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.

Richmond School

Governance	DISTRICT	Report Type	Elementary
Address	2944 Belgrade St.	Enrollment	672
	Philadelphia, Pa 19134	Grade Range	'00-05'
Phone/Fax	215-291-4718 / 215-291-4141	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Richmond	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	**79.45%**	**$17,440,503**	**$21,952,188**
Building	79.03 %	$16,748,313	$21,193,242
Grounds	91.20 %	$692,190	$758,946

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	107.61 %	$593,525	$551,541
Exterior Walls (Shows condition of the structural condition of the exterior facade)	63.24 %	$982,995	$1,554,294
Windows (Shows functionality of exterior windows)	232.77 %	$1,766,211	$758,793
Exterior Doors (Shows condition of exterior doors)	391.53 %	$238,277	$60,858
Interior Doors (Classroom doors)	65.62 %	$95,082	$144,900
Interior Walls (Paint and Finishes)	148.16 %	$807,917	$545,307
Plumbing Fixtures	46.19 %	$267,026	$578,151
Boilers	91.38 %	$730,041	$798,882
Chillers/Cooling Towers	65.21 %	$683,196	$1,047,627
Radiators/Unit Ventilators/HVAC	169.20 %	$3,111,139	$1,838,781
Heating/Cooling Controls	155.54 %	$897,743	$577,185
Electrical Service and Distribution	170.63 %	$642,842	$376,740
Lighting	51.12 %	$689,305	$1,348,536
Communications and Security (Cameras, Pa System and Fire Alarm)	00.00 %	$0	$505,218

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

S540001;Richmond

Final

Site Assessment Report

January 31, 2017

PARSONS

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Site Executive Summary

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

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

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

Gross Area (SF):	48,300
Year Built:	1923
Last Renovation:	
Replacement Value:	$21,952,188
Repair Cost:	$17,440,502.75
Total FCI:	79.45 %
Total RSLI:	70.30 %

Description:

Facility Assessment
October 2015

School District of Philadelphia
Richmond Elementary School
2944 Belgrade Street
Philadelphia, PA 19134

48,300 SF / 556 Students / LN 05

The Richmond Elementary school building is located at 2944 Belgrade Street in Philadelphia, PA. The 3 story, 70,230 square foot building was originally constructed in 1929. The building has a basement partially above ground and an access penthouse on the roof. A portable classroom building is located adjacent to the main building on the playground.

Mr. Scott Ovington, Facility Area Coordinator provided input to the Parsons assessment team on current problems and planned renovation projects. Mr. Ivan Cuevas, Building Engineer, accompanied us on our tour of the school and provided us with detailed information on the building systems and recent maintenance history. Ms. Suzan Rozanski, school principal provided additional information about school condition.

STRUCTURAL/ EXTERIOR CLOSURE:

The building typically rests on concrete foundations and bearing walls that are not showing signs of settlement or distress. However, there is severe water leakage through roof slab during rain in the unused coal and ash bunkers located directly below exposed first floor terrace on the north side of the building. Foundation walls do not show signs of deterioration. Portions of the basement slab are cracked but do not show signs of heaving.

The main structure consists typically of cast-in-place concrete columns, beams and one-way concrete slabs. Long slab spans are supported with steel truss girders. Above ground floor slabs are generally in good condition, however floor slab above the basement (boiler room and other mechanical spaces) show substantial structural deterioration including spalled concrete and exposed, rusting reinforcement. The roof structure of the small play area is exposed to weather, (above the coal and ash bunkers) exhibits similar deterioration. The fire towers landings and stairs are also severely deteriorated – the stairs should be rebuilt.

The building envelope is typically masonry with face brick with decorative stone quoining at windows and doors perimeter. In general, masonry is in poor condition with deteriorated and missing mortar from joints. There are substantial cracks and face brick buckling particularly at roof level.

The original windows were replaced in 1990 with extruded aluminum double hung windows, single, acrylic glazed. All windows are beyond their service life; severe deterioration of perimeter sealant is evident. Basement and first floor windows are fitted with integral security screens on the street side; at the playground side all windows have security screens.

Roofing is typically ballasted built-up. All roofing and flashing is typically in poor condition with some deterioration of the built-up system including water ponding and soft spots. Flashing is separated from parapet walls. Access door is made of plywood in 2x4 frame. Leaks have been reported.

Exterior doors are typically hollow metal in poor condition. Generally, the building is not accessible per ADA requirements due to first floor-grade separation with no ramps or lifts.

INTERIORS:

Partition wall types include plastered ceramic hollow blocks and painted CMU. Some classrooms are separated with unused sliding partitions. The interior wall finishes are generally painted plaster or drywall and some painted brick with marble and glazed brick wainscot in stairways and toilets. Generally, paint is in fair condition with some deterioration in stairways and other spaces.

Most ceilings are 2x4 suspended acoustical panels and exposed, painted. The suspension system and tile are old and approaching the end of their useful life. Paint on exposed ceilings is deteriorated.

Flooring in classrooms is generally hardwood; and patterned concrete in most corridors and toilets. Most flooring is original and in poor condition, it is often uneven creating possible tripping hazard; cove base is typically in fair condition. Some areas have VCT or VAT tile, typically in fair condition, however, all tiles are beyond service life. Toilets have generally painted concrete finish, severely deteriorated.

Interior doors are generally rail and stile wood doors, some glazed with matching wood frame side lights and transoms.

Door finishes are typically in poor condition and require refinishing. Most doors are fitted with door knobs and are not ADA compliant. The doors leading to exit stairways are hollow metal doors and frames in good condition.

Fittings include original chalk boards, generally in poor condition; toilet accessories in poor condition with substantial number damaged or missing; toilet partitions, generally in very poor condition; handrails and ornamental metals, generally in good condition. Interior identifying signage is typically directly painted on wall or door surfaces generally in poor condition.

Stair construction is generally concrete with cast iron non-slip treads in good condition. Stairs in fire towers are severely deteriorated.

Institutional and Commercial equipment includes: stage equipment, generally in poor condition; A/V equipment in fair condition; gym equipment – basketball backstops, scoreboards, etc.; generally in poor condition. Other equipment includes kitchen equipment, generally in good condition.

Furnishings include fixed casework in classrooms, corridors and library, generally in fair to poor condition; window shades/blinds, generally in fair condition.

CONVEYING SYSTEMS:

The building has no elevators.

PLUMBING:

Plumbing Fixtures - Many of the plumbing fixtures, updated in the 1980s, remain in service. Fixtures in the restrooms on each floor consist of floor and wall mounted flush valve water closets, wall hung urinals and lavatories with wheel handle faucets. The units should be replaced as part of any renovation of the spaces. Several of the urinals and water closets were not in service during the site visit.

Drinking fountains in the corridors and at the restrooms are a mixture of wall hung with integral refrigerated coolers and wall hung porcelain units. They are well beyond their service life, some are broken, and should be replaced; most are NOT accessible type.

A service sink is available in a janitor closet in the corridor on each floor for use by the janitorial staff.

The Kitchen, a converted storage space off the Cafeteria/Gymnasium, does not have any sinks or cooking equipment; only premade meals are served.

Domestic Water Distribution - A 4” city water service enters the building from Belgrade Street near the middle of the block. The 4” meter and valves are located in the basement boiler room. A reduced pressure backflow preventer is installed. The domestic hot and cold water distribution piping is copper piping and sweat fittings. The maintenance staff reports no significant problems with scale build up in the domestic piping and the supply is adequate to the fixtures.

One State Sandblaster gas fired, 70 gallon, vertical hot water heater with circulating pump supplies hot water for domestic use. The unit installation date is unknown, but the unit appears old. It is located in the boiler room on the basement level. The hot water heater is equipped with a T&P relief valve. The domestic hot water heater is most likely beyond its service life and should be replaced.A water softener is located in the boiler room.

Sanitary Waste - The storm and sanitary sewer piping is a mixture of threaded galvanized piping and cast iron with hub and spigot fittings. Some repairs have been made with HDPE piping with no-hub fittings.

The maintenance staff reported mostly minor problems with the sanitary waste piping systems. The sewer piping has been in service for over 80 years and will require more frequent attention from the maintenance staff as time passes. The District should hire a qualified contractor to examine the sanitary waste piping using video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.

A sewage ejector pit located in the basement boiler room receives sewage from the basement area. The system was recently installed, the pit is sealed, and the pump was not visible.

Rain Water Drainage - Rain water drains from the roof are routed through mechanical chases in the building and appear to be original. Some of the original galvanized piping has been repaired with HDPE piping and no-hub fittings. The drain piping should be inspected by a qualified contractor and repaired as necessary.

MECHANICAL:

Energy Supply - A 2” city gas service enters the building from E. Ann Street near the intersection with Miller Street. The gas meter is 1” and is located in a bathroom off of a classroom. Gas is used only for the domestic hot water heating at this time.

The oil supply is stored in a 12,000 gallon storage tank located in the basement. Oil is the primary fuel for the boilers. Duplex pumps located in the basement circulate oil through the system. The fuel oil pumping system appears to be in good condition and should be serviced on a regular basis. The actual condition of the fuel side is unknown.

Heat Generating Systems - Low pressure steam is generated at a maximum of 15 lbs/sq. in., typically 5-7 lbs/sq. in., by two 120HP Weil-McLain model 94 cast iron sectional boilers, installation date estimated to be in the 1950s. One boiler is needed to hold the building in normal winter weather conditions. Each boiler is equipped with a Turbo Ring burner designed to operate on natural gas or fuel oil. Combustion air makeup is supplied by louvers equipped with motorized dampers. The Building Engineer reports the system loses a significant amount of condensate due to failed traps, which is made up with treated city water. Cast iron sectional boilers have an anticipated service life of 35 years or more; as these units have been in service an estimated 50 plus years they need to be replaced. The boilers are operational but should be replaced within the next 3 years.

The condensate receiver pit and duplex boiler feed pumps are installed in the basement boiler room. The feed pumps are 1HP and were replaced within the last 10 years. A serious problem was reported with steam leaking into the system from failed steam traps and filling the boiler room with steam. The district should hire a qualified contractor to examine the steam and condensate piping, in service for over 80 years, and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.

Distribution Systems - Steam piping mains are black steel with flanged fittings and smaller distribution piping is black steel with welded fittings. The condensate piping is black steel with threaded fittings. Steam and condensate piping mains from the basement level run up through the building to the radiators on all three floors. The distribution piping has been in use well 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 steam and condensate 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 10 years.

Two pipe cast iron radiators provide heating for the majority of classrooms, offices, and hallways. These radiators are well beyond their service life and original to the building. Ventilation for the building is provided by roof mounted

gravity ventilators and opening windows, which does not meet current codes for outdoor air ventilation. A new heating system should be installed to meet ventilation requirements and achieve more efficient operation. The new units should be designed for quiet operation and equipped with hot water coils, chilled water coils, and integral heat exchangers, where applicable, to introduce outdoor air to the building.

As this school serves only premade meals, there is no exhaust hood or gas fired equipment in the kitchen.

The building does not have any exhaust fans installed according to the Building Engineer. Exhaust fans should be installed to serve the restrooms all three floors and in the basement.

Ventilation should be provided for the Cafeteria/Gymnasium by installing a constant volume air handling unit with distribution ductwork and registers. For the administration offices a fan coil air handling unit should be hung from the structure with outdoor air ducted to the unit from louvers in the window openings. These units would be equipped with hot water heating coils and chilled water cooling coils. Steam converters would be installed in the existing boiler room with circulating pumps, distribution piping and controls to provide heating hot water for the new coils.

Terminal & Package Units - Several of the classrooms in the school building have window air conditioning units that have an anticipated service life of only 10 years. Installing a 130 ton air-cooled chiller with pumps located in a mechanical room and chilled water distribution piping would supply more reliable air conditioning for the building with a much longer service life.

Controls & Instrumentation - The original pneumatic systems no longer provide basic control functions. Pneumatic room thermostats are intended to control the steam radiator control valves. In reality the radiator control valves are wide open and heating control is achieved via the boilers. Pneumatic control air is supplied from a compressor and Hankison air dryer located in the mechanical room. The pneumatic systems are beyond their service life and require too much attention from the maintenance staff. The original control valves and pneumatic actuators are beyond their service life and should be rebuilt or 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.

Fire stand pipes are located in each of the two fire tower stairs.

Portable Classroom - A portable classroom located on the West side of the main school building houses one classroom. The portable has independent building systems from the main building. Two window air conditioning units provide cooling in the summer. One unit ventilator, with electric heat, provides heating and outdoor air during the winter.

ELECTRICAL:

Site electrical service - The primary power is at 13.2KV from the street power pole which feeds a pole-top transformer (13.2KV – 120V/240V, 2 Phase). The secondary power feeds a main disconnect switch and a 120V/240V main switchboard. The main disconnect is rated at 800A, 120V/240V, 3 phase, and is located in main electrical room. The PECO meter (PECO 222 MU 30703) is also located inside the electrical room. The service entrance and the main building electrical distribution systems are old, in very poor condition, and have reached the end of their useful service life. They provide power for lighting and receptacles of the building, and not the HVAC System.

Distribution System – There are 8 power & lighting panels in this school (two at each floor, and each wing).These panels are old and they have reached the end of their useful service life.

Receptacles - There is not enough receptacles in classrooms, computer rooms, libraries, and other areas. There should be minimum of two receptacles on each wall of the classrooms, and other areas.

Lighting - Interior building is illuminated by various types of fixtures. They include fluorescent lighting (with T-12 & T-8 lamp) in majority of the areas, including; classrooms, corridor, offices, and the Kitchen. Surface or pendant mounted industrial fluorescent fixtures are used in mechanical and electrical rooms. The Gymnasium also has old HID fixtures. The majority of interior lighting fixtures is in a poor condition and has reached the end of their useful service.

Fire alarm - The present Fire Alarm system is fairly new and is automatic/addressable. The FA system is in in compliance with safety codes. There are manual pulls stations throughout the building. There are sufficient number of horns/strobes installed in the classrooms, corridors, offices and other areas in the school.

Telephone/LAN - The school telephone and data systems are new and working adequately. A main distribution frame (MDF) along with a telephone PBX system are providing the necessary communication function of the building. School is also equipped with Wi-Fi system.

Public Address - Separate PA system does not exist. School uses the telephone systems for public announcement. This system is working adequately. The present Intercom System is functioning fine. Each class room is provided with intercom telephone service. The system permits paging and intercom communication between main office to classrooms, and vice versa (classrooms to main office), and communication between classrooms to classrooms.

Clock and Program system – Clocks and program systems are fairly new and working properly. Classrooms are provided with 12-inch wall mounted round clocks that are controlled properly by central master control panel.

Television System - Television system is not provided in the school. Most classes are equipped with smart boards having the ability to connect to computers and internet.

Security Systems, access control, and video surveillance - The school does have a video surveillance system. There are cameras at exit doors, corridors, exterior, and other critical areas. The cameras are controlled by a Closed Circuit Television system (CCTV).

Emergency Power System - School has a fairly new emergency generator (40KW) to feed, emergency lighting and other emergency loads. There are no elevators in this school.

Emergency lighting system, including exit lighting - there are sufficient emergency lighting fixtures in corridors and other exit ways. Exit signs and emergency fixtures are fairly new (less than 5 years) and have not reached the end of their useful service.

Lightning Protection System - There is adequate lightning protection system in the school. The roof has lightning rods, and they are connected to the ground properly via stranded aluminum cables.

Grounding - The present grounding system is adequate. All equipment are correctly bonded to the ground.

Site Lighting - The school grounds and building perimeters are not adequately lighted for safety of the people and security of property.

Site Paging - The present Site paging System is not adequate. There are insufficient number of speaker on building’s

exterior walls.

Note:

There is also a small annex portable unit in the property. This unit has its own power service from a different PECO power pole and PECO Meter. The portable unit's entire electrical service should be disconnected and be fed from the new electrical service of the main building. Lighting, receptacles are fairly old as well and have reached the end of their useful service. The lighting and receptacles should be upgraded when the main building is upgraded.

GROUNDS (SITE):

There is no parking lot at the site.

Playground adjacent to the building is in poor condition, paving is cracked and deteriorated; playground equipment is in poor condition. Stone steps at the main entrance and egress doors have deteriorated joints. Perimeter fences are generally in good condition, they were installed in mid 2000's. A small patch of grass with two semi-mature trees is located on the east side of the building. The landscaping is generally in fair condition.

ACCESSIBILITY:

The building does not have accessible entrance, and accessible routes. None of the toilets are equipped with accessible fixtures, partitions and accessories, such as grab bars and accessible partitions. None of the doors in the building have ADA required door handles.

RECOMMENDATIONS:

- Reconstruct roof slab below open play area including beams and girders
- Install membrane waterproofing above coal and ash bunkers slab and new concrete topping
- Replace deteriorated stairs in fire towers
- Repair cracks in masonry, tuck-point all walls
- Install all new roofing system including insulation within next 4 to 5 years; tear-down existing roofing; install flashing, counter flashing and reglets
- Replace all windows
- Replace exterior doors
- Replace sliding partitions with drywall partitions
- Replace all suspended acoustical ceilings
- Repair and repaint interior walls
- Replace all VAT/VCT flooring
- Repair (15%) & refinish hardwood flooring
- Refinish concrete flooring (epoxy coating)
- Install new signage throughout
- Install 3000 lb traction elevator serving all floors and basement
- Provide wheelchair lift at the main entrance
- Provide ADA compliant ramp at main entrance
- Repair and refinish all original interior doors
- Provide ADA compliant hardware on interior doors
- Replace signage throughout
- Reconfigure toilets on each floor for accessibility, provide new toilet partitions
- Provide new toilet accessories including grab bars
- Replace playground paving

- Reset stone steps at entrances
- Replace twenty-five (25) water closets, in use beyond their service life, in the restrooms with new code compliant fixtures.
- Replace eighteen (18) urinals in the restrooms with new low flow fixtures.
- Replace eight (8) wall hung drinking fountains and integral refrigerated coolers in the corridors and at the restrooms. These units are beyond their service life and most are NOT accessible type.
- Hire a qualified contractor to perform a detailed inspection of the domestic water piping, in use for an unknown amount of time, and replace any damaged piping.
- Replace existing vertical gas fired, 70 gallon, domestic hot water heater which has been in use beyond its service life with new gas fired hot water heater.
- 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.
- Hire a qualified contractor to perform a detailed examination of the rain water drainage 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 two existing 4,061MBH cast iron boilers, which are beyond their service life, burners, and exhaust ductwork within the next 1-3 years.
- Hire a qualified contractor to examine the steam and condensate piping, in service for over 80 years, and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.
- Remove the existing cast iron steam radiators and install fan coil units with hot and chilled water coils and a dedicated outdoor air system.
- Remove the window air conditioning units and install a 130 ton air-cooled chiller with chilled water distribution piping and pumps to supply more reliable air conditioning for the building with a much longer service life.
- Provide exhaust fans, with all associated controls and ductwork, for all restrooms on the basement through third floors.
- Provide ventilation for the Cafeteria/Gymnasium by installing a constant volume air handling unit with distribution ductwork and registers.
- Provide ventilation for the administration offices by installing a fan coil air handling unit hung from the structure with outdoor air ducted to the unit from louvers in window openings.
- 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 new Site electrical service 1000KVA, 480V, 3 Phase to feed the HVAC, lighting and receptacle loads, and the small annex.
- Install a new 480V, 3 phase switchgear.
- Install a new 120V/208V, 3 phase switchgear.
- Install new 120V panelboards throughout the building for lighting, and receptacles loads.
- Install new receptacles in all classrooms and other areas (minimum two receptacles on each wall), including the small annex.
- Install new a lighting system for the entire building (including the small annex).
- Install new site lighting for safety of the people and security of property.
- Install new site paging on building exterior walls.

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 3 / Tm 4
Status:	Accepted by SDP	Team:	Tm 4
Site ID:	S540001		

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	37.00 %	0.00 %	$0.00
A20 - Basement Construction	37.00 %	0.00 %	$0.00
B10 - Superstructure	37.00 %	21.28 %	$801,680.02
B20 - Exterior Enclosure	38.98 %	125.84 %	$2,987,482.31
B30 - Roofing	109.00 %	107.61 %	$593,525.16
C10 - Interior Construction	46.78 %	64.39 %	$652,824.56
C20 - Stairs	37.00 %	315.17 %	$1,067,126.14
C30 - Interior Finishes	111.42 %	90.18 %	$1,712,483.72
D10 - Conveying	105.71 %	251.26 %	$646,844.25
D20 - Plumbing	64.74 %	105.82 %	$924,623.62
D30 - HVAC	97.03 %	113.93 %	$5,422,119.60
D40 - Fire Protection	96.08 %	176.39 %	$607,455.98
D50 - Electrical	110.11 %	58.29 %	$1,332,147.41
E10 - Equipment	0.00 %	0.00 %	$0.00
E20 - Furnishings	0.00 %	0.00 %	$0.00
G20 - Site Improvements	104.82 %	91.72 %	$513,859.05
G40 - Site Electrical Utilities	106.67 %	89.75 %	$178,330.93
Totals:	**70.30 %**	**79.45 %**	**$17,440,502.75**

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)
B540001;Richmond	48,300	79.03	$3,391,290.46	$1,418,512.20	$5,965,681.57	$1,770,406.94	$4,202,421.60
G540001;Grounds	34,200	91.20	$0.00	$0.00	$196,056.32	$496,133.66	$0.00
Total:		**79.45**	**$3,391,290.46**	**$1,418,512.20**	**$6,161,737.89**	**$2,266,540.60**	**$4,202,421.60**

Deficiencies By Priority

- 1 - Response Time (< 2 yr) - $3,391,290.46
- 2 - Response Time (2-3 yrs) - $1,418,512.20
- 3 - Response Time (3-4 yrs) - $6,161,737.89
- 4 - Response Time (4-5 yrs) - $2,266,540.60
- 5 - Response Time (> 5 yrs) - $4,202,421.60

Budget Estimate Total: $17,440,502.75

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):	48,300
Year Built:	1929
Last Renovation:	
Replacement Value:	$21,193,242
Repair Cost:	$16,748,312.77
Total FCI:	79.03 %
Total RSLI:	69.04 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B540001
Sewage Ejector:	Yes	Status:	Accepted by SDP
Site ID:	S540001		

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	37.00 %	0.00 %	$0.00
A20 - Basement Construction	37.00 %	0.00 %	$0.00
B10 - Superstructure	37.00 %	21.28 %	$801,680.02
B20 - Exterior Enclosure	38.98 %	125.84 %	$2,987,482.31
B30 - Roofing	109.00 %	107.61 %	$593,525.16
C10 - Interior Construction	46.78 %	64.39 %	$652,824.56
C20 - Stairs	37.00 %	315.17 %	$1,067,126.14
C30 - Interior Finishes	111.42 %	90.18 %	$1,712,483.72
D10 - Conveying	105.71 %	251.26 %	$646,844.25
D20 - Plumbing	64.74 %	105.82 %	$924,623.62
D30 - HVAC	97.03 %	113.93 %	$5,422,119.60
D40 - Fire Protection	96.08 %	176.39 %	$607,455.98
D50 - Electrical	110.11 %	58.29 %	$1,332,147.41
E10 - Equipment	0.00 %	0.00 %	$0.00
E20 - Furnishings	0.00 %	0.00 %	$0.00
Totals:	**69.04 %**	**79.03 %**	**$16,748,312.77**

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	$15.74	S.F.	48,300	100	1929	2029	2052	37.00 %	0.00 %	37			$760,242
A1030	Slab on Grade	$6.62	S.F.	48,300	100	1929	2029	2052	37.00 %	0.00 %	37			$319,746
A2010	Basement Excavation	$5.60	S.F.	48,300	100	1929	2029	2052	37.00 %	0.00 %	37			$270,480
A2020	Basement Walls	$10.88	S.F.	48,300	100	1929	2029	2052	37.00 %	0.00 %	37			$525,504
B1010	Floor Construction	$65.82	S.F.	48,300	100	1929	2029	2052	37.00 %	25.22 %	37		$801,680.02	$3,179,106
B1020	Roof Construction	$12.16	S.F.	48,300	100	1929	2029	2052	37.00 %	0.00 %	37			$587,328
B2010	Exterior Walls	$32.18	S.F.	48,300	100	1929	2029	2052	37.00 %	63.24 %	37		$982,994.51	$1,554,294
B2020	Exterior Windows	$15.71	S.F.	48,300	40	1990	2030		37.50 %	232.77 %	15		$1,766,211.16	$758,793
B2030	Exterior Doors	$1.26	S.F.	48,300	25	1990	2015	2042	108.00 %	391.53 %	27		$238,276.64	$60,858
B3010105	Built-Up	$32.69	S.F.	13,500	20	1990	2010	2037	110.00 %	92.57 %	22		$408,537.98	$441,315
B3010120	Single Ply Membrane	$33.54	S.F.	3,200	20	1990	2010	2036	105.00 %	172.36 %	21		$184,987.18	$107,328
B3010130	Preformed Metal Roofing	$46.94	S.F.		30				0.00 %	0.00 %				$0
B3010140	Shingle & Tile	$33.54	S.F.		25				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.06	S.F.	48,300	20	1990	2010	2036	105.00 %	0.00 %	21			$2,898
C1010	Partitions	$15.32	S.F.	48,300	100	1929	2029	2052	37.00 %	47.88 %	37		$354,292.36	$739,956
C1020	Interior Doors	$3.00	S.F.	48,300	40	1929	1969	2057	105.00 %	65.62 %	42		$95,081.76	$144,900
C1030	Fittings	$2.67	S.F.	48,300	40	1990	2030		37.50 %	157.76 %	15		$203,450.44	$128,961
C2010	Stair Construction	$7.01	S.F.	48,300	100	1929	2029	2052	37.00 %	315.17 %	37		$1,067,126.14	$338,583

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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	$11.29	S.F.	48,300	10	1929	1939	2027	120.00 %	148.16 %	12		$807,917.48	$545,307
C3010231	Vinyl Wall Covering	$0.83	S.F.		0				0.00 %	0.00 %				$0
C3010232	Wall Tile	$2.25	S.F.		0				0.00 %	0.00 %				$0
C3020411	Carpet	$6.24	S.F.	250	10	2000	2010	2027	120.00 %	0.00 %	12			$1,560
C3020412	Terrazzo & Tile	$64.54	S.F.		50				0.00 %	0.00 %				$0
C3020413	Vinyl Flooring	$8.27	S.F.	8,500	20	1990	2010	2037	110.00 %	173.42 %	22		$121,904.61	$70,295
C3020414	Wood Flooring	$19.04	S.F.	19,200	25	1929	1954	2042	108.00 %	50.50 %	27		$184,623.97	$365,568
C3020415	Concrete Floor Finishes	$2.77	S.F.	18,100	50	1929	1979	2067	104.00 %	172.68 %	52		$86,575.11	$50,137
C3030	Ceiling Finishes	$17.93	S.F.	48,300	25	1990	2015	2042	108.00 %	59.06 %	27		$511,462.55	$866,019
D1010	Elevators and Lifts	$5.33	S.F.	48,300	35			2052	105.71 %	251.26 %	37		$646,844.25	$257,439
D2010	Plumbing Fixtures	$11.97	S.F.	48,300	35	1990	2025	2030	42.86 %	46.19 %	15		$267,025.92	$578,151
D2020	Domestic Water Distribution	$1.49	S.F.	48,300	25	1990	2015	2042	108.00 %	357.73 %	27		$257,450.67	$71,967
D2030	Sanitary Waste	$2.58	S.F.	48,300	25	1929	1954	2042	108.00 %	169.35 %	27		$211,028.07	$124,614
D2040	Rain Water Drainage	$2.05	S.F.	48,300	30	1929	1959	2047	106.67 %	191.00 %	32		$189,118.96	$99,015
D3020	Heat Generating Systems	$16.54	S.F.	48,300	35	1955	1990	2052	105.71 %	91.38 %	37		$730,041.14	$798,882
D3030	Cooling Generating Systems	$21.69	S.F.	48,300	20			2037	110.00 %	65.21 %	22		$683,196.27	$1,047,627
D3040	Distribution Systems	$38.07	S.F.	48,300	25	1929	1954	2042	108.00 %	169.20 %	27		$3,111,139.34	$1,838,781
D3050	Terminal & Package Units	$10.28	S.F.	48,300	20				0.00 %	0.00 %				$496,524
D3060	Controls & Instrumentation	$11.95	S.F.	48,300	20	1950	1970	2037	110.00 %	155.54 %	22		$897,742.85	$577,185
D4010	Sprinklers	$6.24	S.F.	48,300	35			2052	105.71 %	201.55 %	37		$607,455.98	$301,392
D4020	Standpipes	$0.89	S.F.	48,300	35	1990	2025		28.57 %	0.00 %	10			$42,987
D5010	Electrical Service/Distribution	$7.80	S.F.	48,300	30	1929	1959	2047	106.67 %	170.63 %	32		$642,842.48	$376,740
D5020	Lighting and Branch Wiring	$27.92	S.F.	48,300	20	1929	1949	2037	110.00 %	51.12 %	22		$689,304.93	$1,348,536
D5030	Communications and Security	$10.46	S.F.	48,300	15	1929	1944	2032	113.33 %	0.00 %	17			$505,218
D5090	Other Electrical Systems	$1.14	S.F.	48,300	30	1929	1959	2047	106.67 %	0.00 %	32			$55,062
E1020	Institutional Equipment	$4.73	S.F.	48,300	35				0.00 %	0.00 %				$228,459
E1090	Other Equipment	$10.86	S.F.	48,300	35				0.00 %	0.00 %				$524,538
E2010	Fixed Furnishings	$2.09	S.F.	48,300	40				0.00 %	0.00 %				$100,947
								Total	**69.04 %**	**79.03 %**			**$16,748,312.77**	**$21,193,242**

System Notes

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

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

Note: Paint 100%

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

Note: Hardwood 42%
VCT/VAT 18%
Carpet <1%
Concrete 39%

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

Note: ACT 33%
Exposed/plaster 67%

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:	**$16,748,313**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$63,548**	**$16,811,861**
*** 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	$801,680	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$801,680**
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	$982,995	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$982,995**
B2020 - Exterior Windows	$1,766,211	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,766,211**
B2030 - Exterior Doors	$238,277	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$238,277**
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	$408,538	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$408,538**
B3010120 - Single Ply Membrane	$184,987	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$184,987**
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	$354,292	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$354,292**

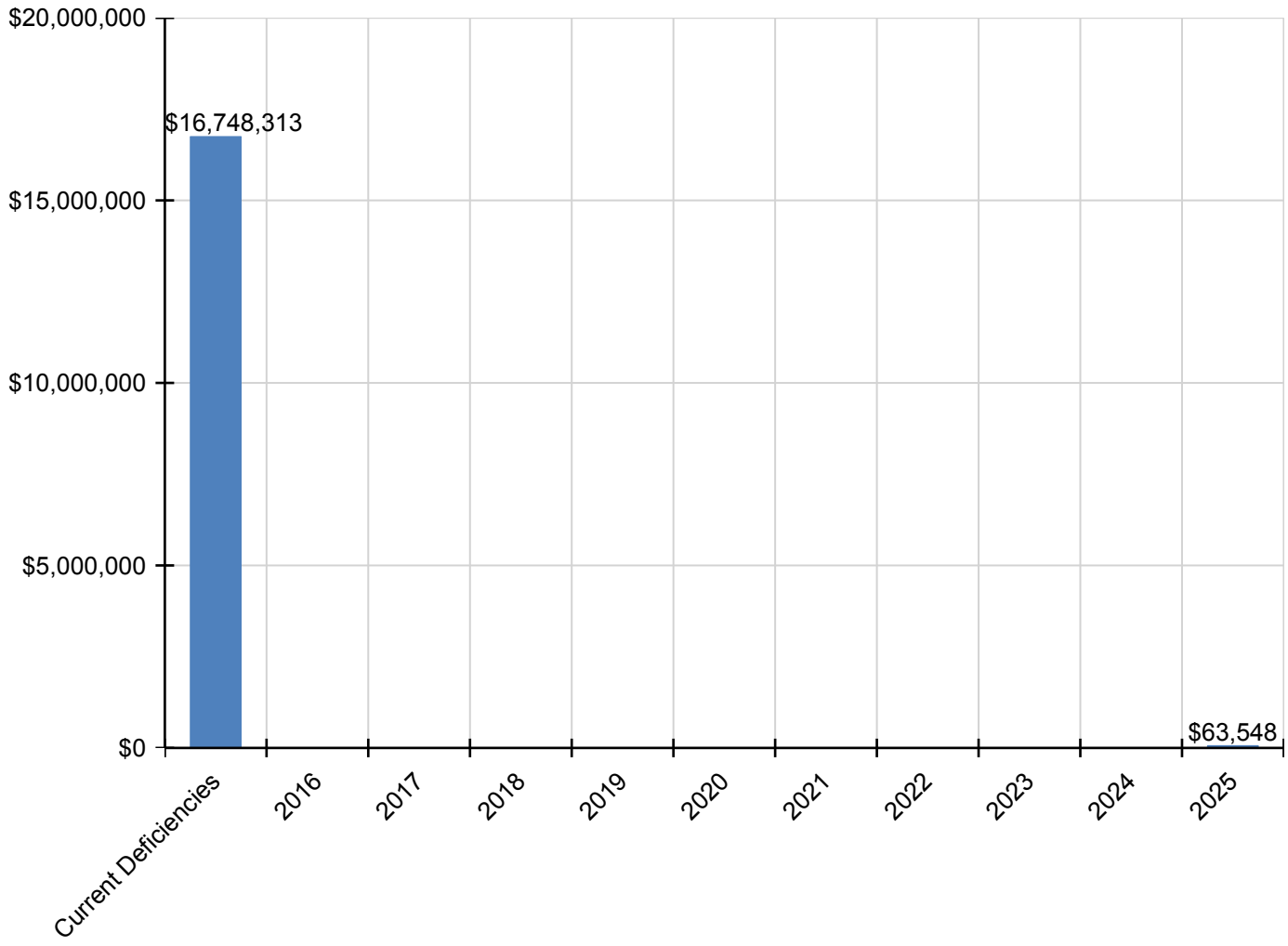
C1020 - Interior Doors	$95,082	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$95,082**
C1030 - Fittings	$203,450	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$203,450**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$1,067,126	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,067,126**
C30 - Interior Finishes	$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	$807,917	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$807,917**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010232 - Wall Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020 - Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020411 - Carpet	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$121,905	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$121,905**
C3020414 - Wood Flooring	$184,624	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$184,624**
C3020415 - Concrete Floor Finishes	$86,575	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$86,575**
C3030 - Ceiling Finishes	$511,463	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$511,463**
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	$646,844	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$646,844**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$267,026	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$267,026**
D2020 - Domestic Water Distribution	$257,451	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$257,451**
D2030 - Sanitary Waste	$211,028	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$211,028**
D2040 - Rain Water Drainage	$189,119	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$189,119**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$730,041	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$730,041**
D3030 - Cooling Generating Systems	$683,196	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$683,196**
D3040 - Distribution Systems	$3,111,139	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$3,111,139**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$897,743	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$897,743**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$607,456	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$607,456**
D4020 - Standpipes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$63,548	**$63,548**

D50 - Electrical	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5010 - Electrical Service/Distribution	$642,842	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$642,842**
D5020 - Lighting and Branch Wiring	$689,305	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$689,305**
D5030 - Communications and Security	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5090 - Other Electrical Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

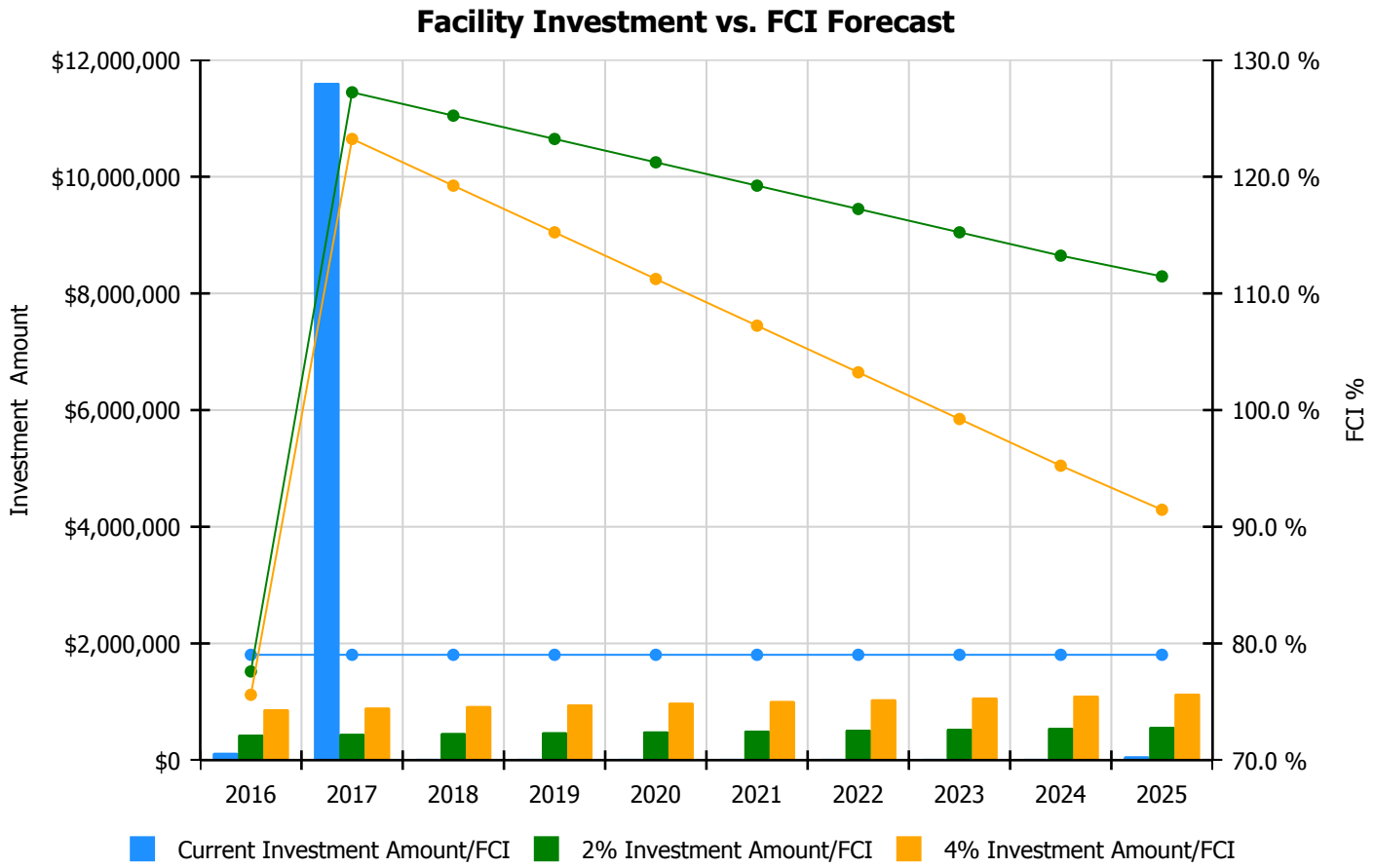
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

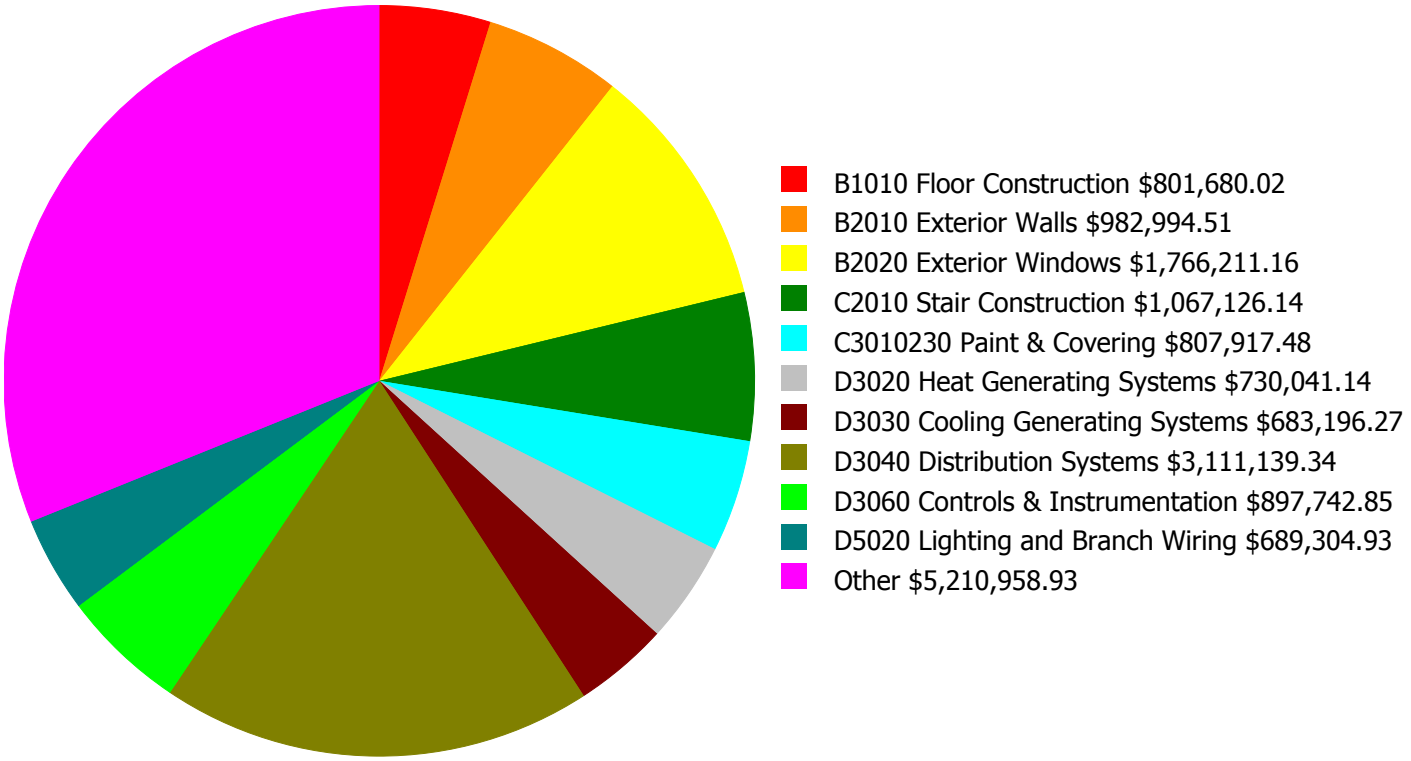
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 79.03%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$124,886	$436,581.00	77.60 %	$873,162.00	75.60 %
2017	$11,609,707	$449,678.00	127.23 %	$899,356.00	123.23 %
2018	$0	$463,169.00	125.23 %	$926,337.00	119.23 %
2019	$0	$477,064.00	123.23 %	$954,127.00	115.23 %
2020	$0	$491,376.00	121.23 %	$982,751.00	111.23 %
2021	$0	$506,117.00	119.23 %	$1,012,234.00	107.23 %
2022	$0	$521,300.00	117.23 %	$1,042,601.00	103.23 %
2023	$0	$536,939.00	115.23 %	$1,073,879.00	99.23 %
2024	$0	$553,047.00	113.23 %	$1,106,095.00	95.23 %
2025	$63,548	$569,639.00	111.46 %	$1,139,278.00	91.46 %
Total:	**$11,798,142**	**$5,004,910.00**		**$10,009,820.00**	

Deficiency Summary by System

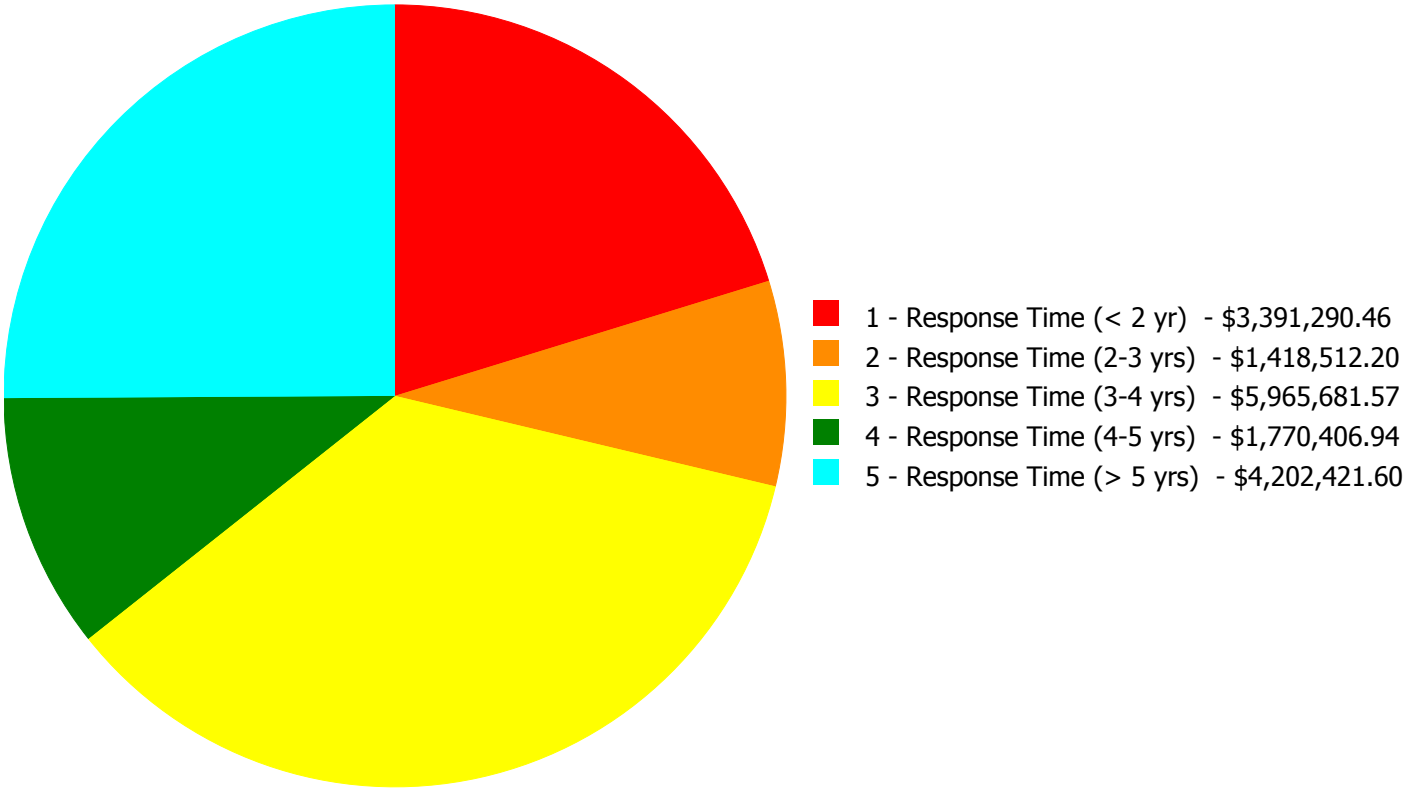
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $16,748,312.77

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: $16,748,312.77

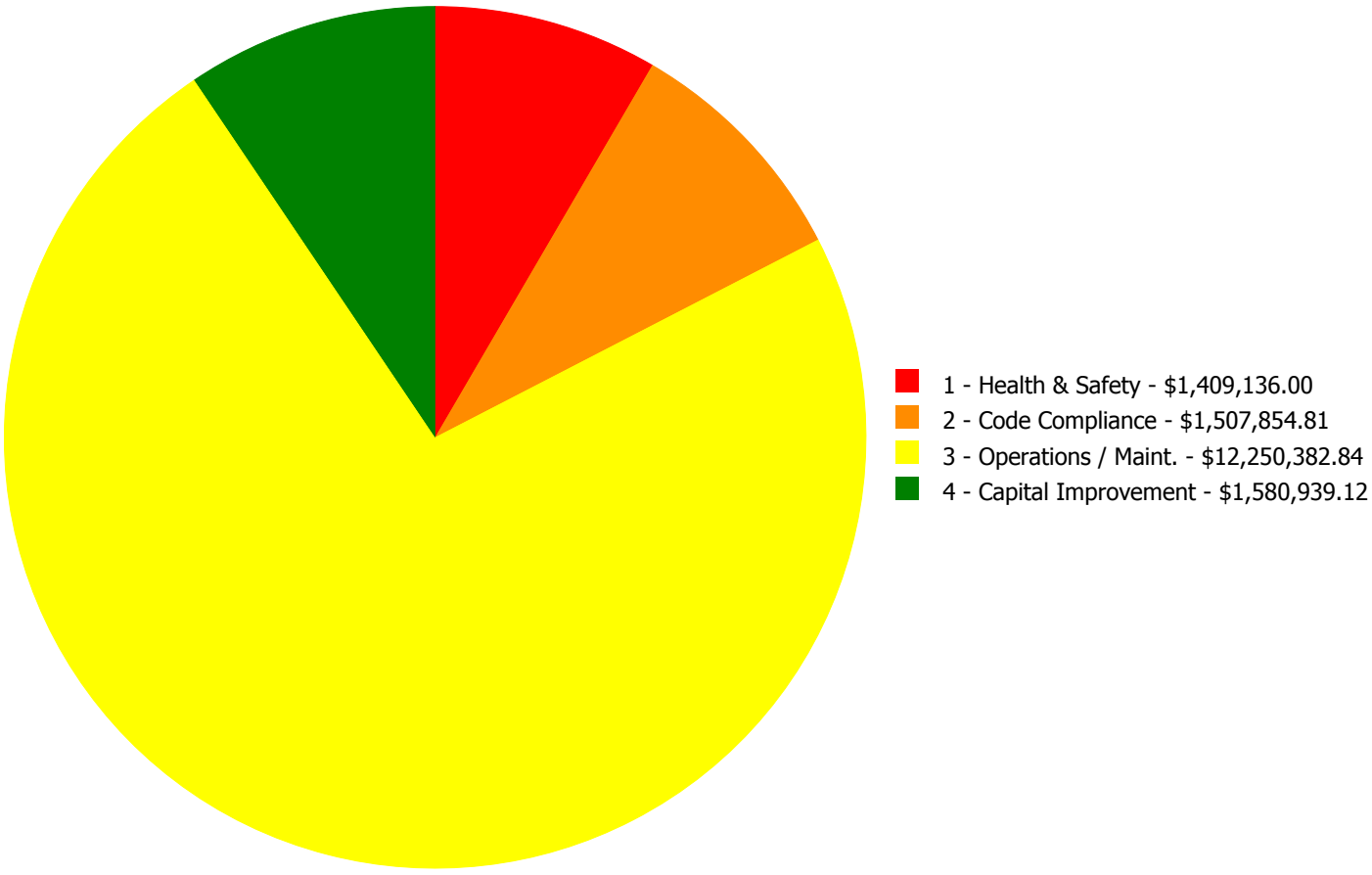
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
B1010	Floor Construction	$801,680.02	$0.00	$0.00	$0.00	$0.00	$801,680.02
B2010	Exterior Walls	$0.00	$982,994.51	$0.00	$0.00	$0.00	$982,994.51
B2020	Exterior Windows	$0.00	$0.00	$1,766,211.16	$0.00	$0.00	$1,766,211.16
B2030	Exterior Doors	$0.00	$0.00	$238,276.64	$0.00	$0.00	$238,276.64
B3010105	Built-Up	$0.00	$0.00	$408,537.98	$0.00	$0.00	$408,537.98
B3010120	Single Ply Membrane	$184,987.18	$0.00	$0.00	$0.00	$0.00	$184,987.18
C1010	Partitions	$0.00	$0.00	$0.00	$354,292.36	$0.00	$354,292.36
C1020	Interior Doors	$0.00	$0.00	$59,868.83	$0.00	$35,212.93	$95,081.76
C1030	Fittings	$0.00	$0.00	$172,704.82	$30,745.62	$0.00	$203,450.44
C2010	Stair Construction	$1,067,126.14	$0.00	$0.00	$0.00	$0.00	$1,067,126.14
C3010230	Paint & Covering	$0.00	$0.00	$807,917.48	$0.00	$0.00	$807,917.48
C3020413	Vinyl Flooring	$0.00	$0.00	$0.00	$121,904.61	$0.00	$121,904.61
C3020414	Wood Flooring	$0.00	$0.00	$0.00	$184,623.97	$0.00	$184,623.97
C3020415	Concrete Floor Finishes	$0.00	$0.00	$0.00	$86,575.11	$0.00	$86,575.11
C3030	Ceiling Finishes	$0.00	$0.00	$320,225.43	$191,237.12	$0.00	$511,462.55
D1010	Elevators and Lifts	$0.00	$0.00	$646,844.25	$0.00	$0.00	$646,844.25
D2010	Plumbing Fixtures	$0.00	$0.00	$53,067.85	$213,958.07	$0.00	$267,025.92
D2020	Domestic Water Distribution	$0.00	$48,000.03	$0.00	$209,450.64	$0.00	$257,450.67
D2030	Sanitary Waste	$0.00	$0.00	$211,028.07	$0.00	$0.00	$211,028.07
D2040	Rain Water Drainage	$0.00	$0.00	$189,118.96	$0.00	$0.00	$189,118.96
D3020	Heat Generating Systems	$730,041.14	$0.00	$0.00	$0.00	$0.00	$730,041.14
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$683,196.27	$683,196.27
D3040	Distribution Systems	$0.00	$122,294.62	$402,575.17	$0.00	$2,586,269.55	$3,111,139.34
D3060	Controls & Instrumentation	$0.00	$0.00	$0.00	$0.00	$897,742.85	$897,742.85
D4010	Sprinklers	$607,455.98	$0.00	$0.00	$0.00	$0.00	$607,455.98
D5010	Electrical Service/Distribution	$0.00	$265,223.04	$0.00	$377,619.44	$0.00	$642,842.48
D5020	Lighting and Branch Wiring	$0.00	$0.00	$689,304.93	$0.00	$0.00	$689,304.93
	Total:	$3,391,290.46	$1,418,512.20	$5,965,681.57	$1,770,406.94	$4,202,421.60	$16,748,312.77

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: $16,748,312.77

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: B1010 - Floor Construction

Location: Exterior/Interior

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

Priority: 1 - Response Time (< 2 yr)

Correction: Remove and replace elevated concrete deck with one way concrete beams and slab

Qty: 3,200.00

Unit of Measure: S.F.

Estimate: $801,680.02

Assessor Name: System

Date Created: 01/14/2016

Notes: Reconstruct roof slab below open play area including beams and girders

System: B3010120 - Single Ply Membrane

Location: Exterior

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Remove and replace concrete deck topping including remove and replace waterproofing membrane - add for epoxy coating if required by inserting the SF in the estimate

Qty: 3,200.00

Unit of Measure: S.F.

Estimate: $184,987.18

Assessor Name: System

Date Created: 01/14/2016

Notes: Install membrane waterproofing above coal and ash bunkers slab and new concrete topping

System: C2010 - Stair Construction

Location: Exterior/Interior

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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

Qty: 16.00

Unit of Measure: Flight

Estimate: $1,067,126.14

Assessor Name: System

Date Created: 01/14/2016

Notes: Replace deteriorated stairs in fire towers

System: D3020 - Heat Generating Systems

Location: Boiler room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace boiler, cast iron sectional (100 HP)

Qty: 2.00

Unit of Measure: Ea.

Estimate: $730,041.14

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace the two existing 4,061MBH cast iron boilers, which are beyond their service life, burners, and exhaust ductwork within the next 1-3 years.

System: D4010 - Sprinklers

Location: Throughout building

Distress: Life Safety / NFPA / PFD

Category: 1 - Health & Safety

Priority: 1 - Response Time (< 2 yr)

Correction: Install a fire protection sprinkler system

Qty: 48,300.00

Unit of Measure: S.F.

Estimate: $607,455.98

Assessor Name: System

Date Created: 10/20/2015

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.

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

System: B2010 - Exterior Walls

Location: Exterior

Distress: Beyond Service Life

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: 35,300.00

Unit of Measure: S.F.

Estimate: $982,994.51

Assessor Name: System

Date Created: 01/14/2016

Notes: Repair cracks in masonry, tuck-point all walls

System: D2020 - Domestic Water Distribution

Location: Boiler room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace vertical tank type gas-fired water heater (75 gal)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $48,000.03

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace existing vertical gas fired, 70 gallon, domestic hot water heater which has been in use beyond its service life with new gas fired hot water heater.

System: D3040 - Distribution Systems

This deficiency has no image.

Location: Restrooms

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Provide inline centrifugal fan and wall outlet louver for restroom exhaust (4 plbg fixtures)

Qty: 8.00

Unit of Measure: Ea.

Estimate: $122,294.62

Assessor Name: System

Date Created: 10/20/2015

Notes: Provide exhaust fans, with all associated controls and ductwork, for all restrooms on the basement through third floors.

System: D5010 - Electrical Service/Distribution

Location: throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and Replace Panelboard - 400 amp

Qty: 1.00

Unit of Measure: Ea.

Estimate: $265,223.04

Assessor Name: System

Date Created: 01/08/2016

Notes: Install new 120V panel-boards throughout the building for lighting, and receptacles loads.

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

System: B2020 - Exterior Windows

Location: Exterior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 306.00

Unit of Measure: Ea.

Estimate: $1,766,211.16

Assessor Name: System

Date Created: 01/14/2016

Notes: Replace all windows

System: B2030 - Exterior Doors

Location: Exterior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace exterior doors - per leaf

Qty: 30.00

Unit of Measure: Ea.

Estimate: $238,276.64

Assessor Name: System

Date Created: 01/14/2016

Notes: Replace exterior doors

System: B3010105 - Built-Up

Location: Exterior

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

Correction: Remove and Replace Built Up Roof

Qty: 13,500.00

Unit of Measure: S.F.

Estimate: $408,537.98

Assessor Name: System

Date Created: 01/14/2016

Notes: Install all new roofing system including insulation within next 4 to 5 years; tear-down existing roofing; install flashing, counter flashing and reglets

System: C1020 - Interior Doors

Location: Interior

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Replace door knobs with compliant lever type

Qty: 118.00

Unit of Measure: Ea.

Estimate: $59,868.83

Assessor Name: System

Date Created: 01/14/2016

Notes: Provide ADA compliant hardware on interior doors

System: C1030 - Fittings

Location: Interior

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Remove and replace damaged toilet paritions - handicap units

Qty: 40.00

Unit of Measure: Ea.

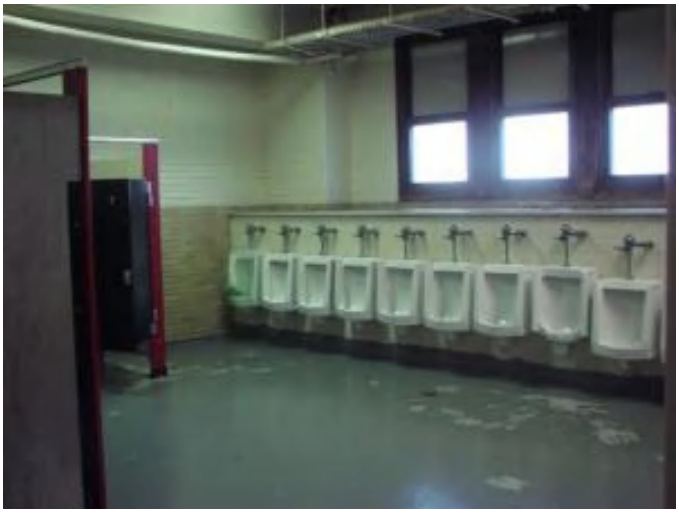
Estimate: $123,509.97

Assessor Name: System

Date Created: 01/14/2016

Notes: Reconfigure toilets on each floor for accessibility, provide new toilet partitions.

System: C1030 - Fittings



Location: Interior

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Replace toilet accessories - select accessories and quantity

Qty: 40.00

Unit of Measure: Ea.

Estimate: $49,194.85

Assessor Name: System

Date Created: 01/14/2016

Notes: Provide new toilet accessories including grab bars

System: C3010230 - Paint & Covering

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 115,250.00

Unit of Measure: S.F.

Estimate: $807,917.48

Assessor Name: System

Date Created: 01/14/2016

Notes: Repair and repaint interior walls

System: C3030 - Ceiling Finishes

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Repair and resurface plaster ceilings - 2 coats plaster

Qty: 31,000.00

Unit of Measure: S.F.

Estimate: $320,225.43

Assessor Name: System

Date Created: 01/14/2016

Notes: Repair and repaint exposed ceilings

System: D1010 - Elevators and Lifts

This deficiency has no image.

Location: Interior

Distress: Accessibility

Category: 2 - Code Compliance

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

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

Qty: 1.00

Unit of Measure: Ea.

Estimate: $594,735.94

Assessor Name: System

Date Created: 01/14/2016

Notes: Install 3000 lb traction elevator serving all floors and basement

---

System: D1010 - Elevators and Lifts

This deficiency has no image.

Location: Interior

Distress: Accessibility

Category: 2 - Code Compliance

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

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

Qty: 1.00

Unit of Measure: Ea.

Estimate: $52,108.31

Assessor Name: System

Date Created: 01/14/2016

Notes: Provide wheelchair lift at the main entrance

System: D2010 - Plumbing Fixtures

Location: Corridors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and Replace Water Fountains - without ADA new recessed alcove

Qty: 8.00

Unit of Measure: Ea.

Estimate: $53,067.85

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace eight (8) wall hung drinking fountains and integral refrigerated coolers in the corridors and at the restrooms. These units are beyond their service life and most are NOT accessible type.

System: D2030 - Sanitary Waste

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 48,300.00

Unit of Measure: S.F.

Estimate: $211,028.07

Assessor Name: System

Date Created: 10/20/2015

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

System: D2040 - Rain Water Drainage

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Inspect internal rain water drainage piping and replace pipe - based on SF of multi-story building - insert SF of building

Qty: 48,300.00

Unit of Measure: S.F.

Estimate: $189,118.96

Assessor Name: System

Date Created: 10/20/2015

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

System: D3040 - Distribution Systems

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 48,300.00

Unit of Measure: S.F.

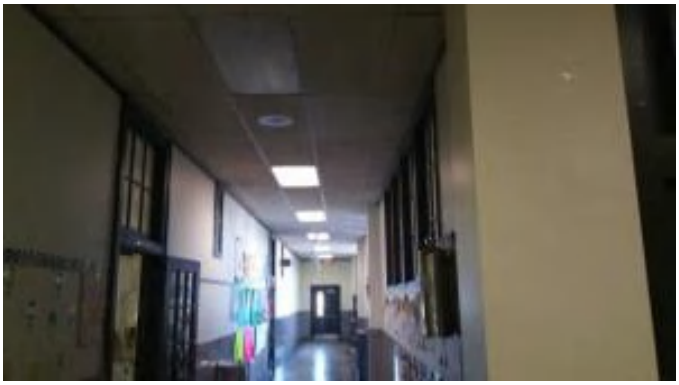
Estimate: $402,575.17

Assessor Name: System

Date Created: 10/20/2015

Notes: Hire a qualified contractor to examine the steam and condensate piping, in service for over 80 years, and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.

System: D5020 - Lighting and Branch Wiring



Location: throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace Lighting Fixtures (SF)

Qty: 0.00

Unit of Measure: S.F.

Estimate: $425,236.04

Assessor Name: System

Date Created: 01/08/2016

Notes: Install new a lighting system for the entire building (including the small annex).

System: D5020 - Lighting and Branch Wiring

Location: throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace Wiring Devices (SF) - surface mounted conduit and boxes

Qty: 0.00

Unit of Measure: S.F.

Estimate: $264,068.89

Assessor Name: System

Date Created: 01/08/2016

Notes: Install new receptacles in all classrooms and other areas (minimum two receptacles on each wall), including the small annex.

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

System: C1010 - Partitions

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Folding partition inoperable - remove and replace - select quality

Qty: 1,500.00

Unit of Measure: S.F.

Estimate: $354,292.36

Assessor Name: System

Date Created: 01/14/2016

Notes: Replace sliding partitions with drywall partitions

System: C1030 - Fittings

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 118.00

Unit of Measure: Ea.

Estimate: $30,745.62

Assessor Name: System

Date Created: 01/14/2016

Notes: Install new signage throughout

System: C3020413 - Vinyl Flooring

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 8,500.00

Unit of Measure: S.F.

Estimate: $121,904.61

Assessor Name: System

Date Created: 01/14/2016

Notes: Replace all VAT/VCT flooring

System: C3020414 - Wood Flooring

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace partial area of wood flooring and refinish entire floor - set replacement area

Qty: 19,200.00

Unit of Measure: S.F.

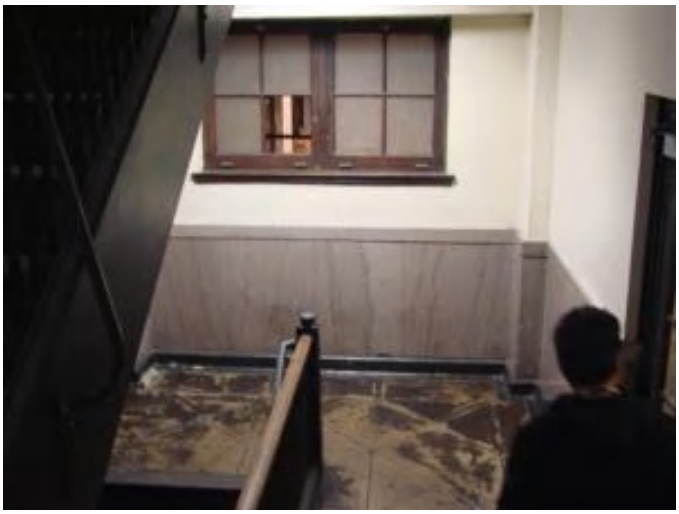
Estimate: $184,623.97

Assessor Name: System

Date Created: 01/14/2016

Notes: Repair (15%) refinish hardwood flooring

System: C3020415 - Concrete Floor Finishes



Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Prepare and repaint concrete floor

Qty: 18,100.00

Unit of Measure: S.F.

Estimate: $86,575.11

Assessor Name: System

Date Created: 01/14/2016

Notes: Refinish concrete flooring (epoxy coating)

System: C3030 - Ceiling Finishes

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 15,100.00

Unit of Measure: S.F.

Estimate: $191,237.12

Assessor Name: System

Date Created: 01/14/2016

Notes: Replace all suspended acoustical ceilings

System: D2010 - Plumbing Fixtures

Location: Restrooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 25.00

Unit of Measure: Ea.

Estimate: $158,841.41

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace twenty-five (25) water closets, in use beyond their service life, in the restrooms with new code compliant fixtures.

System: D2010 - Plumbing Fixtures

Location: Restrooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace or replace wall hung urinals

Qty: 18.00

Unit of Measure: Ea.

Estimate: $55,116.66

Assessor Name: System

Date Created: 10/20/2015

Notes: Replace eighteen (18) urinals in the restrooms with new low flow fixtures.

System: D2020 - Domestic Water Distribution

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace domestic water piping (75 KSF)

Qty: 48,300.00

Unit of Measure: S.F.

Estimate: $209,450.64

Assessor Name: System

Date Created: 10/20/2015

Notes: Hire a qualified contractor to perform a detailed inspection of the domestic water piping, in use for an unknown amount of time, and replace any damaged piping.

System: D5010 - Electrical Service/Distribution

Location: electrical room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace Service Transformer, Add Switchboard

Qty: 0.00

Unit of Measure: Ea.

Estimate: $377,619.44

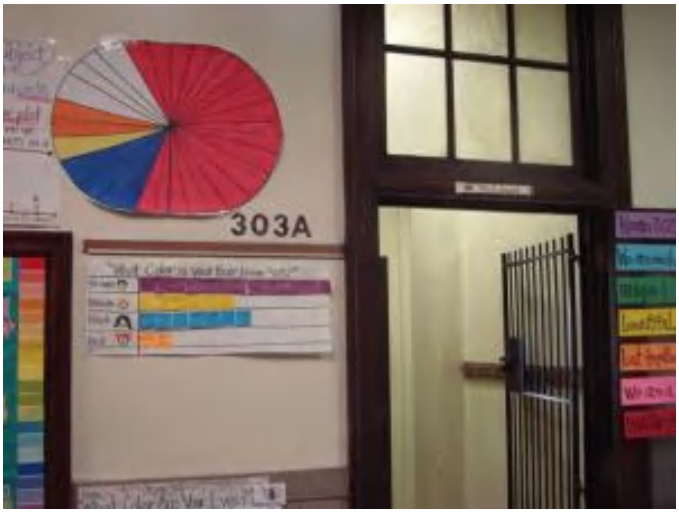
Assessor Name: System

Date Created: 01/08/2016

Notes: • Install new Site electrical service 1000KVA, 480V, 3 Phase to feed the HVAC, lighting and receptacle loads, and the small annex.
Install a new 480V, 3 phase switchgear.
Install a new 120V/208V, 3 phase switchgear.

Priority 5 - Response Time (> 5 yrs):

System: C1020 - Interior Doors



Location: Interior

Distress: Appearance

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Repair and repaint HM door frames - per frame

Qty: 118.00

Unit of Measure: Ea.

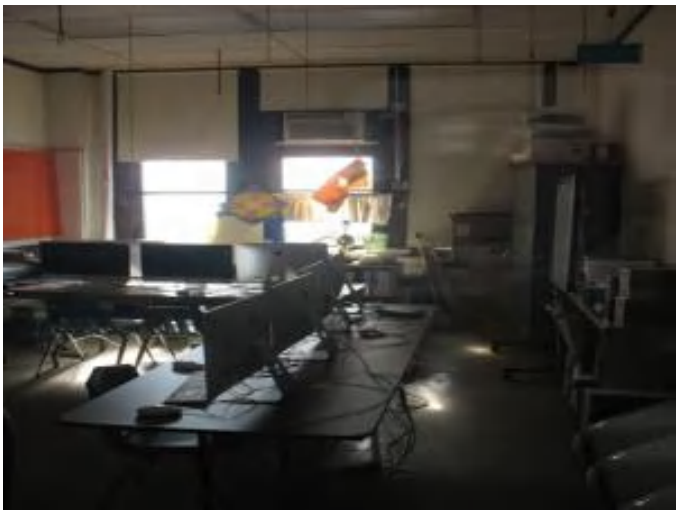
Estimate: $35,212.93

Assessor Name: System

Date Created: 01/14/2016

Notes: Repair and refinish all original interior doors

System: D3030 - Cooling Generating Systems



Location: Throughout 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: 48,300.00

Unit of Measure: S.F.

Estimate: $683,196.27

Assessor Name: System

Date Created: 10/20/2015

Notes: Remove the window air conditioning units and install a 130 ton air-cooled chiller with chilled water distribution piping and pumps to supply more reliable air conditioning for the building with a much longer service life.

System: D3040 - Distribution Systems

Location: Throughout 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: 28.00

Unit of Measure: C

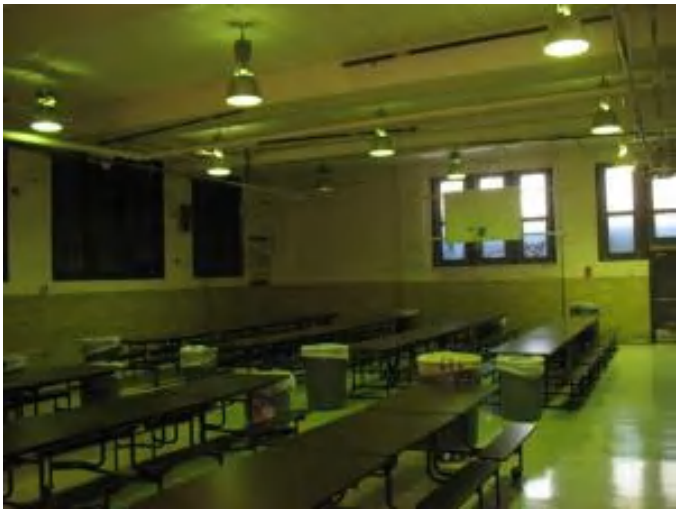
Estimate: $2,080,127.26

Assessor Name: System

Date Created: 10/20/2015

Notes: Remove the existing cast iron steam radiators and install fan coil units with hot and chilled water coils and a dedicated outdoor air system.

System: D3040 - Distribution Systems



Location: Cafeteria/Gymnasium

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 6,000.00

Unit of Measure: Ea.

Estimate: $288,457.17

Assessor Name: System

Date Created: 10/20/2015

Notes: Provide ventilation for the Cafeteria/Gymnasium by installing a constant volume air handling unit with distribution ductwork and registers.

System: D3040 - Distribution Systems

Location: Administration

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

Correction: Install HVAC unit for Administration (2000 students).

Qty: 556.00

Unit of Measure: Pr.

Estimate: $217,685.12

Assessor Name: System

Date Created: 10/20/2015

Notes: Provide ventilation for the administration offices by installing a fan coil air handling unit hung from the structure with outdoor air ducted to the unit from louvers in window openings.

System: D3060 - Controls & Instrumentation

Location: Throughout building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace pneumatic controls with DDC (75KSF)

Qty: 48,300.00

Unit of Measure: S.F.

Estimate: $897,742.85

Assessor Name: System

Date Created: 10/20/2015

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.

Equipment Inventory

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

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 5230 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Room	Weil-McLain	1994			35	1955	1990	$110,000.00	$242,000.00
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 5230 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Room	Weil-McLain	1994			35	1955	1990	$110,000.00	$242,000.00
D5010 Electrical Service/Distribution	Circuit breaker, 3 pole, 600 volt, 1200 amp, enclosed (NEMA 1)	1.00	Ea.	electrical room					30	1929	2047	$11,000.00	$12,100.00
D5010 Electrical Service/Distribution	Panelboards, 3 pole 4 wire, main lugs, 240 V, 600 amp, no main breaker	2.00	Ea.	electrical room					30	1929	2047	$2,125.00	$4,675.00
D5090 Other Electrical Systems	Generator set, diesel, 3 phase 4 wire, 277/480 V, 125 kW, incl battery, charger, muffler, & day tank, excl conduit, wiring, & concrete	1.00	Ea.	electrical room					30	2010	2040	$40,900.00	$44,990.00
												Total:	**$545,765.00**

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):	34,200
Year Built:	1929
Last Renovation:	
Replacement Value:	$758,946
Repair Cost:	$692,189.98
Total FCI:	91.20 %
Total RSLI:	105.30 %

Description:

Attributes:

General Attributes:

Bldg ID:	S540001	Site ID:	S540001

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	104.82 %	91.72 %	$513,859.05
G40 - Site Electrical Utilities	106.67 %	89.75 %	$178,330.93
Totals:	**105.30 %**	**91.20 %**	**$692,189.98**

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	$8.50	S.F.		30				0.00 %	0.00 %				$0
G2030	Pedestrian Paving	$12.30	S.F.	33,000	40	1980	2020	2057	105.00 %	112.76 %	42		$457,699.00	$405,900
G2040	Site Development	$4.36	S.F.	34,200	25	1929	1954	2042	108.00 %	37.66 %	27		$56,160.05	$149,112
G2050	Landscaping & Irrigation	$4.36	S.F.	1,200	15				0.00 %	0.00 %				$5,232
G4020	Site Lighting	$4.84	S.F.	34,200	30			2047	106.67 %	63.51 %	32		$105,120.00	$165,528
G4030	Site Communications & Security	$0.97	S.F.	34,200	30			2047	106.67 %	220.69 %	32		$73,210.93	$33,174
								Total	**105.30 %**	**91.20 %**			**$692,189.98**	**$758,946**

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.

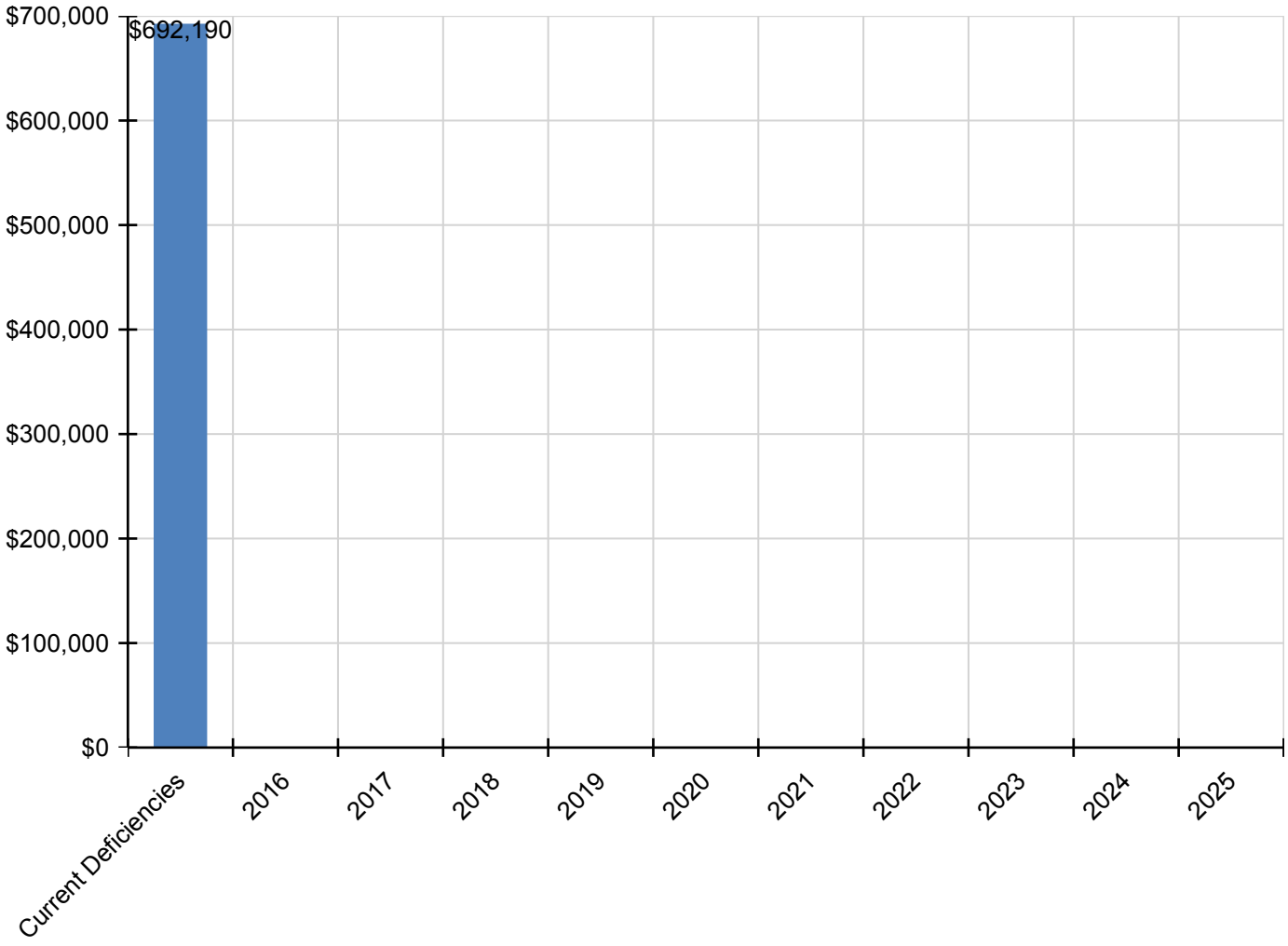
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$692,190**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$692,190**
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	$457,699	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$457,699**
G2040 - Site Development	$56,160	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$56,160**
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	$105,120	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$105,120**
G4030 - Site Communications & Security	$73,211	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$73,211**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

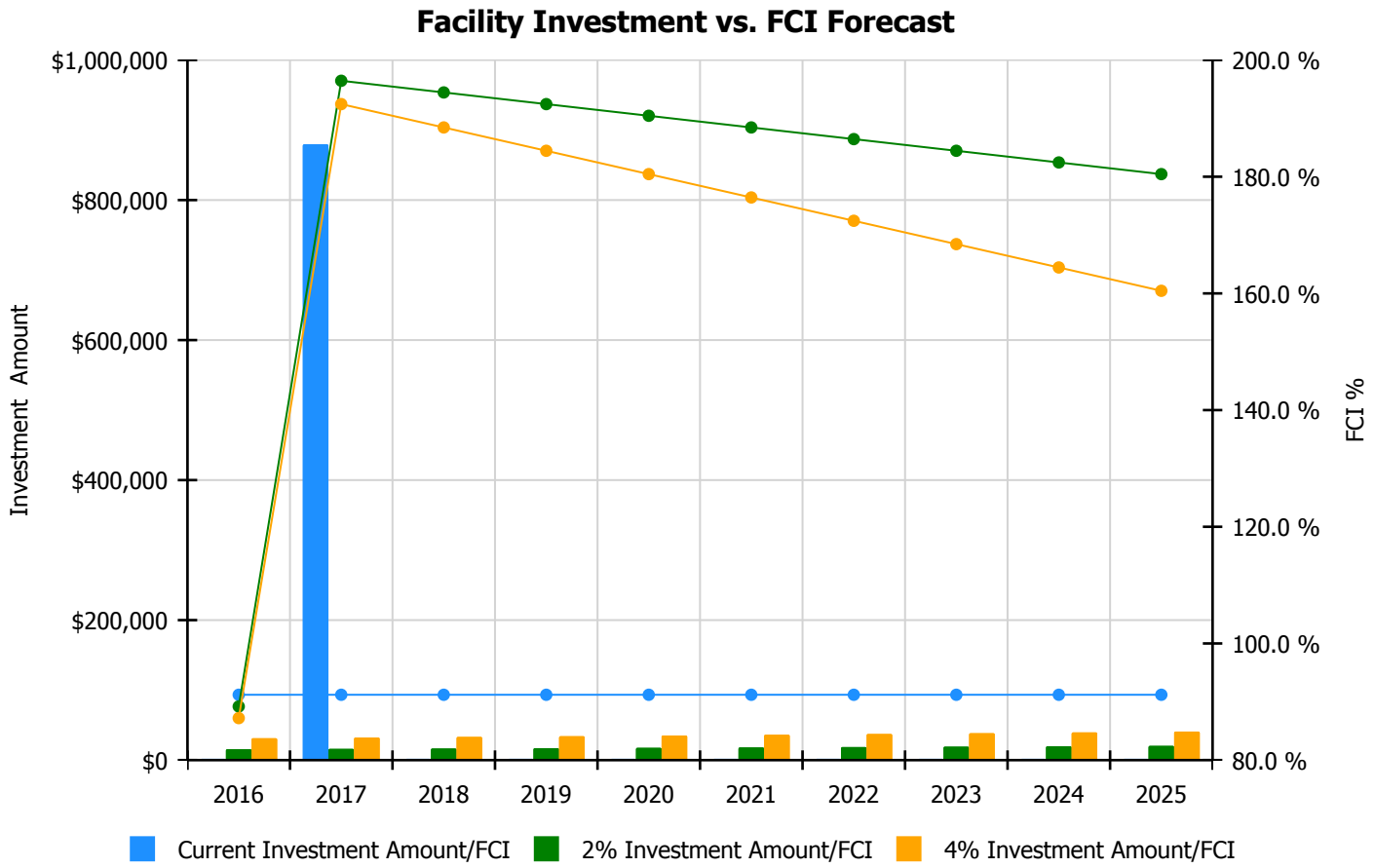
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

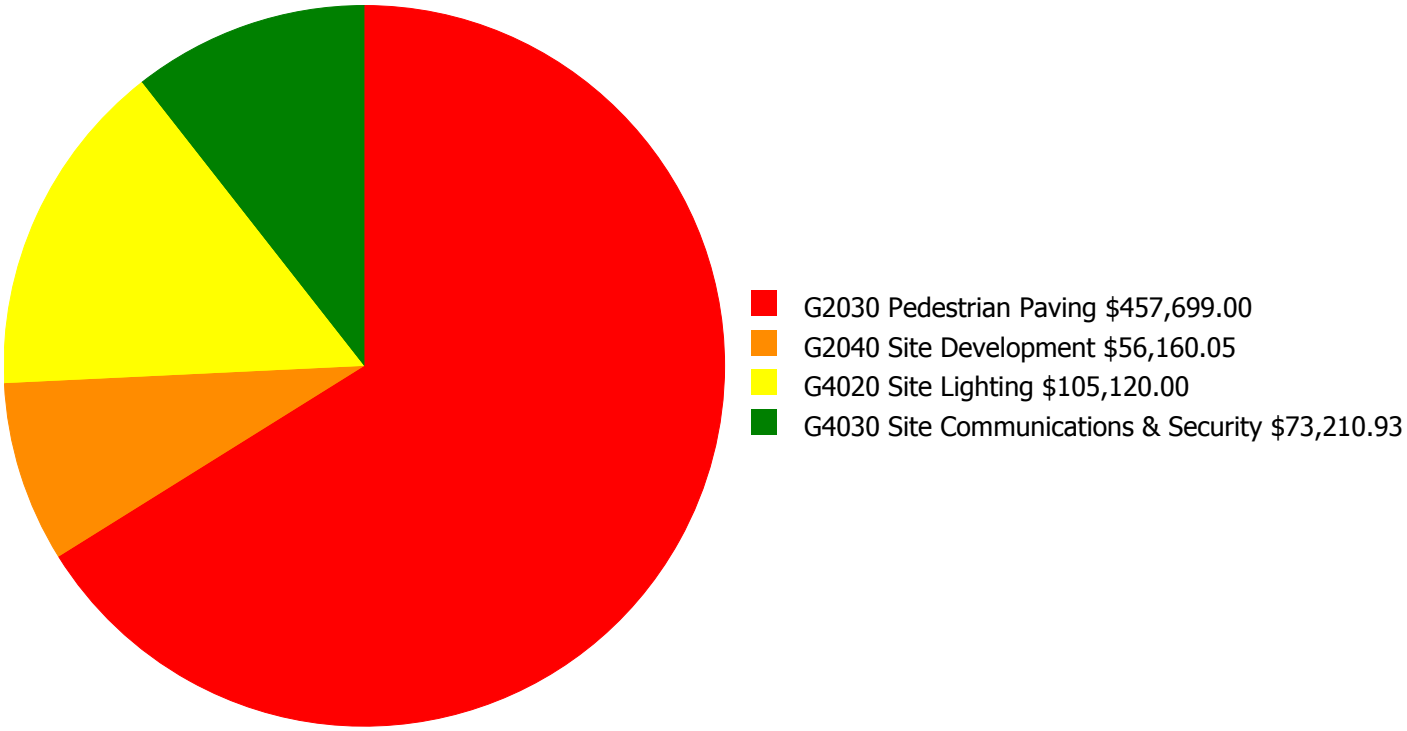
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 91.2%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$15,634.00	89.20 %	$31,269.00	87.20 %
2017	$879,576	$16,103.00	196.45 %	$32,207.00	192.45 %
2018	$0	$16,586.00	194.45 %	$33,173.00	188.45 %
2019	$0	$17,084.00	192.45 %	$34,168.00	184.45 %
2020	$0	$17,597.00	190.45 %	$35,193.00	180.45 %
2021	$0	$18,124.00	188.45 %	$36,249.00	176.45 %
2022	$0	$18,668.00	186.45 %	$37,336.00	172.45 %
2023	$0	$19,228.00	184.45 %	$38,456.00	168.45 %
2024	$0	$19,805.00	182.45 %	$39,610.00	164.45 %
2025	$0	$20,399.00	180.45 %	$40,798.00	160.45 %
Total:	**$879,576**	**$179,228.00**		**$358,459.00**	

Deficiency Summary by System

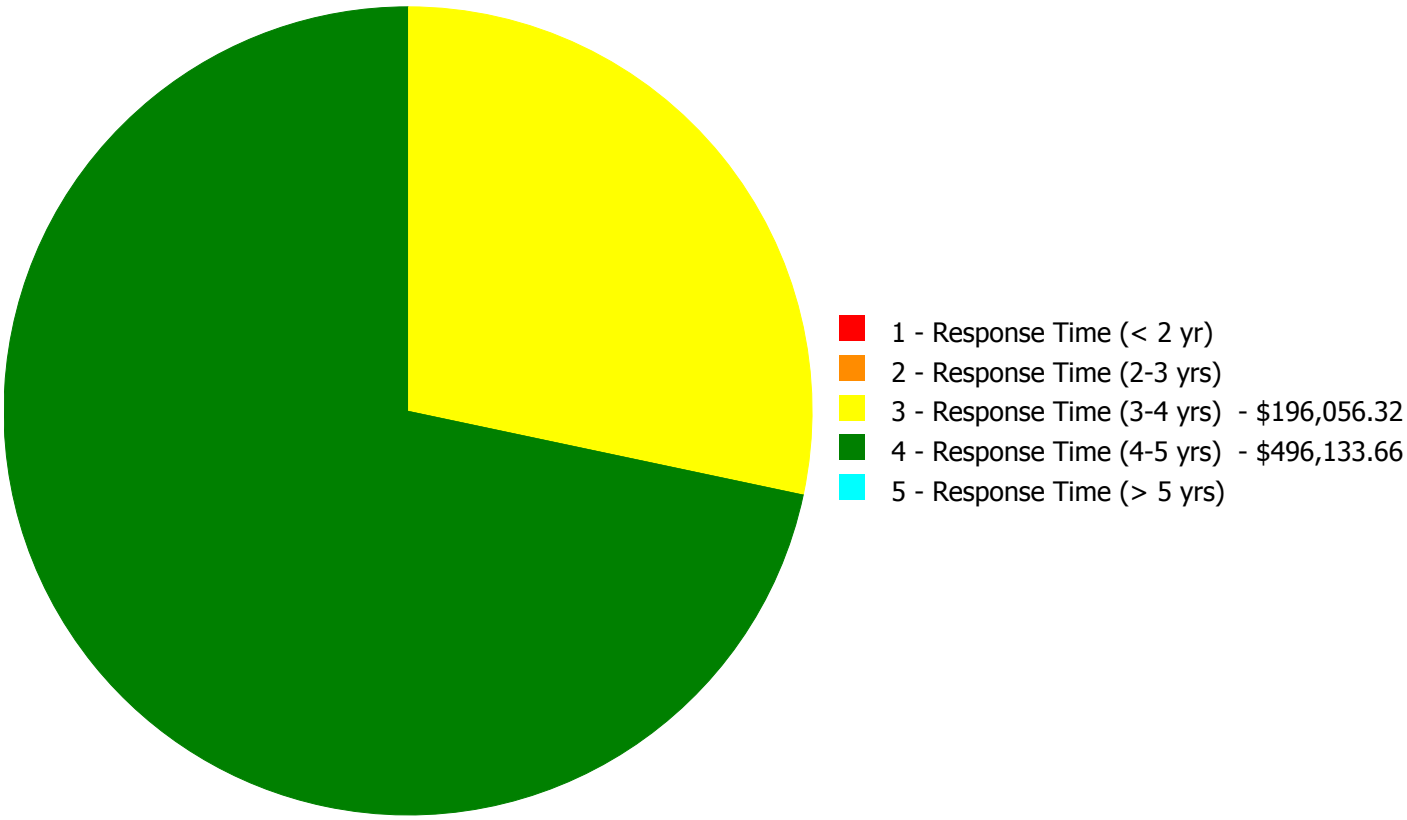
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $692,189.98

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: $692,189.98

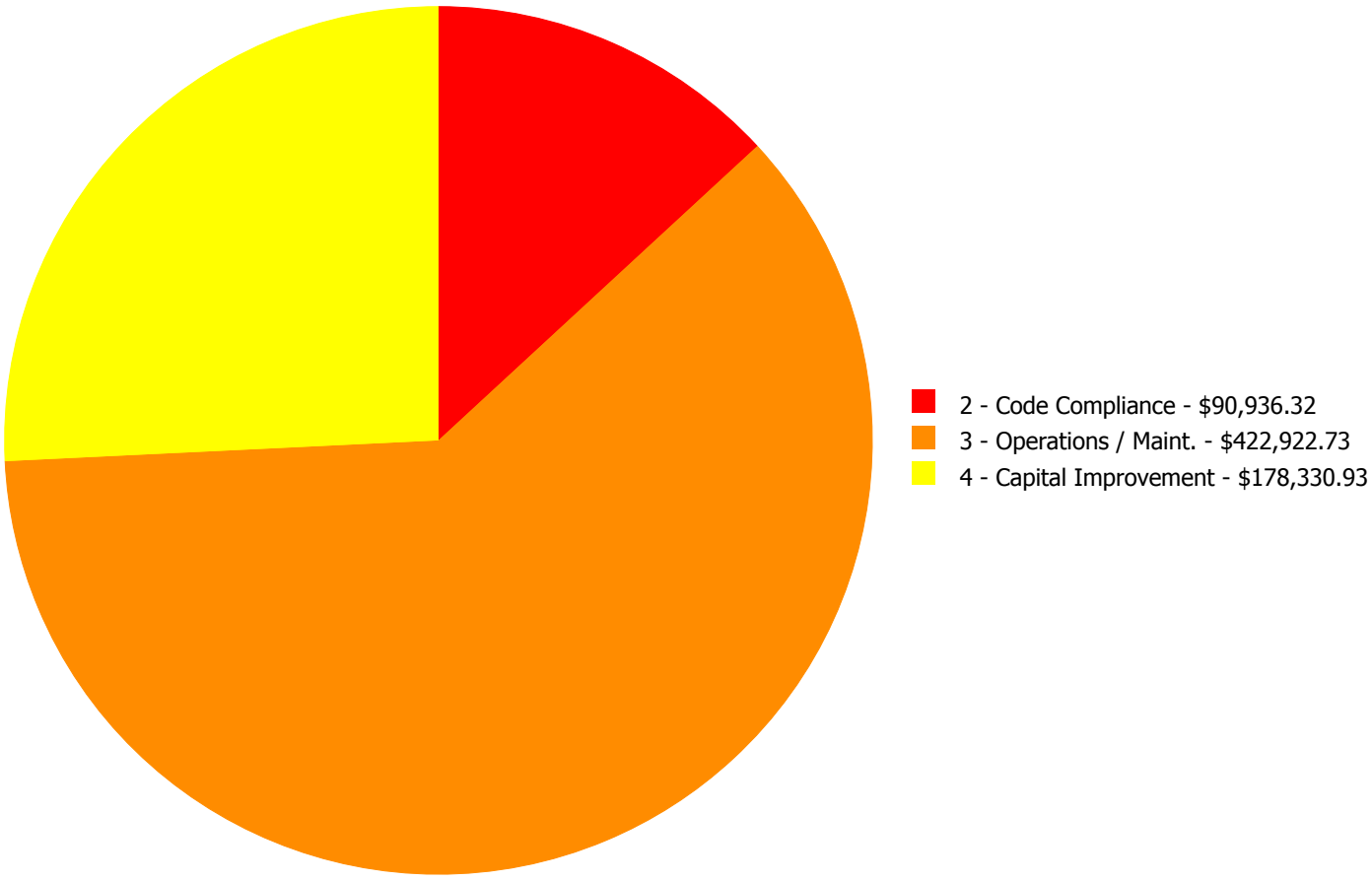
Deficiency By Priority Investment Table

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
G2030	Pedestrian Paving	$0.00	$0.00	$90,936.32	$366,762.68	$0.00	$457,699.00
G2040	Site Development	$0.00	$0.00	$0.00	$56,160.05	$0.00	$56,160.05
G4020	Site Lighting	$0.00	$0.00	$105,120.00	$0.00	$0.00	$105,120.00
G4030	Site Communications & Security	$0.00	$0.00	$0.00	$73,210.93	$0.00	$73,210.93
	Total:	$0.00	$0.00	$196,056.32	$496,133.66	$0.00	$692,189.98

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: $692,189.98

Deficiency Details by Priority

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

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

System: G2030 - Pedestrian Paving

This deficiency has no image.

Location: Grounds
Distress: Accessibility
Category: 2 - Code Compliance
Priority: 3 - Response Time (3-4 yrs)
Correction: Install an exterior ADA ramp - based on 5' wide by the linear foot - up to a 48" rise - per LF of ramp - figure 1 LF per inch of rise
Qty: 70.00
Unit of Measure: L.F.
Estimate: $90,936.32
Assessor Name: Wlodek Pieczonka
Date Created: 01/14/2016

Notes: Provide ADA compliant ramp at main entrance

System: G4020 - Site Lighting

Location: Grounds
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 3 - Response Time (3-4 yrs)
Correction: Add Site Lighting - pole mounted - select the proper light and pole
Qty: 1.00
Unit of Measure: Ea.
Estimate: $105,120.00
Assessor Name: Wlodek Pieczonka
Date Created: 01/08/2016

Notes: Install new site lighting for safety of the people and security of property.

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

System: G2030 - Pedestrian Paving

Location: Grounds

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 25,500.00

Unit of Measure: S.F.

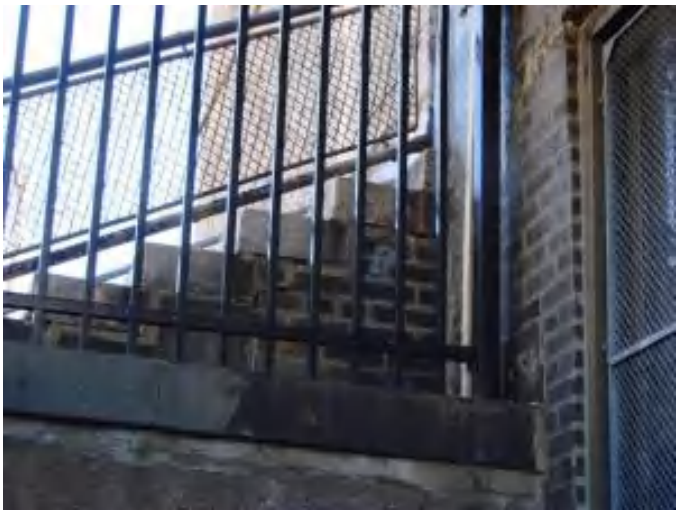
Estimate: $366,762.68

Assessor Name: Wlodek Pieczonka

Date Created: 01/14/2016

Notes: Replace playground paving

System: G2040 - Site Development



Location: Grounds

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace on grade concrete steps - based on 6' wide steps and 6 or 12 risers - modify estimate to suit the configuration

Qty: 4.00

Unit of Measure: Flight

Estimate: $56,160.05

Assessor Name: Wlodek Pieczonka

Date Created: 01/14/2016

Notes: Reset stone steps at entrances

System: G4030 - Site Communications & Security

Location: Grounds

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Add Site Paging System

Qty: 0.00

Unit of Measure: Ea.

Estimate: $73,210.93

Assessor Name: Wlodek Pieczonka

Date Created: 01/08/2016

Notes: Install new site paging on building exterior walls.

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