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.

Fox Chase School

Governance	DISTRICT	Report Type	Elementary
Address	500 Rhawn St.	Enrollment	492
	Philadelphia, Pa 19111	Grade Range	'00-05'
Phone/Fax	215-728-5016 / 215-728-5006	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Foxchase	Turnaround Model	School Redesign Initiative

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	**48.22%**	**$15,908,748**	**$32,991,748**
Building	53.10 %	$15,463,015	$29,119,539
Grounds	11.51 %	$445,733	$3,872,209

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	00.00 %	$0	$1,032,191
Exterior Walls (Shows condition of the structural condition of the exterior facade)	31.46 %	$515,691	$1,639,050
Windows (Shows functionality of exterior windows)	244.78 %	$1,751,558	$715,575
Exterior Doors (Shows condition of exterior doors)	17.03 %	$14,931	$87,675
Interior Doors (Classroom doors)	200.88 %	$396,528	$197,400
Interior Walls (Paint and Finishes)	00.98 %	$6,774	$693,525
Plumbing Fixtures	19.51 %	$323,545	$1,657,950
Boilers	00.00 %	$0	$980,175
Chillers/Cooling Towers	00.00 %	$0	$1,285,200
Radiators/Unit Ventilators/HVAC	250.19 %	$5,646,637	$2,256,975
Heating/Cooling Controls	158.90 %	$1,126,235	$708,750
Electrical Service and Distribution	155.95 %	$794,199	$509,250
Lighting	50.28 %	$915,399	$1,820,700
Communications and Security (Cameras, Pa System and Fire Alarm)	94.24 %	$642,663	$681,975

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

S826001;Fox Chase

Final

Site Assessment Report

January 31, 2017

PARSONS

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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):	52,500
Year Built:	1949
Last Renovation:	
Replacement Value:	$32,991,748
Repair Cost:	$15,908,748.14
Total FCI:	48.22 %
Total RSLI:	63.92 %

Description:

Facility Condition Assessment

October 2015

School District of Philadelphia
Fox Chase Elementary School
500 Rhawn Street
Philadelphia, PA 19111

52,500 SF / 495 Students / LN 08

Fox Chase Elementary School is located at 500 Rhawn Street. The Original Building was constructed in 1949, has 52,500 square feet and is 2 stories tall with a full basement (known as the Ground Floor). There are two other structures (annexes) connected to the main building, Element 3 (also known as 'A' Wing), constructed sometime around 1965, and Element 4 (also known as the Library), constructed around the year 1971. Element 2 was constructed sometime around 1967 but is not connected to the main facility as is not included in this Facility Condition Analysis. The front entrance to the Original Building faces the intersection of Rhawn Street and Ridgeway Street on a diagonal orientation. There is a pre-school facility ("Child Care Center") located in the Ground Floor in a space equal to 3 classrooms. There is an extensive asphalt play area (playground) behind the main (original) building and Element 3,

including a faculty parking, accessed from Rhawn Street. There is a circular drop-off and guest parking driveway connecting Rhawn and Ridgeway Streets. The front yard has a grassy area with a flagpole. Morris Lawhorn the Custodial Assistant accompanied the FCA team during the inspection.

The inspection Team met Principal Rob Caroselli at the time of inspection who indicated that the building has some issues. There are leaks in exterior brickwork occurring in classrooms and the gym. Paving in the drop-off driveway is damaged with sinkholes in many locations. The heating system controls do not function properly; heat is either all on or all off. The house fan does not operate. The electrical system is inadequate and does not have the capacity to accommodate new smart boards or air-conditioning.

ARCHITECTURAL/STRUCTURAL SYSTEMS

Foundations in the Main Building are constructed of brick and concrete. Basement brick and masonry joints are in good condition with no major settlement cracks observed. Paint is peeling on the walls and the surface is effluorescing; walls need to be cleaned and repainted. Footings were not seen and their construction type or condition could not be ascertained. There is no basement in either of the additions; the foundations were not seen.

Floor slabs in the main building basement are in good condition although covered with dirt and in need of stripping, cleaning and repainting. The pipe trench cover in the cafeteria is a tripping hazard and needs to be replaced. Upper floor slabs are constructed of cast-in-place concrete as seen in the boiler room and the ground level where corridors have exposed ceilings showing the cast-in-place concrete beams. No major cracking was observed in any floor slab inspected in the Main Building or in the annex buildings.

Roof construction in the classroom and gym areas of the main building consists of reinforced concrete beams and deck, bearing on concrete beams and columns. The roof deck above these parts of the main building consists of a "flat" deck with minimum overall slope and pitch to roof drains. Roof access is via a brick penthouse structure. The roof deck over the auditorium is a low pitched roof and although the structure could not be seen during the inspection, the most logical assumption is that there are pitched steel beams and a metal deck with insulation forming the low peaked roof. The roofs over each rectangular half of Element 3 are also low peaked systems; since there are metal panels forming the exterior walls, the logical assumption is that the roofs over each rectangle is a peaked steel framed beam and purlin system. The roof construction above Element 4 is a precast concrete T system, typical of the "portable buildings" located on other District school campuses. The Main Building and Element 4 have internal roof drains at low points with vertical leaders running through the building in internal chases. Element 3 has an external gutter and vertical leader system with vertical leaders running down the outside of the exterior walls. There are overflow scuppers in the parapet walls on the main building roof. Water will simply overflow the edge onto the asphalt parking area if the roof drains on Element 4 become clogged. The roofing systems on the Main Building and both Elements were replaced in 2012, including coping, flashing, overflow outlets in the masonry walls, ladders, reglets and counter flashing and gravity vent enclosures. At the time of inspection, everything appeared to be in very good condition.

Exterior walls of the Main Building are generally in poor condition. There are many areas of horizontal joint cracking, corner cracking, joint openings where lintels are set into brick walls, broken limestone sills and heads, joint separation under limestone window sills, and dirt accumulation on brick walls requiring cleaning maintenance. All cracked wall joints and cracked lintel joints need to be re-pointed. Broken limestone heads and sills should be patched with grout where damages are small; they should be replaced where damages are larger than a tennis ball. Univent louvers are rusted and damaged and should be replaced. When univents are replaced, brick joints around the univents need to be re-pointed. Two corner walls were seen to have almost full height vertical cracks through the bricks which need to be reconstructed to provide the necessary structural integrity. Masonry above the roof is in much better condition and appears to have been re-pointed at the time of re-roofing. The masonry chimney also appears to be crack-free and new in appearance. The insulated metal siding on Element 3 is scratched, dented, peeling and needs to be replaced. The exposed aggregate precast wall panels on Element 4 are in good condition except for the location where graffiti had been painted over; that wall needs to be repainted in entirety to better hide the defacement.

Exterior windows in the main building and Element 3 are bronze anodized, aluminum framed, single hung, single glazed plexiglass units that may have been installed in the 1990's. They are now faded, cloudy, scratched and leaking; gymnasium windows are hopper -style. Element 4 has clear anodized aluminum, hopper-style, single glazed plexi glass systems, also in poor condition. Galvanized security screens are used on ground floor and first floor windows to protect against vandalism and playground accidents. Most windows do not open and close easily, do not seal tightly, and provide little insulation value during cold winter months. All windows should be replaced with aluminum framed, insulated glass systems.

Exterior doors at the Main Building and Annex front entrances and two other student entrances are flush, painted, hollow metal steel doors & frames with narrow vertical vision panels with security screens. Exit doors or mechanical area entrance/exit doors around the building are flush, painted hollow metal steel doors & frames without vision panels. Doors are generally in fair condition, with some dents, but few scratches and no graffiti. Most exterior doors and frames have rust and are worn at the bottoms, however most should be good enough to repair and repaint, providing new hardware and weatherstripping after repaired. There is no ADA compliant

handicap accessible ramp outside the building to allow for wheelchair access. However, there is space outside the front door to construct a ramp to provide a fully accessible entrance, and there is space on the playground side of the building to construct an ADA compliant ramp into the rear of the building and Elements 3 and 4. Accessible Route signage is also needed to lead people to the accessible entrances.

Roof coverings were replaced in 2012 on the Main Building and both Elements. The system now consists of a fully adhered built-up rolled asphalt membrane system, with light gray impregnated surface granules. Flashing is the same asphalt membrane flashing secured to rooftop ventilation ductwork, plumbing vents, and masonry parapets into reglets. Roof structures also were replaced and include masonry penthouse and building walls, plumbing vents, ventilation ductwork, gravity vent covers, and roof drains. Flashing runs up the low masonry parapets and terminates under the painted aluminum coping or aluminum counter flashing set into masonry with reglets or attached to roof structures. Flashing set into masonry on penthouse walls is in good condition with no leaks reported in areas below rooftop brick and metal structures. Roof pitch appears to be adequate as there were no major areas of standing water; roof drains have dished areas to aid in getting water to flow into drains. There is a low area with a gutter on the sides of the auditorium roof and a low area between the two longitudinal pitched roofs over Element 3. Neither are could be closely inspected, but from the main building roof, it looked like there was barely enough slope to allow water to flow off the membrane, as seen from dirty areas left from small areas of standing water. Additionally, these low/flat areas could trap snow and ice during winter. Despite these design issues, no problems were seen at the time of inspection. Element 4 has a surface applied ridge to guide water to the single roof drain on that roof. Some evidence of slow draining or standing water was seen behind that low ridge. The roof on Element 4 has no overflow drains, however, if the roof drain gets clogged, water will flow over the edge of the roof alerting maintenance to the clogged drain.

Partitions in most rooms of all floors of the main building are constructed of painted block (concrete masonry units) throughout the building. Corners are bull-nose block to soften the hard edges and provide a more durable surface. Wall bases are either painted block or painted concrete. Toilet rooms in the main building have glazed block wainscots with painted block above. There were no joint cracks observed in the walls during inspection. This highly durable wall system is in good condition. Element 3 has metal panel corridor walls, similar to the exterior wall panels. Interior classroom walls in Element 3 are Masonite or gypsum board on studs with wood bases. Despite their more fragile inherent nature, these walls are in good condition. Element 4 is a single open space Library) which has bookcases and wood paneling all along the exterior concrete panel walls and only one interior wall that is "non-masonry". There were no immediate concerns with the condition of any of the interior partitions.

Interior doors used for classrooms, offices, gymnasium, auditorium, and bathrooms are solid wood oak veneer doors with wood frames. Many of these wood doors have wired glass, plate glass or textured glass vision panels; not all glazing and door construction is considered fire rated and some glazing exceeds sizes allowed by today's codes in a fire rated door. Stairway doors are steel with half lite wired glass door panels. Frames are steel and doors have push/pull hardware which does not positively latch as required by today's building code. Wired glass sidelights and transoms create open, bright stair enclosures, however this large amount of this type of glazing is not permitted by today's code. Doors, glazing and hardware should be changed to code approved fire doors, with code compliant panic hardware and UL approved fire rated vision panels. The auditorium, cafeteria and gymnasium doors are the original solid core wood with old (in some cases possibly the original) panic hardware. Interior basement doors in the mechanical room are hollow metal steel doors with steel frames; doors and frames should be repainted. Classroom, office, and special function room doors throughout both buildings have old nob-style latch sets and should have lever-handle lock sets that can be locked from the inside of the classroom, as required today for lock-down security. Closet doors in the main building are wood doors that are connected together to form one group of 6 pivoting doors opening and closing all together to form a 6 panel closure to the closet. They are unique types of closet doors and still operate well in most cases; they should be refinished and lubricated to maintain their good working condition. Doors in Elements 3 and 4 (Wing A and the Library) are painted solid core wood with lever latch sets that do not lock from the inside. These doors are in fair condition and should receive updated security lock-down lock sets.

Interior fittings/hardware in the Main Building and annexes include chalkboards and tack boards with metal chalk trays (or tack strips) mounted on at least one wall in each classroom. The Library (Element 4) has wood book cases, tables and chairs all in good condition. Kindergartens have wood cubbies in cloak rooms between classrooms in good condition still in use. Other classrooms have built in wood cubbies and bookcases in good structural condition but in need of refinishing. Most toilet room partitions in the Main Building have the original marble toilet room partitions and wood doors. The marble is mostly in good condition, but many toilet compartment doors need refurbishing or replacement with new doors. The boys toilet room near the gym has replacement plastic laminated plywood partitions which are damaged and in poor condition. Most toilet rooms have accessories in place and operational. Some toilet rooms have enlarged stalls which serve as accessible toilets. However, no toilet compartments fully comply with ADA guidelines which require grab bars, accessories at correct mounting heights, wrist blade faucets, leg protection, and lavatories with extended or properly mounted bowl heights.

Stair construction in the Main Building consists of concrete filled steel treads with steel nosings, steel risers, steel stringers, and wood handrails (29" high) on steel balusters with 3", and guards (36" high) on steel balusters with 3" spacing at tops of landings; there are no guards along the open side of stairways. Stairway handrails and guards do not meet today's code requirements; handrails at 36"

with guards at 42" at open sides of stairway and platforms should be provided. Stairway A and C platforms, landings, and treads are filled with terrazzo and other stairways have either terrazzo or sealed concrete finishes. Stairs with sealed concrete should be stripped and refinished to give them a cleaner appearance. An additional flight of stairs is required at the end of the first floor corridor where Kindergarten Rooms 109, 110, and 111 are located; this dead end corridor is over 100ft long to Stairway A, violating the maximum allowable dead end corridor length allowed by today's building code. A new flight of stairs should be added over the existing exit stairway leading up from the gymnasium below which already leads to a grade level exit, providing egress to the first floor dead end corridor.

Wall finishes in the ground level, first, and second floors of the main building are full height painted concrete masonry units (block) throughout the building. The paint on the classroom, cafeteria, auditorium and office walls is in good condition with only minor repairs needed at isolated locations. The gymnasium walls were recently repainted and are also in good condition. The Library (Element 4) walls are covered with bookcases and wood paneling. Wing A (Element 3) walls are painted metal panels or Masonite/gypsum board on studs, in need of patching and touch-up at miscellaneous locations.

Floor finishes in all classrooms (including Element 3), first and second floor corridors, Wing A (Element 3) corridors, the school office area, cafeteria, and the auditorium aisles, consist of vinyl asbestos tile (VAT). These rooms with vinyl asbestos tile floors should be tested for asbestos and if they are asbestos containing, although some appear to be in good condition, they all should be properly removed and replaced. The gymnasium has a new vinyl composition tile (VCT) floor. Basement and some stairs have sealed concrete finishes which are in need of stripping, cleaning, and resealing. The main lobby, Stairways A and C, and toilet rooms have terrazzo floors which are highly durable and in excellent condition. The floor finish in Element 4 is VCT which is in good condition.

Ceiling finishes in the Main Building consist of exposed concrete painted white, 2x4 suspended acoustical tile ceilings and 12x12 ceiling tiles. First and second floor main building corridors and classrooms have 2x4 suspended acoustical tile ceiling systems with recessed 2x4 fluorescent lighting fixtures in corridors, classrooms, and offices. The auditorium has plaster ceilings with surface mounted pendant lighting fixtures; evidence of past water damage on the ceiling needs to be repaired. The lobby has a plaster ceiling in good condition, with surface mounted fluorescent fixtures. The cafeteria has 12x12 surface mounted ceiling tiles in good condition, with suspended 2x4 fluorescent lighting fixtures. The gym has a recently refinished white plaster ceiling in good condition, with suspended lighting fixtures. The library (Element 4) has 12"x12" ceiling tiles glued to the concrete deck with suspended 1x4 fluourescent lighting fixtures. Wing A (Element 3) has a metal panel ceiling with surface mounted 1x4 fluorescent lighting fixtures in the corridor and surface mounted 2x4 fluorescent lighting fixtures in classrooms. The ceiling in Element 4, the Library, is typical for this type of precast concrete building with 12x12 ceiling tiles, in good condition, glued to the concrete plank roof deck and painted "T"s and suspended fluorescent lighting fixtures.

Fixed furnishings include wood seating in the auditorium which has signs of wear on almost all seating surfaces. Seat should be refinished to improve the appearance. The cafeteria has folding tables for serving students. The kitchen area has stainless steel service counters and food preparation tables.

There is no elevator in the building. To provide full access and compliance with ADA accessibility guidelines, an elevator should be provided.

There is no ADA accessible ramp into the Main Building. A ramp up approximately 48" should be provided leading up to the front entrance from the circular drop-off driveway. A ramp into the building would allow wheelchair users to get to the First Floor and access an elevator which needs to be provided in this school. The elevator needs to travel from the Ground Level to provide access to the Library (Element 4) and Cafeteria up to the Second Floor serving all classrooms. Access to the gymnasium needs to be studied as a second elevator appears to be required to serve that space.

MECHANICAL SYSTEMS

Plumbing Fixtures – The building is equipped with wall hung urinals (flush valve type), a combination of floor mount and wall hung water closets (flush valve type), and wall hung lavatories with wheel handle faucets. Many of the original plumbing fixtures remain in service, however, these fixtures have reached the end of their service life and should be replaced. New fixtures will provide lower water consumption and provide savings on water heating costs. The bathrooms are also equipped with floor drains.

Original drinking fountains in the corridors and at the restrooms are wall hung fountains. There are a few wall hung electrical water coolers and vertical floor standing electric water coolers as well.. Drinking fountains are typically located in the hallways at intervals as well as in the vicinity of the bathroom groups. Most appear to be the original installed equipment. The replacement of all drinking fountains is recommended as the equipment is approximately 67 years old and beyond its service life.

Wall hung service sinks are original and are available throughout the building for use by the janitorial staff. The sinks appear have

exceeded their service life, and should be replaced. The Cafeteria's food prep/kitchen is equipped with one, three compartment stainless steel sink with wheel handle operated faucets and its sanitary connection is served by a floor mounted grease trap. The kitchen is also equipped with a hand sink. The triple wash sink (with wheel handles) and hand sink (with lever handles) show signs of normal usage. The grease interceptor shows no signs of rust or corrosion and is accessible for maintenance. Chemicals are injected manually into the sanitizing basin.

Each classroom is provided with a hand sink. These fixture should be replaced as they have surpassed their service life.

Domestic Water Distribution – It appears that the 4" domestic water service piping is mostly soldered copper. Water service enters the building in the basement, with 4" double check backflow preventer (RPZA – reduced pressure zone assembly) and a 3" water meter on the main line upon entering the building. The water meter appears to be new. The piping is copper with soldered joints. The distribution piping appears to be original and is at the end of its service life and is recommended to be inspected and repaired as needed.

There are two natural gas fired vertical, 100 gallon, instantaneous type water heaters, Paloma model PH-24M-DN, at this facility which are located in the boiler mechanical room. Each heater is rated for a gas input of 178,500 btuh and a minimum input of 37,700 btuh, and 2.70 gallons per minute rate of recovery. The hot water system is equipped with a recirculation pump as well. The system is not equipped with an expansion tank. All water heaters appear to be in satisfactory condition and should not need replacement within the next 10 years. A water softener was located in the boiler room for treating the boiler make up water system. The water softener system appears to be beyond its service life and should be replaced. Domestic water piping should be checked and inspected by a contractor.

Sanitary Waste - The sanitary waste piping system in the original building is extra heavy cast iron with lead and oakum seals and appears to be the original piping installed in the building. It is therefore recommended to inspect this piping and repair or replace sections as needed. The sanitary system leaves the building by gravity.

Rain Water Drainage - The rain water drains from the roof are routed through mechanical chases in the building and connect to the underground site drainage system. There are overflow scuppers for the building.

Energy Supply - Duplex fuel oil supply pumps provide the required fuel to the boilers when operating on fuel oil. The 8,000 gallon fuel storage tank is located underground in the grassy area just beyond the side walk next the side of the school which faces Ridgeway Street. The fuel pumps and controls were replaced in the early 1990's and should be replaced. The 1-1/2" natural gas enters the building in the basement into the main boiler mechanical equipment room The gas meter is also located here There is a pressure booster system install but the final gas connections are not made to the boilers.. The natural gas main is welded, black steel piping while the branches are threaded, black steel.

Heat Generating Systems – Low pressure steam is generated at 15 lbs/sq. in. or less by two 3,835 MBH(IBR steam) Weil McLain model 1894, series 94 steam boilers with dual fuel burners. Both boilers are equipped with Power Flame dual fuel burners, natural gas and number 2 fuel oil, model CR5-GO-30. The boilers were installed in the early 1990's and should be replaced in the next 5 – 7 years based on expected service life of the equipment. There is no flue vent control on either of the boiler flues. Combustion air louvers serve the boiler room to provide combustion air for the boiler operation. Burner controls provide full modulation with electronic ignition and digital flame sensing. Burner oil pumps are driven by independent motors. The gas train serving each boiler appears to have code required venting of the regulators and dual solenoid valves with venting of the chamber between, however the final gas connection has not been made to the boiler. The oil supply to the burner is equipped with dual solenoid valves and strainer/disposable media filter.

Distribution Systems – The building steam distribution piping is black steel with welded fittings. The condensate piping is Schedule 80 black steel with threaded fittings. The piping has been in use beyond its service life, and will require more frequent attention from the maintenance staff to address pipe/valve failures as time passes. The District should hire a qualified contractor to examine the distribution piping and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures. This should be performed for the steam and condensate system as well as the heating water supply and return system. The District should budget for replacing this piping over the next 5 years.

The boiler feed water is collected by a boiler feedwater pad mounted system and is treated with a combination of chemicals by a water treatment controller. The condensate return piping is black steel with threaded joints. Duplex condensate receiver system returns condensate to the boiler feedwater system for water treatment and storage. The boiler feedwater assembly is equipped with three pumps and a pump control panel. The steam traps are in good condition throughout the building according to the building engineer. However, it is recommended that the District conduct a steam trap survey to determine the quantity and condition of all steam taps. The boiler feed tank, pumps and associated components appear to be beyond their service life and should be replaced.

Fresh air is admitted into the building through the unit ventilators and H&V units and by opening windows for some spaces such as the cafeteria. Ventilation air is induced into the spaces through the outside air intake grilles located in the building exterior wall which are ducted to the unit ventilators. The unit ventilators are part of the original building equipment, have exceeded their life expectancy and should be replaced. The new unit ventilators should be designed for quiet operation and equipped with hot water and chilled water coils, and integral heat exchangers.

Ventilation and additional heating for the auditorium was provided by a house fan in the basement which is operational but is not used as the radiation and convection systems are sufficient for meeting the heating needs. The air was pushed into the various rooms of the building through ducts built into the walls. The air was exhausted from other ducts built into the walls, up through the attic space, and out through roof mounted vents. The house fan is not run due to the asbestos flexible connectors between the fan and the ductwork.

The building uses unit ventilators (manufactured by Nesbitt) with steam coils in the classrooms and a combination of steam convectors, cast iron radiators and console unit ventilators without outside air connections in the hallways, steam convectors on mid landings of stairwells and wall mount convectors for bathrooms. This equipment currently is the sole source of heat for these areas. The classroom Annex unit ventilators are served by steam from the Main Building. The condensate is returned by condensate receivers and pumps located in that wing.

There are also air transfer ducts between the janitor closets and the corridor and the bathrooms and corridor, which allow for the exhaust air to be relieved from the janitor closet and the bathrooms..

The gymnasium is served by an H and V unit, located in a mechanical closet steam heating coils, outside air intakes, supply air ducts and return air ducts. The supply air system is distributed via ductwork above through linear slots at a bulkhead at the ceiling level and a low return air is captured by a centrally located return air grill located low on the wall. It is recommended to replace these systems with a roof top mounted unit with a similar overhead supply air distribution system and return air ductwork and low return intake grilles which would be protected from damage. The IMC annex is served by a rooftop unit that provided heating and cooling through overhead supply duct distribution and linear slot supply and two return air grilles

The auditorium is served by steam convectors and a house fan capable of providing heating and ventilation via overhead supply ductwork system with linear slot diffusers and low returns near the front of the auditorium at the stage. Presently, the convection heaters provide sufficient heat for the space without the use of the air handler as the unit is not run since it contains asbestos. It is recommended to replace these systems with a roof top mounted unit with a similar overhead supply air distribution system and return air ductwork and low return intake grilles.

The cafeteria is served by convection heaters with steam coils. The convection heaters are part of the original building equipment, have exceeded their life expectancy and should be removed and replaced with a roof top mounted unit equipped with heating and cooling coils as well as ventilation to meet the outside air ventilation requirements for the cafeteria seating area. The kitchen is provided is not provided with a makeup air unit for the hood exhaust systems. It is recommended that a hood exhaust system be implemented for any equipment which generates heat. This system should be coupled with a make up air heating and ventilating supply air system for the kitchen hoods. Proper air flow pressurization and balancing should be performed for the seating area with respect to the kitchen to maintain the kitchen under negative pressurization.

Terminal & Package Units - There are a few which have window air conditioning units but predominantly the building does not have cooling systems. There are roof mounted exhaust fans of which three serve the restrooms. Exhaust fans have recently been replace and should not need to be replace for 15 years. A split system Fujitsu unit, condenser model AOU36CLX serves the LAN space.

Controls & Instrumentation - The original pneumatic systems still provide basic control functions. Pneumatic room thermostats drive the unit ventilators, the damper actuators and control valves. Wall mounted pneumatic thermostats on the corridor walls control the steam radiators. There is a duplex reciprocating air compressor manufactured by Quincy, model 0002008SX3, which generates control air for the temperature control system which are located in the boiler room. A refrigerated air dryer by Hankinson serves the compressor. The maintenance staff reports temperature control is generally lacking throughout the facility. Potential problems with oil, moisture or dirt in the pneumatic copper tubing can be one source of problems. The small rubber gaskets and tubing connections at control devices can become brittle over time and fail to compound control problems. The pneumatic systems are beyond their service life and require too much attention from the maintenance staff. The original control valves, dampers and pneumatic actuators are over 65 years old and should be replaced. These controls should be converted to DDC.

A new building automation system (BAS) with modern DDC modules and communications network should be installed to serve the HVAC systems in this building to improve reliability and energy efficiency. An interface should be provided with the preferred system in use throughout the District.

Sprinklers - The school building is NOT covered by an automatic sprinkler system. Installing a sprinkler system with quick response type heads should reduce insurance costs by providing protection for the property investment. A fire pump may be required depending on the available city water pressure.

ELECTRICAL SYSTEMS

Site Electrical Service of the main building is from Medium voltage overhead lines on wooden poles along Ridgeway St. One utility transformer with medium voltage primary (Voltage level unknown at this time) and 480VAC secondary and at an available power of 150 KVA is installed in transformer room. The utility transformer in turn feeds three 50KVA single phase step down transformers, additive polarity, connected delta-delta for supplying 240/120VAC power to the facility.

The service entrance to the facility consist of a 600A disconnect switch, utility meter and main switchboard (an open bus, open switch style switchboard estimated at 600A, 240V, 4wire) are located in electrical room next to transformer room. Our observation shows that the existing service entrance is obsolete, unsafe and does not meet current codes and need to be replaced.

Power distribution in main building is accomplished with one main power distribution panel in boiler Room and several other panel boards located throughout the building. Panel boards, one in boiler room, three on first floor, one on second floor, one in the kitchen, one in gymnasium and one in auditorium. It appears that panel boards and branch circuit breakers have been exceeded their useful life and should be replaced.

Library building is fed by separate utility transformer. A surface mounted 300A, 208/120V single phase panel board which feeds all of the loads in library building and all AC units in Annex building fed from a utility pole mounted transformer at an estimated available power of 112.5 KVA located on the Ridgeway Street via an underground raceway. The utility meter of this building is located adjacent to the service distribution panel board in the building. Library service entrance and distribution system is in good condition.

In general there is not enough receptacles are installed in the class rooms. Recommendation is to have a minimum of two receptacles on classroom walls but the current installations fall short of this recommendation. Floor mounted receptacles in computer room are not UL listed and should be removed. Receptacles should be installed on the vertical wire-mold power poles for providing power to the tables located in the middle of the computer room or should be installed at every three feet on a wall for tables close to the walls.

Interior building is illuminated by various types of lighting fixtures. 98% of fluorescent fixtures in the classrooms, corridors, offices are old and using outdated T12. Gymnasium illuminated with pendent mounted metal halide fixtures which have high energy consumption and are difficult to re-lamp. Auditorium is provided by cylindrical down lights with 250W incandescent lamps which are old and are difficult to re-lamp. Lighting levels does not meet IES (Illuminating Engineering Society) standards an.

Building is equipped with 120V manual fire alarm system. The system does not meet current fire alarm codes and should be replaced with an automatic fire alarm system.

The school telephone and data systems are new and working adequately. A main distribution frame (MDF) along whit a telephone PBX system (telephone within an enterprise that switches calls between enterprise users on local lines while allowing all users to share a certain number of external phone lines) located in main IT room servicing the communication system of the building. School also equipped with Wifi system.

Separate PA system does not exist. School uses the telephone systems for public announcement. This system is working adequately.

Each classroom is provided by intercom telephone service. The system is permit paging and intercom communication between main office phone to classroom phones, and classroom to main office, classroom to classroom, and to office. Outside line access from a classroom phone through the PBX is blocked. The system is interfaces with master clock system for class change signaling utilizing paging speakers. The system also equipped with a tone generator and input from program/clock controller.

Clock and Program system is provided in the school and functioning properly. 12 inches round type battery clocks are installed in the Classrooms, offices, auditorium, kitchen, dining area and gymnasium and are controlling by a wireless clock controller. Batteries on Some clocks are dead and should be replaced with the new batteries.

Television System is not provided in the school.

Video surveillance system is not provided in the school. School provided only with access control system such a door contacts on IMC, and main entrance doors and motion security sensors in corridors. The school desires a complete video surveillance system with cameras located in critical areas, such as exit doors, corridors, and building exterior areas. The cameras should be controlled by a

Closed Circuit Television (CCTV) system.

A new 25KVA, 240/120V, three phase, 4W emergency diesel generator is provided in the school for emergency lighting but the installation was not been completed at the time of the field investigation and generator was not in service.

Uninterruptible Power System (UPS) is provided for Local Area Network in the main IT room.

Emergency lighting system, including exit signs are provided in the buildings. Numbers of lighting fixtures in corridors and all exit signs are fed by emergency pack up generator but backup generator was not in service at the time of the field investigation.

Lightning Protection System is accomplished with a few air terminals mounted on the chimney on the roof and connected to the ground system. Further study is needed to verify that the air terminals provide the proper coverage.

No elevator is provided in the school.

Existing theater lighting and dimming system is accomplished with two rows of spot lights that are turned on and off by branch circuit breakers in a lighting panel located in stage area and not by dimmer. Theater lighting and controller are old and not meet the modern theatrical lighting system. In modern school auditorium, Stage requires front, upstage, high side, backlighting, scenery lighting and controllers by automatic dimmer bank controller. In addition to the stage lights, supplemental fluorescent lighting is also requires to be provided in stage area for lectures and testing. These supplemental lighting could be also turned off automatically by dimmer bank controls during performance.

Sound System in Auditorium is old and not comply with modern multipurpose auditorium sound system requirements recommended by ECE40020 (standard for reinforcement system design) and required to be replaced.

Sound System is not provided in Auditorium. School is using a simple portable sound system for the performances. A permanent modern auditorium sound system recommended by ECE40020 (standard for reinforcement system design) is required to be provided in school auditorium.

Campus areas, parking areas, and building perimeters have lighting that is adequate for personnel safety and security of property.

Site Video Surveillance system is not provided in the school.

Site Paging System is not provided in the school. Announcement cannot be heard in exterior building.

GROUNDS SYSTEMS

Paving and parking is constructed of asphalt. There are cracked and broken areas throughout the faculty parking lot and playground in the rear. There is a large amount of asphalt is these areas and to avoid an expensive repaving project, the cracks and isolated broken areas should be repaired followed by sealing of the entire area. The asphalt drop-off circle in front of the building is in poor condition and needs to be completely replaced.

There is no ADA accessibility into the building. A new ramp with a 48” rise should be provided into the front entrance and a new ramp with a 18” rise should be provided into the Library.

Front entrance stairs are stained from rusting handrails, which do not comply with today’s codes. Stairs should be powerwashed and handrails should be replaced with code compliant anodized aluminum handrails.

Site fencing surrounds the property and is composed of chain link fencing which is in fair condition. There is no gate to close-off the entrance to the parking lot which might be a security issue; a gate at Ridgeway and a gate art Rhawn Street should be provided.

RECOMMENDATIONS

- Strip and reseal or paint most concrete floors in mechanical rooms and the corridors in the basement, (12,000 sf)
- The pipe trench cover in the cafeteria is a tripping hazard and needs to be replaced. (50 lf)
- Repair cracked masonry (1,000 sf)
- Repoint masonry joints in walls, at sills and lintels (100 ft)
- Replace all univent louvers (30) 2x4
- Replace univent lintels and some window lintels (30@6 ft, louvers and small windows; 4@20 ft large windows)

- Repair limestone sills and heads (50 sf)
- Replace limestone sills (50 sf)
- Repair/repaint damaged and rusted exterior metal doors and frames (25)3x7
- Add EIFS over existing, damaged metal siding on exterior of Element 3 (4,200 sf)
- Paint exterior precast wall of Element 4 with graffiti (400 sf)
- Replace all windows (220 4x8 windows, 20 3x4 windows on main building; 42 4x8 windows on Element 3; 26 4x4 windows on Element 4)
- Powerwash front stairs (150xsf)
- Repoint front stairway – 5 risers (100 lf.)
- Replace steel doors and metal frames in mechanical rooms (6) 3x7
- Replace stairway enclosure glass with fire rated glazing material and fire rated const (500sf and 24 fire rated doors)
- Replace interior wood doors (50) 3x7
- Provide security hardware for classrooms and offices, locking from the inside of the room (50)
- Repaint interior block walls where surface is damaged in cafeteria, kitchen, corridors, classrooms, and stairways (1,000sf)
- Replace damaged wood toilet partition doors with plastic doors (6 toilet compartments)
- Replace damaged plastic laminate toilet room partitions with solid HDPE plastic partitions (6)
- Provide handicap accessible toilet room accessories (6)
- Replace stairway handrails and guards with code compliant systems (250ft rail; 300ft rail+guard)
- Remove 9”x9” VAT floors in classrooms, corridors, and auditorium with and replace with VCT (20,600sf)
- Refinish auditorium seats (440)
- Replace acoustical tile ceilings in corridors, thought to be the most worn (7,000sf)
- Provide new 4 floor elevator and new 2 floor elevator
- To eliminate Dead End Corridor on First Floor, provide new flight of stairs including exterior enclosure, at west end of main first floor corridor, over existing 1 story stair at end of gymnasium (1 flight)

MECHANICAL

- Replace all lavatories in the building with lower flow fixtures, as the fixtures are original.
- Replace all water closets in the building with lower flow fixtures, as the fixtures are original.
- Replace all urinals in the building with lower flow fixtures, as the fixtures are original.
- Replace the wall hung drinking fountains and integral refrigerated coolers in the corridors and at the restrooms. These units are well beyond their service life and most are NOT accessible type.
- Replace service sinks (janitor sinks) in the building.
- Hire a qualified contractor to perform a detailed examination of the sanitary waste piping using visual inspection and video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.
- Add automatic sanitizing chemicals to the stainless steel sink in the cafeteria.
- Inspect and replace the original as needed the domestic water piping in the building
- Conduct a steam trap survey to identify and replace failed traps passing live steam into the condensate piping system.
- Hire a qualified contractor to examine the steam and condensate piping in service for 67 years and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures. The District should budget for replacing this piping over the next 10 years.
- Replace the steam convection units..
- Replace the existing unit ventilators throughout the building and Annex with new units designed to provide adequate ventilation per ASHRAE Std 62. The new units shall be equipped with hot water / chilled water coils and integral heat exchangers
- Remove the window air conditioning units and install a 250 ton air-cooled chiller on the roof with chilled water distribution piping and pumps located in a mechanical room on the basement level to supply more reliable air conditioning for the building with a much longer service life.
- Replace Annex IMC rooftop unit.
- Provide ventilation, heating and cooling for the Gymnasium by installing a packaged roof top unit.
- Provide ventilation, heating and cooling for the Auditorium by installing a packaged roof top unit.
- Provide ventilation for the corridors at eight basement and three first floor entryways (11 locations total) by installing fan coil air handling units hung from the structure with outdoor air ducted to the unit from louvers in the window openings
- Provide ventilation, heating and cooling for the Cafeteria by removing the existing unit ventilators and installing a package rooftop constant volume air handling unit with distribution ductwork and registers.
- Replace the pneumatic controls for the HVAC systems with modern DDC modules, valves and actuators to improve reliability and energy efficiency.
- Provide a new building automation system (BAS) with communication interface to the preferred system in use throughout the District.
- Install a fire protection sprinkler system with quick response type heads to reduce insurance costs by providing protection for

the property. A fire pump may be required depending on the available city water pressure.
- Install a new sprinkler system throughout the building
- **ELECTRICAL**
- Upgrade existing service entrance consisting of a new 2000A, 208/120V, 3PH, 4 wire substation.
- Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash label on the electrical equipments. Estimated 10 panel boards.
- Install minimum two receptacles in each wall of class rooms in Annex area. Total 50 receptacles.
- Replace all the lighting fixtures in classrooms, offices, cafeteria, kitchen and electrical/mechanical rooms with new fluorescent lighting fixtures with T8 lamp. Replace gymnasium illuminates with LED high bay. Estimated 15each. Replace auditorium lighting fixtures with LED down light fixtures. Estimated 30 lighting fixtures.
- Replace existing fire alarm system with an automatic fire alarm system including smoke detectors in corridors and other recommended areas per NEC. Install horn/strobes in class rooms, corridors, offices, toilets, library and other recommended areas per codes.
- Provide an adequate video surveillance system including camera and Closed Circuit Television (CCTV) system. Cameras should install in the corridors, school entrance doors and on the walls around the building.
- Provide new modern stage lighting with automatic dimmer bank controller in the Auditorium.
- Provide new sound system per ECE-40020 (standard for reinforcement system design) including a freestanding 19" rack backstage with mixer per amplifiers, digital media recording with playback capability, AM-FM radio, graphic or parametric equalizer, and receivers for wireless microphone.
- Provide speaker on exterior wall and connect them to school paging system. Estimated 3 speakers in total.

GROUNDS

- Repair asphalt cracks and seal asphalt parking lots / playground, including restriping (120,000)
- Provide new ADA accessible handicap ramps into front of building (58' long ramp)
- Provide (2) new chain link gates, each 12' wide (24ft)
- Repave circular drop-off driveway (8,500sf)

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 4 / Tm 2
Status:	Accepted by SDP	Team:	Tm 2
Site ID:	S826001		

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	34.00 %	0.00 %	$0.00
A20 - Basement Construction	34.00 %	0.00 %	$0.00
B10 - Superstructure	34.00 %	0.09 %	$5,595.32
B20 - Exterior Enclosure	54.30 %	93.44 %	$2,282,181.12
B30 - Roofing	85.00 %	0.00 %	$0.00
C10 - Interior Construction	41.82 %	50.58 %	$605,648.51
C20 - Stairs	34.00 %	480.16 %	$322,667.85
C30 - Interior Finishes	38.47 %	18.04 %	$448,626.63
D10 - Conveying	105.71 %	117.55 %	$710,963.18
D20 - Plumbing	115.29 %	39.68 %	$847,132.95
D30 - HVAC	120.22 %	148.69 %	$6,772,871.32
D40 - Fire Protection	105.71 %	158.77 %	$751,035.95
D50 - Electrical	109.31 %	77.12 %	$2,379,782.60
E10 - Equipment	14.29 %	11.50 %	$96,089.13
E20 - Furnishings	12.50 %	215.00 %	$240,420.35
G20 - Site Improvements	50.29 %	16.12 %	$445,733.23
G40 - Site Electrical Utilities	0.00 %	0.00 %	$0.00
Totals:	**63.92 %**	**48.22 %**	**$15,908,748.14**

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)
B826001;Fox Chase	52,500	53.10	$5,442,238.87	$5,558,315.31	$1,186,039.21	$240,420.35	$3,036,001.17
G826001;Grounds	254,500	11.51	$195,544.94	$250,188.29	$0.00	$0.00	$0.00
Total:		**48.22**	**$5,637,783.81**	**$5,808,503.60**	**$1,186,039.21**	**$240,420.35**	**$3,036,001.17**

Deficiencies By Priority

1 - Response Time (< 2 yr) - $5,637,783.81
2 - Response Time (2-3 yrs) - $5,808,503.60
3 - Response Time (3-4 yrs) - $1,186,039.21
4 - Response Time (4-5 yrs) - $240,420.35
5 - Response Time (> 5 yrs) - $3,036,001.17

Budget Estimate Total: $15,908,748.14

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):	52,500
Year Built:	1949
Last Renovation:	
Replacement Value:	$29,119,539
Repair Cost:	$15,463,014.91
Total FCI:	53.10 %
Total RSLI:	67.65 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B826001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S826001		

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	34.00 %	0.00 %	$0.00
A20 - Basement Construction	34.00 %	0.00 %	$0.00
B10 - Superstructure	34.00 %	0.09 %	$5,595.32
B20 - Exterior Enclosure	54.30 %	93.44 %	$2,282,181.12
B30 - Roofing	85.00 %	0.00 %	$0.00
C10 - Interior Construction	41.82 %	50.58 %	$605,648.51
C20 - Stairs	34.00 %	480.16 %	$322,667.85
C30 - Interior Finishes	38.47 %	18.04 %	$448,626.63
D10 - Conveying	105.71 %	117.55 %	$710,963.18
D20 - Plumbing	115.29 %	39.68 %	$847,132.95
D30 - HVAC	120.22 %	148.69 %	$6,772,871.32
D40 - Fire Protection	105.71 %	158.77 %	$751,035.95
D50 - Electrical	109.31 %	77.12 %	$2,379,782.60
E10 - Equipment	14.29 %	11.50 %	$96,089.13
E20 - Furnishings	12.50 %	215.00 %	$240,420.35
Totals:	**67.65 %**	**53.10 %**	**$15,463,014.91**

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 $
A1010	Standard Foundations	$24.32	S.F.	52,500	100	1949	2049		34.00 %	0.00 %	34			$1,276,800
A1030	Slab on Grade	$15.51	S.F.	52,500	100	1949	2049		34.00 %	0.00 %	34			$814,275
A2010	Basement Excavation	$13.07	S.F.	52,500	100	1949	2049		34.00 %	0.00 %	34			$686,175
A2020	Basement Walls	$23.02	S.F.	52,500	100	1949	2049		34.00 %	0.00 %	34			$1,208,550
B1010	Floor Construction	$92.20	S.F.	52,500	100	1949	2049		34.00 %	0.12 %	34		$5,595.32	$4,840,500
B1020	Roof Construction	$24.11	S.F.	52,500	100	1949	2049		34.00 %	0.00 %	34			$1,265,775
B2010	Exterior Walls	$31.22	S.F.	52,500	100	1949	2049		34.00 %	31.46 %	34		$515,691.30	$1,639,050
B2020	Exterior Windows	$13.63	S.F.	52,500	40	1949	1989	2057	105.00 %	244.78 %	42		$1,751,558.44	$715,575
B2030	Exterior Doors	$1.67	S.F.	52,500	25	1949	1974	2020	20.00 %	17.03 %	5		$14,931.38	$87,675
B3010105	Built-Up	$37.76	S.F.	26,852	20	2012	2032		85.00 %	0.00 %	17			$1,013,932
B3010120	Single Ply Membrane	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3010130	Preformed Metal Roofing	$54.22	S.F.		30				0.00 %	0.00 %				$0
B3010140	Shingle & Tile	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.68	S.F.	26,852	20	2012	2032		85.00 %	0.00 %	17			$18,259
C1010	Partitions	$14.93	S.F.	52,500	100	1949	2049		34.00 %	21.94 %	34		$172,001.48	$783,825
C1020	Interior Doors	$3.76	S.F.	52,500	40	1949	1989	2057	105.00 %	200.88 %	42		$396,528.39	$197,400
C1030	Fittings	$4.12	S.F.	52,500	40	1949	1989	2020	12.50 %	17.16 %	5		$37,118.64	$216,300
C2010	Stair Construction	$1.28	S.F.	52,500	100	1949	2049		34.00 %	480.16 %	34		$322,667.85	$67,200

Site Assessment Report - B826001;Fox Chase

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 $
C3010230	Paint & Covering	$13.21	S.F.	52,500	10	1949	1959	2020	50.00 %	0.98 %	5		$6,773.88	$693,525
C3010231	Vinyl Wall Covering	$0.97	S.F.		15				0.00 %	0.00 %				$0
C3010232	Wall Tile	$2.63	S.F.		30				0.00 %	0.00 %				$0
C3020411	Carpet	$7.30	S.F.		10				0.00 %	0.00 %				$0
C3020412	Terrazzo & Tile	$75.52	S.F.	4,400	50	1949	1999	2020	10.00 %	0.00 %	5			$332,288
C3020413	Vinyl Flooring	$9.68	S.F.	32,800	20	1949	1969	2037	110.00 %	98.40 %	22		$312,433.36	$317,504
C3020414	Wood Flooring	$22.27	S.F.	1,300	25	1949	1974	2020	20.00 %	0.00 %	5			$28,951
C3020415	Concrete Floor Finishes	$0.97	S.F.	14,000	50	1949	1999	2020	10.00 %	339.72 %	5		$46,134.40	$13,580
C3030	Ceiling Finishes	$20.97	S.F.	52,500	25	1949	1974	2020	20.00 %	7.57 %	5		$83,284.99	$1,100,925
D1010	Elevators and Lifts	$11.52	S.F.	52,500	35	1949	1984	2052	105.71 %	117.55 %	37		$710,963.18	$604,800
D2010	Plumbing Fixtures	$31.58	S.F.	52,500	35	1949	1984	2055	114.29 %	19.51 %	40		$323,544.69	$1,657,950
D2020	Domestic Water Distribution	$2.90	S.F.	52,500	25	1949	1974	2045	120.00 %	174.74 %	30		$266,036.43	$152,250
D2030	Sanitary Waste	$2.90	S.F.	52,500	25	1949	1974	2045	120.00 %	169.16 %	30		$257,551.83	$152,250
D2040	Rain Water Drainage	$3.29	S.F.	52,500	30	1949	1979	2050	116.67 %	0.00 %	35			$172,725
D3020	Heat Generating Systems	$18.67	S.F.	52,500	35	1949	1984	2055	114.29 %	0.00 %	40			$980,175
D3030	Cooling Generating Systems	$24.48	S.F.		0				0.00 %	0.00 %				$0
D3040	Distribution Systems	$42.99	S.F.	52,500	25	1949	1974	2045	120.00 %	250.19 %	30		$5,646,636.50	$2,256,975
D3050	Terminal & Package Units	$11.60	S.F.	52,500	20	1949	1969	2040	125.00 %	0.00 %	25			$609,000
D3060	Controls & Instrumentation	$13.50	S.F.	52,500	20	1949	1969	2040	125.00 %	158.90 %	25		$1,126,234.82	$708,750
D4010	Sprinklers	$8.02	S.F.	52,500	35			2052	105.71 %	178.37 %	37		$751,035.95	$421,050
D4020	Standpipes	$0.99	S.F.	52,500	35			2052	105.71 %	0.00 %	37			$51,975
D5010	Electrical Service/Distribution	$9.70	S.F.	52,500	30	1949	1979	2047	106.67 %	155.95 %	32		$794,198.93	$509,250
D5020	Lighting and Branch Wiring	$34.68	S.F.	52,500	20	1949	1969	2037	110.00 %	50.28 %	22		$915,399.05	$1,820,700
D5030	Communications and Security	$12.99	S.F.	52,500	15	1949	1964	2032	113.33 %	94.24 %	17		$642,662.89	$681,975
D5090	Other Electrical Systems	$1.41	S.F.	52,500	30	1949	1979	2037	73.33 %	37.18 %	22		$27,521.73	$74,025
E1020	Institutional Equipment	$4.82	S.F.	52,500	35	1949	1984	2020	14.29 %	37.97 %	5		$96,089.13	$253,050
E1090	Other Equipment	$11.10	S.F.	52,500	35	1949	1984	2020	14.29 %	0.00 %	5			$582,750
E2010	Fixed Furnishings	$2.13	S.F.	52,500	40	1949	1989	2020	12.50 %	215.00 %	5		$240,420.35	$111,825
								Total	**67.65 %**	**53.10 %**			**$15,463,014.91**	**$29,119,539**

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 substrate 96%
Glazed block wainscot 4%

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

Note: Concrete – 14,000 27%
Wood - 1,300 3%
VCT - 12,200 23%
VAT - 20,600 39%
Terrazzo - 4,400 8%

System: C3030 - Ceiling Finishes — This system contains no images

Note: ACT= 34,300 65%
Painted Concrete or plaster 18,200 35%

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

Note: 3-50KVA, 480VAC to 120VAC single phase

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:	**$15,463,015**	**$0**	**$0**	**$0**	**$0**	**$4,362,300**	**$0**	**$0**	**$0**	**$0**	**$0**	**$19,825,315**
*** 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	$5,595	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$5,595**
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	$515,691	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$515,691**
B2020 - Exterior Windows	$1,751,558	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,751,558**
B2030 - Exterior Doors	$14,931	$0	$0	$0	$0	$111,804	$0	$0	$0	$0	$0	**$126,735**
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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010120 - Single Ply Membrane	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010130 - Preformed Metal Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010140 - Shingle & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
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	$172,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$172,001**

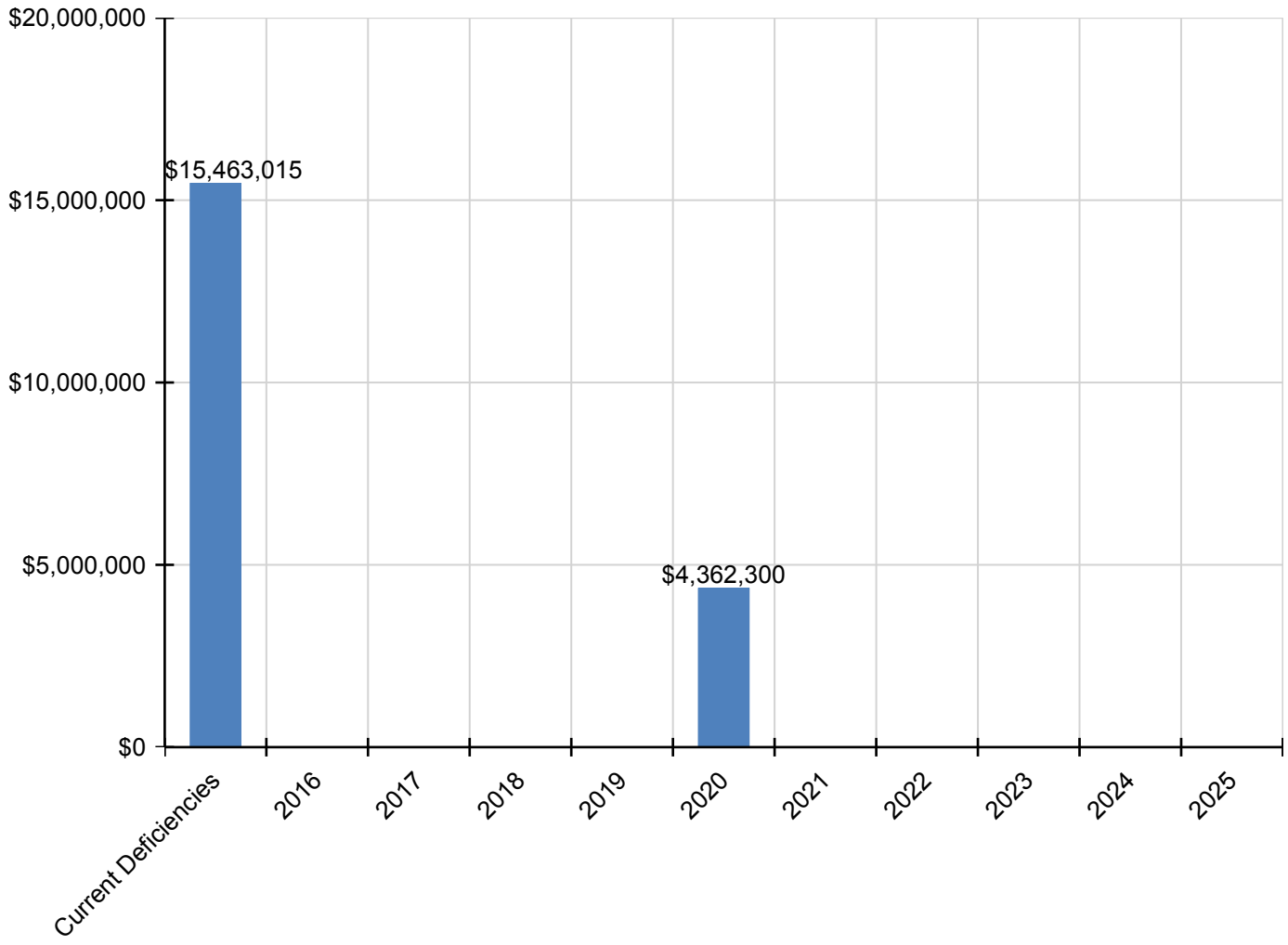
C1020 - Interior Doors	$396,528	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$396,528**
C1030 - Fittings	$37,119	$0	$0	$0	$0	$275,826	$0	$0	$0	$0	$0	**$312,945**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$322,668	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$322,668**
C30 - Interior Finishes	$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	$6,774	$0	$0	$0	$0	$884,385	$0	$0	$0	$0	$0	**$891,159**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010232 - Wall Tile	$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**
C3020411 - Carpet	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$423,734	$0	$0	$0	$0	$0	**$423,734**
C3020413 - Vinyl Flooring	$312,433	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$312,433**
C3020414 - Wood Flooring	$0	$0	$0	$0	$0	$36,918	$0	$0	$0	$0	$0	**$36,918**
C3020415 - Concrete Floor Finishes	$46,134	$0	$0	$0	$0	$17,317	$0	$0	$0	$0	$0	**$63,452**
C3030 - Ceiling Finishes	$83,285	$0	$0	$0	$0	$1,403,902	$0	$0	$0	$0	$0	**$1,487,187**
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	$710,963	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$710,963**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$323,545	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$323,545**
D2020 - Domestic Water Distribution	$266,036	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$266,036**
D2030 - Sanitary Waste	$257,552	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$257,552**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3030 - Cooling Generating Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3040 - Distribution Systems	$5,646,637	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$5,646,637**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$1,126,235	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,126,235**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$751,036	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$751,036**
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	$794,199	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$794,199**
D5020 - Lighting and Branch Wiring	$915,399	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$915,399**
D5030 - Communications and Security	$642,663	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$642,663**
D5090 - Other Electrical Systems	$27,522	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$27,522**
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	$96,089	$0	$0	$0	$0	$322,690	$0	$0	$0	$0	$0	**$418,779**
E1090 - Other Equipment	$0	$0	$0	$0	$0	$743,124	$0	$0	$0	$0	$0	**$743,124**
E20 - Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E2010 - Fixed Furnishings	$240,420	$0	$0	$0	$0	$142,600	$0	$0	$0	$0	$0	**$383,020**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

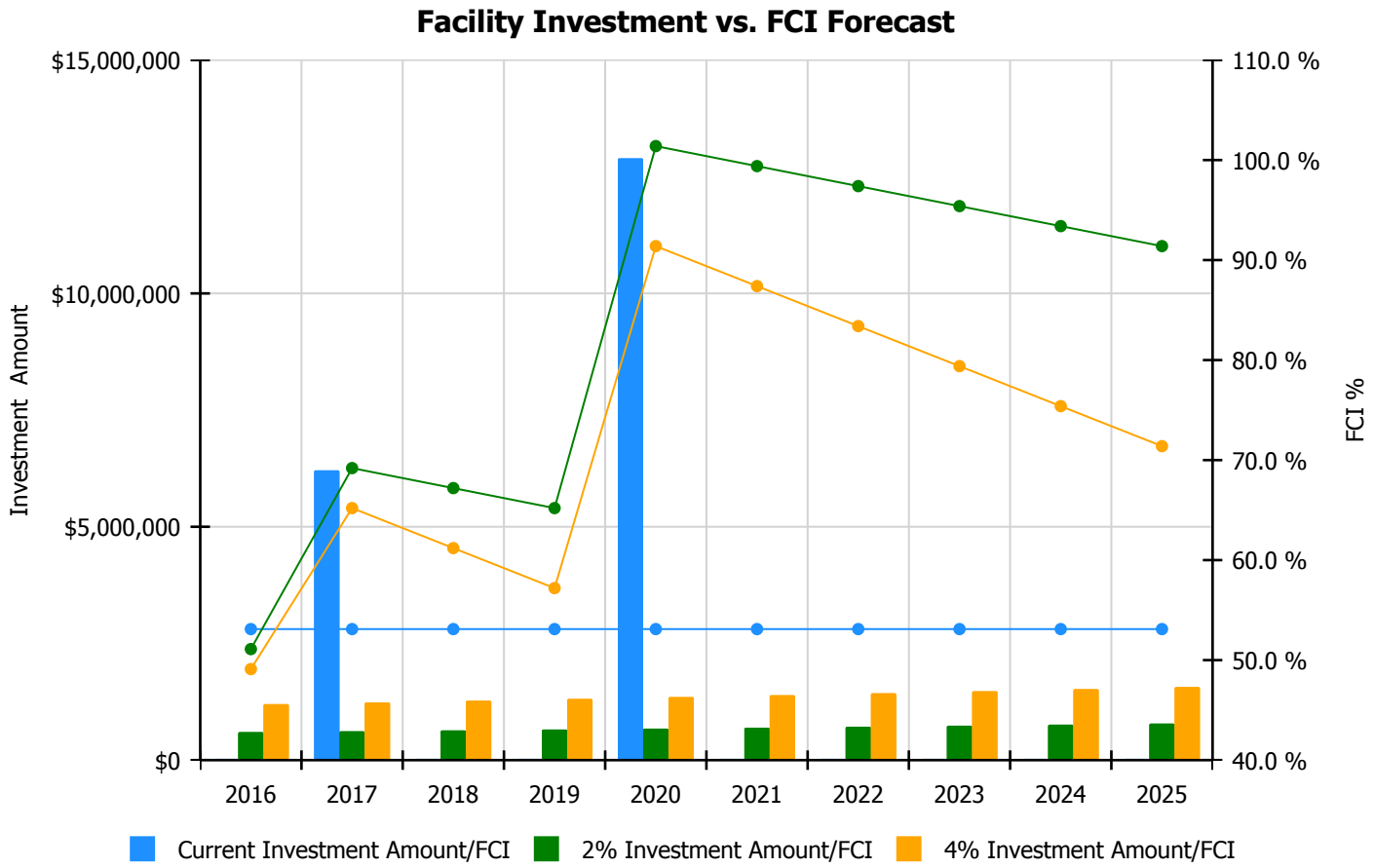
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

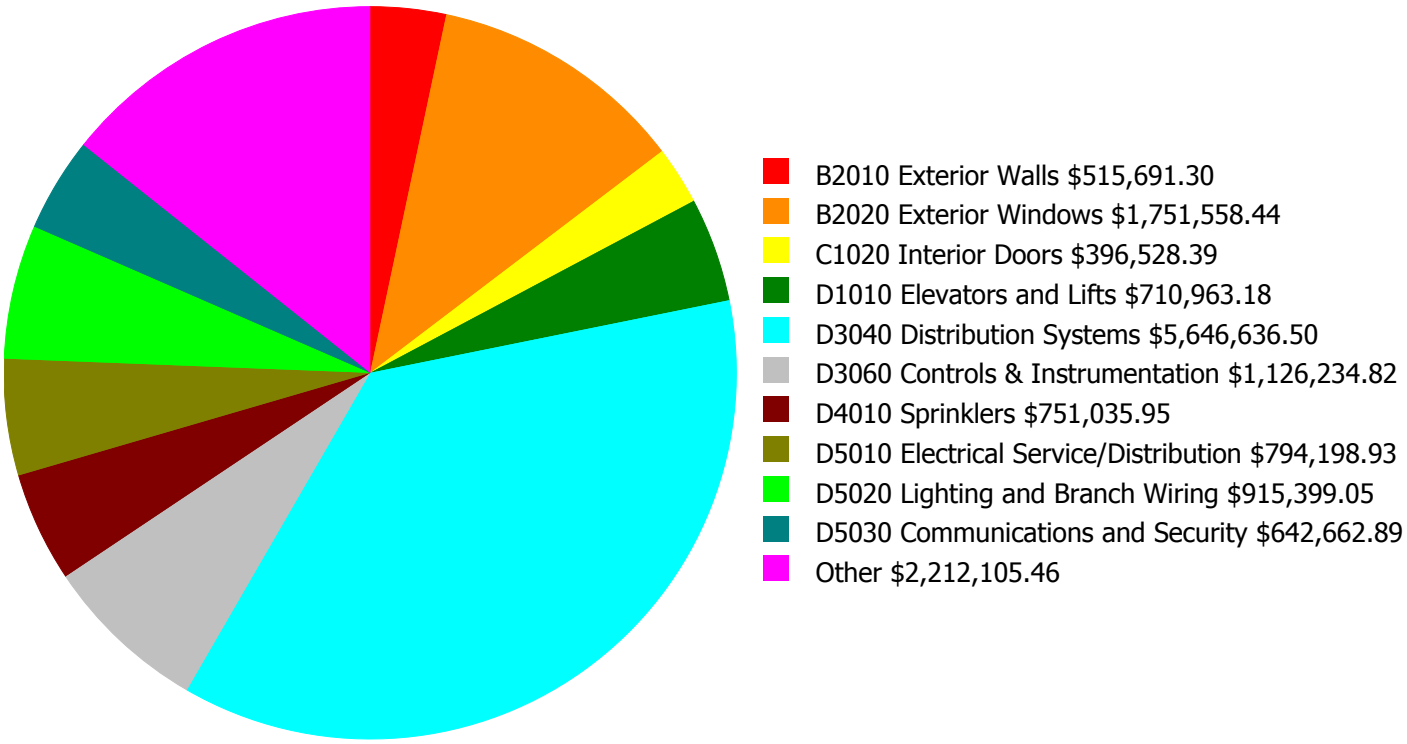
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 53.1%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$599,863.00	51.10 %	$1,199,725.00	49.10 %
2017	$6,208,655	$617,858.00	69.20 %	$1,235,717.00	65.20 %
2018	$0	$636,394.00	67.20 %	$1,272,788.00	61.20 %
2019	$0	$655,486.00	65.20 %	$1,310,972.00	57.20 %
2020	$12,893,495	$675,151.00	101.39 %	$1,350,301.00	91.39 %
2021	$0	$695,405.00	99.39 %	$1,390,810.00	87.39 %
2022	$0	$716,267.00	97.39 %	$1,432,534.00	83.39 %
2023	$0	$737,755.00	95.39 %	$1,475,510.00	79.39 %
2024	$0	$759,888.00	93.39 %	$1,519,776.00	75.39 %
2025	$0	$782,685.00	91.39 %	$1,565,369.00	71.39 %
Total:	**$19,102,150**	**$6,876,752.00**		**$13,753,502.00**	

Deficiency Summary by System

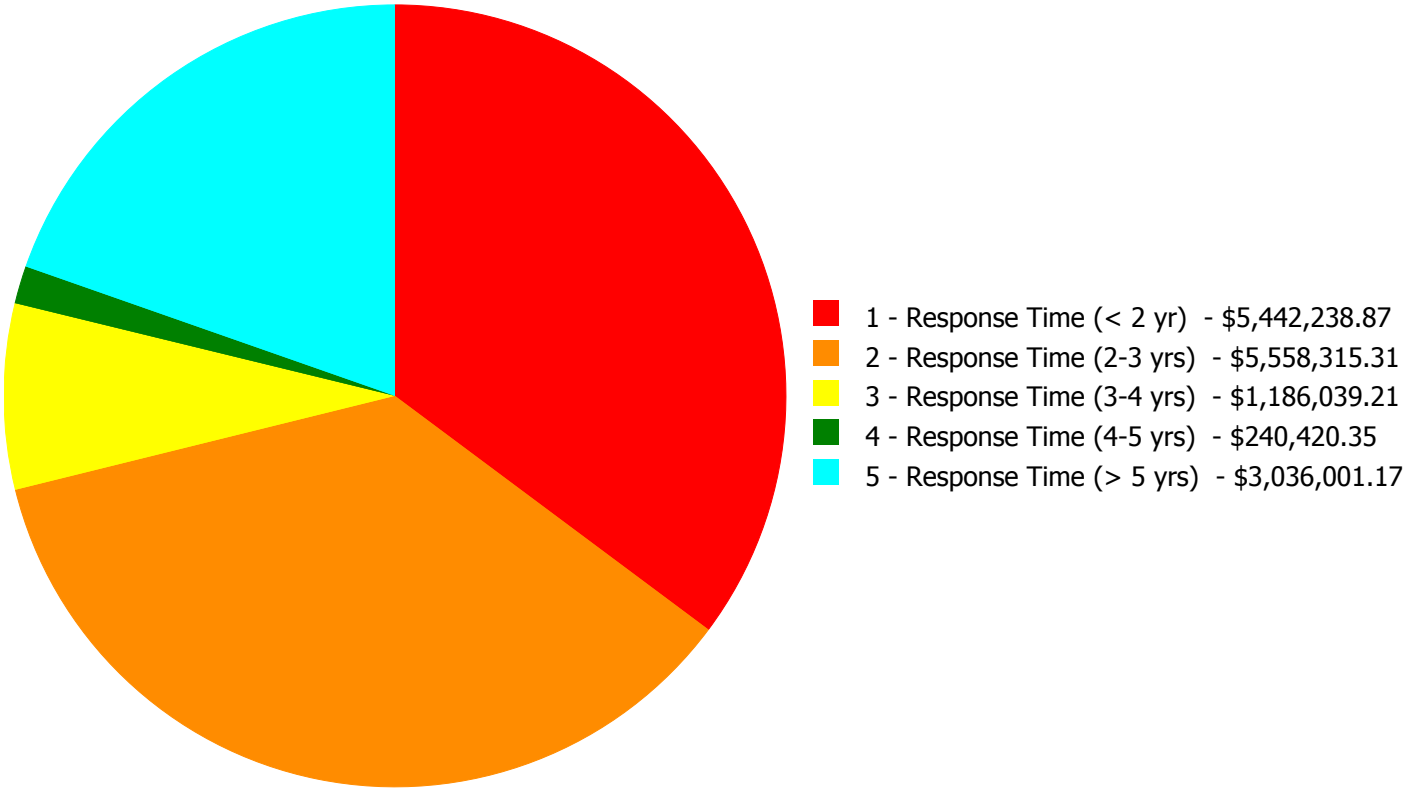
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $15,463,014.91

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: $15,463,014.91

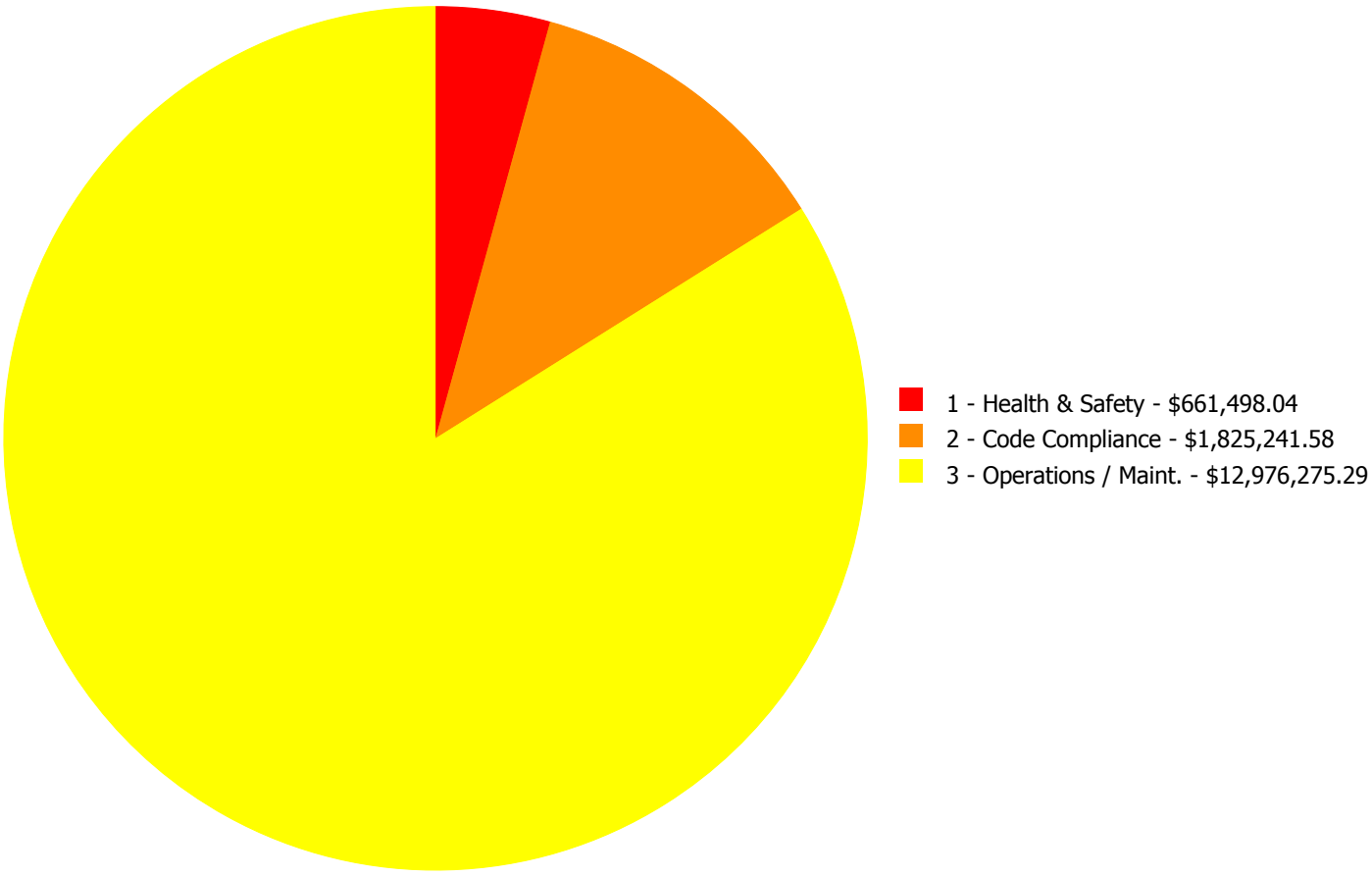
Deficiency By Priority Investment Table

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
B1010	Floor Construction	$0.00	$0.00	$5,595.32	$0.00	$0.00	$5,595.32
B2010	Exterior Walls	$17,034.87	$498,656.43	$0.00	$0.00	$0.00	$515,691.30
B2020	Exterior Windows	$0.00	$1,751,558.44	$0.00	$0.00	$0.00	$1,751,558.44
B2030	Exterior Doors	$0.00	$14,931.38	$0.00	$0.00	$0.00	$14,931.38
C1010	Partitions	$114,584.25	$57,417.23	$0.00	$0.00	$0.00	$172,001.48
C1020	Interior Doors	$0.00	$396,528.39	$0.00	$0.00	$0.00	$396,528.39
C1030	Fittings	$0.00	$37,118.64	$0.00	$0.00	$0.00	$37,118.64
C2010	Stair Construction	$129,932.37	$192,735.48	$0.00	$0.00	$0.00	$322,667.85
C3010230	Paint & Covering	$0.00	$6,773.88	$0.00	$0.00	$0.00	$6,773.88
C3020413	Vinyl Flooring	$0.00	$312,433.36	$0.00	$0.00	$0.00	$312,433.36
C3020415	Concrete Floor Finishes	$0.00	$46,134.40	$0.00	$0.00	$0.00	$46,134.40
C3030	Ceiling Finishes	$0.00	$83,284.99	$0.00	$0.00	$0.00	$83,284.99
D1010	Elevators and Lifts	$0.00	$710,963.18	$0.00	$0.00	$0.00	$710,963.18
D2010	Plumbing Fixtures	$0.00	$323,544.69	$0.00	$0.00	$0.00	$323,544.69
D2020	Domestic Water Distribution	$0.00	$0.00	$0.00	$0.00	$266,036.43	$266,036.43
D2030	Sanitary Waste	$0.00	$0.00	$257,551.83	$0.00	$0.00	$257,551.83
D3040	Distribution Systems	$2,704,815.65	$0.00	$922,892.06	$0.00	$2,018,928.79	$5,646,636.50
D3060	Controls & Instrumentation	$0.00	$1,126,234.82	$0.00	$0.00	$0.00	$1,126,234.82
D4010	Sprinklers	$0.00	$0.00	$0.00	$0.00	$751,035.95	$751,035.95
D5010	Electrical Service/Distribution	$794,198.93	$0.00	$0.00	$0.00	$0.00	$794,198.93
D5020	Lighting and Branch Wiring	$915,399.05	$0.00	$0.00	$0.00	$0.00	$915,399.05
D5030	Communications and Security	$642,662.89	$0.00	$0.00	$0.00	$0.00	$642,662.89
D5090	Other Electrical Systems	$27,521.73	$0.00	$0.00	$0.00	$0.00	$27,521.73
E1020	Institutional Equipment	$96,089.13	$0.00	$0.00	$0.00	$0.00	$96,089.13
E2010	Fixed Furnishings	$0.00	$0.00	$0.00	$240,420.35	$0.00	$240,420.35
	Total:	$5,442,238.87	$5,558,315.31	$1,186,039.21	$240,420.35	$3,036,001.17	$15,463,014.91

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: $15,463,014.91

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: B2010 - Exterior Walls

Location: exterior walls - limestone sills and heads

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Remove and replace precast concrete wall features - SF of surface

Qty: 50.00

Unit of Measure: S.F.

Estimate: $17,034.87

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace limestone sills (50sf)

System: C1010 - Partitions

Location: stairways

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 1 - Response Time (< 2 yr)

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

Qty: 24.00

Unit of Measure: S.F.

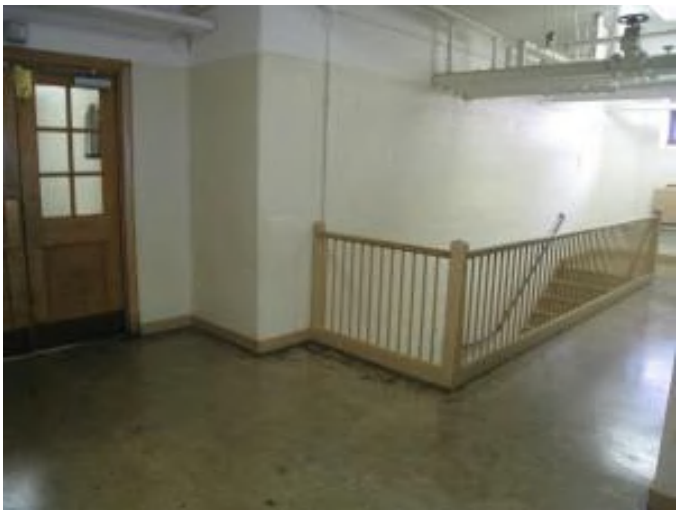
Estimate: $114,584.25

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace stairway enclosure glass with fire rated glazing material and fire rated const (24 fire rated doors)

System: C2010 - Stair Construction



Location: stairways

Distress: Building / MEP Codes

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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

Qty: 550.00

Unit of Measure: L.F.

Estimate: $129,932.37

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace stairway handrails and guards with code compliant systems (250ft rail; 300ft rail+guard)

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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: 52,500.00

Unit of Measure: S.F.

Estimate: $2,532,557.29

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace the existing unit ventilators throughout the building and Annex with new units designed to provide adequate ventilation per ASHRAE Std 62. The new units shall be equipped with hot water / chilled water coils and integral heat exchangers

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Conduct a steam trap survey and replace failed units.

Qty: 52,500.00

Unit of Measure: S.F.

Estimate: $172,258.36

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Conduct a steam trap survey to identify and replace failed traps passing live steam into the condensate piping system.

System: D5010 - Electrical Service/Distribution

Location: Electrical Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Switchboard

Qty: 1.00

Unit of Measure: Ea.

Estimate: $499,786.64

Assessor Name: Craig Anding

Date Created: 11/24/2015

Notes: Upgrade existing service entrance for adding a new 2000A, 208/120V, 3PH, 4 wire switchboard.

System: D5010 - Electrical Service/Distribution

Location: Entire Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Electrical Distribution System (U)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $294,412.29

Assessor Name: Craig Anding

Date Created: 11/24/2015

Notes: Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash label on the electrical equipment. Estimated 10 panel boards.

System: D5020 - Lighting and Branch Wiring

Location: Entire Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Lighting Fixtures (SF)

Qty: 1.00

Unit of Measure: S.F.

Estimate: $882,869.72

Assessor Name: Craig Anding

Date Created: 11/25/2015

Notes: Replace all the lighting fixtures in classrooms, offices, cafeteria, kitchen and electrical/mechanical rooms with new fluorescent lighting fixtures with T8 lamp. Replace gymnasium illuminates with LED high bay. Estimated 15each. Replace auditorium lighting fixtures with LED down light fixtures.

System: D5020 - Lighting and Branch Wiring

Location: Entire Building

Distress: Inadequate

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Add receptacles and branch circuits

Qty: 1.00

Unit of Measure: Ea.

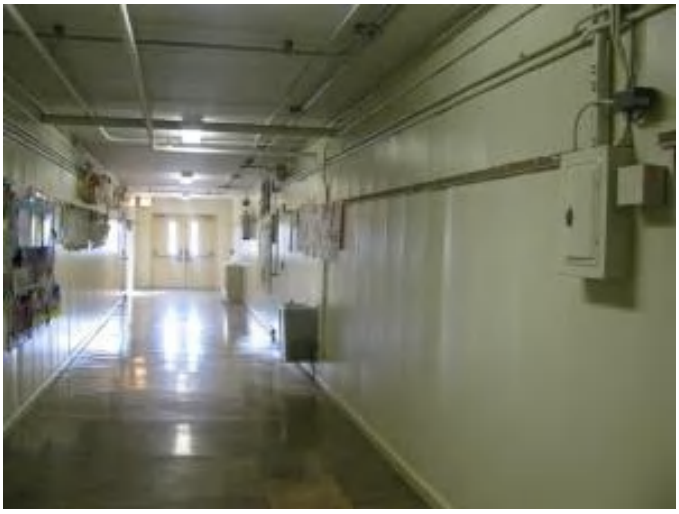
Estimate: $32,529.33

Assessor Name: Craig Anding

Date Created: 12/28/2015

Notes: Install minimum two receptacles in each wall of class rooms in Annex area. Total 50 receptacles.

System: D5030 - Communications and Security



Location: Entier building

Distress: Security Issue

Category: 1 - Health & Safety

Priority: 1 - Response Time (< 2 yr)

Correction: Add/Replace Video Surveillance System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $297,542.84

Assessor Name: Craig Anding

Date Created: 11/25/2015

Notes: Provide an adequate video surveillance system including camera and Closed Circuit Television (CCTV) system. Cameras should install in the corridors, school entrance doors and on the walls around the building.

System: D5030 - Communications and Security

Location: Entire Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace fire alarm system

Qty: 1.00

Unit of Measure: S.F.

Estimate: $294,124.82

Assessor Name: Craig Anding

Date Created: 11/25/2015

Notes: Replace existing fire alarm system with an automatic fire alarm system including smoke detectors in corridors and other recommended areas per NEC. Install horn/strobes in class rooms, corridors, offices, toilets, library and other recommended areas per codes.

System: D5030 - Communications and Security

Location: Auditorium

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Add/Replace Sound System

Qty: 1.00

Unit of Measure: LS

Estimate: $38,466.95

Assessor Name: Craig Anding

Date Created: 11/25/2015

Notes: Provide new sound system per ECE-40020 (standard for reinforcement system design) including a freestanding 19” rack backstage with mixer per amplifiers, digital media recording with playback capability, AM-FM radio, graphic or parametric equalizer, and receivers for wireless microphone.

System: D5030 - Communications and Security

Location: B826001;Fox Chase
Distress: Security Issue
Category: 1 - Health & Safety
Priority: 1 - Response Time (< 2 yr)
Correction: Add/Replace Paging System
Qty: 1.00
Unit of Measure: Ea.
Estimate: $12,528.28
Assessor Name: Craig Anding
Date Created: 11/25/2015

Notes: Provide speaker on exterior wall and connect them to school paging system. Estimated 3 speakers.

System: D5090 - Other Electrical Systems

Location: Roof
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 1 - Response Time (< 2 yr)
Correction: Repair Lightning Protection System
Qty: 1.00
Unit of Measure: Job
Estimate: $27,521.73
Assessor Name: Craig Anding
Date Created: 11/25/2015

Notes: Provide lightning protection studies to ascertain adequacy of existing systems.

System: E1020 - Institutional Equipment

Location: Auditorium

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Add/Replace Stage Theatrical Lighting System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $96,089.13

Assessor Name: Craig Anding

Date Created: 11/25/2015

Notes: Provide new modern stage lighting with automatic dimmer bank controller in the Auditorium.

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

System: B2010 - Exterior Walls

Location: exterior Element 3 ("A" Wing)

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace exterior insulating finish system (EIFS)

Qty: 4,200.00

Unit of Measure: S.F.

Estimate: $201,108.22

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Add EIFS over existing, damaged metal siding on exterior of Element 3 (4,200sf)

System: B2010 - Exterior Walls

Location: exterior wall lintels

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove and replacing failing steel lintels in brick wall construction

Qty: 260.00

Unit of Measure: L.F.

Estimate: $144,124.01

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace univent lintels and some window lintels (30@6ft, louvers and small windows; 4@20ft large windows)

System: B2010 - Exterior Walls

Location: exterior walls

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Rebuild brick parapets at original building roof perimeter; re-set stone coping - change qty. for LF of coping if necessary

Qty: 1,000.00

Unit of Measure: S.F.

Estimate: $104,415.34

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Repair cracked masonry (1,000sf)

System: B2010 - Exterior Walls

Location: exterior walls - univents

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace exterior wall louvers - pick the closest size and insert the number of louvers

Qty: 30.00

Unit of Measure: Ea.

Estimate: $29,026.00

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace all univent louvers (30) 2x4

System: B2010 - Exterior Walls

Location: walls at lintels and sills

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Repair cracks in masonry - replace missing mortar and repoint - SF of wall area

Qty: 500.00

Unit of Measure: S.F.

Estimate: $16,144.74

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Repoint masonry joints in walls, at sills and lintels (100ft)

System: B2010 - Exterior Walls

Location: exterior wall - Element 4

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Repaint exterior walls - concrete or stucco

Qty: 400.00

Unit of Measure: S.F.

Estimate: $2,958.97

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Paint exterior precast wall of Element 4 with graffiti (400sf)

System: B2010 - Exterior Walls

Location: exterior walls - limestone sills and heads

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Exterior plaster or stucco repair and refinishing - based on SF of wall surface

Qty: 50.00

Unit of Measure: S.F.

Estimate: $715.09

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Repair limestone sills and heads (50sf)

System: B2010 - Exterior Walls

Location: front stairs

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Sooty and dirty walls - powerwash

Qty: 150.00

Unit of Measure: S.F.

Estimate: $164.06

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Powerwash front stairs (150sf)

System: B2020 - Exterior Windows

Location: exterior windows

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 308.00

Unit of Measure: Ea.

Estimate: $1,751,558.44

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace all windows (220 4x8 windows, 20 3x4 windows on main building; 42 4x8 windows on Element 3; 26 4x4 windows on Element 4)

System: B2030 - Exterior Doors

Location: exterior doors

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Refinish and repaint exterior doors - per leaf

Qty: 25.00

Unit of Measure: Ea.

Estimate: $14,931.38

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Repair/repaint damaged and rusted exterior metal doors and frames (25)3x7

System: C1010 - Partitions

Location: stairway enclosures

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Remove and replace wire glass

Qty: 500.00

Unit of Measure: S.F.

Estimate: $57,417.23

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace existing old stairway wire glass walls with new fire rated ceramic glazing material ("firelite") and fire rated const (500sf)

System: C1020 - Interior Doors

Location: interior wood doors on corridors

Distress: Building / MEP Codes

Category: 3 - Operations / Maint.

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

Correction: Remove and replace interior doors - wood doors with wood frame - per leaf

Qty: 50.00

Unit of Measure: Ea.

Estimate: $232,716.95

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace interior wood doors, fire rated (50) 3x7

System: C1020 - Interior Doors

Location: interior doors

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace hollow metal frames and doors

Qty: 30.00

Unit of Measure: Ea.

Estimate: $152,339.61

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace steel doors and metal frames in mechanical rooms and stairs (30) 3x7

System: C1020 - Interior Doors

Location: corridor doors

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Provide security hardware for classroom and office doors

Qty: 50.00

Unit of Measure: Ea.

Estimate: $11,471.83

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Provide security hardware for classrooms and offices, locking from the inside of the room (50)

System: C1030 - Fittings

Location: toilet rooms
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Remove and replace toilet partitions
Qty: 6.00
Unit of Measure: Ea.
Estimate: $15,398.43
Assessor Name: Craig Anding
Date Created: 01/20/2016

Notes: Replace damaged wood toilet partition doors with plastic doors (6 toilet compartments)

System: C1030 - Fittings

Location: toilet rooms
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Remove and replace toilet partitions
Qty: 6.00
Unit of Measure: Ea.
Estimate: $15,398.43
Assessor Name: Craig Anding
Date Created: 01/20/2016

Notes: Replace damaged plastic laminate toilet room partitions with solid HDPE plastic partitions (6)

System: C1030 - Fittings

Location: toilet rooms

Distress: Inadequate

Category: 3 - Operations / Maint.

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

Correction: Replace toilet accessories - select accessories and quantity

Qty: 6.00

Unit of Measure: Ea.

Estimate: $6,321.78

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Provide handicap accessible toilet room accessories (6)

System: C2010 - Stair Construction

Location: first floor near Rooms 109, 110, 111

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Replace enclosed egress masonry stair tower including new stairs - per flight approximately 600 SF footprint and 15' floor to floor

Qty: 1.00

Unit of Measure: Flight

Estimate: $191,240.97

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: To eliminate Dead End Corridor on First Floor, provide new flight of stairs including exterior enclosure, at west end of main first floor corridor, over existing 1 story stair at end of gymnasium (1 flight)

System: C2010 - Stair Construction

Location: front stairs

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Regrout joints between stone treads and risers - LF of grout

Qty: 100.00

Unit of Measure: L.F.

Estimate: $1,494.51

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Repoint front stairway – 5 risers (100lf)

System: C3010230 - Paint & Covering

Location: interior walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Repair and repaint all interior walls - SF of wall surface

Qty: 1,000.00

Unit of Measure: S.F.

Estimate: $6,773.88

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Repaint interior block walls where surface is damaged in cafeteria, kitchen, corridors, classrooms, and stairways (1,000sf)

System: C3020413 - Vinyl Flooring

Location: classroom, office, auditorium, and corridor floors

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

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

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

Qty: 20,600.00

Unit of Measure: S.F.

Estimate: $312,433.36

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Remove 9”x9” VAT floors in classrooms, corridors, and auditorium with and replace with VCT (20,600sf)

System: C3020415 - Concrete Floor Finishes

Location: ground level

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Clean and reseal concrete floors

Qty: 12,000.00

Unit of Measure: S.F.

Estimate: $46,134.40

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Strip and reseal or paint most concrete floors in mechanical rooms and the corridors in the basement, (12,000sf)

System: C3030 - Ceiling Finishes

Location: ceilings

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace ceiling tiles only in suspended ceiling - pick the proper material

Qty: 7,000.00

Unit of Measure: S.F.

Estimate: $83,284.99

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Replace acoustical tile ceilings in corridors, thought to be the most worn (7,000sf)

System: D1010 - Elevators and Lifts

This deficiency has no image.

Location: corridor near auditorium and Library

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Add interior elevator - 4 floors - adjust the electrical run lengths to hook up the elevator

Qty: 1.00

Unit of Measure: Ea.

Estimate: $365,679.73

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Provide new 4 floor elevator

System: D1010 - Elevators and Lifts

This deficiency has no image.

Location: gymnasium area

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Add interior hydraulic elevator - 2 floors - adjust the electrical run lengths to hook up the elevator

Qty: 1.00

Unit of Measure: Ea.

Estimate: $345,283.45

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Provide new 2 floor elevator

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 21.00

Unit of Measure: Ea.

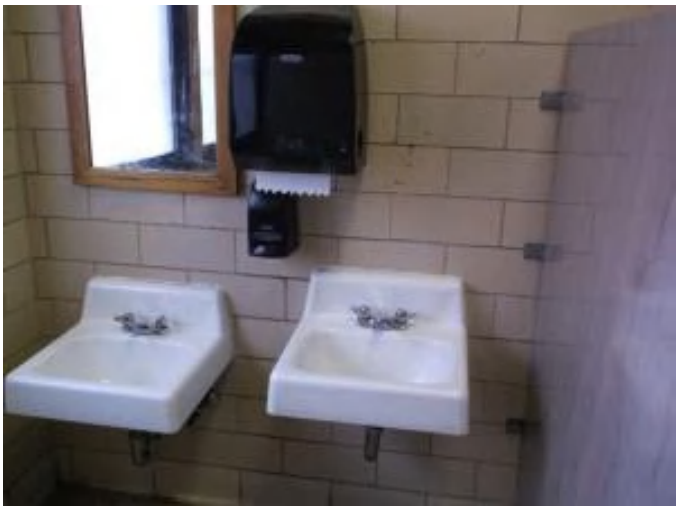
Estimate: $156,705.10

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace all water closets in the building with lower flow fixtures, as the fixtures are original

System: D2010 - Plumbing Fixtures



Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 22.00

Unit of Measure: Ea.

Estimate: $83,842.28

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace all lavatories in the building with lower flow fixtures, as the fixtures are original.

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace or replace stall or floor type urinal

Qty: 9.00

Unit of Measure: Ea.

Estimate: $46,911.77

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace all urinals in the building with lower flow fixtures, as the fixtures are original

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace floor janitor or mop sink - insert the quantity

Qty: 3.00

Unit of Measure: Ea.

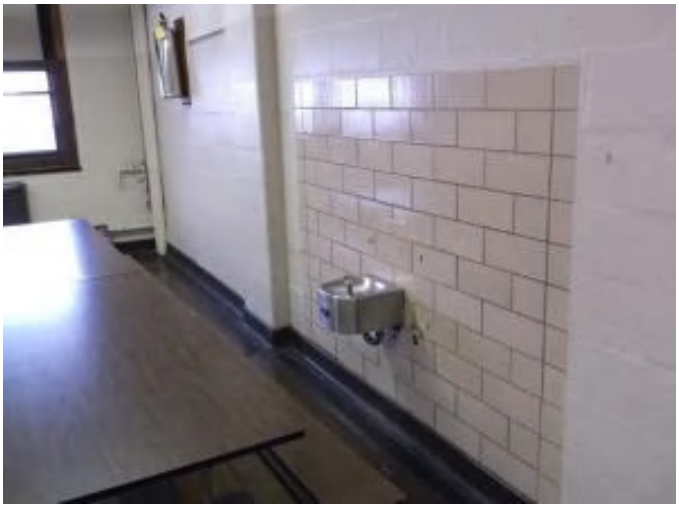
Estimate: $20,448.28

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace service sinks (janitor sinks) in the building.

System: D2010 - Plumbing Fixtures



Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace or replace stall or floor type urinal

Qty: 3.00

Unit of Measure: Ea.

Estimate: $15,637.26

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace the wall hung drinking fountains and integral refrigerated coolers in the corridors and at the restrooms. These units are well beyond their service life and most are NOT accessible type.

System: D3060 - Controls & Instrumentation

Location: Throughout the school

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace pneumatic controls with DDC (75KSF)

Qty: 52,500.00

Unit of Measure: S.F.

Estimate: $1,126,234.82

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace the pneumatic controls for the HVAC systems with modern DDC modules, valves and actuators to improve reliability and energy efficiency. Provide a new building automation system (BAS) with communication interface to the preferred system in use throughout the District.

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

System: B1010 - Floor Construction

Location: cafeteria

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace expansion joint cover

Qty: 50.00

Unit of Measure: L.F.

Estimate: $5,595.32

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: The pipe trench cover in the cafeteria is a tripping hazard and needs to be replaced. (50lf)

System: D2030 - Sanitary Waste

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Inspect sanitary waste piping and replace damaged sections. (+50KSF)

Qty: 52,500.00

Unit of Measure: S.F.

Estimate: $257,551.83

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Hire a qualified contractor to perform a detailed examination of the sanitary waste piping using visual inspection and video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Perform testing to identify and replace damaged steam and condensate piping.

Qty: 52,500.00

Unit of Measure: S.F.

Estimate: $496,669.57

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Hire a qualified contractor to examine the steam and condensate piping in service for 67 years and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures. The District should budget for replacing this piping over the next 10 years.

System: D3040 - Distribution Systems

Location: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace Rooftop Unit (15T) and air terminals

Qty: 15.00

Unit of Measure: TonAC

Estimate: $426,222.49

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace Annex IMC rooftop unit

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

System: E2010 - Fixed Furnishings

Location: auditorium

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Refinish auditorium seating

Qty: 300.00

Unit of Measure: Ea.

Estimate: $240,420.35

Assessor Name: Craig Anding

Date Created: 01/20/2016

Notes: Refinish auditorium seats (440)

Priority 5 - Response Time (> 5 yrs):

System: D2020 - Domestic Water Distribution

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace domestic water piping (75 KSF)

Qty: 52,500.00

Unit of Measure: S.F.

Estimate: $266,036.43

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Inspect and replace the original as needed the domestic water piping in the building

System: D3040 - Distribution Systems

Location: Throughout the school

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Provide classroom FC units and dedicated OA ventilation system. (20 clsrms)

Qty: 11.00

Unit of Measure: C

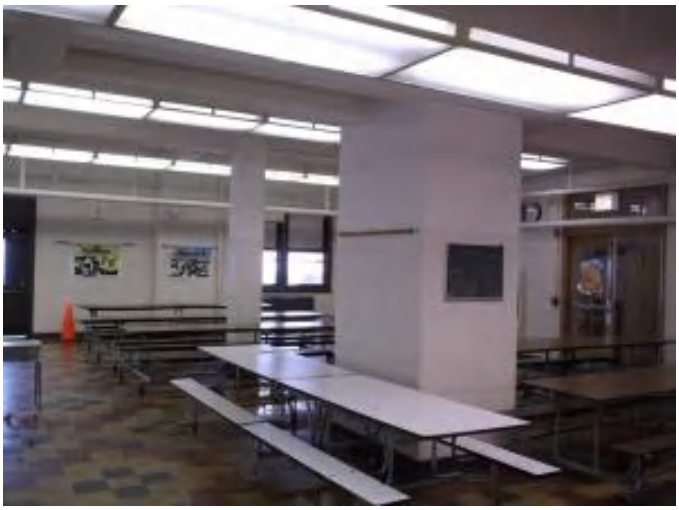
Estimate: $913,670.97

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Provide ventilation for the corridors at eight basement and three first floor entryways (11 locations total) by installing fan coil air handling units hung from the structure with outdoor air ducted to the unit from louvers in the window openings

System: D3040 - Distribution Systems



Location: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 850.00

Unit of Measure: Student

Estimate: $434,958.00

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Provide ventilation, heating and cooling for the Cafeteria by removing the existing unit ventilators and installing a package rooftop constant volume air handling unit with distribution ductwork and registers.

System: D3040 - Distribution Systems

Location: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Install HVAC unit for Gymnasium (single station).

Qty: 6,000.00

Unit of Measure: S.F.

Estimate: $344,860.27

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Provide ventilation, heating and cooling for the Gymnasium by installing a packaged roof top unit.

System: D3040 - Distribution Systems

Location: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 200.00

Unit of Measure: Seat

Estimate: $285,085.41

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Provide ventilation, heating and cooling for the Auditorium by installing a packaged roof top unit.

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace finned tube radiation terminals (per 100 LF)

Qty: 100.00

Unit of Measure: L.F.

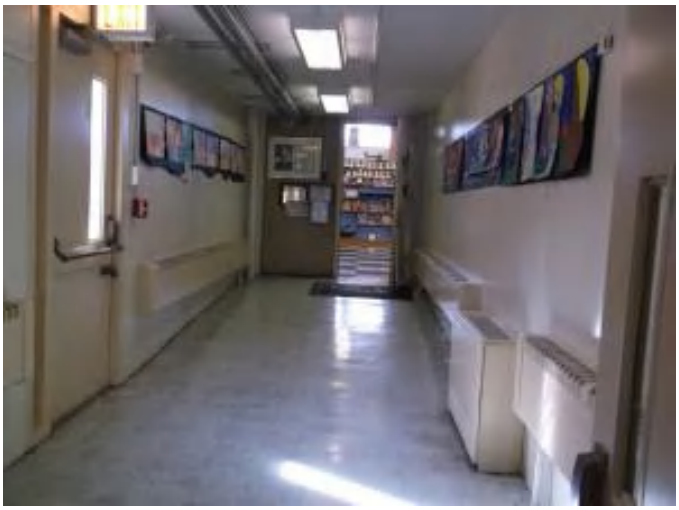
Estimate: $40,354.14

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Replace the steam convection units..

System: D4010 - Sprinklers



Location: Throughout the building

Distress: Life Safety / NFPA / PFD

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

Correction: Install a fire protection sprinkler system

Qty: 52,500.00

Unit of Measure: S.F.

Estimate: $751,035.95

Assessor Name: Craig Anding

Date Created: 02/08/2016

Notes: Install a fire protection sprinkler system with quick response type heads to reduce insurance costs by providing protection for the property. A fire pump may be required depending on the available city water pressure. Install a new sprinkler system throughout the building

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
D3020 Heat Generating Systems	Boiler, cast iron, gas & oil, steam, 4650 MBH	2.00	Ea.	Main boiler mechanical equipment room	Weil McLain	1894			35			$168,672.60	$371,079.72
D5010 Electrical Service/Distribution	Panelboards, 3 pole 4 wire, main lugs, 240 V, 600 amp, no main breaker	1.00	Ea.	Electrical Room					30	1949	2017	$2,639.25	$2,903.18
												Total:	**$373,982.90**

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):	254,500
Year Built:	1949
Last Renovation:	
Replacement Value:	$3,872,209
Repair Cost:	$445,733.23
Total FCI:	11.51 %
Total RSLI:	35.91 %

Description:

Attributes:

General Attributes:

Bldg ID:	S826001	Site ID:	S826001

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	50.29 %	16.12 %	$445,733.23
G40 - Site Electrical Utilities	0.00 %	0.00 %	$0.00
Totals:	**35.91 %**	**11.51 %**	**$445,733.23**

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 $
G2010	Roadways	$11.52	S.F.	10,100	30	1949	1979		0.00 %	0.00 %	-36			$116,352
G2020	Parking Lots	$7.65	S.F.	125,000	30	1949	1979	2028	43.33 %	37.82 %	13		$361,626.58	$956,250
G2030	Pedestrian Paving	$11.52	S.F.	17,000	40	1949	1989	2028	32.50 %	38.47 %	13		$75,347.24	$195,840
G2040	Site Development	$4.36	S.F.	254,500	25	1949	1974	2028	52.00 %	0.79 %	13		$8,759.41	$1,109,620
G2050	Landscaping & Irrigation	$3.78	S.F.	102,400	15	1949	1964	2028	86.67 %	0.00 %	13			$387,072
G4020	Site Lighting	$3.58	S.F.	254,500	30	1949	1979		0.00 %	0.00 %	-36			$911,110
G4030	Site Communications & Security	$0.77	S.F.	254,500	30	1949	1979		0.00 %	0.00 %	-36			$195,965
								Total	**35.91 %**	**11.51 %**			**$445,733.23**	**$3,872,209**

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.

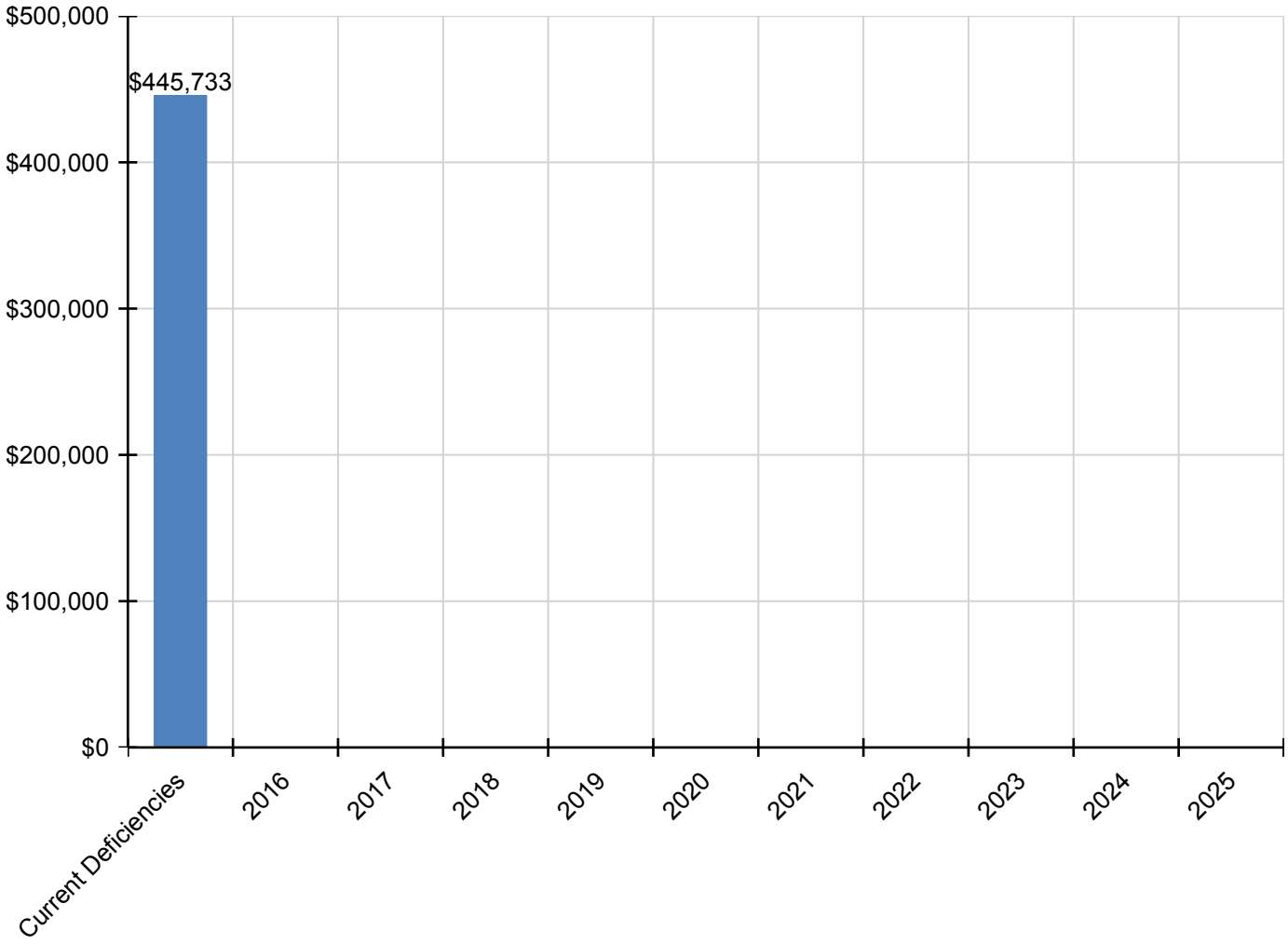
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$445,733**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$445,733**
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**
G2010 - Roadways	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2020 - Parking Lots	$361,627	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$361,627**
G2030 - Pedestrian Paving	$75,347	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$75,347**
G2040 - Site Development	$8,759	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$8,759**
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	$0	**$0**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

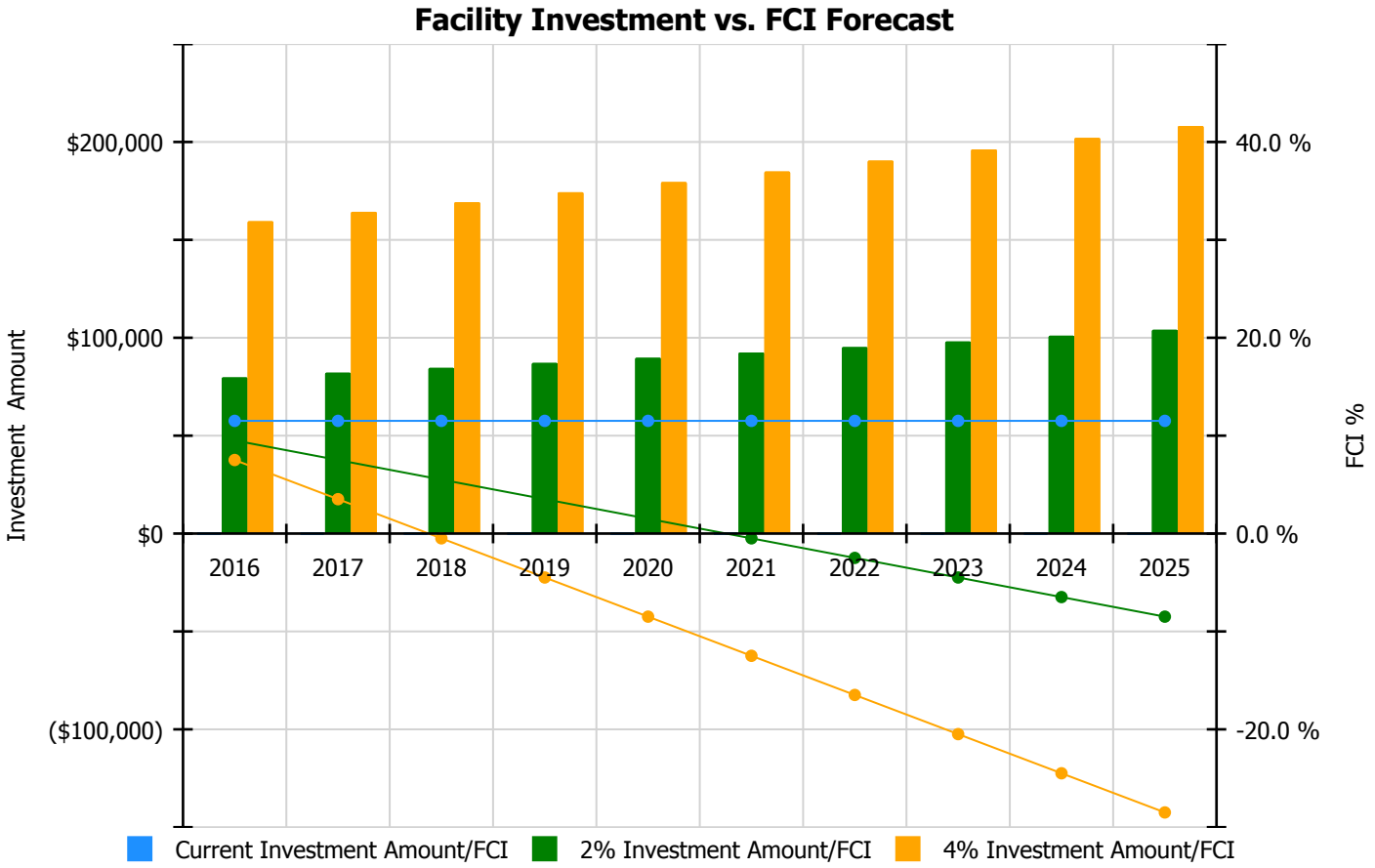
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

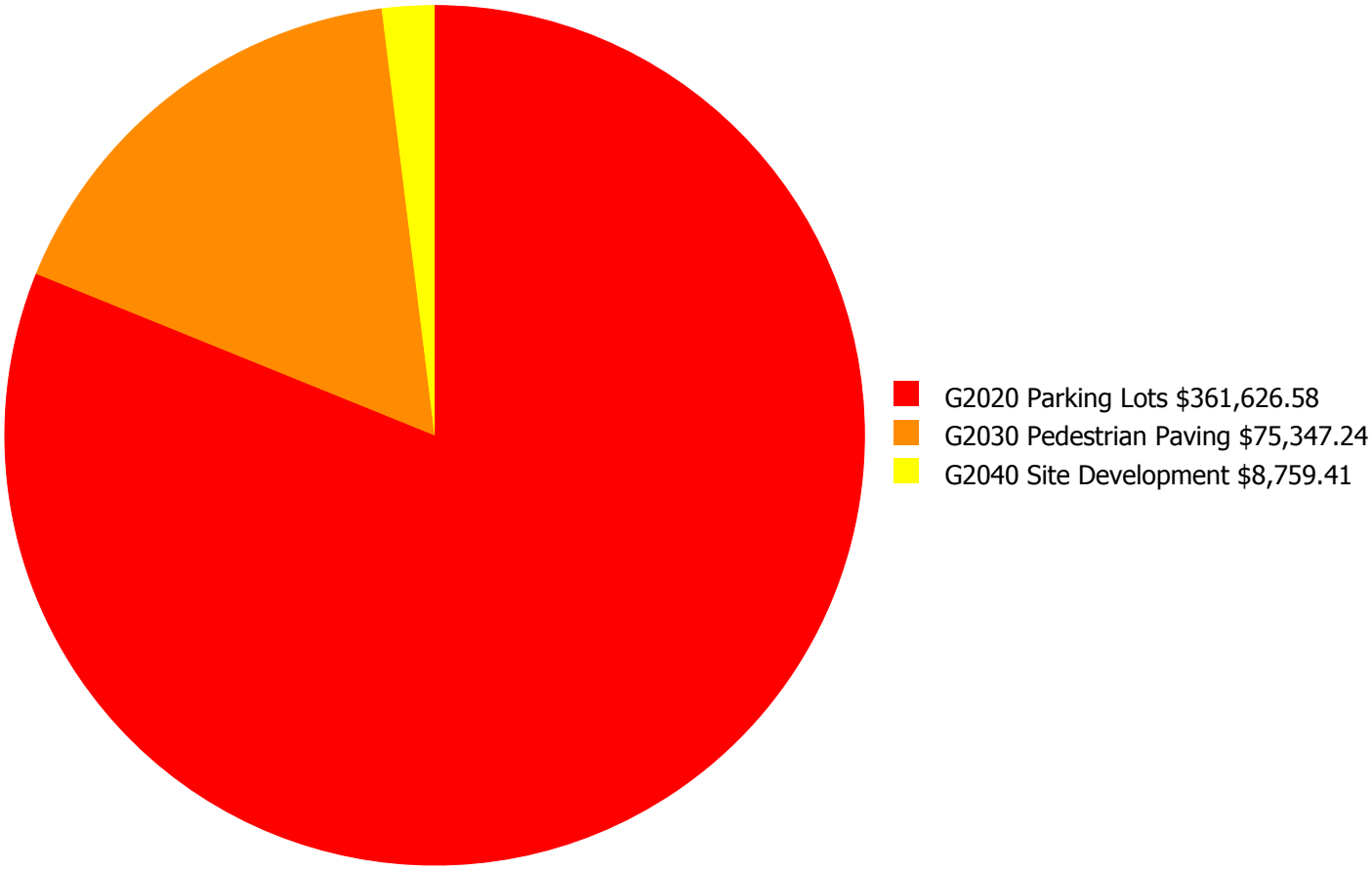
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 11.51%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$79,768.00	9.51 %	$159,535.00	7.51 %
2017	$0	$82,161.00	7.51 %	$164,321.00	3.51 %
2018	$0	$84,625.00	5.51 %	$169,251.00	-0.49 %
2019	$0	$87,164.00	3.51 %	$174,328.00	-4.49 %
2020	$0	$89,779.00	1.51 %	$179,558.00	-8.49 %
2021	$0	$92,472.00	-0.49 %	$184,945.00	-12.49 %
2022	$0	$95,247.00	-2.49 %	$190,493.00	-16.49 %
2023	$0	$98,104.00	-4.49 %	$196,208.00	-20.49 %
2024	$0	$101,047.00	-6.49 %	$202,094.00	-24.49 %
2025	$0	$104,079.00	-8.49 %	$208,157.00	-28.49 %
Total:	**$0**	**$914,446.00**		**$1,828,890.00**	

Deficiency Summary by System

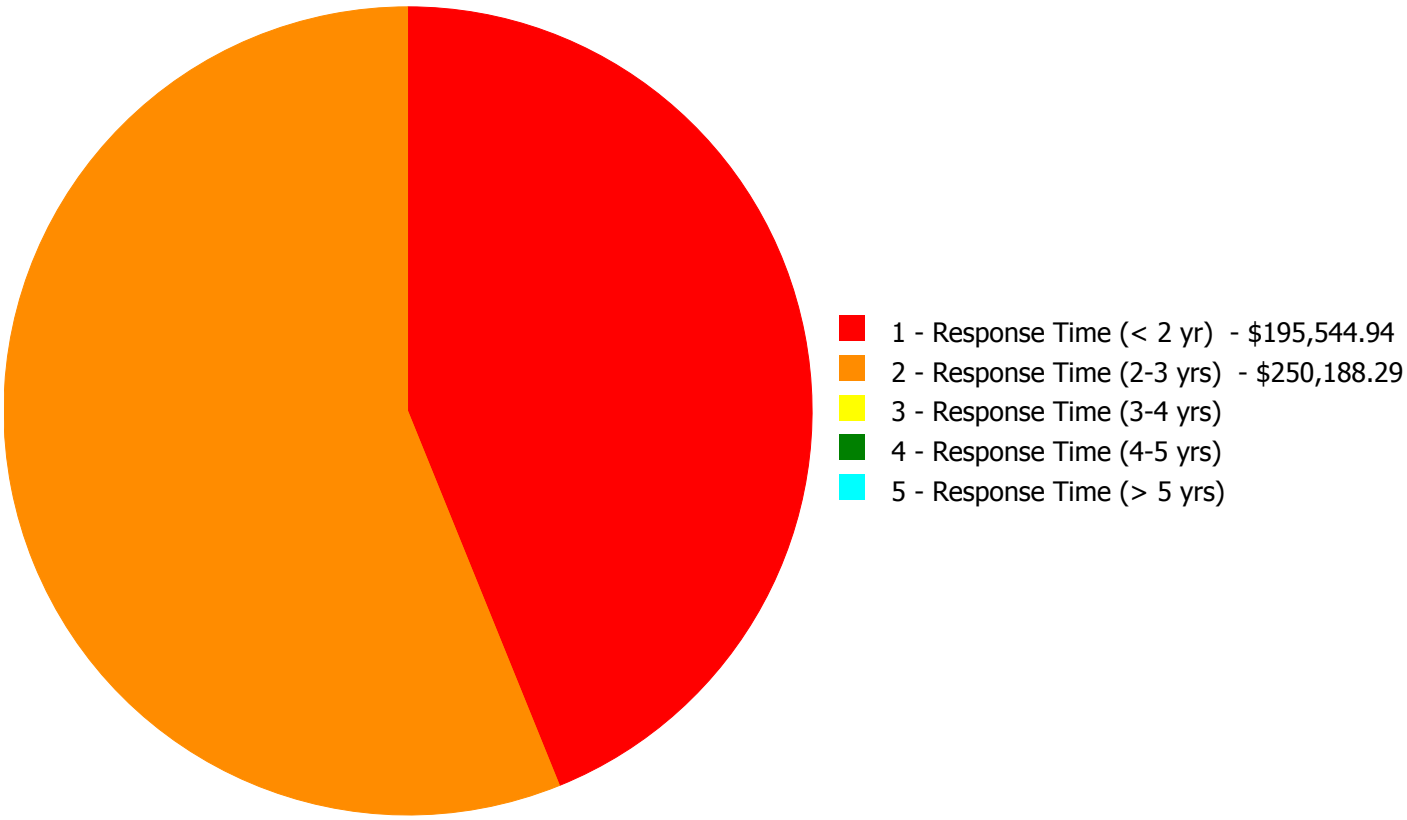
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $445,733.23

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: $445,733.23

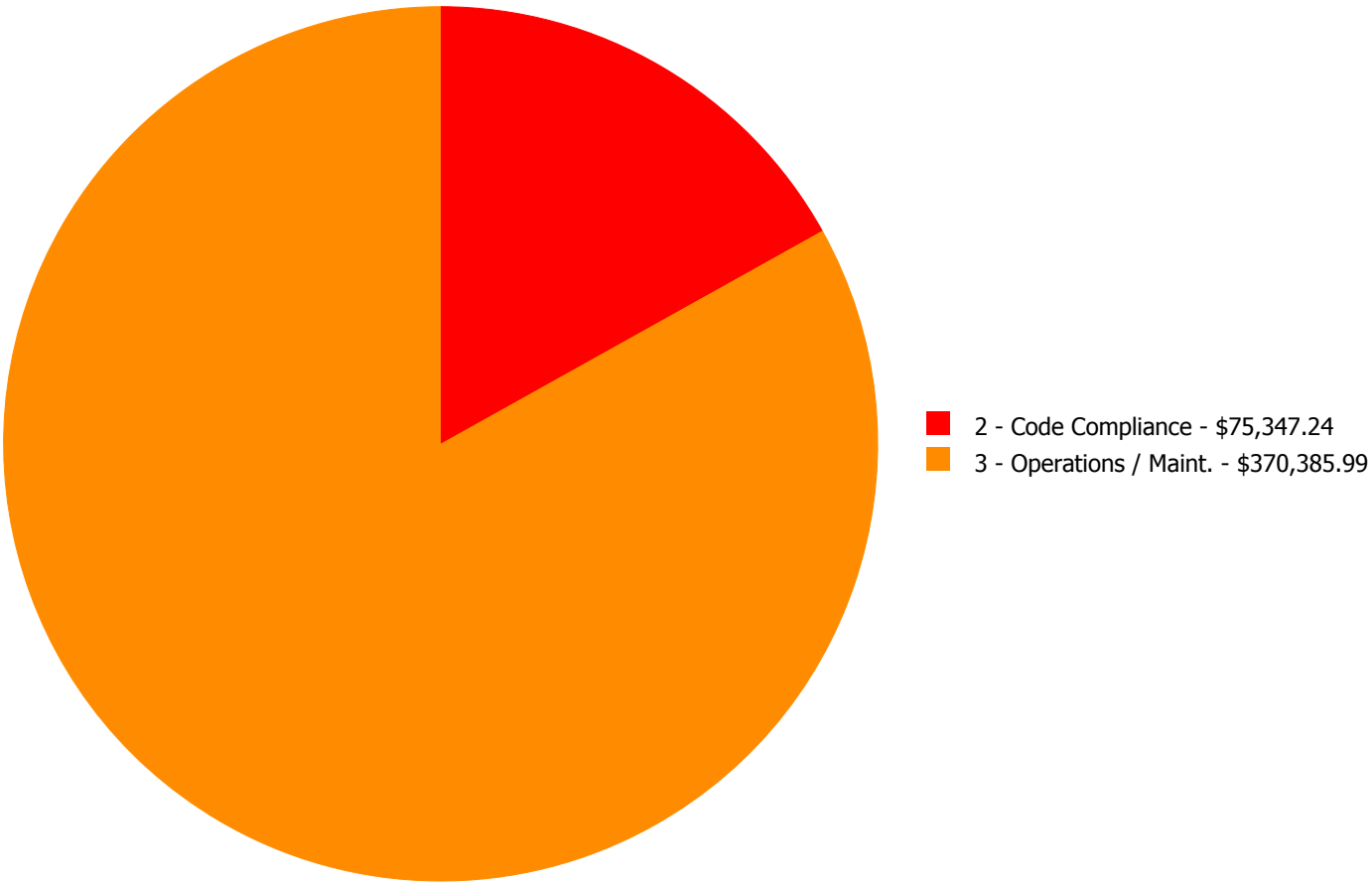
Deficiency By Priority Investment Table

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	$120,197.70	$241,428.88	$0.00	$0.00	$0.00	$361,626.58
G2030	Pedestrian Paving	$75,347.24	$0.00	$0.00	$0.00	$0.00	$75,347.24
G2040	Site Development	$0.00	$8,759.41	$0.00	$0.00	$0.00	$8,759.41
	Total:	$195,544.94	$250,188.29	$0.00	$0.00	$0.00	$445,733.23

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: $445,733.23

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: G2020 - Parking Lots

Location: circular front driveway
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Remove and replace AC paving parking lot
Qty: 8,500.00
Unit of Measure: S.F.
Estimate: $120,197.70
Assessor Name: Craig Anding
Date Created: 01/21/2016

Notes: Repave circular drop-off driveway (8,500sf)

System: G2030 - Pedestrian Paving

Location: front entrance
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: 58.00
Unit of Measure: L.F.
Estimate: $75,347.24
Assessor Name: Craig Anding
Date Created: 01/21/2016

Notes: Provide new ADA accessible handicap ramps into front of building (58’ long ramp)

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

System: G2020 - Parking Lots

Location: parking lot and play area

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Fill pavement cracks and reseal parking lot - including striping - change the LF of crack repair if it is severe

Qty: 120,000.00

Unit of Measure: S.F.

Estimate: $241,428.88

Assessor Name: Craig Anding

Date Created: 01/21/2016

Notes: Repair asphalt cracks and seal asphalt parking lots / playground, including restriping (120,000)

System: G2040 - Site Development

Location: driveway entrances

Distress: Security Issue

Category: 3 - Operations / Maint.

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

Correction: Remove and replace metal picket fence - input number of gates

Qty: 24.00

Unit of Measure: L.F.

Estimate: $8,759.41

Assessor Name: Craig Anding

Date Created: 01/21/2016

Notes: Provide (2) new chain link gates, each 12’ wide (24ft)

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