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.

Farrell School

Governance	DISTRICT	Report Type	Elementarymiddle
Address	8300 Castor Ave.	Enrollment	1097
	Philadelphia, Pa 19152	Grade Range	'00-08'
Phone/Fax	215-728-5009 / 215-728-5225	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Farrell	Turnaround Model	N/A

Building/System FCI Tiers

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

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

Building and Grounds

	FCI	Repair Costs	Replacement Cost
Overall	**45.59%**	**$18,532,513**	**$40,651,471**
Building	49.03 %	$18,532,513	$37,800,375
Grounds	00.00 %	$0	$2,851,096

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	90.18 %	$1,355,280	$1,502,891
Exterior Walls (Shows condition of the structural condition of the exterior facade)	05.35 %	$145,806	$2,726,985
Windows (Shows functionality of exterior windows)	150.80 %	$2,006,614	$1,330,615
Exterior Doors (Shows condition of exterior doors)	151.64 %	$162,454	$107,129
Interior Doors (Classroom doors)	228.63 %	$592,886	$259,326
Interior Walls (Paint and Finishes)	07.79 %	$91,209	$1,170,291
Plumbing Fixtures	53.02 %	$529,620	$998,885
Boilers	07.79 %	$107,469	$1,379,377
Chillers/Cooling Towers	66.59 %	$1,204,455	$1,808,631
Radiators/Unit Ventilators/HVAC	181.13 %	$5,752,993	$3,176,187
Heating/Cooling Controls	142.77 %	$1,424,033	$997,407
Electrical Service and Distribution	121.68 %	$872,006	$716,655
Lighting	37.32 %	$956,101	$2,562,228
Communications and Security (Cameras, Pa System and Fire Alarm)	78.31 %	$751,582	$959,727

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

S838001;Farrell

Final

Site Assessment Report

January 31, 2017

PARSONS

Table of Contents

Site Executive Summary

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

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

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

Gross Area (SF):	73,882
Year Built:	1959
Last Renovation:	
Replacement Value:	$40,651,471
Repair Cost:	$18,532,512.50
Total FCI:	45.59 %
Total RSLI:	76.31 %

Description:

Facility Condition Assessment

October 2015

School District of Philadelphia
Louis H. Farrell Elementary School
8300 Castor Avenue
Philadelphia, PA 19152

73,882 SF / 1107 Students / LN 08

Louis H. Farrell Elementary School and Annex Building are located at 8300 Castor Avenue. The main building was constructed in 1959, has 66,382 square feet and is 3 stories tall. The Annex Building constructed around 1969, is located in the play area to the south of the main building, connected by a short vestibule. The main building has a partial basement with unexcavated areas, a boiler room and engineering office. The front entrance to the Main Building faces Castor Avenue; the front entrance to the Annex Building faces the play area. There is an extensive asphalt play area (playground) at the first floor level around the main building and the Annex. Faculty parking is accessed from Fox Chase Road and is not separated from the asphalt playground. There are 4 portable "trailer" buildings not included in this facility condition analysis, located to the south and east of the Annex building. Joe Gordon, the

Building Engineer accompanied the FCA team during the inspection.

The inspection Team met Principal Nick Cirulli at the time of inspection who has some concerns about the building. There are roof leaks and wall leaks in the main building auditorium, gymnasium, and stairways. Plexi glass windows do not open easily, fall after opening and are in poor condition. Second floor quarry tile flooring is constantly breaking. Heating controls do not operate properly creating hot and cold areas in the building; radiators leak. Clock system does not work. Classroom storage area folding plastic doors are broken. There is not enough electrical capacity to add smart boards in classrooms; additional electrical circuits must be added each time a smart board is added. The air-conditioning in the annex leaks and has caused mold to develop. The clock system does not function. Lighting in the main building and Annex is not good and needs to be upgraded. Classroom doors do not have security locks, which can be locked from inside the classroom.

ARCHITECTURAL/STRUCTURAL SYSTEMS

Foundations in the Main Building are constructed of concrete. Basement walls are in good condition with no major settlement cracks observed. Footings were not seen and their construction type or condition could not be ascertained. There are no openings to the extensive unexcavated areas outside the basement. There is no basement under the Annex.

Floor slabs in the basement are in good condition although covered with dirt and in need of stripping, cleaning and repainting. Upper floor slabs are constructed of cast-in-place concrete with cast-in-place concrete beams (presumed but not seen). No major cracking was observed in floor slabs inspected in the Main Building or the Annex, however it can be seen that many quarry tiles had been replaced on the second floor and to a lesser extent first and third floors indicating a delaminating condition. The cause of this is unknown.

Roof construction in the Main Building is presumed to consist of reinforced concrete beams and deck, bearing on concrete beams and columns. The gymnasium has a long-span steel bar joist structure with insulated fiberglass ceiling panels under the roof deck; the composition of the roof deck above was not seen. The roof deck above all parts of the building consists are "flat" with minimum overall slope and pitch to roof drains. Roof access is via a roof hatch onto the main roof. The Main Building and Annex Building have internal roof drains at "low" points with vertical leaders running through the building in internal chases. There are no vertical leaders running down the outside of the exterior walls. None of the roofs have overflow scuppers or overflow roof drains, but the roofs have low gravel stops (no parapet), if the roof drains are clogged, water would flow over the edge of the roof, which would be visible from below indicating clogged roof drains. The roofing membranes on the Main Building and Annex are probably almost 20 years old; the light gray-colored granules embedded in the asphalt membrane are still fairly intact, however the perimeter flashing at the gravel stop and around roof penetrations is in poor condition. Also it is evident from dirt staining that many areas of the roof drain slowly due to inadequate pitch to roof drains; this causes water to puddle and remain on the roof as it drains only to a certain point then must evaporate from the membrane. To improve drainage when the building is re-roofed, additional slope should be created by use of tapered insulation. The Annex has a more perceptible slope and seemed to drain a little better for that reason.

Exterior walls of the Main Building are in need of repairs in many areas. The main concern is focused on the areas of horizontal joint cracking and separation above window heads and between limestone panels on building walls. Lintels should be inspected and regrouted when windows are replaced. The brick on the main building up to the height of the first floor window sills is coated with a clear anti-graffiti coating on all sides of the building; there is some graffiti on this coating which needs to be removed. Limestone panels are used on exterior building walls for accent. There are a number of locations where joints have lost grout or where panels appear to be separating from the backing. All limestone panels should be inspected and regrouted to maintain water tight integrity. The connection between the Library (1969 addition) and the Main Building is constructed of precast concrete panels up to the top of the exit doors and corrugated metal siding above that height. The metal siding is in poor condition and should be replaced with new metal panels or stucco with a more water tight connection to the Main Building. The Annex is constructed of precast wall panels which have been defaced with graffiti in many locations; these marks should be cleaned off.

Exterior windows in both buildings are single glazed anodized aluminum frame single hung units, possibly replacement units from the 1990's. the Principal indicated in his interview that these windows do not operate properly and are dangerous to anyone attempting to open them because most do not stay open. They provide little insulation value, leak, and are loosing transparency. They all should be replaced with new insulated single hung units. First and second floor windows in the Main Building and all windows in the Annex have galvanized steel security screens. New windows should have the heavy duty combination bug and security screens which are less obtrusive and look less like prison window protection.

Exterior doors at the Main Building entrance are glass in clear anodized aluminum frames in good condition. The two pair of doors form a vestibule with an additional 2 pair of aluminum and glass doors, creating a secure and weather tight entrance to the building. The Annex entrances and other side entrances are flush, painted, hollow metal framed steel doors with or without narrow vertical vision panels with security screens. Doors are generally in poor condition, with dents, scratches, missing jamb seals, rusted and scratched frames, and damaged hardware. Exterior metal doors and frames should be replaced with new hardware and

weatherstripping. The entrance to the Annex vestibule connecting the Annex and the main building is flush with outside grade and could be considered accessible with proper signage and hardware. The entrance is also level with the first floor, auditorium, gymnasium, and cafeteria, but not level with the gymnasium exit to the outside play area. For students in wheelchairs to want to go outside from the gym, they need to travel through the building to the Annex vestibule or to the door exiting on Fox Chase Road, which is also has grade-level access; due to space constraints inside the exit and outside the gym, these two exits are probably the only practical solutions. Also, there is one step up from the entrance walk to the main entrance vestibule on Castor Avenue; this is easily remedied with the addition of a sloped walkway (less than 5% slope) on one side of the step. Accessible Route signage is needed to lead wheelchair bound people to accessible entrances.

Roof coverings on the Main Building and the Annex consist of a fully adhered built-up rolled asphalt membrane system, with impregnated surface granules. Flashing is asphalt-backed adhered metal-faced flashing secured to rooftop ventilation ductwork, plumbing vents, and masonry parapets into reglets. Roof structures include masonry penthouse and building walls, plumbing vents, ventilation ductwork, and roof drains. Metal-faced asphalt-backed flashing terminates over gravel stop along edge of roof and under aluminum counterflashing set into masonry walls terminating at roof level with reglets. Flashing appears to be in fair condition however leaks were reported in some areas and ceilings were stained reflecting evidence of these leaks. Overlapping joints of asphalt membrane sheets have some exposed cracking asphalt and should be frequently inspected to ensure water-tightness. The roof membrane has some small bubbled areas. The low area between the auditorium and 3 story classroom building and the main roof have standing water and do not drain well. As mentioned above, the pitch of this roof appears to be less than desirable or that required by code, preventing good drainage and allowing water to remain on the surface until it evaporates. Deck pitch needs to be increased to allow water to flow into nearby roof drains. From their appearance both the Main Building and the Annex roofs full replacement is recommended to eliminate leaks and prevent water from entering the building.

Partitions are constructed of painted block (concrete masonry units) throughout the Main Building and the Annex. Corners are bull-nose block to soften the hard edges and provide a more durable surface. Wall bases are either painted block or glazed block. There were areas of cracked block work joints in the gymnasium, where grout over the windows is missing on the outside. Small cracks extended over multiple horizontal and vertical joints. After the lintels are reset and re-pointed, the inside block should be repointed.

Interior doors used for classrooms, offices, storage rooms, and bathrooms are solid wood with plastic laminate laminated to the inside, outside and edges. Doors have steel frames. Many of these wood doors have narrow lite wired glass vision panels where vision is desirable; some have security screens. Door to classrooms, toilet rooms, auditorium, gymnasium and janitor closets on in both main building and annex corridors are damaged with damaged hardware requiring replacement; door frames are scratched and can be repainted. Stairway doors are steel doors with half-glass (wired) door panels and steel door frames with non-latching push/pull hardware which should be changed to panic hardware to provide positive latching as required by code; doors should be changed to one hour rated doors with code compliant fire rated hardware and glazing. The auditorium, cafeteria and gymnasium doors are solid core wood with old (possibly the original) panic hardware in worn condition that should be changed for better operation. Interior basement doors in the mechanical room are hollow metal steel doors with steel frames; doors and frames should be repainted. Doors in the Annex are solid core wood which have been repainted at least once and are in poor condition. Classroom, office, Annex, 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. Some of the other doors inside classrooms and offices are in better condition and only require new lever lock sets/latch sets or other hardware to provide better operation and compliance with today's codes.

Interior fittings/hardware in the Main Building and Annex include blackboards and tack boards with metal chalk trays mounted on one wall in each classroom; some have whiteboards or smart boards that appear to be installed on top of the blackboards. The library space occupies approximately 1/3 of the Annex, connected to the Main Building. Furnishings are wood bookcases, tables and chairs all in good condition. Most toilet room partitions in the Main Building have old metal partitions and doors in poor condition; toilet rooms in the Annex are metal in one toilet room and new plastic partitions in the other toilet room. Most toilet rooms have accessories in place and operational. Some toilet rooms in the main building have enlarged stalls with grab bars which serve as accessible toilets. Since they do not meet all of today's requirements, they should be upgraded or other toilet facilities should be converted to better meet ADA requirements that fully comply with ADA which have grab bars, accessories at correct mounting heights, wrist blade faucets, leg protection, and extended or properly mounted bowl heights. The Science Room (Room 309) and Biology Room (Room 311) have been renovated with new architectural finishes, a smartboard, new oak cabinets, resin top lab tables, and an oak and resin instruction lab bench & sink in front of the classroom.

Stair construction in the Main Building consists of concrete filled steel treads with steel nosings, steel risers, steel stringers, steel handrails (31" high) and guards (36" high) at tops of landings and open sides of stairways; stairs railings have mid-rail "industrial-style" baluster. Stairway handrails and guards do not meet today's code requirements; handrails at 36" with guards at 42" with baluster spacing of 4" maximum at open sides of stairway and platforms should be provided. Guards 42" high are provided where stairway landing passes in front of glass block exterior vision panels in stair towers, but balusters with 4" maximum spacing is also required and should be added. Concrete platforms and landings are finished with clear sealer, but the concrete has a mottled

appearance and looks dirty. Stairs should be stripped and refinished to give them a cleaner appearance.

Wall finishes in the main building basement, first, and second, floor corridors are full height concrete masonry units (block) throughout the building. Corridors and stairs have glazed block wainscots for the lower half of the wall and painted block on the upper half; these are very durable finishes and are in good condition. Classroom and office walls are painted in fair condition needing some touch up along most exterior walls in various places. The cafeteria have painted murals creating a bright and friendly atmosphere. The gymnasium and auditorium walls are suffering from cracking and some light staining from leaks; after lintels are repaired, interior cracks should be repaired and walls repainted. Main building toilet rooms have ceramic tile wainscots with painted block above, both in good condition. The interior walls of the Annex are painted. The interior surfaces of the exterior precast panels in classrooms and the library are stained from leaks or condensation and need repainting. Interior walls between classrooms are painted block. Annex corridor walls are exposed aggregate precast panels in good condition.

Floor finishes in most of the main building classrooms, lobby, auditorium, and auditorium stage consist of vinyl asbestos tile (VAT). The cafeteria, gymnasium, school office, and three classrooms (Rm. 309, 311, and 313) have vinyl composition tile (VCT) in place of the VAT. The VCT floors in the classrooms re relatively new and have been well maintained and do not appear to need replacement; the gymnasium and cafeteria floors are old and worn in need of replacement. The rooms with vinyl asbestos tile floors should be tested for asbestos and if they are asbestos containing, although most appear to be in good condition, they should be properly removed and replaced at some point in the near future. Corridors, stairs, and the kitchen in the main building are finished in quarry tile which is broken in a number of places on the 2nd floor, requiring full replacement. The other floors and kitchen floors should be repaired, regrouted and cleaned, since quarry tile is a highly durable material. Toilet rooms are finished in ceramic tiles. Some are broken and should be repaired; most toilet room floors should be regrouted where cracked, then cleaned and resealed. Floor finishes in the Annex are VCT in hallways and classrooms, which is worn and in poor condition. The library is finished with carpet which is stained, may have mildew from leaks and should be replaced. Toilet rooms have sealed concrete floors which are dirty and need cleaning and resealing or painting.

Ceiling finishes in most spaces throughout the Main Building consist of 12x12 acoustical tiles glued to the concrete decks above, with surface mounted 1x4 lighting fixtures in corridors, classrooms, cafeteria, and offices. The auditorium has the same 12x12 surface mounted ceiling tile with suspended cylindrical lighting fixtures. The auditorium ceiling is stained from roof leaks and should be replaced when the roof leaks are repaired. The gym has white precast concrete planks over an exposed white painted longspan steel joist structure, in good condition. Toilet rooms have white painted concrete ceilings. The main entrance canopy has an interesting ceramic mosaic tile finish with two large patched areas that should be repaired to match the overall ceiling finish. Other entrance overhangs have plaster finishes which need to be painted. The Annex ceilings are also 12”x12” ceiling tiles glued to the concrete roof deck, between painted concrete T beams. The painted concrete overhangs at all entrances into the main building need to be repainted.

Fixed furnishings include wood seating in the auditorium which has signs of wear on seating surfaces; some chair bottoms need repairs or adjustment; many need to be refinished. The cafeteria has folding tables for serving students. The kitchen area has stainless steel service counters and food preparation tables.

There is a 1200 lb. hydraulic elevator which stops at each of the 4 levels in the building. The elevator is old and frequently requires repairs.

There is 1 grade level entrances into the Main Building and 2 grade level entrances into the Annex vestibule. There is a 1 riser stairway from Castor Avenue into the main entrance; a sloped walkway can easily be added to convert this to an accessible entrance. Accessible Route Signage is needed to direct wheelchair bound people to these entrances. Handicap parking spaces also need to be designated after the parking area is repaved.

MECHANICAL SYSTEMS

Plumbing Fixtures – The Main Building is equipped with wall hung urinals (flush valve type), 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. The Annex is equipped with wall hung urinals (flush valve type), floor set water closets (flush valve type), and wall hung lavatories with wheel handle faucets. The fixtures should be replaced based on the same recommendations for the Main Building. There are no floor drains in the Annex bathrooms.

There is an electric water coolers located on the first floor and the second floor of the school and are typically located in the corridors next to service sinks. A combination of drinking fountains and electric water coolers are located in the kindergarten classrooms. The cafeteria is also equipped with a wall hung electric water cooler. Most drinking fountains appear to be the original installed equipment,

however, it is recommended to replace the electric water coolers as well as and the drinking fountains as the equipment is approximately 58 years old and beyond its service life. The Annex is equipped with electric water coolers which have exceeded their service life and should be replaced.

Wall hung service sinks are original and are available on the first and second floor, located by drinking fountains 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 an in floor grease trap. The kitchen is also equipped with a hand sink. The triple wash sink (with short lever handles) and hand sink (with wrist blades) 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. The service sink in the Annex should be replaced as it shows sign of heavy use and wear and has reached the end of its service life.

Domestic Water Distribution – It appears that the 2" domestic water service piping is mostly soldered copper. Water service enters the building in the basement, without a double check backflow preventer (RPZA – reduced pressure zone assembly) and a 2" water meter on the main line which is located in a underground vault near the main school entrance. The water meter should be preplaced due to the wet environment of the vault which is subjecting the device to wear. 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 is one vertical tank type natural gas fired water heaters, Bradford White model 75T80B3N which was manufactured in 2010, at this facility which is located in the boiler mechanical room. The heater is recently installed and should not need to be replaced for 4 – 9 years. The heater is rated for a maximum gas input of 76,000 btuh. The hot water system is equipped with a re-circulation pump as well which was replace in 2009 There is no expansion tank installed on the system. All water heaters appear to be in satisfactory condition at this time, they were installed in 2007, however they should be replace in the next 3 – 5 years. A water softener was not located for treating the boiler make up water system. The Annex is served by an electric water heater, vertical tank, 50 gallon, 4500 Watts, Bradford White model MI50S6DS13, manufactured in 2002. The unit is 14 years old and should be replaced as it is nearing the end of its service life. The water heater is equipped with P/T relief and a re-circulation pump but not an expansion tank.

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 flow.

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 no overflow scuppers for the building as the roof does not have a parapet.

Energy Supply - Duplex fuel oil supply pumps provide the required fuel to the boilers when operating on fuel oil. The 6,000 gallon fuel storage tank is located underground at the parking lot entrance from Fox Chase Road. The fuel pumps and controls appear to have experienced heavy use , are beyond their serviceable life and therefore should be replaced. A 4" natural gas enters the building in the basement into the main boiler mechanical equipment room. The gas is equipped with a pressure boosting system. The natural gas main is welded, black steel piping while the branches are threaded, black steel.

Heat Generating Systems – Heating water is generated by two 2,845 MBH De Dietrich MACNA water boilers, model GT414A, with dual fuel burners. Both boilers are equipped with Power Flame dual fuel burners, natural gas and number 2 fuel oil. The boilers were manufactured in 2000, are 16 years old , and the boilers still have approximately 14 - 19 years of remaining service life and do not need to be replaced at this time based on the age of the equipment. There is draft control on both boiler flues. Combustion air louvers serve the boiler room to provide combustion air for the boiler operation and are operated by electric actuators. 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. The oil supply to the burner is equipped with dual solenoid valves and strainer/disposable media filter.

There are two, end suction base mounted, centrifugal heating water pumps for the hot water system, 325 gpm, 50 feet head, model 3x4x9-PF and manufactured by Thrush Company. Both pumps are beyond their service life and should be replaced.

Distribution Systems – The heating water distribution piping is black steel with welded fittings. Any piping which was not replaced during the boiler renovation 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. The District should budget for replacing this piping over the next 5 years. The piping to the Annex is the same which is utilized in the Main Building and the same recommendations should be performed.

Fresh air is admitted into the building through the unit ventilators and by opening windows. 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. Transfers above the doors allow relief air from the classrooms to be transferred into the corridor which is then transferred to foul air reliefs which terminate at the roof. The unit ventilators should be replaced as they have surpassed their service life. The new unit ventilators should be designed for quiet operation and equipped with hot water and chilled water coils, and integral heat exchangers. Unit ventilators and hot water convection heat are used for heating in the Annex classrooms as well and are served by the main building's boilers. The unit ventilators should be replaced as they have surpassed their service life as well, and the new unit ventilators should be designed for quiet operation and equipped with hot water and chilled water coils, and integral heat exchangers. The Annex classrooms have a similar relief air configuration as well, for air transfer to the corridor however there are now foul air relied risers.

The gymnasium is served by hot water unit heaters suspended from the ceiling. Operable windows provide a means of natural ventilation. It is recommended to replace these systems with a roof top mounted unit with an overhead supply air distribution system and return air ductwork and low return intake grilles which would be protected from damage.

The cafeteria is served by unit ventilators with hot water coils. The unit ventilators are part of the original building equipment, have exceeded their life expectancy and should be replaced. Operable windows provide a means of natural ventilation as well. A roof top mounted unit could be provided 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 with a hood exhaust system for the space and hot water wall mounted convection below the windows. The exhaust system should be coupled with a make up air heating and ventilating supply air system. A kitchen make up air unit should be added as well as a unit to provide heating and ventilation to the kitchen. 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.

The auditorium is served by two heating and ventilating air handlers with heating water coils suspended from the underside of the structure above the stage, overhead supply air distribution and returns at the rear of the space and the front of the space near the stage. The H&V air handlers are part of the original building equipment, have exceeded their life expectancy and should be replaced. A roof top mounted unit could be provided with heating and cooling coils as well as ventilation to meet the outside air ventilation requirements.

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 serve the restrooms. The IT room in the Annex is served by an AC split system with a remotely located condenser unit on the roof.

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 hot water convectors. There is one simplex air compressor which generates control air for the temperature control system which is located in the boiler room. There is aa refrigerated air dryer which 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 58 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 Fax Chase Rd. One utility transformer with medium voltage primary (Voltage level unknown at this time) and 208/120VAC secondary and at an available power of 300 KVA is installed in transformer room of the building for supplying power to the facility.

The service entrance to the facility consist of a disconnect switch and utility meter and one main switchboard (estimated 800A) are located in electrical room in the basement of the building. Switchboard is very old and does not have enough capacity for future loads

and required to be replaced.

Power distribution is accomplished with ten lighting/receptacle panels located throughout the building. Panel boards, two on each floor, are flush mounted, one in the kitchen and one in gymnasium. It appears that panel boards and branch circuit breakers have been exceeded their useful life and requiring replacement.

In general there is not enough receptacles are installed in the classrooms. Recommendation is to have a minimum of two receptacles on classroom walls but the current installations fall short of this recommendation.

Interior building spaces are illuminated by various types of lighting fixtures. Surface 1x4 fluorescent fixtures with outdated T12 lamps are used in classrooms, offices, cafeteria and kitchen that should be replaced. Corridors utilize by 1x4, surface mounted fixtures and have already been upgraded with T8 lamps and in general they are in a good condition. Auditorium illuminated with incandescent cylindrical down lights. These fixtures are old and difficult to re-lamp and should be replaced with conventional lighting fixtures. Gymnasium illuminated with pendent mounted metal halide fixtures which have high energy consumption and are also difficult to re-lamp and required to be replaced.

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 room 304 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 class room 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.

Present clock system is not working. School is provided with time system controller consisting of 12" electric round clock installed on the wall in each classrooms and offices and a master time programmer manufactured by "SIMPLEX" located in the main office. The clocks are not controlled properly by the central master controller. System is old and has exceeded its useful service life thus requiring replacement. The present bell system is working adequately.

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.

Emergency Power System is provided in the school. A 15KVA, 240/120V, three phase, 4W is installed in Boiler room for emergency lighting. The system is old and exceeds its useful service life and required to be replaced.

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

Emergency lighting system, including exit lights are provided in the buildings. Numbers of lighting fixtures in corridors, egress ways and all exit signs are fed by emergency pack up power.

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.

A gear type elevator (estimated 20 hp) is in operation at the main building. The elevator motor and controller are in good condition.

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, back lighting, 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.

Site Lighting System is adequate. There are sufficient numbers of flood lights with photo cell are provided around the building. No major deficiencies observed. Building engineer also indicated that they do not have any issue with the exterior lighting system.

Site Video Surveillance system is not provided in the school.

Site Paging system is provided in the school and working adequately. Existing speakers are providing proper coverage in the playground.

GROUNDS SYSTEMS

Paving and parking is constructed of asphalt. The faculty parking, delivery area, and asphalt play area all contiguous without any fencing or demarcations to separate the areas. A fence is needed to separate the play area from the parking and provide better safety to children. There are many cracked and broken areas throughout the faculty parking lots near the entrance with trash bins, faculty parking area and play areas; all these areas need to be repaved.

Some 4x4 concrete panels comprising the sidewalk along Castor Avenue and Fox Chase Street need to be replaced.

Site fencing is composed of chain link fencing which is in fair condition with some bent sections and many rusted sections around the site. There is a gate to close-off the only entrance to the parking lot / delivery area.

RECOMMENDATIONS

- Strip and reseal or paint concrete floors in stairways, toilet rooms, and parts of basement, (3,400 sf)
- Replace damaged and rusted exterior metal doors and frames (includes 7 annex doors) (21)3x7
- Replace metal siding above head height on Annex Addition vestibule (500sf)
- Repaint precast concrete exterior of Annex (3,000sf)
- Repoint all limestone panel joints (panels are approx. 2'x2'3"ea) (4,000 sf)
- Replace roof including flashing and counter flashing at brick walls on roofs (7,500 sf annex roof, 32,500 main bldg. roof) (40,000 sf)
- Replace steel doors and metal frames in mechanical rooms and stairs (24) 3x7
- Replace existing plastic laminated and stained wood doors from corridors into classrooms, gym, cafeteria, auditorium, toilet rooms, and offices with fire rated doors and vision panels (for most doors) (70) 3x7
- Provide security hardware for classrooms and offices, locking from the inside of the room (70)
- Replace folding vinyl closet doors in main building (26 – 7 ft high x 20 ft long, average)
- Repoint cracked interior block before painting (500 sf)
- Repaint interior block walls where surface is damaged in cafeteria, kitchen, corridors (upper section above wainscot), classrooms, and stairways in main building (20,000 sf) and Annex (5,000 sf) (25,000 sf)
- Replace transits partitions and damaged metal toilet room partitions with plastic partitions (assume 6 toilet compartments)
- Provide toilet room accessories where partitions are replaced (6)
- Replace stairway handrails and guards with code compliant systems (220 ft rail; 320 ft rail+guard)
- Remove 9"x9" VAT floors in classrooms, offices, and auditorium with and replace with VCT (25,000 sf)
- Replace damaged VCT with new VCT (10,000 sf)
- Repair / regrout sections of quarry tile corridors on first and third floors (3,000 sf)
- Replace second floor quarry tile with VCT (3,000 sf)
- Repair auditorium seats (20)
- Replace kindergarten kitchenette cabinets
- Replace 12x12 acoustical tile ceiling in auditorium, library, classrooms and corridors where damaged (10,000 sf)
- Replace 2x4 ceiling system in Annex corridor (600 sf)
- Replace acoustical ceiling in gym (4,000 sf)
- Replace carpet in library in Annex (2,000 sf)
- Brick pointing at lintels on main building over gym; auditorium, and cafeteria windows (50 windows, with 2 ft each side repointing = 200 ft pointing)

- Replace windows in main building (300 3.5x7) and annex (26 2x4; 11 3.5)

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.
- Replace the 6,000 gallon underground storage tank (UST) installed before 2000 located underground adjacent to the entry drive in the grassy area from Willits Road.
- 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
- Hire a qualified contractor to examine the heating water piping that has been in service for 58 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 duplex fuel oil pumps.
- Replace the heating water convection units.
- Replace the existing unit ventilators throughout the building with new units designed to provide adequate ventilation per ASHRAE Std 62. The new units shall be equipped with hot water / chilled water coils.
- 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.
- 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 nine first floor entryways 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 for adding a new 2000A, 208/120V, 3PH, 4 wire switchboard.
- Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash label on the electrical equipments. Estimated 12 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.
- 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.
- Replace existing master clock system with new wireless master clock system.
- 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.
- Replace existing generator with new 30KW generator along with respective Auto Transfer Switch. Replace existing emergency power distribution panel.
- Provide lightning protection studies to ascertain adequacy of existing systems.
- 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.

GROUNDS

- Repave cracked and damaged asphalt parking lots in front and rear with new asphalt, including re-striping (,000)
- Provide new sloped walk into front of building (20 ft)
- Repaint chain link fence around site (1800 ft)
- Repair cracked concrete paving along front and side entrances (500 sf)
- Repave asphalt parking / delivery area add part of playground (20,000 sf)
- Repave dumpster storage area (5,000 sf)

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 4 / Tm 2
Status:	Accepted by SDP	Team:	Tm 2
Site ID:	S838001		

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	44.00 %	0.00 %	$0.00
A20 - Basement Construction	44.00 %	0.00 %	$0.00
B10 - Superstructure	44.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	65.14 %	55.58 %	$2,314,874.16
B30 - Roofing	110.00 %	90.18 %	$1,355,280.44
C10 - Interior Construction	54.84 %	33.74 %	$611,769.28
C20 - Stairs	44.00 %	115.38 %	$120,197.39
C30 - Interior Finishes	88.58 %	23.35 %	$975,227.87
D10 - Conveying	105.71 %	0.00 %	$0.00
D20 - Plumbing	115.84 %	60.30 %	$909,671.55
D30 - HVAC	119.44 %	103.29 %	$8,488,949.53
D40 - Fire Protection	105.71 %	159.47 %	$949,625.58
D50 - Electrical	109.31 %	61.61 %	$2,675,672.42
E10 - Equipment	37.14 %	7.72 %	$90,802.49
E20 - Furnishings	32.50 %	25.70 %	$40,441.79
G20 - Site Improvements	0.00 %	0.00 %	$0.00
G40 - Site Electrical Utilities	0.00 %	0.00 %	$0.00
Totals:	**76.31 %**	**45.59 %**	**$18,532,512.50**

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)
B838001;Farrell	73,882	49.03	$7,411,633.06	$5,871,826.79	$56,668.50	$80,790.47	$5,111,593.68
G838001;Grounds	147,400	0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total:		**45.59**	**$7,411,633.06**	**$5,871,826.79**	**$56,668.50**	**$80,790.47**	**$5,111,593.68**

Deficiencies By Priority

1 - Response Time (< 2 yr) - $7,411,633.06
2 - Response Time (2-3 yrs) - $5,871,826.79
3 - Response Time (3-4 yrs) - $56,668.50
4 - Response Time (4-5 yrs) - $80,790.47
5 - Response Time (> 5 yrs) - $5,111,593.68

Budget Estimate Total: $18,532,512.50

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):	73,882
Year Built:	1959
Last Renovation:	
Replacement Value:	$37,800,375
Repair Cost:	$18,532,512.50
Total FCI:	49.03 %
Total RSLI:	82.07 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B838001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S838001		

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	44.00 %	0.00 %	$0.00
A20 - Basement Construction	44.00 %	0.00 %	$0.00
B10 - Superstructure	44.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	65.14 %	55.58 %	$2,314,874.16
B30 - Roofing	110.00 %	90.18 %	$1,355,280.44
C10 - Interior Construction	54.84 %	33.74 %	$611,769.28
C20 - Stairs	44.00 %	115.38 %	$120,197.39
C30 - Interior Finishes	88.58 %	23.35 %	$975,227.87
D10 - Conveying	105.71 %	0.00 %	$0.00
D20 - Plumbing	115.84 %	60.30 %	$909,671.55
D30 - HVAC	119.44 %	103.29 %	$8,488,949.53
D40 - Fire Protection	105.71 %	159.47 %	$949,625.58
D50 - Electrical	109.31 %	61.61 %	$2,675,672.42
E10 - Equipment	37.14 %	7.72 %	$90,802.49
E20 - Furnishings	32.50 %	25.70 %	$40,441.79
Totals:	**82.07 %**	**49.03 %**	**$18,532,512.50**

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	$18.40	S.F.	73,882	100	1959	2059		44.00 %	0.00 %	44			$1,359,429
A1030	Slab on Grade	$7.73	S.F.	73,882	100	1959	2059		44.00 %	0.00 %	44			$571,108
A2010	Basement Excavation	$6.55	S.F.	73,882	100	1959	2059		44.00 %	0.00 %	44			$483,927
A2020	Basement Walls	$12.70	S.F.	73,882	100	1959	2059		44.00 %	0.00 %	44			$938,301
B1010	Floor Construction	$75.10	S.F.	73,882	100	1959	2059		44.00 %	0.00 %	44			$5,548,538
B1020	Roof Construction	$13.88	S.F.	73,882	100	1959	2059		44.00 %	0.00 %	44			$1,025,482
B2010	Exterior Walls	$36.91	S.F.	73,882	100	1959	2059		44.00 %	5.35 %	44		$145,806.46	$2,726,985
B2020	Exterior Windows	$18.01	S.F.	73,882	40	1959	1999	2057	105.00 %	150.80 %	42		$2,006,613.98	$1,330,615
B2030	Exterior Doors	$1.45	S.F.	73,882	25	1959	1984	2042	108.00 %	151.64 %	27		$162,453.72	$107,129
B3010105	Built-Up	$37.76	S.F.	39,738	20	1959	1979	2037	110.00 %	90.32 %	22		$1,355,280.44	$1,500,507
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.		25				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.06	S.F.	39,738	20	1959	1979	2037	110.00 %	0.00 %	22			$2,384
C1010	Partitions	$17.91	S.F.	73,882	100	1959	2059		44.00 %	0.00 %	44			$1,323,227
C1020	Interior Doors	$3.51	S.F.	73,882	40	1959	1999	2067	130.00 %	228.63 %	52		$592,886.16	$259,326
C1030	Fittings	$3.12	S.F.	73,882	40	1959	1999	2028	32.50 %	8.19 %	13		$18,883.12	$230,512
C2010	Stair Construction	$1.41	S.F.	73,882	100	1959	2059		44.00 %	115.38 %	44		$120,197.39	$104,174

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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.	73,882	10	1959	1969	2027	120.00 %	9.35 %	12		$91,209.15	$975,981
C3010231	Vinyl Wall Covering	$0.97	S.F.		15				0.00 %	0.00 %				$0
C3010232	Wall Tile	$2.63	S.F.	73,882	30	1959	1989	2020	16.67 %	0.00 %	5			$194,310
C3020411	Carpet	$7.30	S.F.	2,000	10	1959	1969	2027	120.00 %	153.30 %	12		$22,381.52	$14,600
C3020412	Terrazzo & Tile	$75.52	S.F.	12,000	50	1959	2009	2027	24.00 %	19.10 %	12		$173,062.11	$906,240
C3020413	Vinyl Flooring	$9.68	S.F.	54,882	20	1959	1979	2037	110.00 %	93.99 %	22		$499,342.02	$531,258
C3020414	Wood Flooring	$22.27	S.F.		25				0.00 %	0.00 %				$0
C3020415	Concrete Floor Finishes	$0.97	S.F.	5,000	50	1959	2009	2050	70.00 %	269.51 %	35		$13,071.41	$4,850
C3030	Ceiling Finishes	$20.97	S.F.	73,882	25	1959	1984	2042	108.00 %	11.37 %	27		$176,161.66	$1,549,306
D1010	Elevators and Lifts	$1.53	S.F.	73,882	35	1959	1994	2052	105.71 %	0.00 %	37			$113,039
D2010	Plumbing Fixtures	$13.52	S.F.	73,882	35	1959	1994	2055	114.29 %	53.02 %	40		$529,619.58	$998,885
D2020	Domestic Water Distribution	$1.68	S.F.	73,882	25	1959	1984	2045	120.00 %	306.19 %	30		$380,051.97	$124,122
D2030	Sanitary Waste	$2.90	S.F.	73,882	25	1959	1984	2045	120.00 %	0.00 %	30			$214,258
D2040	Rain Water Drainage	$2.32	S.F.	73,882	30	1959	1989	2050	116.67 %	0.00 %	35			$171,406
D3020	Heat Generating Systems	$18.67	S.F.	73,882	35	1959	1994	2055	114.29 %	7.79 %	40		$107,468.55	$1,379,377
D3030	Cooling Generating Systems	$24.48	S.F.	73,882	30	1959	1989	2050	116.67 %	66.59 %	35		$1,204,454.53	$1,808,631
D3040	Distribution Systems	$42.99	S.F.	73,882	25	1959	1984	2045	120.00 %	181.13 %	30		$5,752,993.17	$3,176,187
D3050	Terminal & Package Units	$11.60	S.F.	73,882	20	1959	1979	2040	125.00 %	0.00 %	25			$857,031
D3060	Controls & Instrumentation	$13.50	S.F.	73,882	20	1959	1979	2040	125.00 %	142.77 %	25		$1,424,033.28	$997,407
D4010	Sprinklers	$7.05	S.F.	73,882	35			2052	105.71 %	182.32 %	37		$949,625.58	$520,868
D4020	Standpipes	$1.01	S.F.	73,882	35			2052	105.71 %	0.00 %	37			$74,621
D5010	Electrical Service/Distribution	$9.70	S.F.	73,882	30	1959	1989	2047	106.67 %	121.68 %	32		$872,005.62	$716,655
D5020	Lighting and Branch Wiring	$34.68	S.F.	73,882	20	1959	1979	2037	110.00 %	37.32 %	22		$956,101.27	$2,562,228
D5030	Communications and Security	$12.99	S.F.	73,882	15	1959	1974	2032	113.33 %	78.31 %	17		$751,581.51	$959,727
D5090	Other Electrical Systems	$1.41	S.F.	73,882	30	1959	1989	2037	73.33 %	92.14 %	22		$95,984.02	$104,174
E1020	Institutional Equipment	$4.82	S.F.	73,882	35	1959	1994	2028	37.14 %	25.50 %	13		$90,802.49	$356,111
E1090	Other Equipment	$11.10	S.F.	73,882	35	1959	1994	2028	37.14 %	0.00 %	13			$820,090
E2010	Fixed Furnishings	$2.13	S.F.	73,882	40	1959	1999	2028	32.50 %	25.70 %	13		$40,441.79	$157,369
								Total	**82.07 %**	**49.03 %**			**$18,532,512.50**	**$37,800,375**

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:	**$18,532,513**	**$0**	**$0**	**$0**	**$0**	**$247,784**	**$0**	**$0**	**$0**	**$0**	**$0**	**$18,780,297**
*** A - Substructure**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A10 - Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1010 - Standard Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1030 - Slab on Grade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A20 - Basement Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2010 - Basement Excavation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2020 - Basement Walls	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B10 - Superstructure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1010 - Floor Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1020 - Roof Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B20 - Exterior Enclosure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2010 - Exterior Walls	$145,806	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$145,806**
B2020 - Exterior Windows	$2,006,614	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,006,614**
B2030 - Exterior Doors	$162,454	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$162,454**
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	$1,355,280	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,355,280**
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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

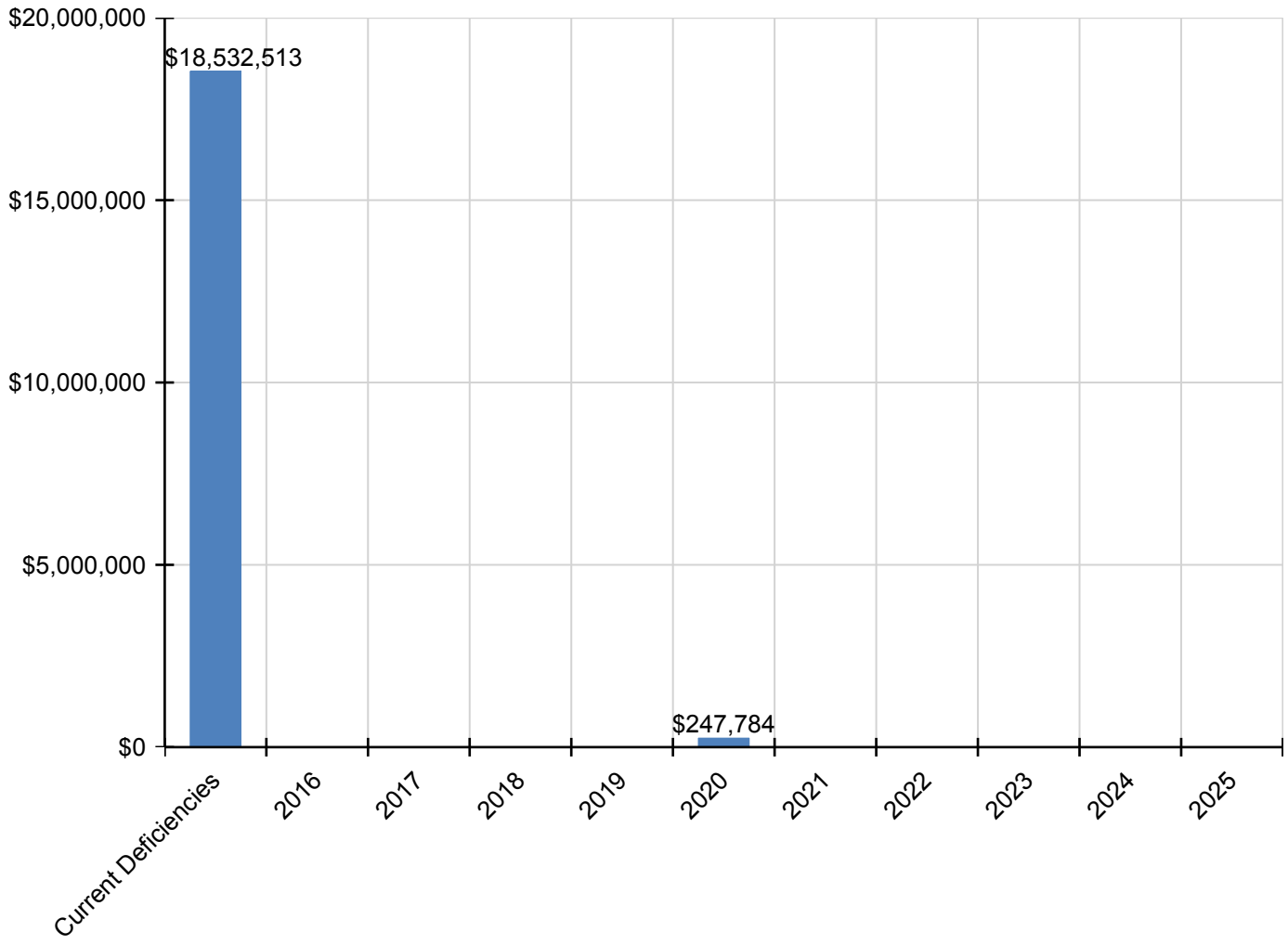
C1020 - Interior Doors	$592,886	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$592,886**
C1030 - Fittings	$18,883	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$18,883**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$120,197	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$120,197**
C30 - Interior Finishes	$0	$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	$91,209	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$91,209**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010232 - Wall Tile	$0	$0	$0	$0	$0	$247,784	$0	$0	$0	$0	$0	**$247,784**
C3020 - Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020411 - Carpet	$22,382	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$22,382**
C3020412 - Terrazzo & Tile	$173,062	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$173,062**
C3020413 - Vinyl Flooring	$499,342	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$499,342**
C3020414 - Wood Flooring	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020415 - Concrete Floor Finishes	$13,071	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$13,071**
C3030 - Ceiling Finishes	$176,162	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$176,162**
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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$529,620	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$529,620**
D2020 - Domestic Water Distribution	$380,052	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$380,052**
D2030 - Sanitary Waste	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
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	$107,469	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$107,469**
D3030 - Cooling Generating Systems	$1,204,455	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,204,455**
D3040 - Distribution Systems	$5,752,993	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$5,752,993**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$1,424,033	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,424,033**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$949,626	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$949,626**
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	$872,006	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$872,006**
D5020 - Lighting and Branch Wiring	$956,101	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$956,101**
D5030 - Communications and Security	$751,582	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$751,582**
D5090 - Other Electrical Systems	$95,984	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$95,984**
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	$90,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$90,802**
E1090 - Other Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E20 - Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E2010 - Fixed Furnishings	$40,442	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$40,442**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

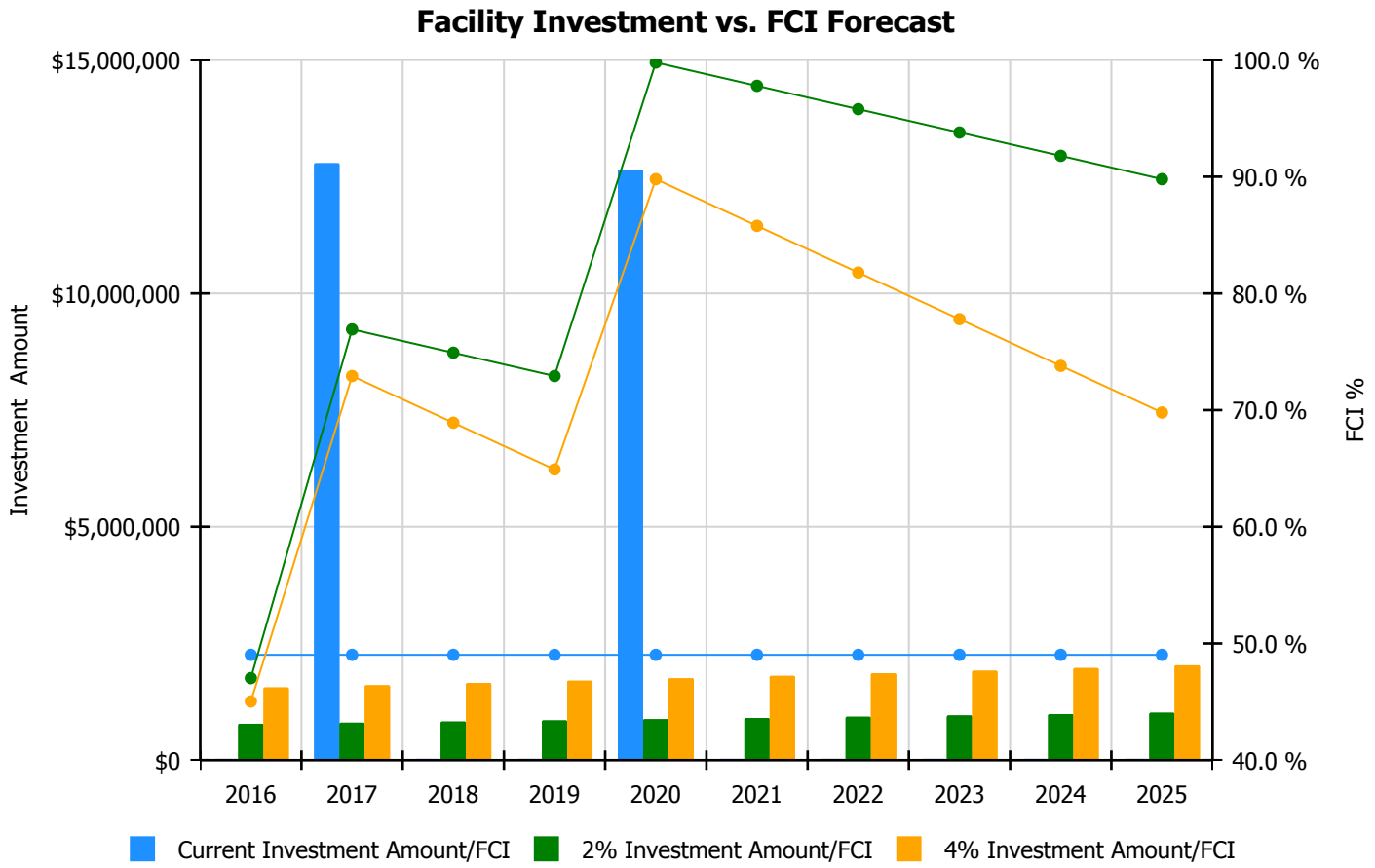
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



10 Year FCI Forecast by Investment Scenario

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

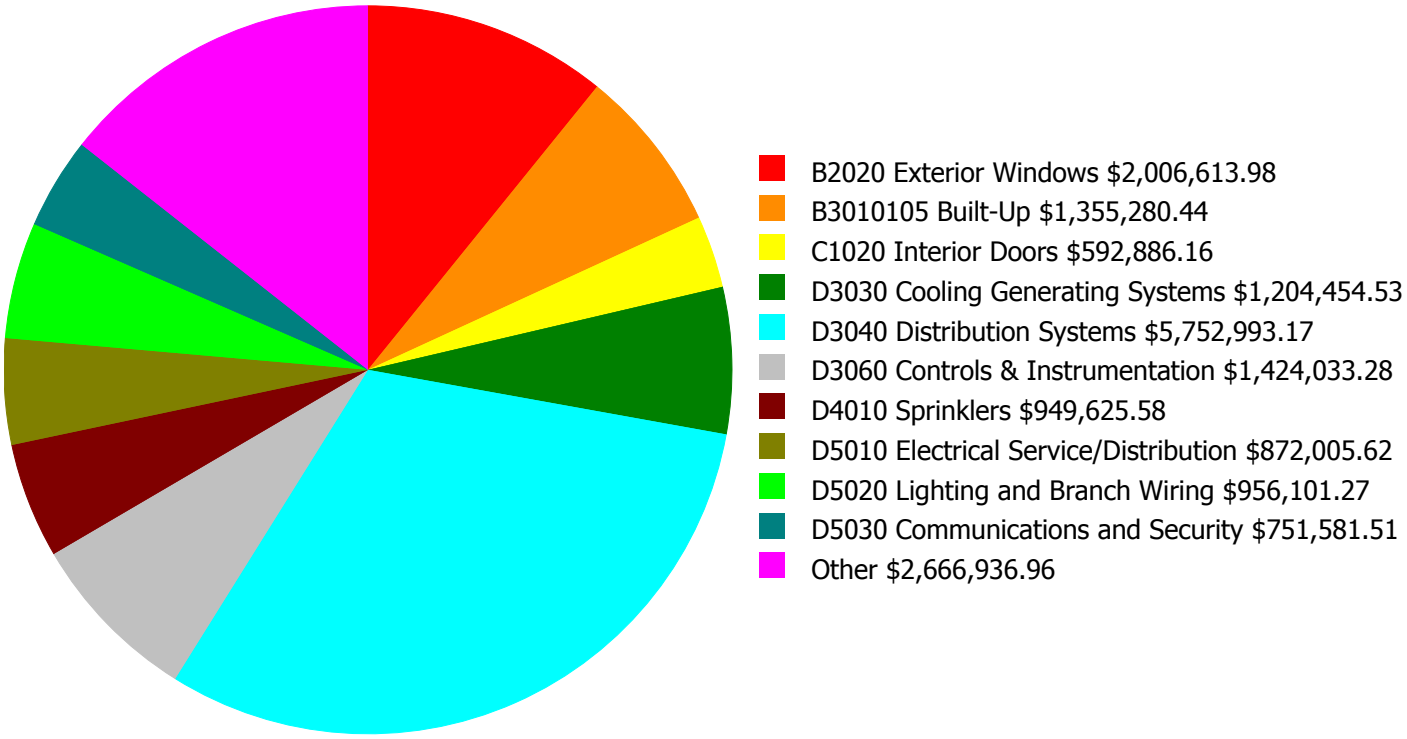
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 49.03%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$778,688.00	47.03 %	$1,557,375.00	45.03 %
2017	$12,788,949	$802,048.00	76.92 %	$1,604,097.00	72.92 %
2018	$0	$826,110.00	74.92 %	$1,652,220.00	68.92 %
2019	$0	$850,893.00	72.92 %	$1,701,786.00	64.92 %
2020	$12,652,058	$876,420.00	99.79 %	$1,752,840.00	89.79 %
2021	$0	$902,712.00	97.79 %	$1,805,425.00	85.79 %
2022	$0	$929,794.00	95.79 %	$1,859,588.00	81.79 %
2023	$0	$957,688.00	93.79 %	$1,915,375.00	77.79 %
2024	$0	$986,418.00	91.79 %	$1,972,837.00	73.79 %
2025	$0	$1,016,011.00	89.79 %	$2,032,022.00	69.79 %
Total:	**$25,441,007**	**$8,926,782.00**		**$17,853,565.00**	

Deficiency Summary by System

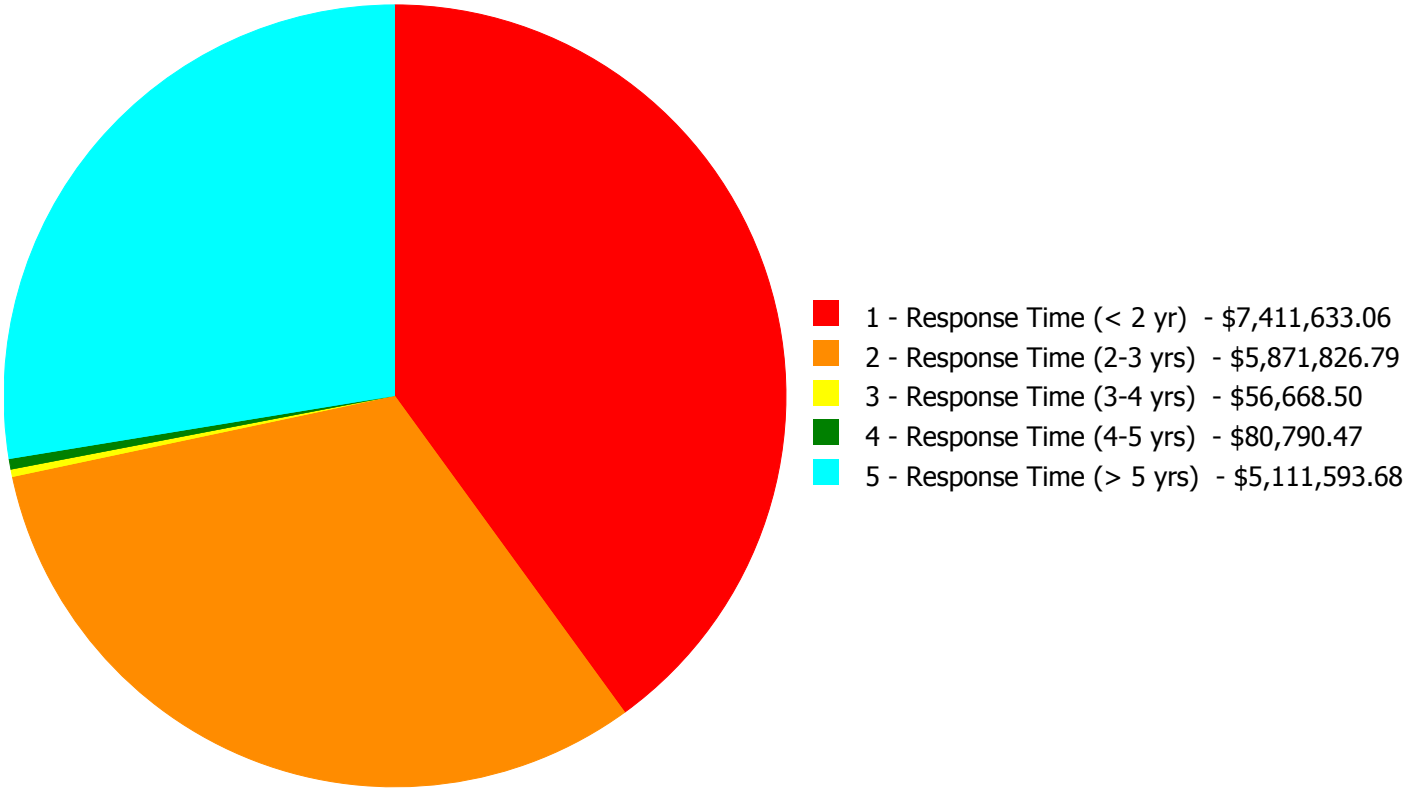
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $18,532,512.50

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: $18,532,512.50

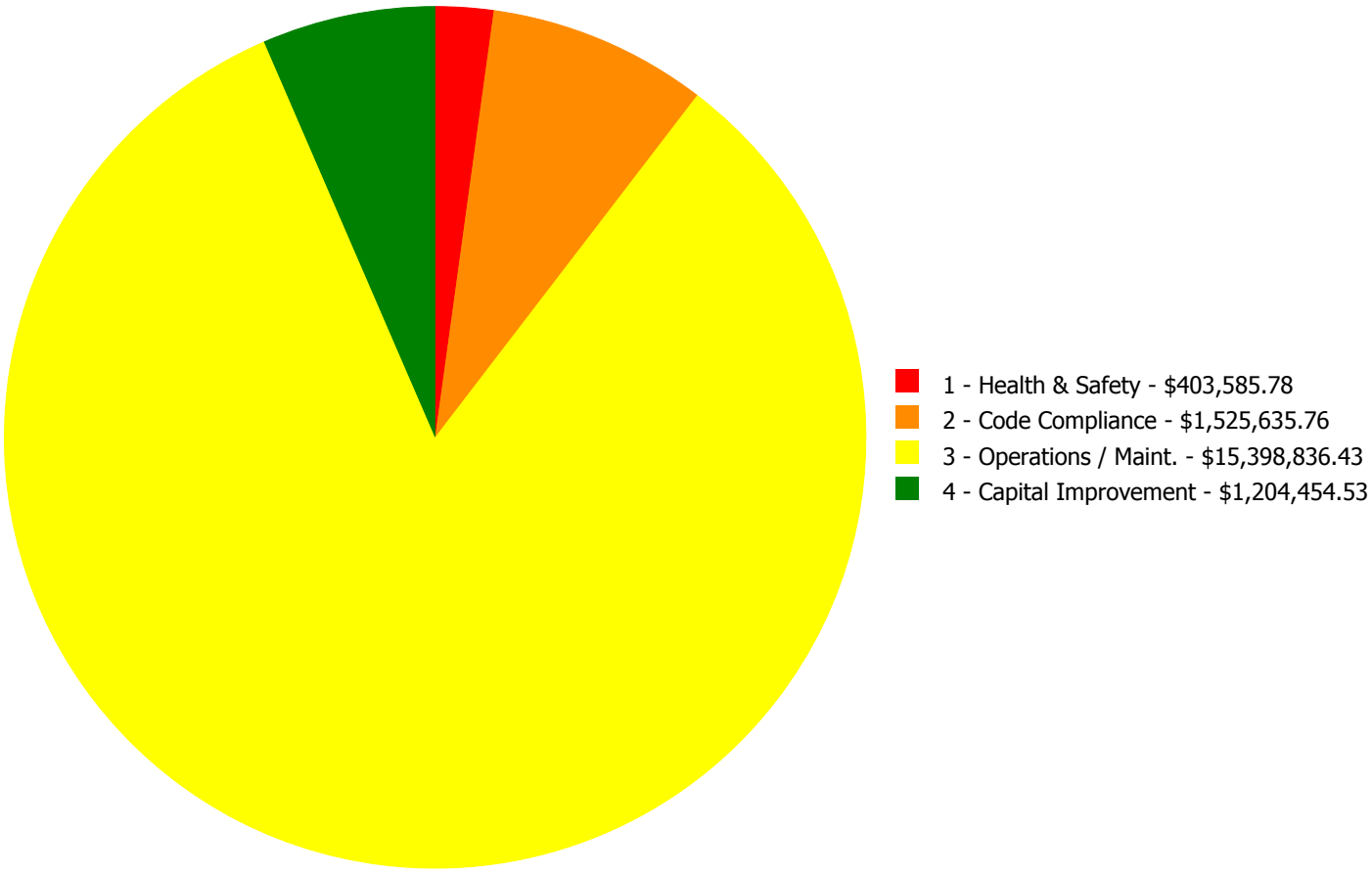
Deficiency By Priority Investment Table

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
B2010	Exterior Walls	$0.00	$145,806.46	$0.00	$0.00	$0.00	$145,806.46
B2020	Exterior Windows	$0.00	$2,006,613.98	$0.00	$0.00	$0.00	$2,006,613.98
B2030	Exterior Doors	$0.00	$162,453.72	$0.00	$0.00	$0.00	$162,453.72
B3010105	Built-Up	$1,355,280.44	$0.00	$0.00	$0.00	$0.00	$1,355,280.44
C1020	Interior Doors	$0.00	$592,886.16	$0.00	$0.00	$0.00	$592,886.16
C1030	Fittings	$0.00	$18,883.12	$0.00	$0.00	$0.00	$18,883.12
C2010	Stair Construction	$120,197.39	$0.00	$0.00	$0.00	$0.00	$120,197.39
C3010230	Paint & Covering	$0.00	$91,209.15	$0.00	$0.00	$0.00	$91,209.15
C3020411	Carpet	$0.00	$22,381.52	$0.00	$0.00	$0.00	$22,381.52
C3020412	Terrazzo & Tile	$0.00	$173,062.11	$0.00	$0.00	$0.00	$173,062.11
C3020413	Vinyl Flooring	$0.00	$499,342.02	$0.00	$0.00	$0.00	$499,342.02
C3020415	Concrete Floor Finishes	$0.00	$13,071.41	$0.00	$0.00	$0.00	$13,071.41
C3030	Ceiling Finishes	$0.00	$176,161.66	$0.00	$0.00	$0.00	$176,161.66
D2010	Plumbing Fixtures	$0.00	$529,619.58	$0.00	$0.00	$0.00	$529,619.58
D2020	Domestic Water Distribution	$0.00	$0.00	$0.00	$0.00	$380,051.97	$380,051.97
D3020	Heat Generating Systems	$0.00	$0.00	$0.00	$80,790.47	$26,678.08	$107,468.55
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$1,204,454.53	$1,204,454.53
D3040	Distribution Systems	$3,202,209.65	$0.00	$0.00	$0.00	$2,550,783.52	$5,752,993.17
D3060	Controls & Instrumentation	$0.00	$1,424,033.28	$0.00	$0.00	$0.00	$1,424,033.28
D4010	Sprinklers	$0.00	$0.00	$0.00	$0.00	$949,625.58	$949,625.58
D5010	Electrical Service/Distribution	$872,005.62	$0.00	$0.00	$0.00	$0.00	$872,005.62
D5020	Lighting and Branch Wiring	$923,571.94	$0.00	$32,529.33	$0.00	$0.00	$956,101.27
D5030	Communications and Security	$751,581.51	$0.00	$0.00	$0.00	$0.00	$751,581.51
D5090	Other Electrical Systems	$95,984.02	$0.00	$0.00	$0.00	$0.00	$95,984.02
E1020	Institutional Equipment	$90,802.49	$0.00	$0.00	$0.00	$0.00	$90,802.49
E2010	Fixed Furnishings	$0.00	$16,302.62	$24,139.17	$0.00	$0.00	$40,441.79
	Total:	$7,411,633.06	$5,871,826.79	$56,668.50	$80,790.47	$5,111,593.68	$18,532,512.50

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: $18,532,512.50

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: B3010105 - Built-Up

Location: roofs
Distress: Failing
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Remove and Replace Built Up Roof
Qty: 40,000.00
Unit of Measure: S.F.
Estimate: $1,355,280.44
Assessor Name: System
Date Created: 01/12/2016

Notes: Replace roof including flashing and counterflashing at brick walls on roofs (7,500sf annex roof, 32,500 main bldg. roof) (40,000sf)

System: C2010 - Stair Construction

Location: stairways
Distress: Building / MEP Codes
Category: 2 - Code Compliance
Priority: 1 - Response Time (< 2 yr)
Correction: Replace inadequate or install proper stair railing - select appropriate material
Qty: 540.00
Unit of Measure: L.F.
Estimate: $120,197.39
Assessor Name: System
Date Created: 01/12/2016

Notes: Replace stairway handrails and guards with code compliant systems (220ft rail; 320ft 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: 66,382.00

Unit of Measure: S.F.

Estimate: $3,202,209.65

Assessor Name: System

Date Created: 02/06/2016

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

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: $512,197.88

Assessor Name: System

Date Created: 11/23/2015

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: $359,807.74

Assessor Name: System

Date Created: 11/23/2015

Notes: Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash label on the electrical equipment. Estimated 12 panel boards.

System: D5020 - Lighting and Branch Wiring

Location: B838001;Farrell

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: $923,571.94

Assessor Name: System

Date Created: 11/23/2015

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. Estimated 30each.

System: D5030 - Communications and Security

Location: Entire Building
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 1 - Response Time (< 2 yr)
Correction: Add/Replace Video Surveillance System
Qty: 1.00
Unit of Measure: Ea.
Estimate: $364,814.14
Assessor Name: System
Date Created: 11/23/2015

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: $317,644.68
Assessor Name: System
Date Created: 11/23/2015

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

This deficiency has no image.

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: $38,400.80
Assessor Name: System
Date Created: 11/23/2015

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: B838001;Farrell
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Add/Replace Clock System or Components
Qty: 0.00
Unit of Measure: Ea.
Estimate: $30,721.89
Assessor Name: System
Date Created: 11/23/2015

Notes: Replace existing master clock system with new wireless master clock system.

System: D5090 - Other Electrical Systems

Location: Boiler Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace standby generator system

Qty: 1.00

Unit of Measure: Ea.

Estimate: $73,272.94

Assessor Name: System

Date Created: 11/23/2015

Notes: Replace existing generator with new 30KW generator

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: $22,711.08

Assessor Name: System

Date Created: 11/23/2015

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: $90,802.49

Assessor Name: System

Date Created: 11/23/2015

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 - limestone panels

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

Correction: Repoint horizontal or vertical joints at limestone coping

Qty: 4,000.00

Unit of Measure: L.F.

Estimate: $68,253.88

Assessor Name: System

Date Created: 01/12/2016

Notes: Repoint all limestone panel joints (panels are approx. 2'x2'3"ea) (4,000sf; approx. 4000linear feet of joint)

System: B2010 - Exterior Walls

Location: Annex exterior walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Repaint exterior walls - CMU

Qty: 3,000.00

Unit of Measure: S.F.

Estimate: $26,317.04

Assessor Name: System

Date Created: 01/12/2016

Notes: Repaint precast concrete exterior of Annex (3,000sf)

System: B2010 - Exterior Walls

Location: exterior of Annex vestibule

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Remove and replace insulated metal exterior wall panels

Qty: 500.00

Unit of Measure: S.F.

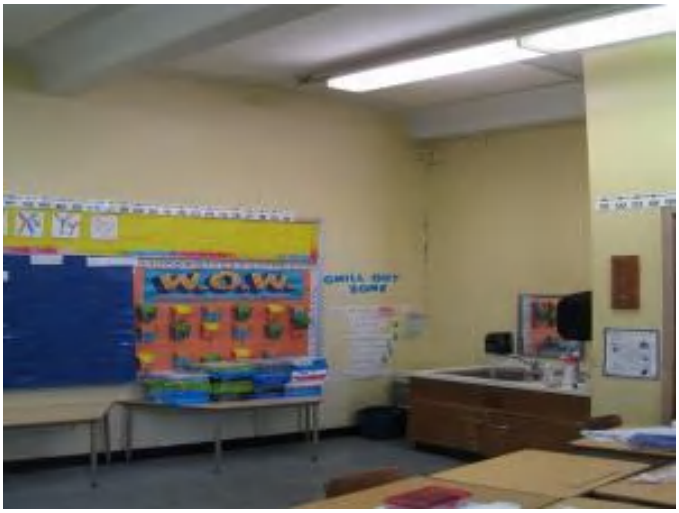
Estimate: $18,946.06

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace metal siding above head height on Annex Addition vestibule (500sf)

System: B2010 - Exterior Walls



Location: interior block walls

Distress: Damaged

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: System

Date Created: 01/12/2016

Notes: Repoint cracked interior block before painting (500sf)

System: B2010 - Exterior Walls

Location: exterior walls

Distress: Building Envelope Integrity

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: System

Date Created: 01/13/2016

Notes: Brick pointing at lintels on main building over gym; auditorium, and cafeteria windows (50 windows, with 2ft each side repointing = 500sf)

System: B2020 - Exterior Windows

Location: exterior walls

Distress: Failing

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: 337.00

Unit of Measure: Ea.

Estimate: $2,006,613.98

Assessor Name: System

Date Created: 01/13/2016

Notes: Replace windows in main building (300 3.5x7) and annex (26 2x4; 11 3.5)

System: B2030 - Exterior Doors

Location: exterior walls

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace exterior doors - per leaf

Qty: 21.00

Unit of Measure: Ea.

Estimate: $162,453.72

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace damaged and rusted exterior metal doors and frames (includes 7 annex doors) (21)3x7

System: C1020 - Interior Doors

Location: corridor doors

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

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

Qty: 70.00

Unit of Measure: Ea.

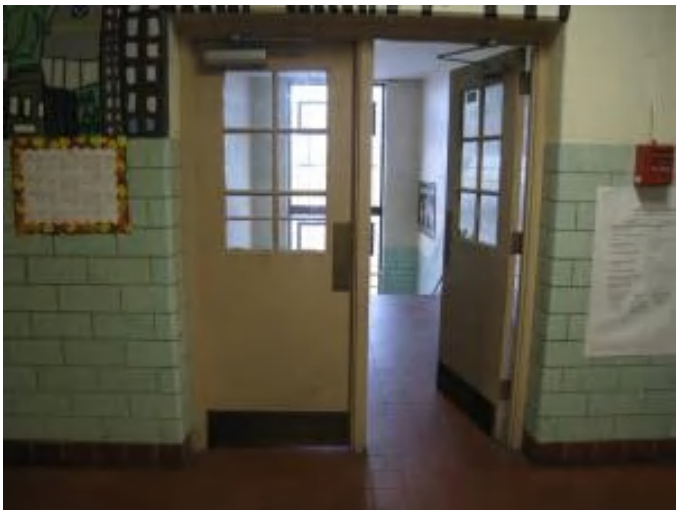
Estimate: $333,941.10

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace existing plastic laminated and stained wood doors from corridors into classrooms, gym, cafeteria, auditorium, toilet rooms, and offices with fire rated doors and vision panels (for most doors) (70) 3x7

System: C1020 - Interior Doors



Location: mechanical rooms and stairs

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Remove and replace hollow metal frames and doors

Qty: 24.00

Unit of Measure: Ea.

Estimate: $121,871.69

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace steel doors and metal frames in mechanical rooms and stairs (24) 3x7

System: C1020 - Interior Doors

Location: closets / storage areas

Distress: Damaged

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: 26.00

Unit of Measure: Ea.

Estimate: $121,012.81

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace folding vinyl closet doors in main building (26 – 7ft high x 20ft long, average)

System: C1020 - Interior Doors

Location: classroom and office 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: 70.00

Unit of Measure: Ea.

Estimate: $16,060.56

Assessor Name: System

Date Created: 01/12/2016

Notes: Provide security hardware for classrooms and offices, locking from the inside of the room (70)

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: System

Date Created: 01/12/2016

Notes: Replace transite partitions and damaged metal toilet room partitions with plastic partitions (assume 6 toilet compartments)

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: $3,484.69

Assessor Name: System

Date Created: 01/12/2016

Notes: Provide toilet room accessories where partitions are replaced; add grab bars to create handicap stalls (6)

System: C3010230 - Paint & Covering

Location: interior block walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Repair substrate and repaint interior concrete or CMU walls - SF of wall surface

Qty: 25,000.00

Unit of Measure: S.F.

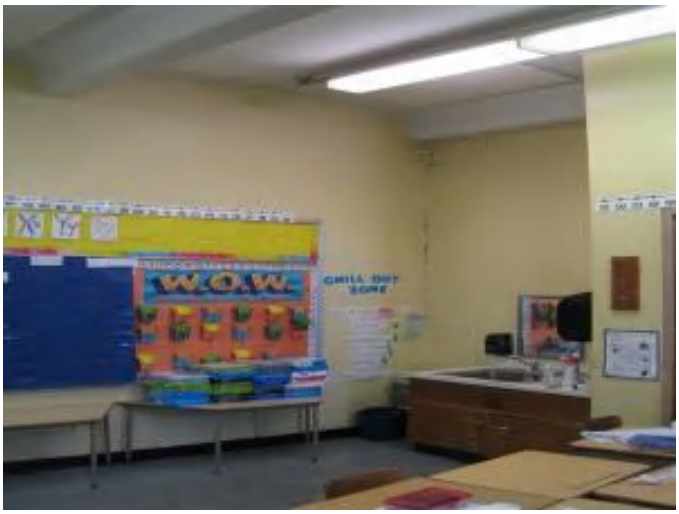
Estimate: $91,209.15

Assessor Name: System

Date Created: 01/12/2016

Notes: Repaint interior block walls where surface is damaged in cafeteria, kitchen, corridors (upper section above wainscot), classrooms, and stairways in main building (20,000sf) and Annex (5,000sf) (25,000sf)

System: C3020411 - Carpet



Location: library

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace carpet

Qty: 2,000.00

Unit of Measure: S.F.

Estimate: $22,381.52

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace carpet in library in Annex (2,000sf)

System: C3020412 - Terrazzo & Tile

Location: 2nd floor corridor

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove and replace terazzo or tile flooring - pick the appropriate material

Qty: 3,000.00

Unit of Measure: S.F.

Estimate: $151,276.48

Assessor Name: System

Date Created: 01/12/2016

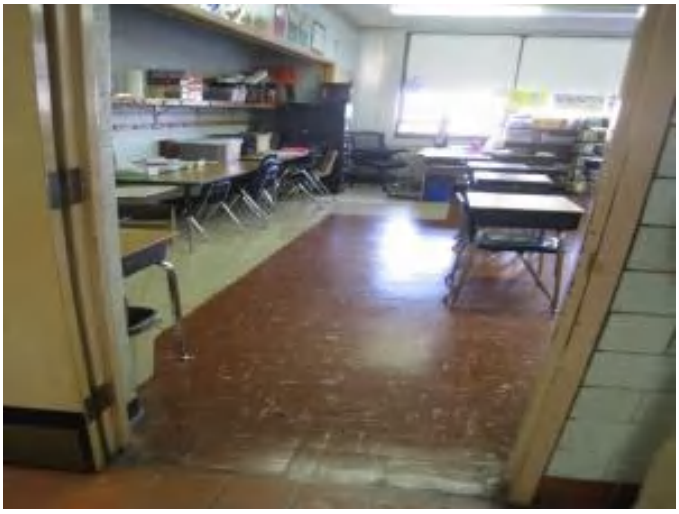
Notes: Replace second floor quarry tile with VCT (3,000sf)

System: C3020412 - Terrazzo & Tile

Location: corridors with quarry tile
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Refinish terrazzo or tile flooring
Qty: 1,000.00
Unit of Measure: S.F.
Estimate: $21,785.63
Assessor Name: System
Date Created: 01/12/2016

Notes: Repair / regrout sections of quarry tile corridors on first and third floors (1,000sf)

System: C3020413 - Vinyl Flooring



Location: classroom, office, auditorium
Distress: Failing
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Remove VAT and replace with VCT - SF of area
Qty: 25,000.00
Unit of Measure: S.F.
Estimate: $379,166.70
Assessor Name: System
Date Created: 01/12/2016

Notes: Remove 9”x9” VAT floors in classrooms, offices, and auditorium with and replace with VCT (25,000sf)

System: C3020413 - Vinyl Flooring

Location: gym and Annex building

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace VCT

Qty: 10,000.00

Unit of Measure: S.F.

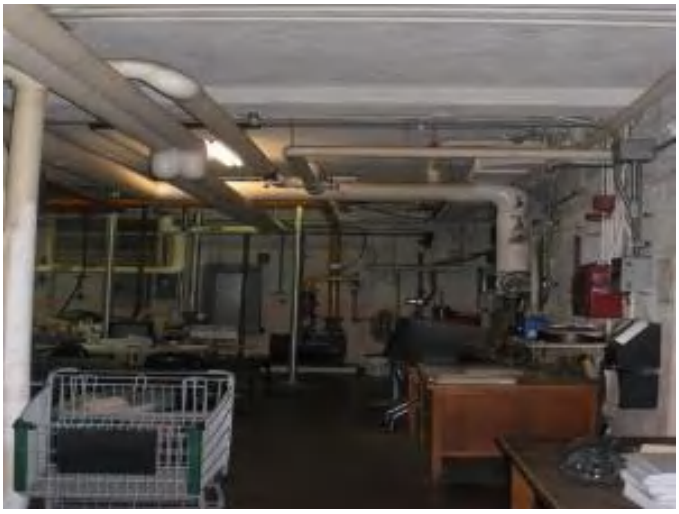
Estimate: $120,175.32

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace damaged VCT with new VCT (10,000sf)

System: C3020415 - Concrete Floor Finishes



Location: basement, stairway platforms

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Clean and reseal concrete floors

Qty: 3,400.00

Unit of Measure: S.F.

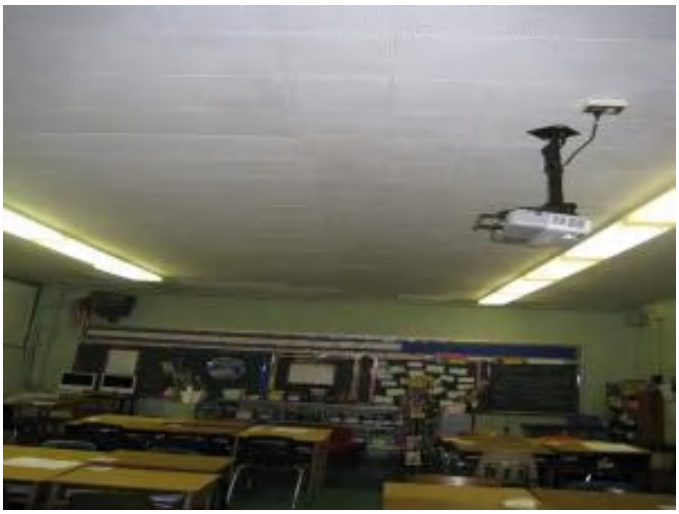
Estimate: $13,071.41

Assessor Name: System

Date Created: 01/12/2016

Notes: Strip and reseal or paint concrete floors in stairways, toilet rooms, and parts of basement, (3,400sf)

System: C3030 - Ceiling Finishes



Location: ceilings - many locations

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove and replace glued on or mechanically attached acoustical ceiling tiles

Qty: 10,000.00

Unit of Measure: S.F.

Estimate: $124,788.06

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace 12x12 acoustical tile ceiling in auditorium, library, classrooms and corridors where damaged (10,000sf)

System: C3030 - Ceiling Finishes

Location: gymnasium

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: 4,000.00

Unit of Measure: S.F.

Estimate: $42,324.14

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace acoustical ceiling in gym (4,000sf)

System: C3030 - Ceiling Finishes

Location: annex corridor

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 600.00

Unit of Measure: S.F.

Estimate: $9,049.46

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace 2x4 ceiling system in Annex corridor (600sf)

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: 31.00

Unit of Measure: Ea.

Estimate: $231,326.58

Assessor Name: System

Date Created: 02/06/2016

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 water fountains to meet ADA - includes high and low fountains and new recessed alcove

Qty: 7.00

Unit of Measure: Ea.

Estimate: $109,850.27

Assessor Name: System

Date Created: 02/06/2016

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

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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: 23.00

Unit of Measure: Ea.

Estimate: $87,653.29

Assessor Name: System

Date Created: 02/06/2016

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 wall hung urinals

Qty: 18.00

Unit of Measure: Ea.

Estimate: $66,708.98

Assessor Name: System

Date Created: 02/06/2016

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: 4.00

Unit of Measure: Ea.

Estimate: $27,264.37

Assessor Name: System

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 floor janitor or mop sink - insert the quantity

Qty: 1.00

Unit of Measure: Ea.

Estimate: $6,816.09

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace all janitor.service sinks as the fixtures are original.

System: D3060 - Controls & Instrumentation

Location: Throughout the builidng

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace pneumatic controls with DDC (75KSF)

Qty: 66,382.00

Unit of Measure: S.F.

Estimate: $1,424,033.28

Assessor Name: System

Date Created: 02/06/2016

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

System: E2010 - Fixed Furnishings

Location: auditorium

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 20.00

Unit of Measure: Ea.

Estimate: $16,302.62

Assessor Name: System

Date Created: 01/12/2016

Notes: Repair auditorium seats (20)

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

System: D5020 - Lighting and Branch Wiring

Location: Entire Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Add wiring device

Qty: 1.00

Unit of Measure: Ea.

Estimate: $32,529.33

Assessor Name: System

Date Created: 11/23/2015

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

System: E2010 - Fixed Furnishings

Location: kindergarten

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace casework - per LF - insert quantities for cabinets in the estimate

Qty: 12.00

Unit of Measure: L.F.

Estimate: $24,139.17

Assessor Name: System

Date Created: 01/12/2016

Notes: Replace kindergarten kitchenette cabinets

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

System: D3020 - Heat Generating Systems

Location: Main boiler mechanical equipment room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace pump, base-mounted, end suction HHW (4" size, 7-1/2 HP, to 350 GPM)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $80,790.47

Assessor Name: System

Date Created: 02/06/2016

Notes: Replace heating water pumps.

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: 75,000.00
Unit of Measure: S.F.
Estimate: $380,051.97
Assessor Name: System
Date Created: 02/06/2016

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

System: D3020 - Heat Generating Systems

This deficiency has no image.

Location: Main boiler mechanical equipment room
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 5 - Response Time (> 5 yrs)
Correction: Replace fuel oil pumps
Qty: 1.00
Unit of Measure: Ea.
Estimate: $26,678.08
Assessor Name: System
Date Created: 02/06/2016

Notes: Replace duplex fuel oil pumps

System: D3030 - Cooling Generating Systems

Location: Throughout the building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 75,000.00

Unit of Measure: S.F.

Estimate: $1,204,454.53

Assessor Name: System

Date Created: 02/06/2016

Notes: 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

System: D3040 - Distribution Systems

Location: Throughout the building

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: 9.00

Unit of Measure: C

Estimate: $747,548.88

Assessor Name: System

Date Created: 02/06/2016

Notes: Provide ventilation for the corridors at nine first floor entryways 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: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace hydronic heating piping (75KSF)

Qty: 75,000.00

Unit of Measure: S.F.

Estimate: $738,330.96

Assessor Name: System

Date Created: 02/06/2016

Notes: Hire a qualified contractor to examine the heating water piping that has been in service for 58 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: Cafeteria

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: System

Date Created: 02/06/2016

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: Gymnasium

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: System

Date Created: 02/06/2016

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

System: D3040 - Distribution Systems

Location: Auditorium

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

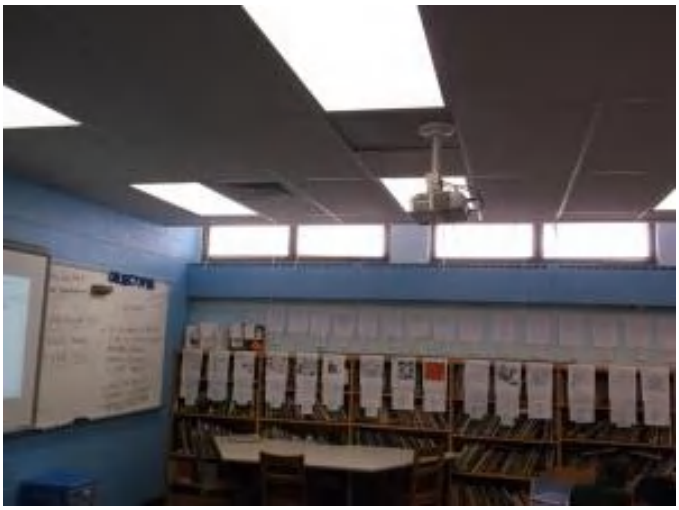
Estimate: $285,085.41

Assessor Name: System

Date Created: 02/06/2016

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

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: 66,382.00

Unit of Measure: S.F.

Estimate: $949,625.58

Assessor Name: System

Date Created: 02/06/2016

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
D1010 Elevators and Lifts	Electric traction freight elevators, base unit, standard finish, 4000 lb, 200 fpm, 4 stop	1.00	Ea.	Elevator Housing					30	1959	2025	$164,636.00	$181,099.60
D3020 Heat Generating Systems	Boiler, cast iron, gas & oil, steam, 3270 MBH	2.00	Ea.	Main boiler mechanical equipment room	DeDietrich MACNA	GT414A			35			$106,126.00	$233,477.20
D3020 Heat Generating Systems	Boiler, cast iron, gas & oil, steam, 3270 MBH	2.00	Ea.	Main boiler mechanical equipment room	DeDietrich MACNA	GT414A			35			$106,126.00	$233,477.20
D5010 Electrical Service/Distribution	Switchboards, pressure switch, 4 wire, with ground fault, 120/208 V, 800 amp, incl CT compartment, excl CT's or PT's	1.00	Ea.	Electrical Room in the basement					30	1959	2017	$25,212.60	$27,733.86
												Total:	**$675,787.86**

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):	147,400
Year Built:	1959
Last Renovation:	
Replacement Value:	$2,851,096
Repair Cost:	$0.00
Total FCI:	0.00 %
Total RSLI:	0.00 %

Description:

Attributes:

General Attributes:

Bldg ID:	S838001	Site ID:	S838001

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	0.00 %	0.00 %	$0.00
G40 - Site Electrical Utilities	0.00 %	0.00 %	$0.00
Totals:	**0.00 %**	**0.00 %**	**$0.00**

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.		30				0.00 %	0.00 %				$0
G2020	Parking Lots	$7.65	S.F.		30				0.00 %	0.00 %				$0
G2030	Pedestrian Paving	$11.52	S.F.	130,500	40	1959	1999		0.00 %	0.00 %	-16			$1,503,360
G2040	Site Development	$4.36	S.F.	147,400	25	1959	1984		0.00 %	0.00 %	-31			$642,664
G2050	Landscaping & Irrigation	$3.78	S.F.	16,900	15	1959	1974		0.00 %	0.00 %	-41			$63,882
G4020	Site Lighting	$3.58	S.F.	147,400	30	1959	1989		0.00 %	0.00 %	-26			$527,692
G4030	Site Communications & Security	$0.77	S.F.	147,400	30	1959	1989		0.00 %	0.00 %	-26			$113,498
								Total	**0.00 %**					**$2,851,096**

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.

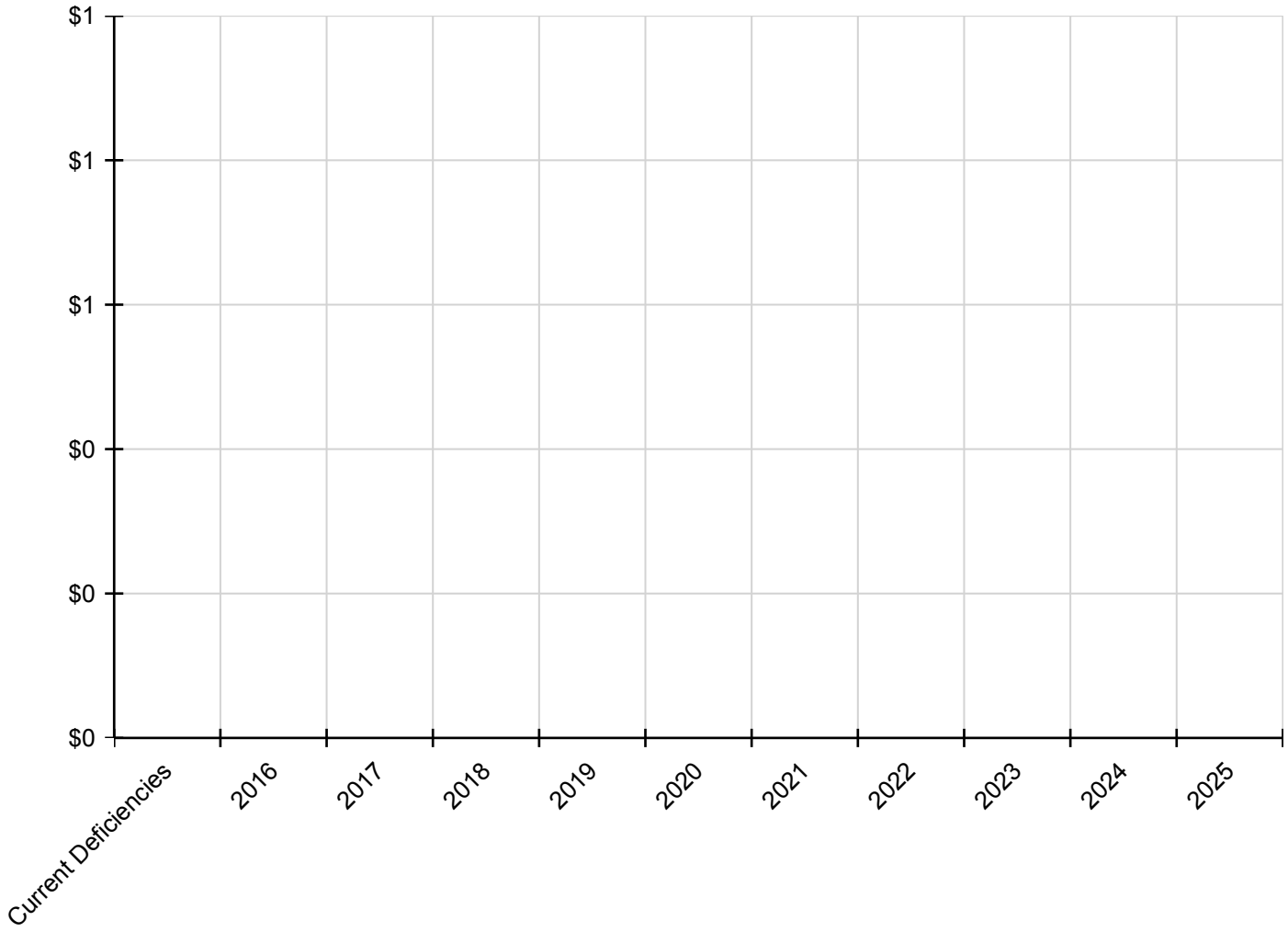
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2030 - Pedestrian Paving	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2040 - Site Development	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
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

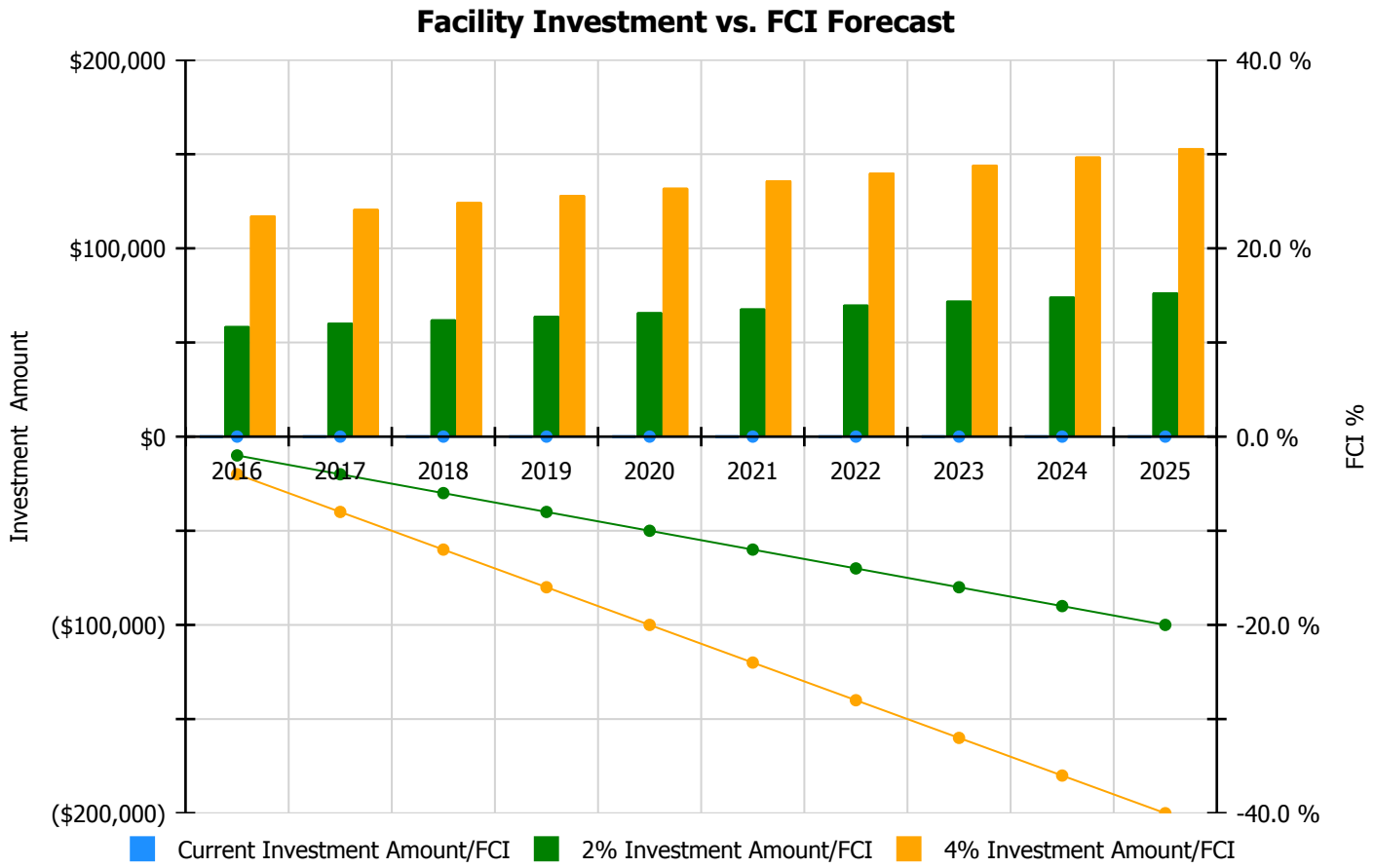
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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 - 0%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$58,733.00	-2.00 %	$117,465.00	-4.00 %
2017	$0	$60,495.00	-4.00 %	$120,989.00	-8.00 %
2018	$0	$62,309.00	-6.00 %	$124,619.00	-12.00 %
2019	$0	$64,179.00	-8.00 %	$128,357.00	-16.00 %
2020	$0	$66,104.00	-10.00 %	$132,208.00	-20.00 %
2021	$0	$68,087.00	-12.00 %	$136,174.00	-24.00 %
2022	$0	$70,130.00	-14.00 %	$140,260.00	-28.00 %
2023	$0	$72,234.00	-16.00 %	$144,467.00	-32.00 %
2024	$0	$74,401.00	-18.00 %	$148,801.00	-36.00 %
2025	$0	$76,633.00	-20.00 %	$153,265.00	-40.00 %
Total:	**$0**	**$673,305.00**		**$1,346,605.00**	

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.

No data found for this asset

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:

No data found for this asset

Deficiency By Priority Investment Table

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

No data found for this asset

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:

No data found for this asset

Deficiency Details by Priority

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

No data found for this asset

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