgrade. Some of the original flooring that was not a part of that effort consist of a 9x9 finish. This finish is suspect to contain asbestos and is recommended for upgrade. Remove and replace with a 12x12 vinyl tile application.

The remaining sections for this school have a combined floor finish consisting of painted concrete, 12x12 vinyl floors, ceramic 1x1 or 4x4 tiles. In each case the finishes are in good condition and there are no recommendations required at this time.

The ceiling finish is a mix of 12 x 12 ceiling grid, painted and 2 x 4 Acoustical tile finish. Ceilings have been repaired in several areas and is in good condition considering the age of the application and the current condition of the school. The ceiling finish is expected to require upgrades to support the recommended efforts in this report prior to re-opening. This deficiency provides a budgetary consideration for removal and replacement of the current ceiling finish to a new acoustical tile finish. Considering the recommended mechanical and electrical upgrades this effort should be completed as part of an overall renewal program for the school. No work should be considered until after the recommended exterior efforts are complete.

The Gym interior backboards and support equipment is beyond its service life. There are damaged boards and reports indicate that the system no longer functions as designed. The system is recommended for removal and replacement.

During the inspection it was reported that the scoreboard was removed some time ago. The single scoreboard appears to have been from the original construction. This deficiency provides a budgetary consideration for a new scoreboard.

The fixed seating for this school is from the original construction. The systems are in fair condition considering the age and usage. This project provides a budgetary consideration for universal upgrades for the fixed seating and furnishing of this school. Ensure that ADA requirements are followed with the new seating layout.

MECHANICAL SYSTEMS

PLUMBING- Plumbing fixtures are standard china commercial quality with wall mounted lavatories, urinals and water closets. Most lavatories have dual wheel handle faucets and urinals and water closets have recessed manual flush valves with push button operators. Some cast iron service sinks are located in corridors and custodial closets have mop basins, and there are some stainless steel counter top sinks. There are small single stainless steel water coolers with integral refrigeration and porcelain drinking fountains no refrigeration. The kitchen waste is piped through a grease trap below the floor. Two Paloma instantaneous gas water heaters are in the basement mechanical room, each with a small inline circulating pump. The heaters have type B gas vents. There is no domestic water booster pump system, but two abandoned double suction pumps once provided pressure assist. A duplex sump pump is in the mechanical room for ground water removal, and another unit is located in a space adjacent to the cafeteria. There is an abandoned horizontal storage tank in the mechanical room.

Water piping is the original installation with insulated copper, but may contain lead solder based on age. Sanitary, waste, vent and rainwater piping is original installation hub and spigot cast iron, with some hubless cast iron where additions or damage have occurred. The water service is a three inch line and meter located overhead in the basement mechanical room and includes a backflow preventer. There are two gas services is into the mechanical room from Fifteenth St. One is a two inch line serving the water heaters and kitchen area and the other is a six inch line that includes a pressure boost system. The larger gas piping is completely piped to the boilers but is capped about five feet from the exterior wall and never connected to the utility service.

Domestic water piping has exceeded the service life and should be replaced. Sanitary and waste cast iron piping should be inspected for damage and repaired or replaced as required. There are reportedly operational problems with the plumbing fixtures, which have exceeded service life and should be replaced. The water heaters appear to be newer and should be functional up to fifteen more years.

HVAC-The building is heated by steam generated by three Weil Mclain Series 3 cast iron sectional boilers. The boilers are gas/oil fired one hundred ninety hp each, reportedly installed in 1962. Each unit has a Powerflame burner and control panel, and powered draft fan, connected to a common field fabricated insulated vent system routed to an existing chimney. The boilers are operated on oil, since the gas service was not connected to the utility. There is a simplex cast iron condensate receiver system and a boiler feed system with four pumps serving the boilers. The oil storage tank is underground, capacity and condition unknown. A duplex fuel oil pump system in the mechanical room provides circulation. An automatic chemical treatment system is part of the heating plant.

Classrooms and some other areas have older Nesbitt unit ventilators with steam coil, outside air damper, filter, blower and motor, control valve and controls. Steam radiation is located at entrances, toilet rooms and other areas requiring heat. Control valves and traps are mostly inoperable.

There are inoperable heating and ventilating units for the auditorium and the cafeteria/gymnasium, which also has unit heaters. There is no cooking in the kitchen and a heat removal hood above warming equipment. The boiler room has combustion air louvers with motorized dampers. Toilet rooms have central exhaust ducted to three centrifugal roof fans.

There is no central air conditioning. The building has very few window air conditioners and a ductless split system for the IT room with the condensing unit mounted on the exterior wall.

Steam piping is insulated welded black steel.

There are no central control systems. There is a duplex controls air compressor in the mechanical room and old control panels, most of which are abandoned. Reportedly about thirty percent of the unit ventilator controls are functional.

The unit ventilators have exceed the service life and do not comply with ventilation codes, and should be replaced. The boilers and stem system have exceeded the normal service life and should be replaced.

FIRE PROTECTION- There are no standpipes nor automatic sprinkler system.

ELECTRICAL SYSTEMS

Electrical Service--The building is served by PECO Energy Company from an underground utility line on W. Ontario Street to a current transformer cabinet, meter and 1200A, 120/240V, 2 phase, 5 wire service disconnecting means in the Main Electrical Room. The service feeds a 400A Distribution Panelboard and a 200A Distribution Panelboard, both knife blade fusible type with exposed bus, manufactured by Frank Adam Electric Company and rated 120/240V, 2 phase, 5 wire. The 1200A main service disconnecting means and both distribution panelboards have exceeded their useful life and need to be replaced. It is recommended that a 1500 kVA, 13.2 kV-480/277V, 3 phase, 4 wire load center substation with 2000A main circuit breaker section and distribution sections be provided to replace this equipment. Step-down 480V-208/120V dry type transformers and distribution equipment would be provided to serve existing building loads. The switchboard should be adequately sized to serve central air conditioning equipment and a fire pump (if required).

There is also a 50 kVA Magnetran, Inc. phase converter that provides 208/120V, 3 phase, 4 wire service to Square D Panelboards PA1-1 and PA1-2, rated 175A and 225A, respectively. These panelboards generally feed mechanical equipment. They are in good condition and have an estimated remaining useful life of 20 years.

The exiting panelboards that serve the floors are recessed in the corridors. The panelboards are Siemens 120/240V, 1 phase, 3 wire, and were installed in 1988. These panelboards are in good condition for their age. It is estimated that these panelboards would not need to be replaced for another eight (8) years.

Receptacles—Classrooms generally have few receptacles. Some of the classrooms have had additional receptacles provided by use of a surface raceway system. There are several classrooms that still need to be provided with additional receptacles. An allowance is included in this report for 37 classrooms to be provided with a surface metal raceway with up to (6) duplex receptacles in each room.

Computer Room 419 has a surface raceway system and duplex receptacles mounted on the floor to serve computer work stations in the center of the room. The raceway and loose cables laying across the floor creates a possible tripping hazard. Consideration should be given to removing the surface raceway and wiring along the floor and providing systems furniture with integral raceways for wire management and feeding the workstations with vertically mounted tele-power poles.

Lighting—Generally, classrooms with hard ceilings are provided with stem mounted 1x4 fluorescent wraparound fixtures with acrylic prismatic lenses and T8 lamps mounted in continuous rows. Classrooms with acoustical ceiling tile and corridors on all floors are provided with 2x4 fluorescent lay-in grid troffers with acrylic prismatic lenses and T8 lamps. The west corridor on Floor 4 has five (5) surface mounted 4 foot fluorescent wraparound fixtures that have considerable discoloration of the lenses and should be replaced. Fixtures in classrooms and corridors are in good condition with an estimated remaining useful life of 12 to 15 years.

Lighting in restrooms and stairwells is 1x4 surface or pendant mounted fluorescent wraparounds with acrylic prismatic lenses. There are some fixtures in restrooms that have missing lenses and need to replaced, and is considered a maintenance item.

The gymnasium/cafeteria is illuminated with (19) ceiling mounted metal halide fixtures. The kitchen has 4 foot ceiling mounted vapor-tight fluorescent fixtures with T12 lamps. The recommendation is to replace the fixtures with those having T8 type lamps.

The auditorium is illuminated with (12) ceiling mounted 4x4 modular fluorescent fixtures without any lamp shielding and with (8) T12

lamps per fixture. It is recommended these fixtures be replaced with ones that have T8 or T5 lamps and appropriate lamp shielding. There are also four (4) dual bullet shaped lampholders on each side of auditorium. The platform has three (3) 1x4 fluorescent wraparound fixtures with T12 lamps and should be replaced. There are no theatrical lighting fixtures at the platform and no dimmer control system for the platform or auditorium.

The Main Office and PE Office have wraparound fluorescent fixtures with T12 lamps. Room 407 has continuous rows of 4 foot, 2 lamp strip fluorescent fixtures with wire guards and T12 lamps. The strip fluorescent fixtures should be changed to ceiling mounted wraparound type. Replacement of (53) fixtures is included in this report.

The Main Electrical Room and Standby Generator Room have 2-lamp industrial fluorescent fixtures with T12 lamps. The Boiler Room and adjacent rooms have a combination of industrial metal halide fixtures and industrial fluorescent fixtures with T12 lamps. The lighting in this area is inadequate and has exceeded its useful life, and should be replaced.

Fire Alarm System-- The fire alarm system is an obsolete 120V wired system by Edwards Company. The fire alarm control panel (FACP) is located in the Main Electrical Room. The system includes manual pull stations and bell notification appliances. Pull station mounting heights exceed ADA requirements. There are also a few wall mounted smoke detectors located in corridors. There are no visual notification appliances in the building. There is no elevator recall operation in the event of a fire alarm. The system has exceeded its useful life and needs to be replaced to meet current NFPA codes and ADA.

Telephone/LAN--The telephone service demarcation point is located in the Main Electrical Room in the Basement. A telephone is provided in each classroom. Data outlets are also provided in each classroom in addition to wireless access. . Wireless access points are provided in the classrooms, corridors, gymnasium/cafeteria and auditorium for Wi-Fi coverage throughout the school. The wireless system was replaced and the obsolete wall mounted wireless access boxes have been have been abandoned in place. The Main IT Room is located on the Second Floor in Room 405. There are also wall mounted intermediate data hubs located in some classrooms. The telephone/data systems are in good condition, with an estimated remaining useful life of 10 years.

Intercom/Paging/Sound Systems-- The paging system is accessed through the telephone system. There are wall mounted speakers in classrooms and auditorium, and ceiling recessed speakers in corridors. Horn type speakers are located in the gymnasium/cafeteria and mechanical rooms. There is no built-in sound system in the auditorium.

Clock and Program System-- There is a speaker in each classroom that is used for the program system with an Interface through the telephone system. There is no clock system. Most rooms have individual battery clocks. It is recommended that a wireless GPS clock system be provided for classrooms, gymnasium/cafeteria, auditorium and offices.

Television System-- There are no televisions outlets in the classrooms.

Video Surveillance and Security Systems-- There are three (3) exterior video surveillance cameras that provide coverage of the site and main entrance. There are no interior surveillance cameras. Motion sensors are provided at egress doors to monitor ingress/egress.

Emergency Power System--There is a 15 kW/18.8 kVA, 208/120V, 3 phase, 4 wire Onan standby generator set with natural gas fuel source that is located adjacent to the Boiler Room. The generator feeds only emergency egress lighting and exit signs in the building and registers only 358 hours of operation at the time of the site walk-through. There is 60A Onan automatic transfer switch (ATS) that supplies a 100A Penn Panel and Box Company plug-in fusible panelboard. The generator, ATS and 100A emergency lighting panelboard has about 5 years of useful life remaining and is included in this report for replacement. However, a generator with higher rated capacity would be needed to supply the elevator and fire pump, if required. A separate ATS would be required to separate standby power loads from emergency system loads.

Emergency Lighting System / Exit Lighting-- Emergency egress and exit sign lighting is supplied from a 100A emergency lighting panelboard supplied by the standby generator through the 60A ATS. It was observed during the walk-through that there were many exit signs in corridors, auditorium and Boiler Room that were not illuminated. Most of the exit signs have incandescent lamps and should be replaced with LED exit signs. An allowance for replacement of 25 exit signs is included in this report.

Lightning Protection System --There is no lightning protection system for this facility.

Conveying Systems-- The building has one 50 HP, 240V, 2 phase elevator, manufactured by Watson Elevator Company. The elevator has exceeded its useful life and needs to be replaced. The elevator cab needs to be modernized and the elevator machine controller and room upgraded to meet current codes for elevator recall.

GROUNDS

The sidewalk system is original to the buildings construction. There are a several areas of cracking concrete but no tripping hazards. The sidewalk system is expected to expire in the near future. Removal of the entire system is recommended. Universal upgrades are required and should include all aspects of current ADA legislation.

The trash dumpster is located in the parking lot open to the students and to the public. The exterior services are not protected. Upgrades to protect the exterior services and trash area is necessary for the safety of the students and the general public. Construction of a secure lockable dumpster area is recommended.

The parking play area has no assigned parking and limited markers for approved activity areas. No curb cuts for access to the sidewalks that lead to the ADA main entrance. The parking play lot is in fair condition, the harsh environmental conditions associated with snow removal have taken its toll on the asphalt surface. Also, there is no marked path of ingress to the main entrance. This project provides a budgetary consideration for a play, parking lot renewal program that includes all aspects of the current ADA legislation. Asphalt removal and replacement is recommended.

The exterior stair at the western exterior elevation is broken and missing sections of concrete. Considering the limited access to the school by those that may be physically challenged this stair is recommended for universal upgrade. Current legislation related to accessibility requires that building entrances be wheelchair accessible. To comply with the intent of this legislation, it is recommended that a wheelchair ramp be installed at this entrance. This work should include the installation of a powered door operator and steel handrails at all entrances as required.

This school has a fence that surrounds both the parking area and the playground. Overall the fence is in good condition with a few minor maintenance issues. The retaining wall along the parking area is in good condition as well. There are no recommendations for the fence or retaining wall required at this time.

Site Lighting— Site lighting is provided with wall mounted HID lighting fixtures along the entire perimeter. There are no pole mounted site lighting fixtures.

Site Video Surveillance System-- There are three (3) exterior video surveillance cameras that provide coverage of the site and main entrance.

RECOMMENDATIONS

- Replace auditorium seating
- Remove and replace stage curtain
- Remove and replace or install new scoreboard
- Remove and replace or install basketball backstop and hoop
- Remove and replace suspended acoustic ceilings
- Replace inadequate or install proper stair railing
- Replace blackboards with marker boards
- Replace missing or damaged signage
- Remove and replace interior doors
- Install fire rated walls and door where required
- Remove folding partition
- Remove and replace roof
- Upgrade exterior doors
- Upgrade exterior windows
- Upgrade sidewalks
- Upgrade asphalt surfaces
- Build Secure Dumpster Area
- Replace the existing unit ventilators with new units designed for quiet operation and equipped with hot water and chilled water coils, hydronic control valves with digital controls and integral heat exchangers to provide code required fresh air quantities. Connect to new chilled and hot water piping systems and building automation control system.
- Remove the existing window air conditioning units and install a two hundred twenty ton air-cooled chiller on the roof with chilled water distribution piping, two pumps, chemical treatment and controls located in a mechanical room on the basement level.
- Install complete NFPA wet pipe automatic sprinkler system and standpipes. If required provide fire pump and jockey pump with controller.
- Provide a new central station air handling unit for the auditorium with hot and chilled water coils, filters, outside and return air

dampers, hydronic valves and controls, blower and motor. Connect to hot and chilled water systems.
- Provide a new central station air handling unit for the cafeteria/gymnasium with hot and chilled water coils, filters, outside and return air dampers, hydronic valves and controls, blower and motor. Connect to hot and chilled water systems.
- Install new direct digital control system and building automation system with remote computer control capability and graphics package.
- Inspect old cast iron sanitary piping including camera observation and replace damaged sections.
- Replace older plumbing fixtures, including lavatories, urinals and water closets. Include fittings and trim.
- Replace domestic hot and cold water piping including valves, fittings, hangars and insulation.
- Provide new domestic water booster pump system with two pumps, pressure tank, and controls. Connect to main domestic water line.
- Replace the three steam boilers and piping system with three cast iron sectional hot water boilers with new steel insulated piping and two end suction hot water pumps. Include controls, expansion tank and electrical connections.
- Replace the existing main service disconnecting means and service distribution equipment with a 1500 kVA, 13.2 kV-480/277V, 3 phase, 4 wire load center substation with 2000A main circuit breaker section and distribution sections. Provide step-down 480V-208/120V dry type transformers and distribution equipment to serve existing building loads. The switchboard should be adequately sized to serve central air conditioning equipment and a fire pump (if required).
- Provide an allowance to add a surface metal raceway system with (6) duplex receptacles in each of 37 classrooms.
- Replace five (5) 4 foot ceiling mounted fluorescent wraparound fixtures in the west corridor on Floor 4.
- Replace six (6) 4 foot vapor-tight T12 lamp fluorescent fixtures in the kitchen with T8 lamp fixtures.
- Replace (12) 4x4, 8 lamp, ceiling mounted modular fluorescent fixtures in the auditorium and three (3) 4 foot wraparound fluorescent fixtures on the platform.
- Replace a total of (25) 4 foot wraparound fluorescent fixtures and (28) 2 lamp strip fluorescent fixtures in the Main Office, PE Office and in Room 407.
- Remove metal halide and industrial fluorescent lighting fixtures in the Boiler Room and adjacent rooms and replace with industrial fluorescent fixtures. Replace industrial fluorescent fixtures in the Main Electrical Room and Generator Room. (Total of 14 metal halide and 32 industrial fluorescent fixtures to be replaced).
- Replace fire alarm system with an addressable type system, including pull stations, smoke and heat detectors, and audible and visual notification appliances.
- Provide wireless GPS clock system.
- Replace standby generator system to be sized for all emergency egress and exit lighting, elevator, and fire pump (if required). A 300 kW generator is included in this report.
- Provide allowance for replacement of (25) exist signs that are not lit, damaged or are in poor condition.
- Provide upgrade of elevator controller and machine room and modernization of elevator cab.

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 2 / Tm 1
Status:	Accepted by SDP	Team:	Tm 1
Site ID:	S431001		

Site Condition Summary

The Table below shows the CI and FCI for each major system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

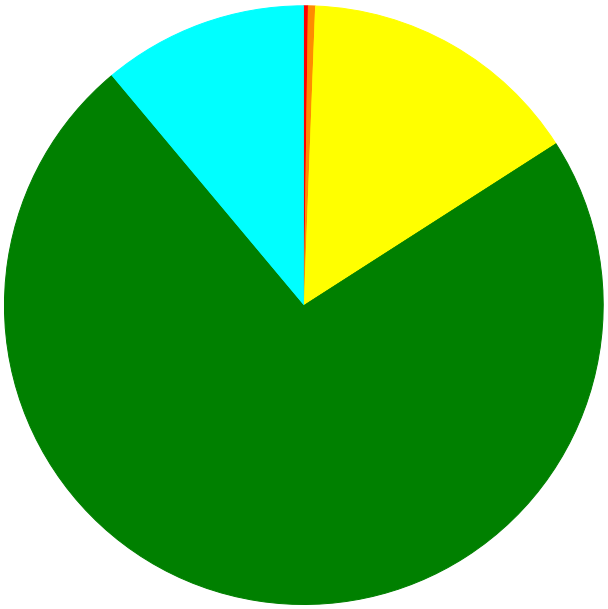
Current Investment Requirement and Condition by Uniformat Classification

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	47.00 %	0.00 %	$0.00
A20 - Basement Construction	47.00 %	0.00 %	$0.00
B10 - Superstructure	47.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	41.59 %	69.42 %	$3,561,535.45
B30 - Roofing	60.00 %	89.59 %	$609,876.20
C10 - Interior Construction	42.41 %	34.80 %	$777,298.00
C20 - Stairs	47.00 %	24.27 %	$31,138.92
C30 - Interior Finishes	67.53 %	24.33 %	$1,056,612.50
D10 - Conveying	105.71 %	137.80 %	$191,880.83
D20 - Plumbing	98.00 %	69.45 %	$1,290,705.92
D30 - HVAC	107.52 %	108.46 %	$9,835,015.36
D40 - Fire Protection	92.47 %	177.49 %	$1,301,910.03
D50 - Electrical	86.51 %	37.61 %	$2,011,878.82
E10 - Equipment	34.29 %	2.85 %	$41,233.16
E20 - Furnishings	30.00 %	146.72 %	$284,403.20
G20 - Site Improvements	36.68 %	43.37 %	$349,647.60
G40 - Site Electrical Utilities	68.73 %	0.00 %	$0.00
Totals:	**68.38 %**	**49.03 %**	**$21,343,135.99**

Condition Deficiency Priority

Facility Name	Gross Area (S.F.)	FCI %	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)
B431001;Kenderton	91,008	49.37	$0.00	$81,959.26	$3,038,867.16	$15,506,199.79	$2,366,462.18
G431001;Grounds	51,900	34.72	$46,767.23	$0.00	$230,966.12	$71,914.25	$0.00
Total:		**49.03**	**$46,767.23**	**$81,959.26**	**$3,269,833.28**	**$15,578,114.04**	**$2,366,462.18**

Deficiencies By Priority



- 1 - Response Time (< 2 yr) - $46,767.23
- 2 - Response Time (2-3 yrs) - $81,959.26
- 3 - Response Time (3-4 yrs) - $3,269,833.28
- 4 - Response Time (4-5 yrs) - $15,578,114.04
- 5 - Response Time (> 5 yrs) - $2,366,462.18

Budget Estimate Total: $21,343,135.99

Executive Summary

Building condition is evaluated based on the functional systems and elements of a building and organized according to the UNIFORMAT II Elemental Classification. The grouping of these systems and elements and applying a current replacement value to them develops a representative building cost model. Cost Models are developed for similar building types and functions. Systems and their elements are evaluated based on their current replacement values, life cycles, installation dates and next renewal dates. Systems and their elements that are within their useful lives are further evaluated to identify current deficient conditions that may have a significant impact on a system's or element's remaining service life, and to determine if they are beyond their predicted expected life. The system's or element's current replacement value is based on RS Means Commercial Cost Data.

Following are the cost model's system details for this facility. The Replacement Value is the amount needed to replace the property of the same present value. The Current Repair Amount, also known as Condition Needs, represents the budgeted contractor installed costs plus owner's soft costs for the repair, replacement or renewal for a component or system level deficiency. It excludes contributing costs for other components or systems that might also be associated with the corrective actions due to packaging the work. Facility Condition Index (FCI) FCI is an industry-standard measurement of facility condition calculated as the ratio of the costs to correct a facility's deficiencies to the facility's Current Replacement Value. It ranges from 0% (new) to 100% (very poor). Condition Index (CI) is calculated as the sum of a renewable system's Remaining Service Life (RSL) divided by the sum of a system's Replacement Value (both values exclude soft-cost to simplify calculation updates) expressed as a percentage ranging from 100% (new) to 0% (expired).

Function:	Elementary School
Gross Area (SF):	91,008
Year Built:	1962
Last Renovation:	
Replacement Value:	$42,521,981
Repair Cost:	$20,993,488.39
Total FCI:	49.37 %
Total RSLI:	68.98 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B431001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S431001		

Condition Summary

The Table below shows the CI and FCI for each major building system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

UNIFORMAT Classification	RSLI %	FCI %	Current Repair Cost
A10 - Foundations	47.00 %	0.00 %	$0.00
A20 - Basement Construction	47.00 %	0.00 %	$0.00
B10 - Superstructure	47.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	41.59 %	69.42 %	$3,561,535.45
B30 - Roofing	60.00 %	89.59 %	$609,876.20
C10 - Interior Construction	42.41 %	34.80 %	$777,298.00
C20 - Stairs	47.00 %	24.27 %	$31,138.92
C30 - Interior Finishes	67.53 %	24.33 %	$1,056,612.50
D10 - Conveying	105.71 %	137.80 %	$191,880.83
D20 - Plumbing	98.00 %	69.45 %	$1,290,705.92
D30 - HVAC	107.52 %	108.46 %	$9,835,015.36
D40 - Fire Protection	92.47 %	177.49 %	$1,301,910.03
D50 - Electrical	86.51 %	37.61 %	$2,011,878.82
E10 - Equipment	34.29 %	2.85 %	$41,233.16
E20 - Furnishings	30.00 %	146.72 %	$284,403.20
Totals:	**68.98 %**	**49.37 %**	**$20,993,488.39**

Condition Detail

This section of the report contains results of the Facility Condition Assessment. The building is separated into system components based on UNIFORMAT II classification. The columns in the System Listing table below represent the following:

1. System Code: A code that identifies the system.
2. System Description: A brief description of a system present in the building.
3. Unit Price $: The unit price of the system.
4. UoM: The unit of measure for of the system.
5. Qty: The quantity for the system
6. Life: anticipated service life for thesystem based on Building Owners and Managers Association (BOMA) recommendations.
7. Year Installed: The date of system installation.
8. Calc Next Renewal Year: The date of system expiration based on the life, NR stands for non renewable.
9. Next Renewal Year: The suggested system expiration date by the assessor based on visual inspection.
10. CI: The Condition Index of the system.
11. FCI: The Facility Condition Index of the system.
12. RSL: Remaining Service Life.
13. eCR: eCOMET Condition Rating (not used).
14. Deficiency $: The financial investment to repair/replace system.

System Listing

The System Listing table below lists each of the systems organized by their UNIFORMAT II classification. The assessment team was tasked with recording the most recent replacement year of each system, determining the remaining service life based on the theoretical life, and evaluating the condition to confirm the forecast next replacement year. The system listing is the basis for all data contained in the Building Assessment Report.

Additionally, a condition rating (eCR) based on the following guidelines is provided as observed at the time of the assessment.

- Excellent (E) - No noticeable distress or damage. The entire system is free from observable defect.
- Very Good (VG) - Overall no serviceability reduction for the entire system. No degradation of critical components and minor distress and defect noticeable for some but not non critical components within the system.
- Good (G) - Slight or no serviceability reduction for the entire system. There may be noticeable defects for some non critical components and slight noticeable degradation of the critical components.
- Fair (F) - Overall serviceability is degraded but adequate. There may be moderate deterioration for very few of the critical components and few of the non critical components may have severe degradation.
- Marginal (MA) - Overall serviceability and reliability loss. Most if not all of the non critical components suffer from severe degradation and a few of the critical component may have severe degradation.
- Moderate (MO) - Overall a significant serviceability loss. Most if not all the components have severe degradation with the reminder of the component showing visible distress.
- Very Poor (VP) - Overall the system is barely functional. All of the components are severely degraded.
- Non-Functional (NF) - Overall the system does not function with all the components having no serviceability and suffer from severe degradation.

Site Assessment Report - B431001;Kenderton

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
A1010	Standard Foundations	$18.40	S.F.	91,008	100	1962	2062		47.00 %	0.00 %	47			$1,674,547
A1030	Slab on Grade	$7.73	S.F.	91,008	100	1962	2062		47.00 %	0.00 %	47			$703,492
A2010	Basement Excavation	$6.55	S.F.	91,008	100	1962	2062		47.00 %	0.00 %	47			$596,102
A2020	Basement Walls	$12.70	S.F.	91,008	100	1962	2062		47.00 %	0.00 %	47			$1,155,802
B1010	Floor Construction	$75.10	S.F.	91,008	100	1962	2062		47.00 %	0.00 %	47			$6,834,701
B1020	Roof Construction	$13.88	S.F.	18,000	100	1962	2062		47.00 %	0.00 %	47			$249,840
B2010	Exterior Walls	$36.91	S.F.	91,008	100	1962	2062		47.00 %	0.00 %	47			$3,359,105
B2020	Exterior Windows	$18.01	S.F.	91,008	40	1962	2002	2027	30.00 %	211.18 %	12		$3,461,354.92	$1,639,054
B2030	Exterior Doors	$1.45	S.F.	91,008	25	1962	1987	2027	48.00 %	75.92 %	12		$100,180.53	$131,962
B3010105	Built-Up	$37.76	S.F.	18,000	20	1962	1982	2027	60.00 %	89.73 %	12		$609,876.20	$679,680
B3020	Roof Openings	$0.06	S.F.	18,000	20	1962	1982	2027	60.00 %	0.00 %	12			$1,080
C1010	Partitions	$17.91	S.F.	91,008	100	1962	2062		47.00 %	9.15 %	47		$149,180.98	$1,629,953
C1020	Interior Doors	$3.51	S.F.	91,008	40	1962	2002	2027	30.00 %	179.21 %	12		$572,470.45	$319,438
C1030	Fittings	$3.12	S.F.	91,008	40	1962	2002	2027	30.00 %	19.60 %	12		$55,646.57	$283,945
C2010	Stair Construction	$1.41	S.F.	91,008	100	1962	2062		47.00 %	24.27 %	47		$31,138.92	$128,321
C3010230	Paint & Covering	$13.21	S.F.	91,008	10	1962	1972	2027	120.00 %	0.00 %	12			$1,202,216
C3020412	Terrazzo & Tile	$75.52	S.F.	6,008	50	1962	2012	2027	24.00 %	0.00 %	12			$453,724
C3020413	Vinyl Flooring	$9.68	S.F.	80,000	20	1962	1982	2027	60.00 %	19.59 %	12		$151,666.68	$774,400
C3020415	Concrete Floor Finishes	$0.97	S.F.	5,000	50	1962	2012	2027	24.00 %	0.00 %	12			$4,850
C3030	Ceiling Finishes	$20.97	S.F.	91,008	25	1962	1987	2027	48.00 %	47.42 %	12		$904,945.82	$1,908,438
D1010	Elevators and Lifts	$1.53	S.F.	91,008	35	1962	1997	2052	105.71 %	137.80 %	37		$191,880.83	$139,242
D2010	Plumbing Fixtures	$13.52	S.F.	91,008	35	1962	1997	2052	105.71 %	31.90 %	37		$392,527.05	$1,230,428
D2020	Domestic Water Distribution	$1.68	S.F.	91,008	25	1962	1987	2042	108.00 %	334.68 %	27		$511,703.63	$152,893
D2030	Sanitary Waste	$2.90	S.F.	91,008	25	1962	1987	2042	108.00 %	146.43 %	27		$386,475.24	$263,923
D2040	Rain Water Drainage	$2.32	S.F.	91,008	30	1962	1992	2025	33.33 %	0.00 %	10			$211,139
D3020	Heat Generating Systems	$18.67	S.F.	91,008	35	1962	1997	2052	105.71 %	89.36 %	37		$1,518,307.89	$1,699,119
D3030	Cooling Generating Systems	$24.48	S.F.	91,008	30	1962	1992	2047	106.67 %	65.60 %	32		$1,461,516.36	$2,227,876
D3040	Distribution Systems	$42.99	S.F.	91,008	25	1962	1987	2042	108.00 %	133.55 %	27		$5,225,111.68	$3,912,434
D3050	Terminal & Package Units	$11.60	S.F.		20				0.00 %	0.00 %				$0
D3060	Controls & Instrumentation	$13.50	S.F.	91,008	20	1962	1982	2037	110.00 %	132.68 %	22		$1,630,079.43	$1,228,608
D4010	Sprinklers	$7.05	S.F.	91,008	35			2052	105.71 %	202.91 %	37		$1,301,910.03	$641,606
D4020	Standpipes	$1.01	S.F.	91,008	35				0.00 %	0.00 %				$91,918
D5010	Electrical Service/Distribution	$9.70	S.F.	91,008	30	1962	1992	2047	106.67 %	110.48 %	32		$975,323.67	$882,778
D5020	Lighting and Branch Wiring	$34.68	S.F.	91,008	20	1962	1982	2030	75.00 %	8.48 %	15		$267,752.45	$3,156,157
D5030	Communications and Security	$12.99	S.F.	91,008	15	1962	1977	2030	100.00 %	29.13 %	15		$344,326.33	$1,182,194
D5090	Other Electrical Systems	$1.41	S.F.	91,008	30	1962	1992	2047	106.67 %	330.79 %	32		$424,476.37	$128,321
E1020	Institutional Equipment	$4.82	S.F.	91,008	35	1962	1997	2027	34.29 %	9.40 %	12		$41,233.16	$438,659
E1090	Other Equipment	$11.10	S.F.	91,008	35	1962	1997	2027	34.29 %	0.00 %	12			$1,010,189
E2010	Fixed Furnishings	$2.13	S.F.	91,008	40	1962	2002	2027	30.00 %	146.72 %	12		$284,403.20	$193,847
								Total	**68.98 %**	**49.37 %**			**$20,993,488.39**	**$42,521,981**

System Notes

The facility description in the site executive summary contains an overview of each system. The notes listed below provide additional information on select systems found within the facility.

System: C3010 - Wall Finishes — This system contains no images

Note: Painted CMU finish 100%

System: C3020 - Floor Finishes — This system contains no images

Note: Tile 7%
Vinyl 87%
Concrete 6%

System: D5010 - Electrical Service/Distribution — This system contains no images

Note: There is one (1) 50 kVA phase converter transformer rated 240V, 2 phase primary to 208/120V, 3 phase, 4 wire secondary.

Renewal Schedule

eCOMET forecasts future Capital Renewal funding needed to address expiring systems based on the Next Renewal year found in the Cost Models. A 3% annual inflation factor is applied to the costs for systems expiring in future years. The table below reflects recommended Capital Renewal funding needs over the next 10 years. Note: Cells with a zero value indicate systems for which renewal is not scheduled in that year.

Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$20,993,488**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$312,127**	**$21,305,616**
*** A - Substructure**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A10 - Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1010 - Standard Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1030 - Slab on Grade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A20 - Basement Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2010 - Basement Excavation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2020 - Basement Walls	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B10 - Superstructure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1010 - Floor Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1020 - Roof Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B20 - Exterior Enclosure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2010 - Exterior Walls	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2020 - Exterior Windows	$3,461,355	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$3,461,355**
B2030 - Exterior Doors	$100,181	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$100,181**
B30 - Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010 - Roof Coverings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010105 - Built-Up	$609,876	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$609,876**
B3020 - Roof Openings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C - Interiors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C10 - Interior Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1010 - Partitions	$149,181	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$149,181**
C1020 - Interior Doors	$572,470	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$572,470**
C1030 - Fittings	$55,647	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$55,647**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

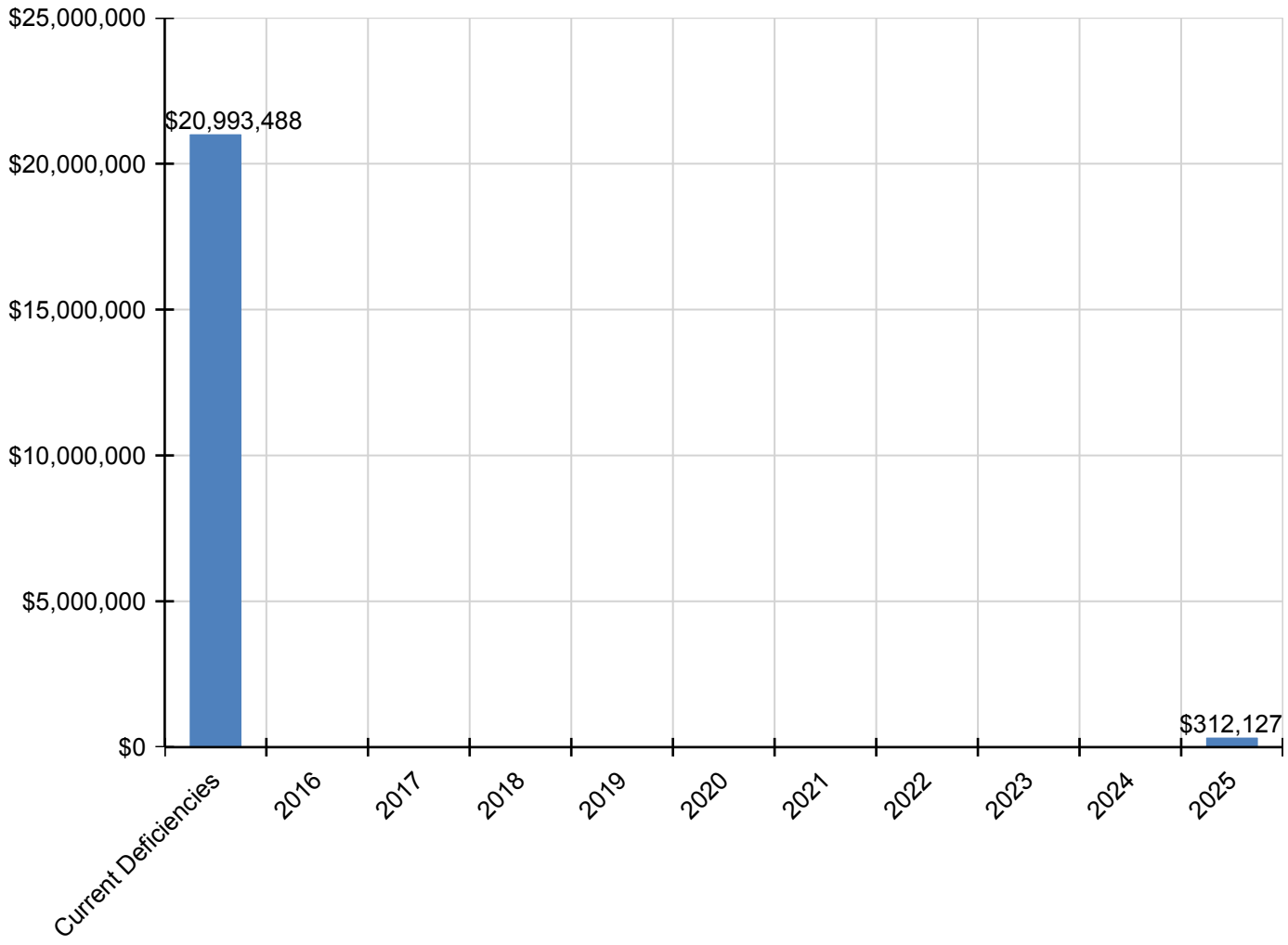
C2010 - Stair Construction	$31,139	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$31,139**
C30 - Interior Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010 - Wall Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010230 - Paint & Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020 - Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$151,667	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$151,667**
C3020415 - Concrete Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3030 - Ceiling Finishes	$904,946	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$904,946**
D - Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D10 - Conveying	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D1010 - Elevators and Lifts	$191,881	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$191,881**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$392,527	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$392,527**
D2020 - Domestic Water Distribution	$511,704	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$511,704**
D2030 - Sanitary Waste	$386,475	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$386,475**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$312,127	**$312,127**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$1,518,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,518,308**
D3030 - Cooling Generating Systems	$1,461,516	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,461,516**
D3040 - Distribution Systems	$5,225,112	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$5,225,112**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$1,630,079	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,630,079**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$1,301,910	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,301,910**
D4020 - Standpipes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D50 - Electrical	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5010 - Electrical Service/Distribution	$975,324	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$975,324**
D5020 - Lighting and Branch Wiring	$267,752	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$267,752**
D5030 - Communications and Security	$344,326	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$344,326**
D5090 - Other Electrical Systems	$424,476	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$424,476**
E - Equipment & Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E10 - Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

E1020 - Institutional Equipment	$41,233	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$41,233**
E1090 - Other Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E20 - Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E2010 - Fixed Furnishings	$284,403	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$284,403**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

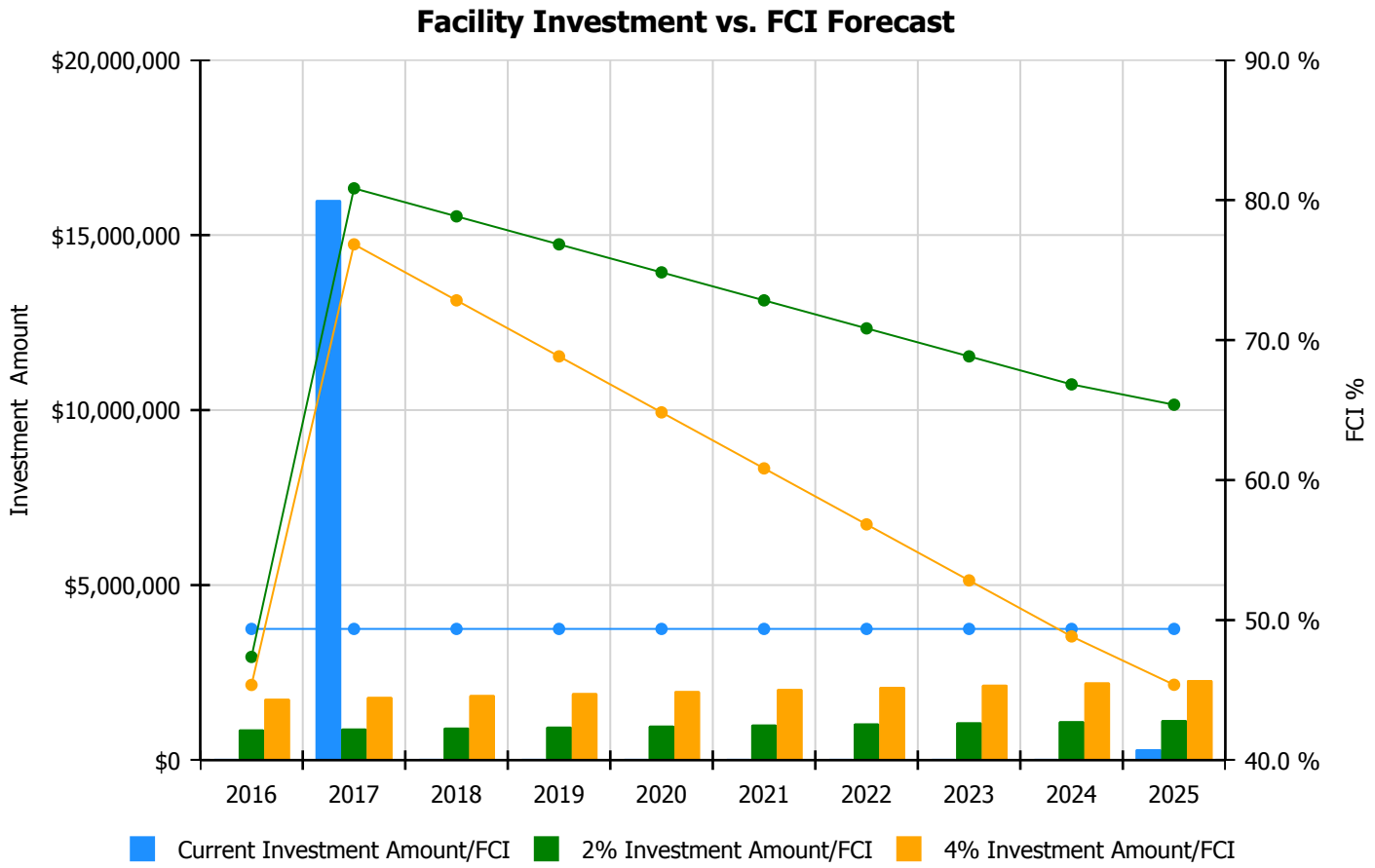
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



10 Year FCI Forecast by Investment Scenario

The chart below illustrates the effect of various investment levels on the building FCI for the next 10 years. The levels of investment shown below include:

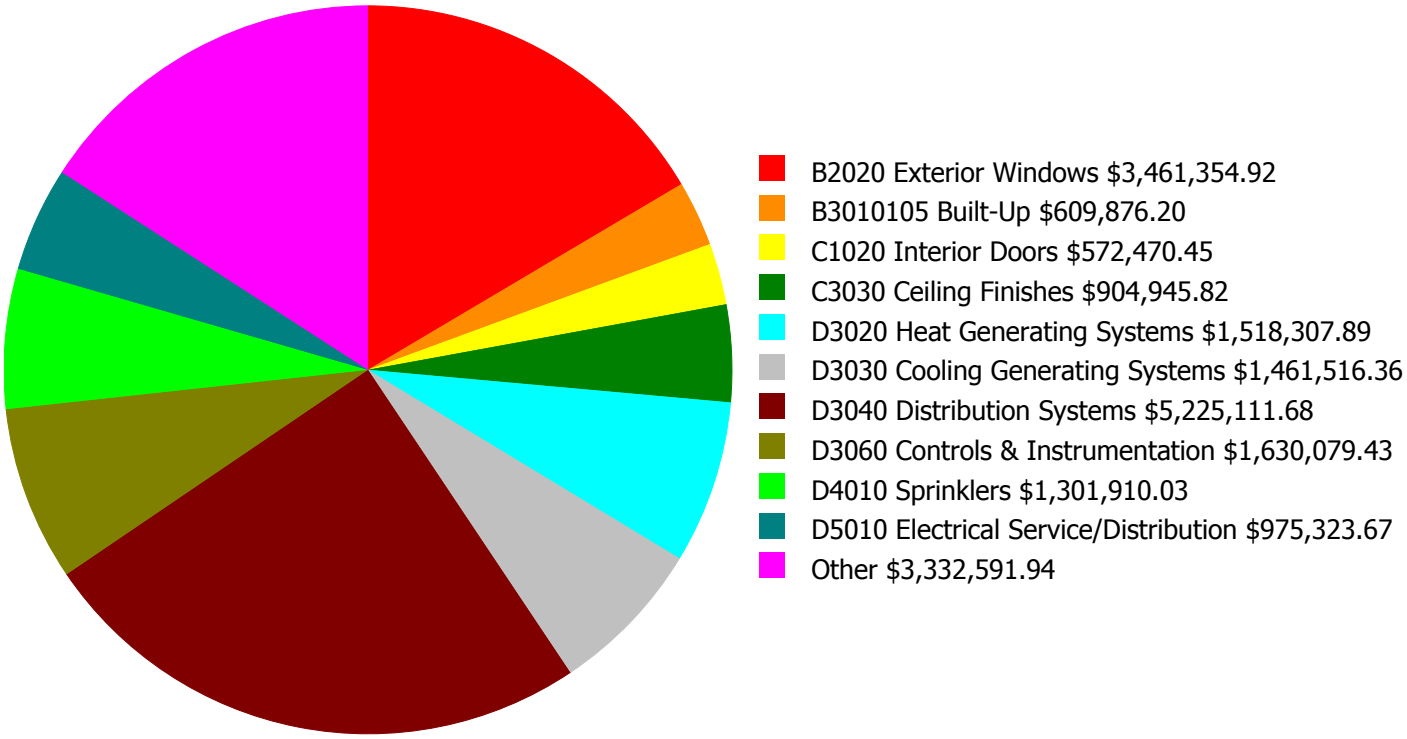
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value of the building, escalated for inflation



Year	Investment Amount Current FCI - 49.37%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$875,953.00	47.37 %	$1,751,906.00	45.37 %
2017	$15,998,784	$902,231.00	80.84 %	$1,804,463.00	76.84 %
2018	$0	$929,298.00	78.84 %	$1,858,597.00	72.84 %
2019	$0	$957,177.00	76.84 %	$1,914,355.00	68.84 %
2020	$0	$985,893.00	74.84 %	$1,971,785.00	64.84 %
2021	$0	$1,015,469.00	72.84 %	$2,030,939.00	60.84 %
2022	$0	$1,045,933.00	70.84 %	$2,091,867.00	56.84 %
2023	$0	$1,077,311.00	68.84 %	$2,154,623.00	52.84 %
2024	$0	$1,109,631.00	66.84 %	$2,219,262.00	48.84 %
2025	$312,127	$1,142,920.00	65.38 %	$2,285,839.00	45.38 %
Total:	**$16,310,911**	**$10,041,816.00**		**$20,083,636.00**	

Deficiency Summary by System

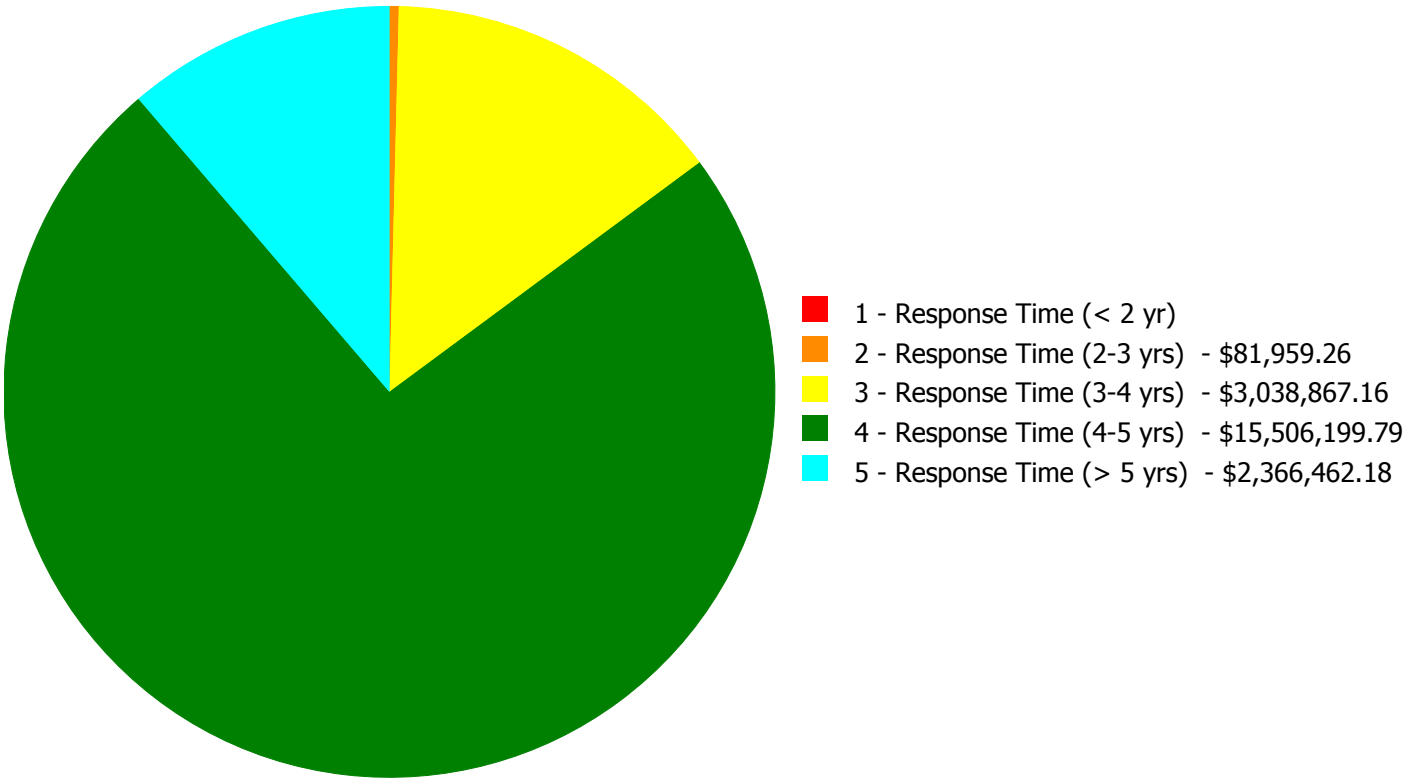
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart lists all current deficiencies associated with this facility.



Budget Estimate Total: $20,993,488.39

Deficiency Summary by Priority

The following chart shows the total repair costs broken down by priority. Assessors assigned deficiencies within eCOMET to one of the following priority categories:



Budget Estimate Total: $20,993,488.39

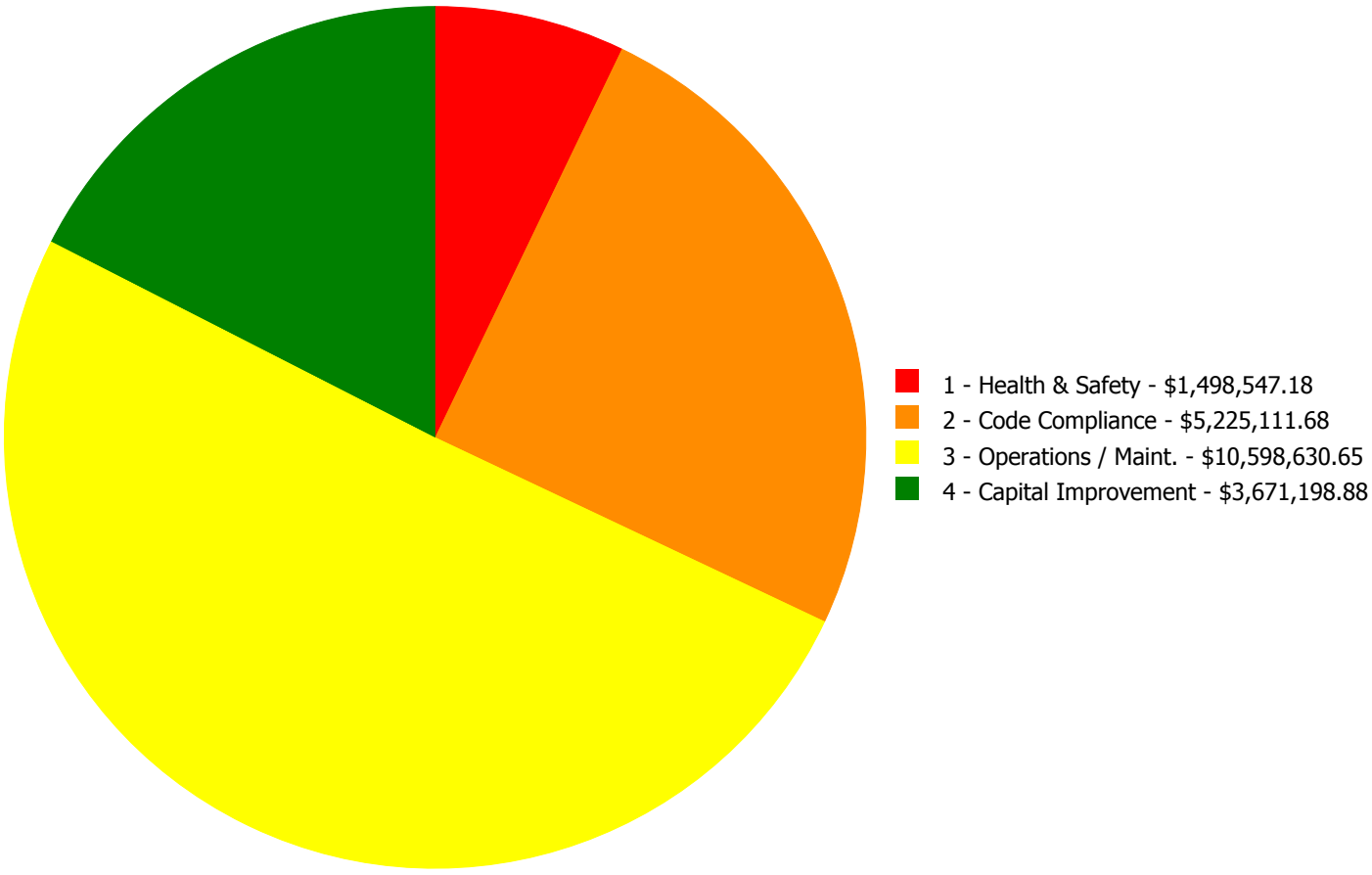
Deficiency By Priority Investment Table

The table below shows the current investment cost grouped by deficiency priority and building system.

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
B2020	Exterior Windows	$0.00	$0.00	$0.00	$3,461,354.92	$0.00	$3,461,354.92
B2030	Exterior Doors	$0.00	$0.00	$100,180.53	$0.00	$0.00	$100,180.53
B3010105	Built-Up	$0.00	$0.00	$0.00	$609,876.20	$0.00	$609,876.20
C1010	Partitions	$0.00	$81,959.26	$67,221.72	$0.00	$0.00	$149,180.98
C1020	Interior Doors	$0.00	$0.00	$572,470.45	$0.00	$0.00	$572,470.45
C1030	Fittings	$0.00	$0.00	$55,646.57	$0.00	$0.00	$55,646.57
C2010	Stair Construction	$0.00	$0.00	$31,138.92	$0.00	$0.00	$31,138.92
C3020413	Vinyl Flooring	$0.00	$0.00	$151,666.68	$0.00	$0.00	$151,666.68
C3030	Ceiling Finishes	$0.00	$0.00	$0.00	$0.00	$904,945.82	$904,945.82
D1010	Elevators and Lifts	$0.00	$0.00	$191,880.83	$0.00	$0.00	$191,880.83
D2010	Plumbing Fixtures	$0.00	$0.00	$0.00	$392,527.05	$0.00	$392,527.05
D2020	Domestic Water Distribution	$0.00	$0.00	$0.00	$511,703.63	$0.00	$511,703.63
D2030	Sanitary Waste	$0.00	$0.00	$0.00	$386,475.24	$0.00	$386,475.24
D3020	Heat Generating Systems	$0.00	$0.00	$0.00	$1,518,307.89	$0.00	$1,518,307.89
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$1,461,516.36	$1,461,516.36
D3040	Distribution Systems	$0.00	$0.00	$0.00	$5,225,111.68	$0.00	$5,225,111.68
D3060	Controls & Instrumentation	$0.00	$0.00	$0.00	$1,630,079.43	$0.00	$1,630,079.43
D4010	Sprinklers	$0.00	$0.00	$0.00	$1,301,910.03	$0.00	$1,301,910.03
D5010	Electrical Service/Distribution	$0.00	$0.00	$975,323.67	$0.00	$0.00	$975,323.67
D5020	Lighting and Branch Wiring	$0.00	$0.00	$127,943.73	$139,808.72	$0.00	$267,752.45
D5030	Communications and Security	$0.00	$0.00	$307,812.85	$36,513.48	$0.00	$344,326.33
D5090	Other Electrical Systems	$0.00	$0.00	$424,476.37	$0.00	$0.00	$424,476.37
E1020	Institutional Equipment	$0.00	$0.00	$19,273.29	$21,959.87	$0.00	$41,233.16
E2010	Fixed Furnishings	$0.00	$0.00	$13,831.55	$270,571.65	$0.00	$284,403.20
	Total:	$0.00	$81,959.26	$3,038,867.16	$15,506,199.79	$2,366,462.18	$20,993,488.39

Deficiency Summary by Category

The following chart shows the total repair costs broken down by deficiency categories. Assessors assigned deficiencies to one of the following categories:



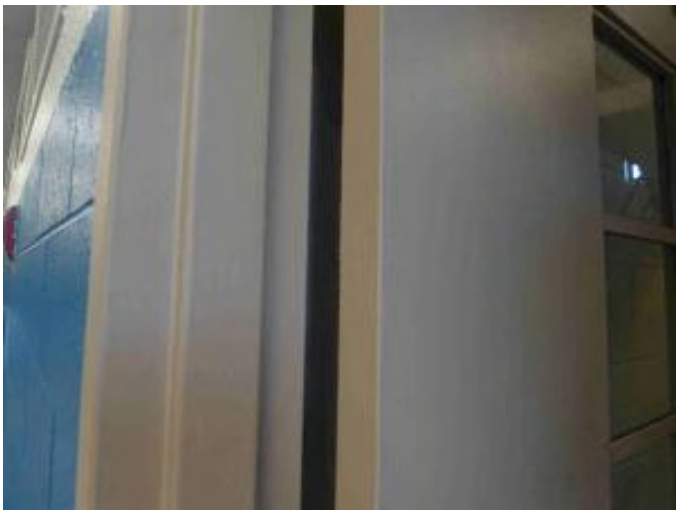
Budget Estimate Total: $20,993,488.39

Deficiency Details by Priority

The deficiency detail notes listed below provide additional information on identified deficiencies found within the facility.

Priority 2 - Response Time (2-3 yrs):

System: C1010 - Partitions



Location: Stairs

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 2 - Response Time (2-3 yrs)

Correction: Install fire rated walls and door where required - insert number of doors

Qty: 1,000.00

Unit of Measure: S.F.

Estimate: $81,959.26

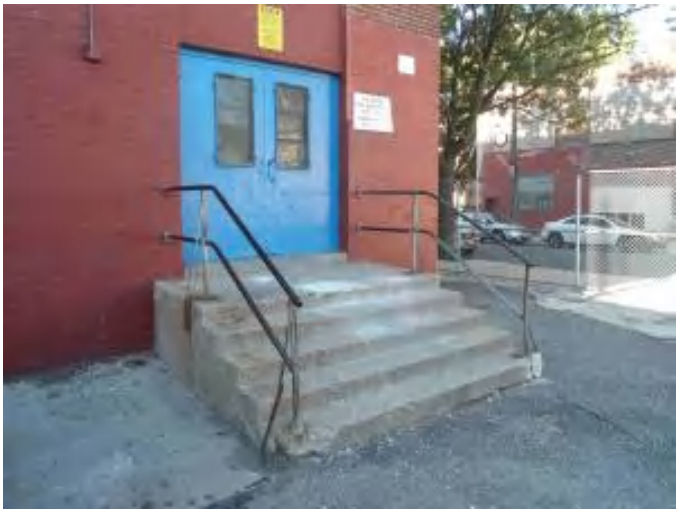
Assessor Name: System

Date Created: 12/14/2015

Notes: A large portion of the interior corridor, exit stair doors are not code compliant. Several doors are typically metal in metal frames with transom lites or sidelights, glass glazing. The older doors are generally in good condition considering the age of the application. To restore the door finishes, universal upgrades are required for the older door applications. Remove and replace original door systems with new code compliant fire rated door system.

Priority 3 - Response Time (3-4 yrs):

System: B2030 - Exterior Doors



Location: Exterior Elevation
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Remove and replace exterior doors - per leaf
Qty: 11.00
Unit of Measure: Ea.
Estimate: $100,180.53
Assessor Name: System
Date Created: 12/14/2015

Notes: The exterior doors are metal applications with metal frames. The exterior door system for this school is a very high traffic system and as indicated in the photos are showing signs of damage. The doors are in fair condition but are aging at a faster rate than expected based on traffic and condition. The exterior door system, store front and service doors are recommended for upgrade.

System: C1010 - Partitions

Location: Classrooms
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Remove folding partition
Qty: 3,000.00
Unit of Measure: S.F.
Estimate: $67,221.72
Assessor Name: System
Date Created: 12/14/2015

Notes: There are several movable partitions that remain in classrooms. These wall systems are no longer used and in most cases cannot be used due to damage or wall modifications to support classroom needs. This deficiency provides a budgetary consideration to remove and replace the wall systems with universal removal of the existing movable partitions and upgrades to a permeate wall systems.

System: C1020 - Interior Doors

Location: Classrooms

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Remove and replace interior doors - wood doors with hollow metal frames - per leaf

Qty: 120.00

Unit of Measure: Ea.

Estimate: $572,470.45

Assessor Name: System

Date Created: 12/14/2015

Notes: Interior doors are a mix of wood in metal frames with glass glazing or metal doors in metal frames. Other interior doors include wooden glass pane doors with original wooden pane frames, hollow metal in hollow metal frames. Doors are generally in good condition considering the age of the application however, several doors are hard to open and in some cases have been re-hung to prevent door jam issues. Universal upgrades are required for the interior door systems, it is recommended that the interior doors system be removed and replaced with a new modern metal framed wooden door system with consideration for ADA compliance.

System: C1030 - Fittings

Location: Building Wide

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace missing or damaged signage - insert the number of rooms

Qty: 180.00

Unit of Measure: Ea.

Estimate: $48,764.25

Assessor Name: System

Date Created: 12/14/2015

Notes: There is no directional signage and room signage is a custom design in places and scarce or painted with no consistency in others. Accessibility signage criteria have been established for the physically challenged. These include mounting heights, contrast and finish, raised and Braille characters and pictograms, and character proportions and heights. It is recommended that compliant signage be installed throughout the building.

System: C1030 - Fittings

Location: Classroom

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace blackboards with marker boards - pick the appropriate size and insert the quantities

Qty: 10.00

Unit of Measure: Ea.

Estimate: $6,882.32

Assessor Name: System

Date Created: 12/14/2015

Notes: A majority of the classrooms have been upgraded with new white board systems. However, several of the classrooms contain chalk boards that are original to the buildings construction. This system is damaged and beyond its expected life, universal upgrades are warranted. Remove and upgrade chalk boards to new marker board systems.

System: C2010 - Stair Construction

Location: Stairs

Distress: Life Safety / NFPA / PFD

Category: 1 - Health & Safety

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace inadequate or install proper stair railing - select appropriate material

Qty: 2,000.00

Unit of Measure: L.F.

Estimate: $31,138.92

Assessor Name: System

Date Created: 12/14/2015

Notes: Current requirements for stairs indicate that they have graspable handrails on both sides, that the rails have a specific end geometry, and that the handrails continue horizontally at the landings. In addition, guardrails must prevent the passage of a 4 inch diameter sphere (6 inches in the triangle formed by the lower rail and tread/riser angle). Although the stairs are compliant with the code enforced at the time of construction until a major renovation occurs, they are deficient in handrail and guardrail design relative to current standards. Future efforts should include comprehensive stair railing removal and replacement upgrades.

System: C3020413 - Vinyl Flooring

Location: Building Wide

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

Priority: 3 - Response Time (3-4 yrs)

Correction: Remove VAT and replace with VCT - SF of area

Qty: 10,000.00

Unit of Measure: S.F.

Estimate: $151,666.68

Assessor Name: System

Date Created: 12/14/2015

Notes: The vinyl floor finish in most of this school is in very good condition and appears to have part of an isolated upgrade. Some of the original flooring that was not a part of that effort consist of a 9x9 finish. This finish is suspect to contain asbestos and is recommended for upgrade. Remove and replace with a 12x12 vinyl tile application.

System: D1010 - Elevators and Lifts

Location: Elevator Machine Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Upgrade elevator cab and machinery - based on 3 stops, change the stops if required

Qty: 1.00

Unit of Measure: Ea.

Estimate: $191,880.83

Assessor Name: System

Date Created: 10/20/2015

Notes: Provide upgrade of elevator controller and machine room and modernization of elevator cab.

System: D5010 - Electrical Service/Distribution

Location: Main Electrical Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace Electrical Distribution System (U)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $975,323.67

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace the existing main service disconnecting means and service distribution equipment with a 1500 kVA, 13.2 kV-480/277V, 3 phase, 4 wire load center substation with 2000A main circuit breaker section and distribution sections. Provide step-down 480V-208/120V dry type transformers and distribution equipment to serve existing building loads. The switchboard should be adequately sized to serve central air conditioning equipment and a fire pump (if required).

System: D5020 - Lighting and Branch Wiring

Location: Main Office, PE Office and Room 407

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace lighting fixtures

Qty: 53.00

Unit of Measure: Ea.

Estimate: $46,632.88

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace a total of (25) 4 foot wraparound fluorescent fixtures and (28) 2 lamp strip fluorescent fixtures in the Main Office, PE Office and in Room 407.

System: D5020 - Lighting and Branch Wiring

Location: Boiler Room and Basement

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace lighting fixtures

Qty: 46.00

Unit of Measure: Ea.

Estimate: $39,183.64

Assessor Name: System

Date Created: 10/20/2015

Notes: Remove metal halide and industrial fluorescent lighting fixtures in the Boiler Room and adjacent rooms and replace with industrial fluorescent fixtures. Replace industrial fluorescent fixtures in the Main Electrical Room and Generator Room. (Total of 14 metal halide and 32 industrial fluorescent fixtures to be replaced).

System: D5020 - Lighting and Branch Wiring

Location: Auditorium and platform

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace lighting fixtures

Qty: 15.00

Unit of Measure: Ea.

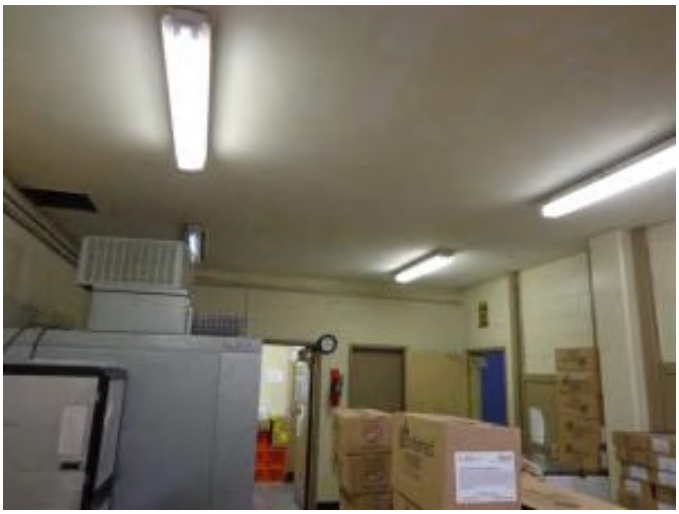
Estimate: $30,850.52

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace (12) 4x4, 8 lamp, ceiling mounted modular fluorescent fixtures in the auditorium and three (3) 4 foot wraparound fluorescent fixtures on the platform.

System: D5020 - Lighting and Branch Wiring



Location: Kitchen
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace lighting fixtures
Qty: 6.00
Unit of Measure: Ea.
Estimate: $6,983.95
Assessor Name: System
Date Created: 10/20/2015

Notes: Replace six (6) 4 foot vapor-tight T12 lamp fluorescent fixtures in the kitchen with T8 lamp fixtures.

System: D5020 - Lighting and Branch Wiring

Location: Floor 4 west corridor
Distress: Failing
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace lighting fixtures
Qty: 5.00
Unit of Measure: Ea.
Estimate: $4,292.74
Assessor Name: System
Date Created: 10/20/2015

Notes: Replace five (5) 4 foot ceiling mounted fluorescent wraparound fixtures in the west corridor on Floor 4.

System: D5030 - Communications and Security

Location: Building wide

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace fire alarm system

Qty: 91,008.00

Unit of Measure: S.F.

Estimate: $307,812.85

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace fire alarm system with an addressable type system, including pull stations, smoke and heat detectors, and audible and visual notification appliances.

System: D5090 - Other Electrical Systems

Location: Existing generator room

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace standby generator system

Qty: 1.00

Unit of Measure: Ea.

Estimate: $403,280.89

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace standby generator system to be sized for all emergency egress and exit lighting, elevator, and fire pump (if required). A 300 kW generator is included in this report.

System: D5090 - Other Electrical Systems

Location: Building wide

Distress: Failing

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Replace Emergency/Exit Lighting

Qty: 25.00

Unit of Measure: Ea.

Estimate: $21,195.48

Assessor Name: System

Date Created: 10/20/2015

Notes: Provide allowance for replacement of (25) exist signs that are not lit, damaged or are in poor condition.

System: E1020 - Institutional Equipment

Location: Gym

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Remove and replace or install basketball backstop and hoop - pick the appropriate style of backstop

Qty: 2.00

Unit of Measure: Ea.

Estimate: $19,273.29

Assessor Name: System

Date Created: 12/14/2015

Notes: The Gym interior backboards and support equipment is beyond its service life. There are damaged boards and reports indicate that the system no longer functions as designed. The system is recommended for removal and replacement.

System: E2010 - Fixed Furnishings

Location: Stage

Distress: Life Safety / NFPA / PFD

Category: 1 - Health & Safety

Priority: 3 - Response Time (3-4 yrs)

Correction: Remove and replace stage curtain - insert the LF of track and SF of curtain

Qty: 1.00

Unit of Measure: Ea.

Estimate: $13,831.55

Assessor Name: System

Date Created: 12/14/2015

Notes: The fixed seating for this school is from the original construction. The systems are in fair condition considering the age and usage. This project provides a budgetary consideration for universal upgrades for the fixed seating and furnishing of this school. Ensure that ADA requirements are followed with the new seating layout.

Priority 4 - Response Time (4-5 yrs):

System: B2020 - Exterior Windows

Location: Building Wide

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Remove and replace aluminum windows - pick the appropriate size and style and insert the number of units

Qty: 500.00

Unit of Measure: Ea.

Estimate: $3,461,354.92

Assessor Name: System

Date Created: 12/14/2015

Notes: The exterior windows are a mix of the original industrial aluminum framed single pane applications. Some of the windows are operable while others no longer function. The exterior windows have exceeded the expected life cycle for this type of application. It is recommended that the exterior window system be replaced with units that retain their dimensions and profiles, but that incorporate updated energy-efficient features.

System: B3010105 - Built-Up

Location: Roof

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Remove and Replace Built Up Roof

Qty: 18,000.00

Unit of Measure: S.F.

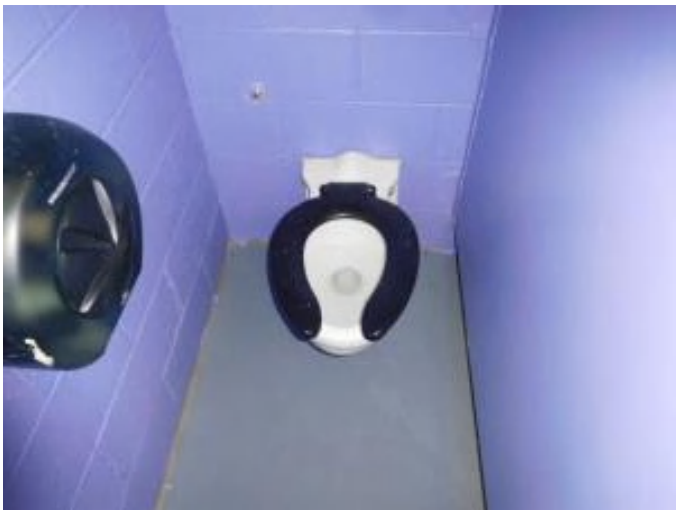
Estimate: $609,876.20

Assessor Name: System

Date Created: 12/14/2015

Notes: The built up roof was installed within the past 15 years as reported by the school. The roof is in fair good condition with few exceptions. Currently there is an active leak that if not repaired soon will start to deteriorate the insulation and the integrity of the classroom finishes. Several sections have major blisters that if not corrected the integrity of this roof will be in question. This deficiency provides a budgetary consideration for built up roof removal and replacement based on the current condition.

System: D2010 - Plumbing Fixtures



Location: toilet rooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Remove and replace or replace water closet - quantify additional units

Qty: 33.00

Unit of Measure: Ea.

Estimate: $247,294.03

Assessor Name: System

Date Created: 11/09/2015

Notes: Replace older plumbing fixtures, including lavatories, urinals and water closets. Include fittings and trim.

System: D2010 - Plumbing Fixtures

Location: toilet rooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Remove and replace or replace lavatory - quantify accessible if required

Qty: 27.00

Unit of Measure: Ea.

Estimate: $104,033.91

Assessor Name: System

Date Created: 11/09/2015

Notes: Replace older plumbing fixtures, including lavatories, urinals and water closets. Include fittings and trim.

System: D2010 - Plumbing Fixtures

Location: toilet rooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Remove and replace or replace wall hung urinals

Qty: 12.00

Unit of Measure: Ea.

Estimate: $41,199.11

Assessor Name: System

Date Created: 11/09/2015

Notes: Replace older plumbing fixtures, including lavatories, urinals and water closets. Include fittings and trim.

System: D2020 - Domestic Water Distribution

Location: entire building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Replace domestic water piping (75 KSF)

Qty: 91,008.00

Unit of Measure: S.F.

Estimate: $461,169.77

Assessor Name: System

Date Created: 11/09/2015

Notes: Replace domestic hot and cold water piping including valves, fittings, hangars and insulation.

System: D2020 - Domestic Water Distribution

Location: mechanical room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Replace duplex domestic booster pump set (5 HP)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $50,533.86

Assessor Name: System

Date Created: 11/09/2015

Notes: Provide new domestic water booster pump system with two pumps, pressure tank, and controls. Connect to main domestic water line.

System: D2030 - Sanitary Waste

Location: entire building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Inspect sanitary waste piping and replace damaged sections. (+100KSF)

Qty: 91,008.00

Unit of Measure: S.F.

Estimate: $386,475.24

Assessor Name: System

Date Created: 11/09/2015

Notes: Inspect old cast iron sanitary piping including camera observation and replace damaged sections.

System: D3020 - Heat Generating Systems

Location: mechanical room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Replace boiler, cast iron sectional (150 HP)

Qty: 3.00

Unit of Measure: Ea.

Estimate: $1,518,307.89

Assessor Name: System

Date Created: 11/09/2015

Notes: Replace the three steam boilers and piping system with three cast iron sectional hot water boilers with new steel insulated piping and two end suction hot water pumps. Include controls, expansion tank and electrical connections.

System: D3040 - Distribution Systems

Location: entire building

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 4 - Response Time (4-5 yrs)

Correction: Replace the existing unit ventilators with new units designed to provide adequate ventilation per ASHRAE Std 62 - insert the SF of bldg. in the qty.

Qty: 91,008.00

Unit of Measure: S.F.

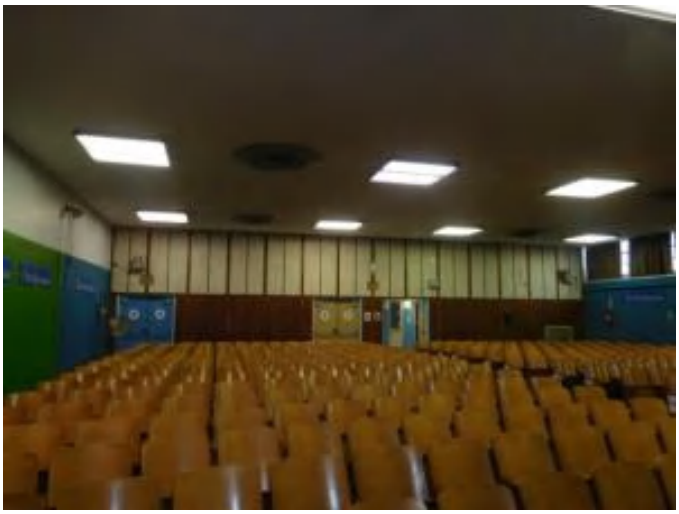
Estimate: $4,390,151.79

Assessor Name: System

Date Created: 11/09/2015

Notes: Replace the existing unit ventilators with new units designed for quiet operation and equipped with hot water and chilled water coils, hydronic control valves with digital controls and integral heat exchangers to provide code required fresh air quantities. Connect to new chilled and hot water piping systems and building automation control system.

System: D3040 - Distribution Systems



Location: auditorium

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 4 - Response Time (4-5 yrs)

Correction: Install HVAC unit for Auditorium (200 seat).

Qty: 325.00

Unit of Measure: Seat

Estimate: $463,263.84

Assessor Name: System

Date Created: 11/09/2015

Notes: Provide a new central station air handling unit for the auditorium with hot and chilled water coils, filters, outside and return air dampers, hydronic valves and controls, blower and motor. Connect to hot and chilled water systems.

System: D3040 - Distribution Systems

Location: cafeteria/gymnasium

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 4 - Response Time (4-5 yrs)

Correction: Install HVAC unit for Cafeteria (850 students).

Qty: 795.00

Unit of Measure: Pr.

Estimate: $371,696.05

Assessor Name: System

Date Created: 11/09/2015

Notes: Provide a new central station air handling unit for the cafeteria/gymnasium with hot and chilled water coils, filters, outside and return air dampers, hydronic valves and controls, blower and motor. Connect to hot and chilled water systems.

System: D3060 - Controls & Instrumentation

Location: entire building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 4 - Response Time (4-5 yrs)

Correction: Replace pneumatic controls with DDC (150KSF)

Qty: 91,008.00

Unit of Measure: S.F.

Estimate: $1,630,079.43

Assessor Name: System

Date Created: 11/09/2015

Notes: Install new direct digital control system and building automation system with remote computer control capability and graphics package.

System: D4010 - Sprinklers

Location: entire building

Distress: Life Safety / NFPA / PFD

Category: 1 - Health & Safety

Priority: 4 - Response Time (4-5 yrs)

Correction: Install a fire protection sprinkler system

Qty: 91,008.00

Unit of Measure: S.F.

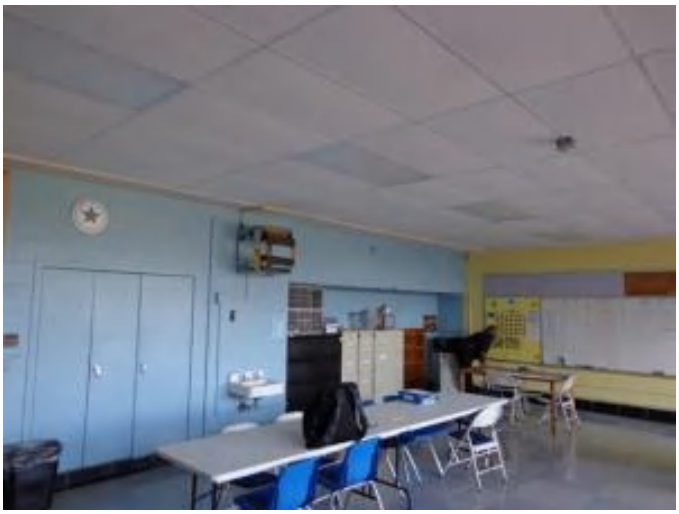
Estimate: $1,301,910.03

Assessor Name: System

Date Created: 11/09/2015

Notes: Install complete NFPA wet pipe automatic sprinkler system and standpipes. If required provide fire pump and jockey pump with controller.

System: D5020 - Lighting and Branch Wiring



Location: Classrooms

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 4 - Response Time (4-5 yrs)

Correction: Provide surface raceway system and wiring devices

Qty: 1,110.00

Unit of Measure: L.F.

Estimate: $139,808.72

Assessor Name: System

Date Created: 10/20/2015

Notes: Provide an allowance to add a surface metal raceway system with (6) duplex receptacles in each of 37 classrooms.

System: D5030 - Communications and Security

Location: Building wide

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 4 - Response Time (4-5 yrs)

Correction: Add/Replace Clock System or Components

Qty: 60.00

Unit of Measure: Ea.

Estimate: $36,513.48

Assessor Name: System

Date Created: 10/20/2015

Notes: Provide wireless GPS clock system.

System: E1020 - Institutional Equipment

Location: Gym

Distress: Failing

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Remove and replace or install new scoreboard - pick the appropriate scoreboard

Qty: 1.00

Unit of Measure: Ea.

Estimate: $21,959.87

Assessor Name: System

Date Created: 12/14/2015

Notes: During the inspection it was reported that the scoreboard was removed some time ago. The single scoreboard appears to have been from the original construction. This deficiency provides a budgetary consideration for a new scoreboard.

System: E2010 - Fixed Furnishings

Location: Auditorium

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Replace auditorium seating - add tablet arms if required. Veneer seating is an option.

Qty: 300.00

Unit of Measure: Ea.

Estimate: $270,571.65

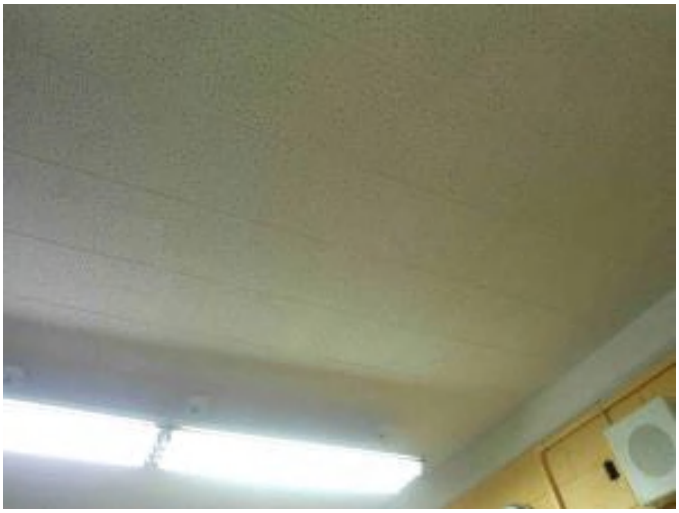
Assessor Name: System

Date Created: 12/14/2015

Notes: The fixed seating for this school is from the original construction. The systems are in fair condition considering the age and usage. This project provides a budgetary consideration for universal upgrades for the fixed seating and furnishing of this school. Ensure that ADA requirements are followed with the new seating layout.

Priority 5 - Response Time (> 5 yrs):

System: C3030 - Ceiling Finishes



Location: Building Wide

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Remove and replace suspended acoustic ceilings - lighting not included

Qty: 60,000.00

Unit of Measure: S.F.

Estimate: $904,945.82

Assessor Name: System

Date Created: 12/14/2015

Notes: The ceiling finish is a mix of 12 x 12 ceiling grid, painted and 2 x 4 Acoustical tile finish. Ceilings have been repaired in several areas and is in good condition considering the age of the application and the current condition of the school. The ceiling finish is expected to require upgrades to support the recommended efforts in this report prior to re-opening. This deficiency provides a budgetary consideration for removal and replacement of the current ceiling finish to a new acoustical tile finish. Considering the recommended mechanical and electrical upgrades this effort should be completed as part of an overall renewal program for the school. No work should be considered until after the recommended exterior efforts are complete.

System: D3030 - Cooling Generating Systems

Location: roof, mechanical room

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

Correction: Install chilled water system with distribution piping and pumps. (+75KSF)

Qty: 91,008.00

Unit of Measure: S.F.

Estimate: $1,461,516.36

Assessor Name: System

Date Created: 11/09/2015

Notes: Remove the existing window air conditioning units and install a two hundred twenty ton air-cooled chiller on the roof with chilled water distribution piping, two pumps, chemical treatment and controls located in a mechanical room on the basement level.

Equipment Inventory

The following table represents the inventory details of the inventory found in the building, which fall under the following subsystems:

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D1010 Elevators and Lifts	Traction geared elevators, passenger, 2000 lb, 5 floors, 200 FPM	1.00	Ea.	Main Lobby	Watson Elevator Co.	WEC-29064	NA		30			$175,350.00	$192,885.00
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 5230 MBH, includes burners, controls and insulated jacket, packaged	1.00	Ea.	mechanical room	weil mclain	series 3 2494			35			$122,870.00	$135,157.00
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 5230 MBH, includes burners, controls and insulated jacket, packaged	1.00	Ea.	mechanical room	weil mclain	series 3 2494			35			$122,870.00	$135,157.00
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 5230 MBH, includes burners, controls and insulated jacket, packaged	1.00	Ea.	mechanical room	weil mclain	series 3 2494			35			$122,870.00	$135,157.00
D5010 Electrical Service/Distribution	Panelboard, 4 wire w/conductor & conduit, NQOD, 120/208 V, 400 A, 1 stories, 25' horizontal	1.00	Ea.	Main Electrical Room	Frank Adam Electric Co.	NA	NA		30			$12,109.50	$13,320.45
												Total:	**$611,676.45**

Executive Summary

Building condition is evaluated based on the functional systems and elements of a building and organized according to the UNIFORMAT II Elemental Classification. The grouping of these systems and elements and applying a current replacement value to them develops a representative building cost model. Cost Models are developed for similar building types and functions. Systems and their elements are evaluated based on their current replacement values, life cycles, installation dates and next renewal dates. Systems and their elements that are within their useful lives are further evaluated to identify current deficient conditions that may have a significant impact on a system's or element's remaining service life, and to determine if they are beyond their predicted expected life. The system's or element's current replacement value is based on RS Means Commercial Cost Data.

Following are the cost model's system details for this facility. The Replacement Value is the amount needed to replace the property of the same present value. The Current Repair Amount, also known as Condition Needs, represents the budgeted contractor installed costs plus owner's soft costs for the repair, replacement or renewal for a component or system level deficiency. It excludes contributing costs for other components or systems that might also be associated with the corrective actions due to packaging the work. Facility Condition Index (FCI) FCI is an industry-standard measurement of facility condition calculated as the ratio of the costs to correct a facility's deficiencies to the facility's Current Replacement Value. It ranges from 0% (new) to 100% (very poor). Condition Index (CI) is calculated as the sum of a renewable system's Remaining Service Life (RSL) divided by the sum of a system's Replacement Value (both values exclude soft-cost to simplify calculation updates) expressed as a percentage ranging from 100% (new) to 0% (expired).

Function:	
Gross Area (SF):	51,900
Year Built:	1962
Last Renovation:	
Replacement Value:	$1,006,987
Repair Cost:	$349,647.60
Total FCI:	34.72 %
Total RSLI:	43.07 %

Description:

Attributes:

General Attributes:

Bldg ID:	S431001	Site ID:	S431001

Condition Summary

The Table below shows the CI and FCI for each major building system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

UNIFORMAT Classification	RSLI %	FCI %	Current Repair Cost
G20 - Site Improvements	36.68 %	43.37 %	$349,647.60
G40 - Site Electrical Utilities	68.73 %	0.00 %	$0.00
Totals:	**43.07 %**	**34.72 %**	**$349,647.60**

Condition Detail

This section of the report contains results of the Facility Condition Assessment. The building is separated into system components based on UNIFORMAT II classification. The columns in the System Listing table below represent the following:

1. System Code: A code that identifies the system.
2. System Description: A brief description of a system present in the building.
3. Unit Price $: The unit price of the system.
4. UoM: The unit of measure for of the system.
5. Qty: The quantity for the system
6. Life: anticipated service life for thesystem based on Building Owners and Managers Association (BOMA) recommendations.
7. Year Installed: The date of system installation.
8. Calc Next Renewal Year: The date of system expiration based on the life, NR stands for non renewable.
9. Next Renewal Year: The suggested system expiration date by the assessor based on visual inspection.
10. CI: The Condition Index of the system.
11. FCI: The Facility Condition Index of the system.
12. RSL: Remaining Service Life.
13. eCR: eCOMET Condition Rating (not used).
14. Deficiency $: The financial investment to repair/replace system.

System Listing

The System Listing table below lists each of the systems organized by their UNIFORMAT II classification. The assessment team was tasked with recording the most recent replacement year of each system, determining the remaining service life based on the theoretical life, and evaluating the condition to confirm the forecast next replacement year. The system listing is the basis for all data contained in the Building Assessment Report.

Additionally, a condition rating (eCR) based on the following guidelines is provided as observed at the time of the assessment.

- Excellent (E) - No noticeable distress or damage. The entire system is free from observable defect.
- Very Good (VG) - Overall no serviceability reduction for the entire system. No degradation of critical components and minor distress and defect noticeable for some but not non critical components within the system.
- Good (G) - Slight or no serviceability reduction for the entire system. There may be noticeable defects for some non critical components and slight noticeable degradation of the critical components.
- Fair (F) - Overall serviceability is degraded but adequate. There may be moderate deterioration for very few of the critical components and few of the non critical components may have severe degradation.
- Marginal (MA) - Overall serviceability and reliability loss. Most if not all of the non critical components suffer from severe degradation and a few of the critical component may have severe degradation.
- Moderate (MO) - Overall a significant serviceability loss. Most if not all the components have severe degradation with the reminder of the component showing visible distress.
- Very Poor (VP) - Overall the system is barely functional. All of the components are severely degraded.
- Non-Functional (NF) - Overall the system does not function with all the components having no serviceability and suffer from severe degradation.

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
G2020	Parking Lots	$8.50	S.F.	15,400	30	1990	2020	2027	40.00 %	162.04 %	12		$212,113.60	$130,900
G2030	Pedestrian Paving	$12.30	S.F.	36,500	40	1999	2039	2027	30.00 %	26.44 %	12		$118,681.48	$448,950
G2040	Site Development	$4.36	S.F.	51,900	25	1990	2015	2027	48.00 %	8.33 %	12		$18,852.52	$226,284
G2050	Landscaping & Irrigation	$4.36	S.F.		15	1990	2005	2027	80.00 %	0.00 %	12			$0
G4020	Site Lighting	$2.90	S.F.	51,900	20			2030	75.00 %	0.00 %	15			$150,510
G4030	Site Communications & Security	$0.97	S.F.	51,900	20			2025	50.00 %	0.00 %	10			$50,343
								Total	**43.07 %**	**34.72 %**			**$349,647.60**	**$1,006,987**

System Notes

The facility description in the site executive summary contains an overview of each system. The notes listed below provide additional information on select systems found within the facility.

No data found for this asset

Renewal Schedule

eCOMET forecasts future Capital Renewal funding needed to address expiring systems based on the Next Renewal year found in the Cost Models. A 3% annual inflation factor is applied to the costs for systems expiring in future years. The table below reflects recommended Capital Renewal funding needs over the next 10 years. Note: Cells with a zero value indicate systems for which renewal is not scheduled in that year.

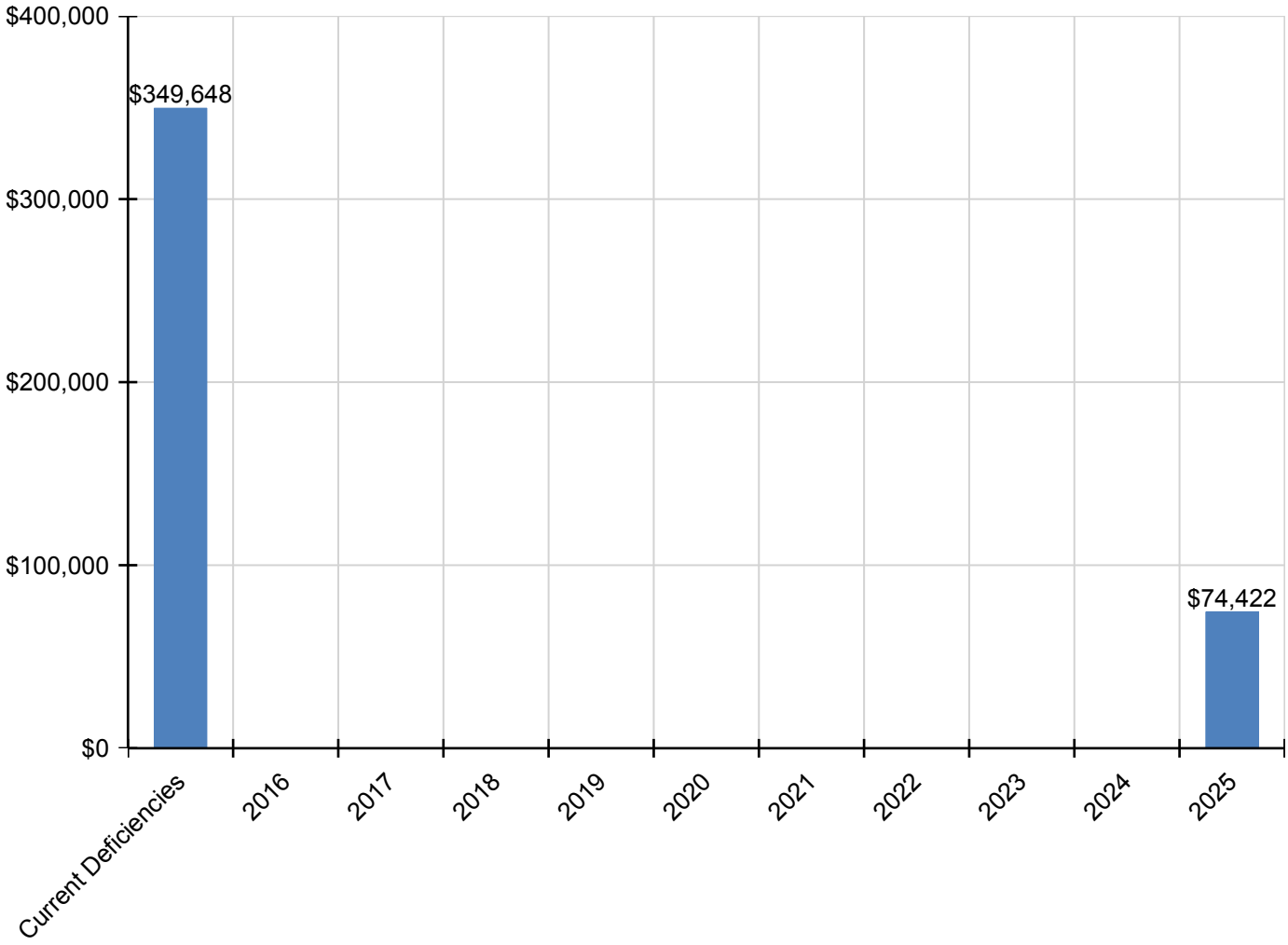
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$349,648**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$74,422**	**$424,070**
G - Building Sitework	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G20 - Site Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2020 - Parking Lots	$212,114	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$212,114**
G2030 - Pedestrian Paving	$118,681	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$118,681**
G2040 - Site Development	$18,853	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$18,853**
G2050 - Landscaping & Irrigation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G40 - Site Electrical Utilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4020 - Site Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4030 - Site Communications & Security	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$74,422	**$74,422**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

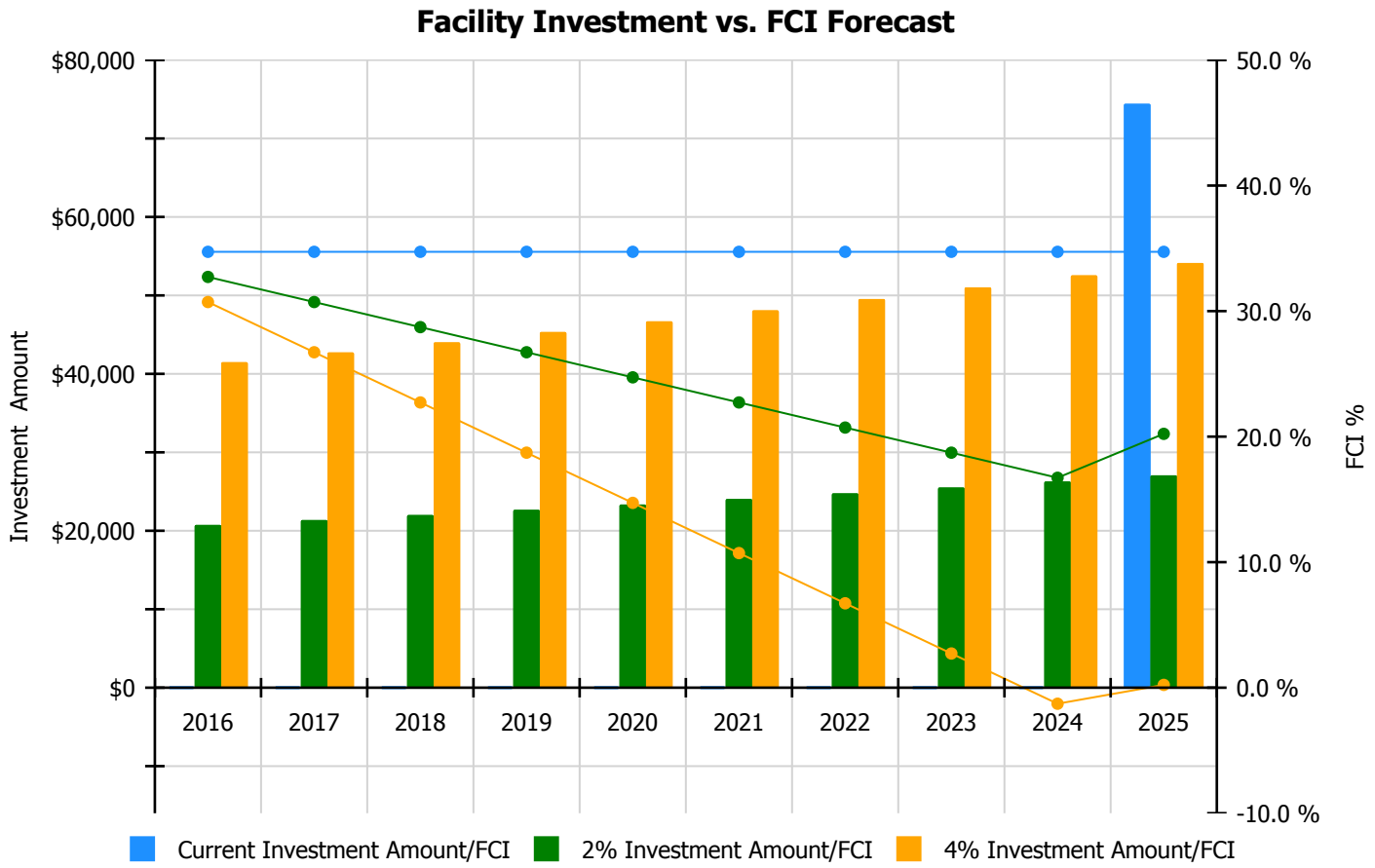
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



10 Year FCI Forecast by Investment Scenario

The chart below illustrates the effect of various investment levels on the building FCI for the next 10 years. The levels of investment shown below include:

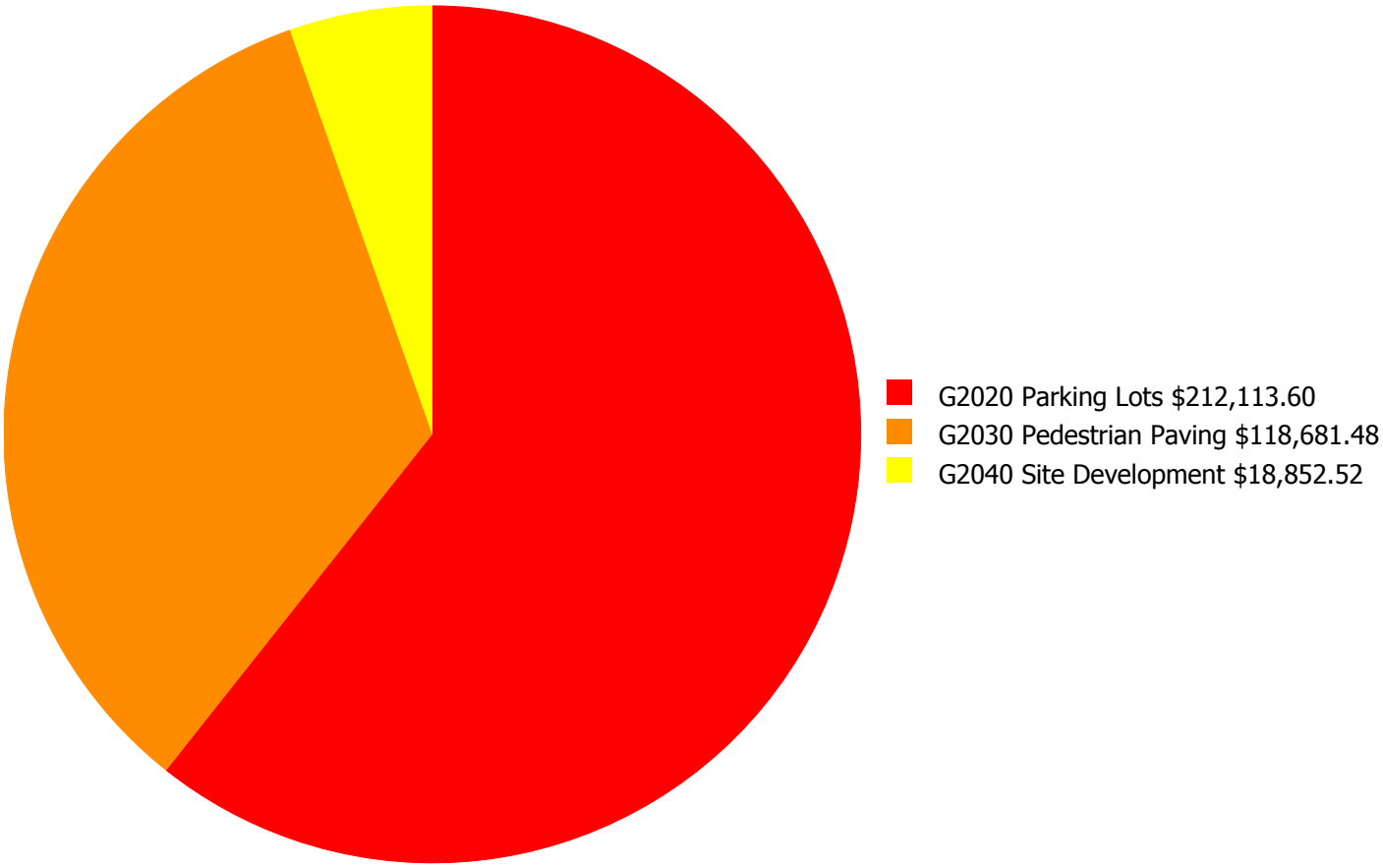
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value of the building, escalated for inflation



Year	Investment Amount Current FCI - 34.72%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$20,744.00	32.72 %	$41,488.00	30.72 %
2017	$0	$21,366.00	30.72 %	$42,733.00	26.72 %
2018	$0	$22,007.00	28.72 %	$44,014.00	22.72 %
2019	$0	$22,667.00	26.72 %	$45,335.00	18.72 %
2020	$0	$23,347.00	24.72 %	$46,695.00	14.72 %
2021	$0	$24,048.00	22.72 %	$48,096.00	10.72 %
2022	$0	$24,769.00	20.72 %	$49,539.00	6.72 %
2023	$0	$25,512.00	18.72 %	$51,025.00	2.72 %
2024	$0	$26,278.00	16.72 %	$52,556.00	-1.28 %
2025	$74,422	$27,066.00	20.22 %	$54,132.00	0.22 %
Total:	**$74,422**	**$237,804.00**		**$475,613.00**	

Deficiency Summary by System

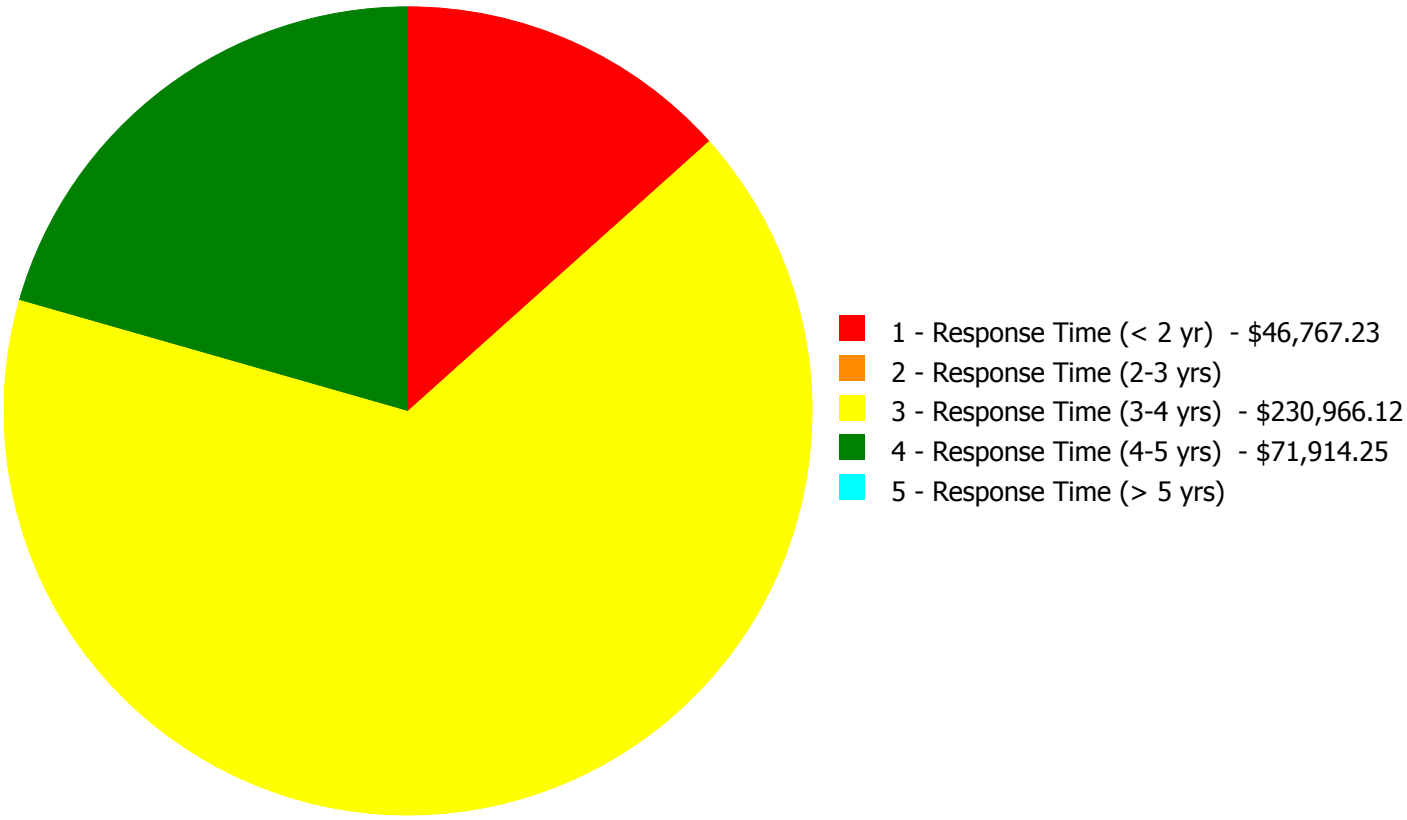
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart lists all current deficiencies associated with this facility.



Budget Estimate Total: $349,647.60

Deficiency Summary by Priority

The following chart shows the total repair costs broken down by priority. Assessors assigned deficiencies within eCOMET to one of the following priority categories:



Budget Estimate Total: $349,647.60

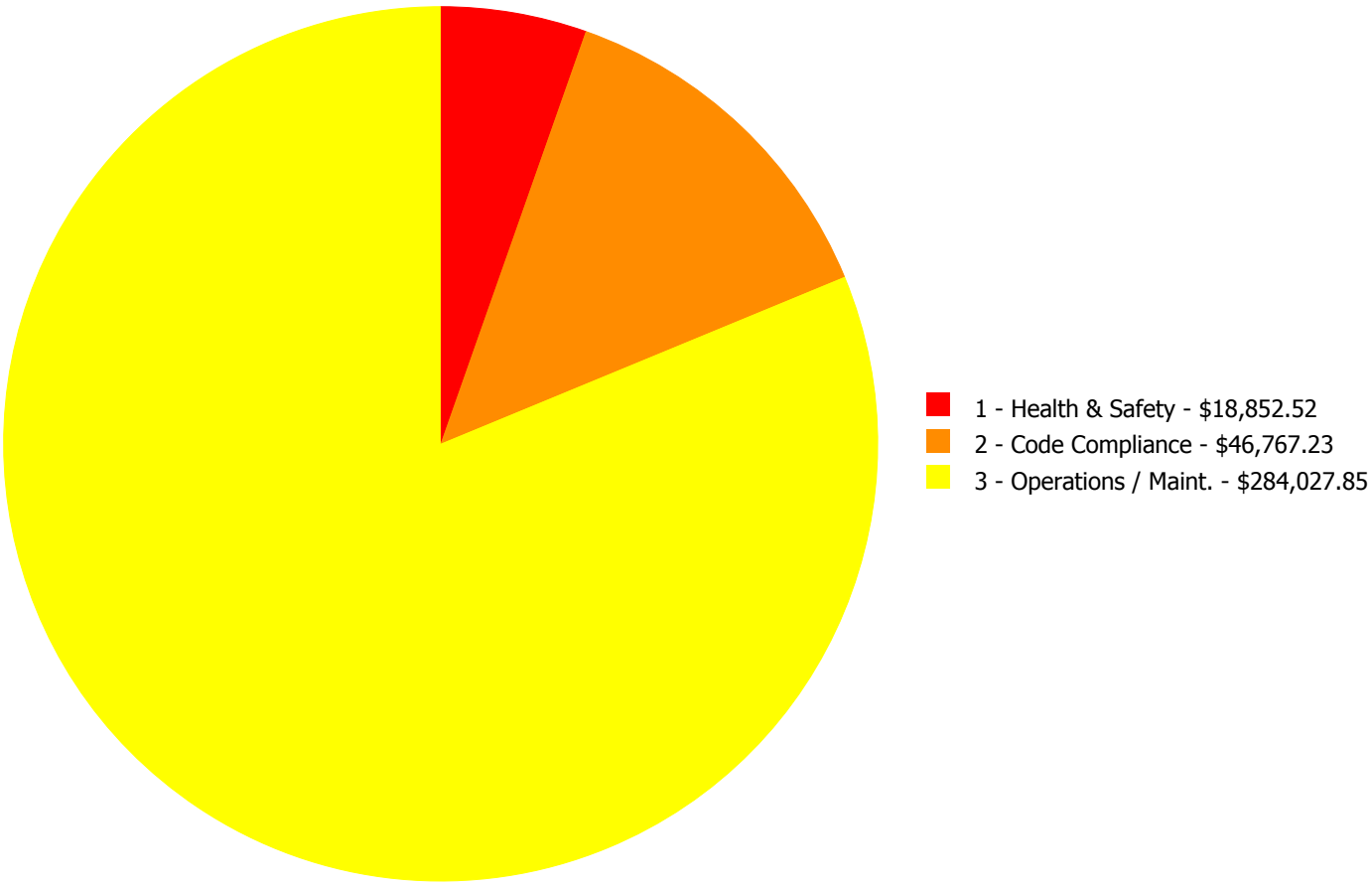
Deficiency By Priority Investment Table

The table below shows the current investment cost grouped by deficiency priority and building system.

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
G2020	Parking Lots	$0.00	$0.00	$212,113.60	$0.00	$0.00	$212,113.60
G2030	Pedestrian Paving	$46,767.23	$0.00	$0.00	$71,914.25	$0.00	$118,681.48
G2040	Site Development	$0.00	$0.00	$18,852.52	$0.00	$0.00	$18,852.52
	Total:	$46,767.23	$0.00	$230,966.12	$71,914.25	$0.00	$349,647.60

Deficiency Summary by Category

The following chart shows the total repair costs broken down by deficiency categories. Assessors assigned deficiencies to one of the following categories:



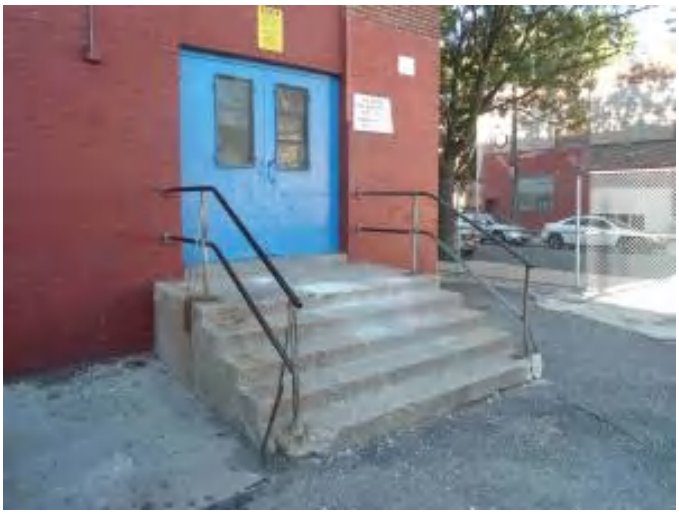
Budget Estimate Total: $349,647.60

Deficiency Details by Priority

The deficiency detail notes listed below provide additional information on identified deficiencies found within the facility.

Priority 1 - Response Time (< 2 yr):

System: G2030 - Pedestrian Paving



Location: Exterior Stair

Distress: Accessibility

Category: 2 - Code Compliance

Priority: 1 - Response Time (< 2 yr)

Correction: Install an exterior ADA ramp - based on 5' wide by the linear foot - up to a 48" rise - per LF of ramp - figure 1 LF per inch of rise

Qty: 36.00

Unit of Measure: L.F.

Estimate: $46,767.23

Assessor Name: Tom Moe

Date Created: 12/14/2015

Notes: The exterior stair at the western exterior elevation is broken and missing sections of concrete. Considering the limited access to the school by those that may be physically challenged this stair is recommended for universal upgrade. Current legislation related to accessibility requires that building entrances be wheelchair accessible. To comply with the intent of this legislation, it is recommended that a wheelchair ramp be installed at this entrance. This work should include the installation of a powered door operator and steel handrails at all entrances as required.

Priority 3 - Response Time (3-4 yrs):

System: G2020 - Parking Lots

Location: Site

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 3 - Response Time (3-4 yrs)

Correction: Remove and replace AC paving parking lot

Qty: 15,000.00

Unit of Measure: S.F.

Estimate: $212,113.60

Assessor Name: Ben Nixon

Date Created: 12/14/2015

Notes: The parking play area has no assigned parking and limited markers for approved activity areas. No curb cuts for access to the sidewalks that lead to the ADA main entrance. The parking play lot is in fair condition, the harsh environmental conditions associated with snow removal have taken its toll on the asphalt surface. Also, there is no marked path of ingress to the main entrance. This project provides a budgetary consideration for a play, parking lot renewal program that includes all aspects of the current ADA legislation. Asphalt removal and replacement is recommended.

System: G2040 - Site Development

Location: Site

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

Priority: 3 - Response Time (3-4 yrs)

Correction: Build secure trash dumpster enclosure

Qty: 1.00

Unit of Measure: Ea.

Estimate: $18,852.52

Assessor Name: Ben Nixon

Date Created: 12/14/2015

Notes: The trash dumpster is located in the parking lot open to the students and to the public. The exterior services are not protected. Upgrades to protect the exterior services and trash area is necessary for the safety of the students and the general public. Construction of a secure lockable dumpster area is recommended.

Priority 4 - Response Time (4-5 yrs):

System: G2030 - Pedestrian Paving

Location: Site

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 4 - Response Time (4-5 yrs)

Correction: Remove and replace concrete sidewalk or concrete paving - 4" concrete thickness

Qty: 5,000.00

Unit of Measure: S.F.

Estimate: $71,914.25

Assessor Name: Ben Nixon

Date Created: 12/14/2015

Notes: The sidewalk system is original to the buildings construction. There are a several areas of cracking concrete but no tripping hazards. The sidewalk system is expected to expire in the near future. Removal of the entire system is recommended. Universal upgrades are required and should include all aspects of current ADA legislation.

Equipment Inventory

The following table represents the inventory details of the inventory found in the building, which fall under the following subsystems:

No data found for this asset

Glossary

ABMA	American Boiler Manufacturers Association http://www.abma.com/
ACEEE	American Council for an Energy-Efficient Economy
ACGIH	American Council of Governmental and Industrial Hygienists
AEE	Association of Energy Engineers
AFD	Adjustable Frequency Drive
AFTC	After Tax Cash Flow
AGA	American Gas Association
AHU	Air Handling Unit
Amp	Ampere
ANSI	American National Standards Institute
ARI	Air Conditioning and Refrigeration Institute
ASD	Adjustable Speed Drive
ASHRAE	American Society of Heating Refrigerating and Air-Conditioning Engineers Inc.
ASME	American Society of Mechanical Engineers
Assessment	Visual survey of a facility to determine its condition. It involves looking at the age of systems reviewing information from local sources and visual evidence of potential problems to assign a condition rating. It does not include destructive testing of materials or testing of systems or equipment for functionality.
ATS	After Tax Savings
AW	Annual worth
BACNET	Building Automation Control Network
BAS	Building Automation System
BCR	Benefit Cost Ratio
BEP	Business Energy Professional (AEE)
BF	Ballast Factor
BHP	Boiler Horsepower (boilers)
BHP	Brake Horsepower (motors)
BLCC	Building Life Cycle Cost analysis program (FEMP)
BOCA	Building Officials and Code Administrators
BTCF	Before Tax Cash Flow

BTS	Before Tax Savings
Btu	British thermal unit
Building Addition	An area space or component of a building added to a building after the original building's year built date.
CAA	Clean Air Act
CAAA-90	Clean Air Act Amendments of 1990
CABO	Council of American Building Officials
CAC	Conventional Air Conditioning
CADDET	Center for the Analysis and Dissemination of Demonstrated Energy Technologies
Calculated Next Renewal	The year a system or element would be expected to expire based solely on the date it was installed and the expected useful lifetime for that kind of system.
Capital Renewal	Capital renewal is condition work (excluding suitability and energy audit work) that includes the replacement of building systems or elements (as they become obsolete or beyond their useful life) not normally included in an annual operating budget. Calculated next renewal The year a system or element would be expected to expire based solely on the date it was installed and the expected useful lifetime for that kind of system. Next renewal The assessor adjusted expected useful life of a system or element based on on-site inspection.
CDD	Cooling Degree Days
CDGP	Certified Distributed Generation Professional
CEC	California Energy Commission
CEM	Certified Energy Manager
CEP	Certified Energy Procurement Professional
CFC	Chlorofluorocarbon
CFD	Cash Flow Diagram
CFL	Compact Fluorescent Light
CFM cfm	Cubic Feet per Minute
CHP	Combined Heat and Power (a.k.a. cogeneration)
CHW	Chilled Water
Condition	Condition refers to the state of physical fitness or readiness of a facility system or system element for its intended use.
COP	Coefficient of Performance
Cp	Heat Capacity of Material
CPUC	California Public Utility Commission
CRI	Color Rendering Index
CRT	Cathode Ray Tube VDT HMI

CTC	Competitive Transition Charge
Cu	Coefficient of Utilization
Current Replacement Value (CRV)	CRV represents the hypothetical total cost of rebuilding or replacing an existing facility in current dollars to its optimal condition (excluding auxiliary facilities) under current codes and construction standards.
Cv	Value Coefficient
CWS	Chilled Water System
D d	Distance (usually feet)
DB	Dry Bulb
DCV	Demand Control Ventilation
DD	Degree Day
DDB	Double Declining Balance
DDC	Direct Digital Controls
Deferred maintenance	Deferred maintenance is condition work (excluding suitability and energy audit needs) deferred on a planned or unplanned basis to a future budget cycle or postponed until funds are available.
Deficiency	A deficiency is a repair item that is damaged missing inadequate or insufficient for an intended purpose.
Delta	Difference
Delta P	Pressure Difference
Delta T	Temperature Difference
DG	Distributed Generation
DOE	Department of Energy
DP	Dew Point
DR	Demand Response
DX	Direct Expansion Air Conditioner
EA	Energy Audit
EBITDA	Earnings before Interest Taxes Depreciation and Amortization
ECI	Energy Cost Index
ECM	Energy Conservation Measure
ECO	Energy Conservation Opportunity
ECPA	Energy Conservation and Production Act
ECR	Energy Conservation Recommendation
ECS	Energy Control System

EER	Energy Efficiency Ratio
EERE	Energy Efficiency and Renewable Energy division of US DOE
EIA	Energy Information Agency
EIS	Energy Information System
EMCS	Energy Management Computer System
EMO	Energy Management Opportunity
EMP	Energy Management Project
EMR	Energy Management Recommendation
EMS	Energy Management System
Energy Utilization Index (EUI)	EUI is the measure of total energy consumed in the cooling or heating of a building in a period expressed as British thermal unit (BTU) per (cooled or heated) gross square foot.
EO	Executive Order
EPA	Environmental Protection Agency
EPACT	Energy Policy Act of 1992
EPCA	Energy Production and Conservation Act of 1975
EPRI	Electric Power Research Institute
EREN	Efficiency and Renewable Energy (Division of USDOE)
ERV	Energy Recovery Ventilator
ESCO	Energy Service Company
ESPC	Energy Savings Performance Contract
EUI	Energy Use Index
EWG	Exempt Wholesale Generators
Extended Facility Condition Index (EFCI)	EFCI is calculated as the condition needs for the current year plus facility system renewal needs going out to a set time in the future divided by Current Replacement Value.
f	Frequency
F	Fahrenheit
Facility	A facility refers to site(s) building(s) or building addition(s) or combinations thereof that provide a particular service.
Facility Condition Assessment (FCA)	FCA is a process for evaluating the condition of buildings and facilities for programming and budgetary purposes through an on site inspection and evaluation process.
Facility Condition Index (FCI)	FCI is an industry-standard measurement of a facility's condition that is the ratio of the cost to correct a facility's deficiencies to the Current Replacement Value of the facilities. The higher the FCI the poorer the condition of a facility. After an FCI is established for all buildings within a portfolio a building's condition can be ranked relative to other buildings. The FCI may also represent the condition of a portfolio based on the cumulative FCIs of the portfolio's facilities.

FC	Footcandle
FCA	Fuel Cost Adjustment
FEMIA	Federal Energy Management Improvement Act of 1988
FEMP	Federal Energy Management Program
FERC	Federal Energy Regulatory Commission
FESR	Fuel Energy Savings Ratio
FLA	Full Load Amps
FLF	Facility Load Factor (usually monthly)
FLRPM	Full Load Revolutions per Minute
FMS	Facility Management System
FPM fpm	Feet per Minute (velocity)
FSEC	Florida Solar Energy Center
Ft	Foot
GPM gpm	Gallons per Minute
GRI	Gas Research Institute
Gross Square Feet (GSF)	The size of the enclosed floor space of a building in square feet measured to the outside face of the enclosing wall.
GUI	Graphical User Interface
H h	Enthalpy Btu/lb
HCFC	Hydrochlorofluorocarbons
HDD	Heating Degree days
HFC	Hydrofluorocarbons
HHV	Higher Heating Value
HID	High Intensity Discharge (lamp)
HMI	Human Machine Interface
HMMI	Human Man Machine Interface
HO	High Output (lamp)
HP Hp hp	Horsepower
HPS	High Pressure Sodium (lamp)
HR	Humidity Ratio
Hr hr	Hour

HRU	Heat Recovery Unit
HVAC	Heating Ventilation and Air-Conditioning
Hz	Hertz
I	Intensity (lumen output of lamp)
I i	Interest rate or Discount rate
IAQ	Indoor Air Quality
ICA	International Cogeneration Alliance
ICBO	International Conference of Buildings Officials
ICC	International Code Council
ICP	Institutional Conservation Program
IECC	International Energy Conservation Code
IEEE	Institute of Electrical and Electronic Engineers
IESNA	Illuminating Engineering Society of North America
Install year	The year a building or system was built or the most recent major renovation date (where a minimum of 70 of the system?s Current Replacement Value (CRV) was replaced).
IRP	Integrated Resource Planning
IRR	Internal Rate of Return
ISO	Independent System Operator
ITA	Independent Tariff Administrator
k	Kilo multiple of thousands in SI system
K	Kelvins (color temperature of lamp)
K k	Thermal Conductivity of Material
KVA	Kilovolt Ampere
KVAR	Kilovolt Ampere Reactive
kW	kiloWatt
kWh	kiloWatt hour
L	Length (usually feet)
LCC	Life Cycle Costing
LDC	Local Distribution Company
LEED	Leadership in Energy and Environmental Design
LEED EB	LEED for Existing Buildings

LEED NC	LEED for new construction
LF	Load Factor
LHV	Lower Heating Value
Life cycle	The period of time that a building or site system or element can be expected to adequately serve its intended function.
LPS	Low Pressure Sodium (lamp)
Lu	Lumen Output of a Lamp or Fixture
M	Mega multiple of millions in SI system
M&V	Measurement and Verification
MACRS	Modified Accelerated Cost Recovery System
MARR	Minimum Attractive Rate of Return
Mbtu	Thousand Btu
MCF	Thousand Cubic Feet (usually of gas)
MEC	Model Energy Code
Mm	Multiple of Thousands in I/P System
MMBtu	Million Btu
MMCS	Maintenance Management Computer System
MMI	Man Machine Interface
MMS	Maintenance Management System
MSE 2000	Management System for Energy 2000 (ANSI Georgia Tech Univ)
MW	MegaWatt
MWH MWh	MegaWatt hour
NAAQS	National Ambient Air Quality Standards
NAESCO	National Association of Energy Service Companies
NAIMA	North American Insulation Manufacturers Association
NEA	National Energy Act of 1978
NECPA	National Energy Conservation Policy Act
NEMA	National Electrical Manufacturer's Association
NERC	North American Electric Reliability Council
Next Renewal	The Next Renewal date is an override of the 'Calculated Next Renewal' date and is based upon the assessor?s visual inspection.

NFPA	National Fire Protection Association
NGPA	National Gas Policy Act of 1978
NLRPM	No Load Revolutions per Minute (speed)
Nn	Equipment or Project lifetime in economic analysis
NOPR	Notice of Proposed Rule Making from FERC
NOx	Nitrogen Oxide Compounds
NPV	Net present value in economic analysis
NREL	National Renewable Energy Laboratory
NUG	Non-Utility Generator
O&M	Operation and Maintenance
OA	Outside Air
ODP	Ozone Depletion Potential
OPAC	Off-Peak Air Conditioning
P	Present value in economic analysis
PBR	Performance Based Rates
PEA	Preliminary Energy Audit
PF	Power Factor
PID	Proportional plus integral plus derivative (control system)
PM	Portfolio Manager in Energy Star rating system
PM	Preventive Maintenance
PoolCo	Power Pool Company or Organization
POU	Point of Use
PQ	Power Quality
PSC	Public Service Commission
PSIA psia	Pounds per square inch absolute (pressure)
PSIG psig	Pounds per square inch gauge (pressure)
PUC	Public Utility Commission
PUHCA	Public Utilities Holding Company Act of 1935
PURPA	Public Utilities Regulatory Policies of 1978
PV	Photovotaic system

PV	Present Value
PW	Present Worth
PX	Power Exchange
q	Rate of heat flow in Btu per hour
Q	Heat load due to conduction using degree days
QF	Qualifying Facility
R	Electrical resistance
R	Thermal Resistance
RC	Remote controller
RCR	Room Cavity Ratio
RCRA	Resource Conservation and Recovery Act
Remaining Service Life (RSL)	RSL is the number of years service remaining for a system or equipment item. It is automatically calculated based on the difference between the current year and the 'Calculated Next Renewal' date or the 'Next Renewal' date whichever one is the later date.
Remaining Service Life Index (RSLI)	RSLI is defined as a percentage ratio of the remaining service life of a system. It usually ranges from 0 to 100
REMR	Repair Evaluation Maintenance Rehabilitation (REMR) is a scale used to objectively rank systems based on their condition
Renewal Schedule	A timeline that provides the items that need repair the year in which the repair is needed and the estimated price of the renewal.
RH	Relative Humidity
RLA	Running Load Amps
RMS	Root Mean Square
RO	Reverse Osmosis
ROI	Return on Investment
RPM	Revolutions Per Minute
RTG	Regional Transmission Group
RTO	Regional Transmission Organization
RTP	Real Time Pricing
SBCCI	Southern Building Code Congress International
SC	Scheduling Coordinator
SC	Shading Coefficient
SCADA	Supervisory Control and Data Acquisition Systems

SEER	Seasonal Energy Efficiency Ratio
SHR	Sensible Heat Ratio
Site	The grounds and utilities roadways landscaping fencing and other typical land improvements needed to support the facility.
Soft Cost	An expense item that is not considered direct construction cost. Soft cost includes architectural engineering financing legal fees and other pre-and-post construction expenses.
SOx	Sulfur Oxide Compounds
SP	Static Pressure
SP SPB	Simple Payback
SPP	Simple Payback Period
SPP	Small Power Producers
STR	Stack Temperature Rise
SV	Specific Volume
System	System refers to building and related site work elements as described by ASTM Uniformat II Classification for Building Elements (E1557-97) a format for classifying major facility elements common to most buildings. Elements usually perform a given function regardless of the design specification construction method or materials used. See also Uniformat II.
T	Temperature
T	Tubular (lamps)
TAA	Technical Assistance Audit
TCP/IP	Transmission Control Protocol/Internet Protocol
TES	Thermal Energy Storage
THD	Total Harmonic Distortion
TOD	Time of Day
TOU	Time of Use
TQM	Total Quality Management
TransCo	Transmission Company
U	Thermal Conductance
UDC	Utility Distribution Company
UL	Underwriters Laboratories
UNIFORMAT II	The ASTM UNIFORMAT II Classification for Building Elements (E1557-97) a format for classifying major facility components common to most buildings.
USGBC	US Green Building Council
v	Specific Volume

V	Volts Voltage
V	Volume
VAV	Variable Air Volume
VDT	Video Display Terminal
VFD	Variable Frequency Drive
VHO	Very High Output
VSD	Variable Speed Drive
W	Watts
W	Width
WB	Wet bulb
WH Wh	Watt Hours
Year built	The year that a building or addition was originally built based on substantial completion or occupancy.
Z	Electrical Impedance