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.

Penn Alexander School

Governance	DISTRICT	Report Type	Elementarymiddle
Address	4209 Spruce St.	Enrollment	564
	Philadelphia, Pa 19104	Grade Range	'00-08'
Phone/Fax	215-823-5465 / 215-382-2031	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Pennalexander	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	**03.87%**	**$1,667,572**	**$43,124,462**
Building	03.43 %	$1,471,841	$42,971,230
Grounds	127.73 %	$195,731	$153,232

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	00.00 %	$0	$1,385,933
Exterior Walls (Shows condition of the structural condition of the exterior facade)	00.00 %	$0	$3,113,617
Windows (Shows functionality of exterior windows)	00.00 %	$0	$1,519,270
Exterior Doors (Shows condition of exterior doors)	00.00 %	$0	$122,318
Interior Doors (Classroom doors)	00.00 %	$0	$296,093
Interior Walls (Paint and Finishes)	00.00 %	$0	$1,660,146
Plumbing Fixtures	00.00 %	$0	$1,140,507
Boilers	00.00 %	$0	$1,574,945
Chillers/Cooling Towers	64.92 %	$1,340,641	$2,065,059
Radiators/Unit Ventilators/HVAC	00.00 %	$0	$3,626,507
Heating/Cooling Controls	00.00 %	$0	$1,138,820
Electrical Service and Distribution	00.00 %	$0	$818,263
Lighting	00.00 %	$0	$2,925,501
Communications and Security (Cameras, Pa System and Fire Alarm)	05.95 %	$65,158	$1,095,797

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

S128001;Penn Alexander

Final

Site Assessment Report

January 30, 2017

PARSONS

Table of Contents

Site Executive Summary

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

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

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

Gross Area (SF):	84,357
Year Built:	2002
Last Renovation:	
Replacement Value:	$43,124,462
Repair Cost:	$1,667,571.56
Total FCI:	3.87 %
Total RSLI:	65.09 %

Description:

Long term lease from University of Pennsylvania.

Facility Assessment, December, 2015

School District of Philadelphia

Penn Alexander Elementary School

4201 Spruce Street

Philadelphia, PA 19104

84,357 SF / 542 Students / LN 02

The Penn Alexander Elementary School building is located at 4201 Spruce Street in Philadelphia, PA. The 84,357 square foot building was constructed in 2002. The building is 4 stories with a multi-level basement.

The Facility Area Coordinator was not available to provide input to the Parsons assessment team on current problems and planned renovation projects. Mr. Alan Crabbe, the Building Engineer, accompanied us on our tour of the school and provided us with information on the building systems and recent maintenance history. Pictures of the design drawings found on site have been uploaded to eCOMET® for additional information on the mechanical equipment. Not all installed equipment corresponds to the design drawings.

STRUCTURAL/ EXTERIOR CLOSURE:

The building typically rests on concrete spread and strip footings that are not showing signs of settlement or damage. The main structure is typically steel frame, columns and girders; floors are typically concrete slab over metal deck supported by bar joists. The superstructure is generally in very good condition.

The exterior walls typically comprise of brick cladding with sections of curtain wall windows.

The roof structure is a metal deck supported by bar joists and wide flange framing and is typically flat with slopes to roof drains. Elements of the building such as Gym and third floor classrooms are curved or pitched and supported by trusses and purlins.

Exterior windows are typically anodized aluminum curtain wall, double insulated units with tilt-in operating sections covered with integral security screens.

Exterior doors are typically aluminum, double insulated glazed and part of the curtain wall system; service doors are typically hollow metal in hollow metal frames, in very good condition.

Roofing typically consists of 2 types: built-up over rigid insulation, and prefinished metal, standing seam roofing over curved roofs. All roofing is generally in very good condition except around rooftop chiller unit drains.

INTERIORS:

Partition wall types include painted CMU, glazed aluminum store front and drywall, in very good condition. Portions of gym and auditorium walls have acoustic panels. The interior wall finishes are generally painted drywall and CMU.

Most ceilings are 2x2 suspended acoustical panels; ceiling in Gym, and main stairway is exposed metal deck, painted. Ceiling in the auditorium theatre is exposed with suspended acoustical baffles. All ceilings are in very good condition with small areas of suspended acoustical panel damage.

Flooring in most areas is generally vinyl composition tile, in very good condition. Flooring in library, offices, and some other common areas is carpet in very good condition. Gym has artificial wood flooring in very good condition. Flooring in toilets and kitchen area is typically ceramic tiles in good condition.

Interior doors are generally solid core wood doors in hollow metal frames, in good condition. Doors in store front partitions are typically solid core, glazed.

Stairs are generally painted steel with concrete filled metal pan treads with non-slip nosing.

Interior identifying devices are of modular type directly affixed to wall surfaces.

Toilet partitions are mostly phenolic resin panels, ADA compliant, in very good condition, Accessories are in very good condition.

Institutional equipment includes library equipment*;* stage equipment*;* A/V equipment; and laboratory equipment; gym equipment – basketball backstops, scoreboards, etc. Other equipment includes kitchen equipment. All equipment is in very good condition.

CONVEYING EQUIPMENT:

The building does have a 2000 lb hydraulic elevator, in good condition.

MECHANICAL

Plumbing Fixtures

The original plumbing fixtures remain in service. Fixtures in the restrooms on each floor consist of wall mounted flush valve water closets, wall hung urinals and lavatories with both wheel handle and lever operated faucets. The lavatories are handicap accessible. The units appear to be in good condition and should provide reliable service for the next 20-25 years.

Drinking fountains in the corridors and at the restrooms consist of code compliant high and low wall hung fixtures with integral refrigerated coolers. They are within their service life and are accessible type.

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

The Kitchen has six (6) sinks; one (1) three-compartment stainless steel sink with lever operated faucets, one (1) two-compartment stainless steel sink with lever operated faucets and Salvajor disposal, and four (4) single-basin stainless steel sinks with lever operated faucets. There are no grease traps installed. Chemicals are injected manually into the sanitizing basins.

Domestic Water Distribution

An 8” city water service enters the building in a utility room on the first floor from the parking lot on the Northwest side of the building. The 6” meter and valves are located in the utility room and two (2) reduced pressure backflow preventers are installed in parallel. 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 (1) Bradford White Magnum Series gas fired 80 gallon vertical domestic hot water heater with circulating pump and expansion tank provides domestic hot water for the building. The unit was installed in 2015 and is located in the boiler room. The hot water heater is equipped with a T&P relief valve. The domestic hot water heater is within its service life and should provide reliable service for the next 10-12 years.

Sanitary Waste

The sanitary sewer piping is cast iron piping with no-hub fittings and is within its service life. The majority of sanitary piping is located under the building slab and within mechanical chases. The maintenance staff reported no problems with the sanitary waste piping systems.

Sewage ejector or sump pump are not installed in this building.

Rain Water Drainage

The rain water drains from the roof are routed through mechanical chases in the building and are original. The rain leaders are cast iron piping with no-hub fittings. The system is original to the building and is well within its service life. No issues were reported with the roof drains or rain leaders.

Energy Supply

Two (2) city gas services enter the utility room on the first floor from the parking lot on the Northwest side of the building. An 8” city gas services with a 4” meter and a 4” city gas service with a 4” meter serve the building; both meters are located outside of the building. A gas booster pump is installed on the 8” line in the utility room to ensure adequate gas pressure to the boilers.

The reserve oil supply is stored in a 10,000 gallon underground storage tank (UST) located in the paved play area on the West side of the building. Duplex pumps located in the pit with the UST were not accessible during the site visit. The Building Engineer reported that the pit is flooded and the fuel oil pumps are no longer operational. The District should remove the water from the pit, add a sump pump, and refurbish the fuel oil pumps. Oil is used as a backup fuel and the District receives credit from the gas utility as an interruptible service. USTs have an anticipated service life of 20 years.

Heat Generating Systems

Building heating hot water is generated by two (2) 122HP Weil McLain model 94 cast iron sectional boilers located in the boiler room adjacent to the Cafeteria. Each boiler is equipped with a Gordon-Piatt burner designed to operate on natural gas or fuel oil; currently the boilers are run only on natural gas. Combustion air makeup is supplied by louvers equipped with motorized dampers. Burner controls provide full modulation with flame sensing. The gas train serving the boilers does appear to have code required venting of the regulators and dual solenoid valves with venting of the chamber between. The oil supply to the burner is equipped with dual solenoid valves and a strainer with a disposable media filter. The makeup water has a chemical treatment system installed. No major issues with the boilers were reported by the Building Engineer and they appeared to be in good condition. Cast iron boilers have an anticipated service life of 35years or more; these units have been in service 14 years.

The District should provide reliable service for the next 18 to 22 years.

Cooling Generating Systems

Chilled water is meant to be generated by two (2) nominal 245 ton Carrier water-cooled hermetic screw chillers located in the basement mechanical room. According to the Building Engineer one (1) of the chillers, CH-2, is in need of repairs and is not run. Heat from the chillers is rejected by two (2) roof mounted single cell BAC model 3620 forced draft, counter flow cooling towers; the cooling towers are located on the roof on the West side of the building. Each chiller operates with an associated cooling tower. The chillers utilize R-22 refrigerant which is being phased out of use in the United States. Screw compressor chillers have an anticipated service life of 20 years; these units have been in service 14 years. The District should provide the required maintenance to chiller CH-2 and budget for replacing the chillers over the next 5-8 years. The Building Engineer reported that the cooling towers leak from damaged internal piping, causing rust and bacterial growth on the towers. Galvanized metal cooling towers have an anticipated service life of 18 years; these units have been in service 14 years and are in need of maintenance. The District should budget for replacing the cooling towers over the next 2-4 years.

Distribution Systems

A two pipe dual temperature distribution system supplies building heating or cooling water to the unit ventilators and fan coil units in classrooms. Two (2) 5HP in-line Paco dual temperature supply pumps, P4-1A and P4-1B, circulate building heating or cooling water to the South side of the building. Two (2) 10HP in-line Paco dual temperature supply pumps, P4-2A and P4-2B, circulate building heating or cooling water to the North side of the building.

A four pipe distribution system supplies building heating and cooling water to the air handling units. Two (2) 7.5HP in-line Paco heating water return pumps, P-31 and P-32, circulate building heating water through the boilers. An expansion tank, air separator, and chemical treatment are installed on the heating water distribution system. Two (2) 20HP end-suction Paco chilled water return pumps, P-11 and P-12, circulate building chilled water to the air handling units (AHU). An expansion tank and air separator are installed on the chilled water return side along with a Neptune chemical treatment system. The Building Engineer reported that the chilled water piping for pump P-12 leaks, causing rust damage to the pump, so this pump is no longer run. The District should repair the leaking piping/valve near pump P-12 and replace the pump if necessary.

A two pipe condenser water loop serves the chillers and cooling towers. Two (2) 20HP end-suction Paco condenser water supply pumps, P-21 and P-22, are installed in parallel so that either pump can serve either chiller. The pumps are located in the basement mechanical room. A chemical treatment system is installed for the condenser water. The pumps appeared to be in good condition and the Building Engineer did not report any issues.

All pumps are original to the building, appear to be in good condition, with the exception of P-12, and are within their anticipated service life of 25 years. All main piping is black steel, covered with insulation, and appears to be in good condition. No problems were reported with the distribution systems.

Five (5) Racan-Carrier air handling units provide heating, cooling, and ventilation to specific spaces within the building. All AHUs are fed by a four pipe system for building hot and chilled water. AHU-1 serves the Cafeteria and first floor corridor and is located in the basement mechanical room; it has a 30HP supply fan motor. AHU-2 serves the Gymnasium/Auditorium and basement corridor and is located in the basement mechanical room; it has a 30HP supply fan motor. AHU-3 serves the North side of the building (administration offices, corridor, and IMC) and is located on the North side of the roof; it has a 40HP supply fan motor. A 10HP return air fan is installed as part of AHU-3. AHU-4 serves the South side of the building (corridors and meeting rooms) and is located on the North side of the roof; it has a 40HP supply fan motor. A 10HP return air fan is installed as part of AHU-4. AHU-5 serves the basement mechanical room and is located in the basement mechanical room. The AHUs have associated VAV boxes with hot water reheat coils. All units were operational during the site visit, are original to the building, and are well within their service lives. The Building Engineer did not report any issues.

Heating and cooling is provided to the classrooms by a combination of unit ventilators, fin tube radiators, and fan coil units. All equipment is original to the building and within their service lives. Outdoor air for the building is provided by wall openings in the unit ventilators and the air handling units. No major issues were reported with the unit ventilators or fan coil units. Fin tube radiators provide heating for hallways and stairwells. All radiators appeared to be in good condition.

Terminal & Package Units

The building is exhausted by a total of nine (9) exhaust fans; the schedule of fans from the design drawings is attached in eCOMET®. The Building Engineer did not report and problems with the exhaust system. The exhaust fans remove air from the ceiling plenum above the drop ceiling in some areas, from restrooms, and other areas. The roof mounted exhaust and return air fans appeared to be in good condition.

One (1) Avtec kitchen hood with integral fire suppression is installed above the gas range and electric heating equipment. A make-up air system is

installed. An automatic gas shutoff valve is installed with the kitchen hood equipment. The equipment is well within service life and in good condition.

A Mitsubishi split system air conditioning system provides cooling to the LAN room located on the first floor in the Main Office area. The installation date of this unit is 2012, according to the Building Engineer. The anticipated service life of a split system air conditioner is 15 years. The district should provide reliable service for the next 11-13 years.

Controls & Instrumentation

An Allerton building management system (BMS) with DDC modules and communications network is installed in this building. The Building Engineer reported that the system still functions well, but that several thermostats are no longer operational. The District should provide maintenance to the non-functional thermostats to ensure the system can run efficiently. All major mechanical equipment (chillers, boilers, air handling units, pumps, fans, etc.) are monitored and controlled by the system through a computer located in the Building Engineer's office. This controls system is approaching the end of its anticipated 20 year service life and the District should budget to replace it in the next 5-8 years.

Sprinklers

The building is equipped with a wet type sprinkler system. An 8" fire water line enters the building in the utility room on the first floor from the parking lot on the Northwest side of the building; in the same room as the water and gas mains. The Building Engineer reported no issues with the system. The fire suppression system is the originally installed equipment and should not need replacement within the next 20 years.

The building is equipped with dry fire stand pipes in the stairwells.

ELECTRICAL:

Site electrical service - The primary power is at 13.2KV from the street power pole which goes underground and feeds a 2000KVA pad-mounted indoor transformer (13.2KV – 480V/277V), 3 phase. The electrical service is fairly new (2002) and has not reached the end of its useful service. The main switchgear is rated at 2400A, 480V/277V, 3 phase, and is located in main electrical room. The PECO meter (02 017458579) is also located inside the electrical room. The service entrance and the main building electrical distribution systems are in great condition with ample capacity for future growth. There is no deficiency in electrical service.

Distribution system - The electrical distribution is accomplished with a 480V/277V, 3 phase distribution switchboards. Switchboard feeds two MCCs, a 480 switchboard, and eight lighting panels (277V), and eight 120V/208V receptacle panels throughout the building (two in each floor). These panels are in good condition and have not reached the end of their useful service.

Receptacles - There is 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-5) in majority of the areas, including; classrooms, corridor, offices and Kitchen. Surface or pendant mounted industrial fluorescent fixtures are used in mechanical and electrical rooms. Gymnasium is illuminated by metal halide enclosed glass fixture. The interior lighting fixtures are in good condition and have not reached the end of their useful service.

Fire alarm - The present Fire Alarm system is automatic/addressable, and is in compliance with safety codes. There are manual pulls stations throughout the building. There are also sufficient number of horn/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 other classrooms.

Clock and Program system - Clock and program systems are working properly. Classrooms are provided with 12-inch wall mounted round clock. The clocks 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 is not provided with adequate video surveillance system. There are no cameras at exit doors, corridors, exterior, and other critical areas. The cameras should be controlled by a Closed Circuit Television system (CCTV).

Emergency Power System - School is provided with a emergency generator (125KW) to feed elevators, emergency lighting and other emergency loads.

Emergency lighting system, including exit lighting - there are sufficient emergency lighting fixtures in corridors, library and other exit ways. Exit signs and emergency fixtures have not reached the end of their useful service.

Lightning Protection System - There is no lightning protection system installed in the school. The roof no lightning rods. Therefore, there is no path connecting the high points on the roof to the ground via stranded aluminum cables all the way to the ground level.

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

GROUNDS (SITE):

There is one parking lot for staff vehicles on the west side of the site in good condition with two spaces designated as accessible. Compliant accessible signage is in good condition.

Playground paving is generally asphalt a portion of which is covered with protective rubber mat. Walkways are concrete paved. Perimeter chain link fences are generally in good condition. Playground areas are enclosed with chain link fences. The site is surrounded by landscaped areas with trees, shrubs and grass areas, generally in good condition. The trees and shrubs are fully mature.

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 an insufficient number of speaker on building's exterior walls.

ACCESSIBILITY:

The building does have accessible entrance and accessible routes, including walkways not exceeding 5% slope, per requirement. Toilets are generally in compliance with ADA. Door handles are typically lever type. Elevator is ADA compliant.

RECOMMENDATIONS:

- Replace damaged ceiling panels (2% of suspended ceiling)
- Replace the two (2) roof mounted single cell cooling towers, serving two (2) nominal 245 ton chillers, which are approaching the end of their service lives and have internally leaking pipes.
- Replace the 20HP chilled water return pump, P-12, which is damaged from water leaking from the chilled water piping, including the associated leaking piping.

- Install a new Lightning Protection System

- Install a new interior video surveillance system.

- Install new site cameras for safety of the people and security of property.

- Install pole-mounted lighting fixtures for the grounds.

- Install new site paging on building exterior walls.

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 5 / Tm 4
Status:	Accepted by SDP	Team:	Tm 4
Site ID:	S128001		

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.

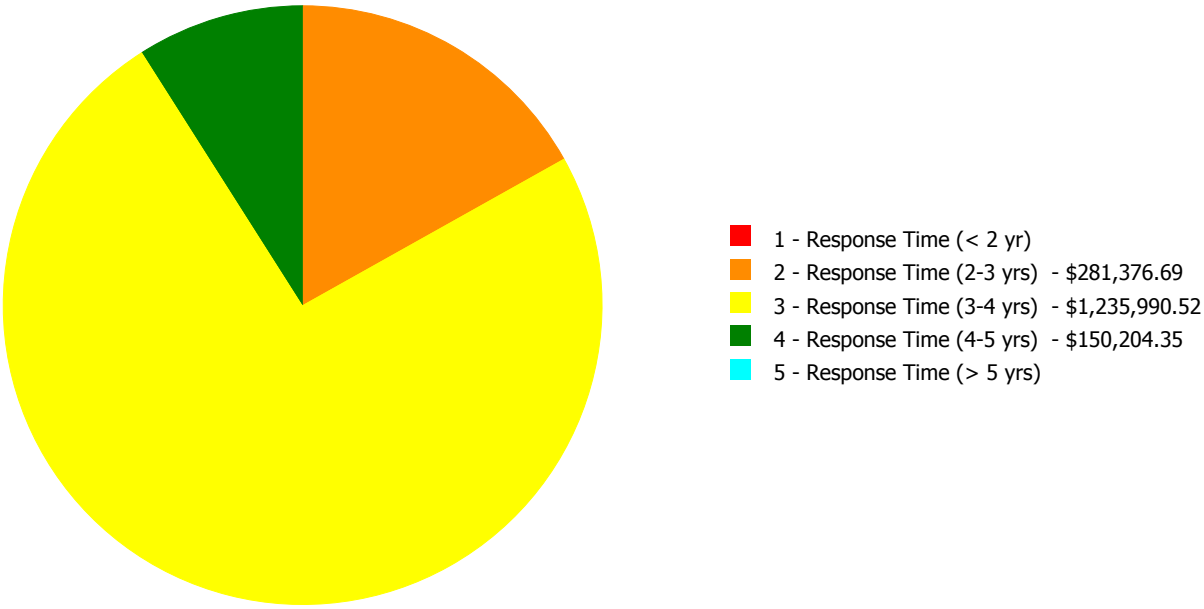
Current Investment Requirement and Condition by Uniformat Classification

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	87.00 %	0.00 %	$0.00
A20 - Basement Construction	87.00 %	0.00 %	$0.00
B10 - Superstructure	87.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	79.77 %	0.00 %	$0.00
B30 - Roofing	45.56 %	0.00 %	$0.00
C10 - Interior Construction	81.73 %	0.00 %	$0.00
C20 - Stairs	87.00 %	0.00 %	$0.00
C30 - Interior Finishes	57.97 %	0.22 %	$10,708.01
D10 - Conveying	62.86 %	0.00 %	$0.00
D20 - Plumbing	58.82 %	0.00 %	$0.00
D30 - HVAC	49.47 %	14.29 %	$1,340,640.71
D40 - Fire Protection	62.86 %	0.00 %	$0.00
D50 - Electrical	38.73 %	2.43 %	$120,492.30
E10 - Equipment	62.86 %	0.00 %	$0.00
E20 - Furnishings	67.50 %	0.00 %	$0.00
G20 - Site Improvements	64.72 %	0.00 %	$0.00
G40 - Site Electrical Utilities	56.67 %	250.98 %	$195,730.54
Totals:	**65.09 %**	**3.87 %**	**$1,667,571.56**

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)
B128001;Penn Alexander	84,357	3.43	$0.00	$135,970.71	$1,204,670.00	$131,200.31	$0.00
G128001;Grounds	4,500	127.73	$0.00	$145,405.98	$31,320.52	$19,004.04	$0.00
Total:		**3.87**	**$0.00**	**$281,376.69**	**$1,235,990.52**	**$150,204.35**	**$0.00**

Deficiencies By Priority



Budget Estimate Total: $1,667,571.56

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):	84,357
Year Built:	2002
Last Renovation:	
Replacement Value:	$42,971,230
Repair Cost:	$1,471,841.02
Total FCI:	3.43 %
Total RSLI:	65.10 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B128001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S128001		

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	87.00 %	0.00 %	$0.00
A20 - Basement Construction	87.00 %	0.00 %	$0.00
B10 - Superstructure	87.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	79.77 %	0.00 %	$0.00
B30 - Roofing	45.56 %	0.00 %	$0.00
C10 - Interior Construction	81.73 %	0.00 %	$0.00
C20 - Stairs	87.00 %	0.00 %	$0.00
C30 - Interior Finishes	57.97 %	0.22 %	$10,708.01
D10 - Conveying	62.86 %	0.00 %	$0.00
D20 - Plumbing	58.82 %	0.00 %	$0.00
D30 - HVAC	49.47 %	14.29 %	$1,340,640.71
D40 - Fire Protection	62.86 %	0.00 %	$0.00
D50 - Electrical	38.73 %	2.43 %	$120,492.30
E10 - Equipment	62.86 %	0.00 %	$0.00
E20 - Furnishings	67.50 %	0.00 %	$0.00
Totals:	**65.10 %**	**3.43 %**	**$1,471,841.02**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
A1010	Standard Foundations	$18.40	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$1,552,169
A1030	Slab on Grade	$7.73	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$652,080
A2010	Basement Excavation	$6.55	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$552,538
A2020	Basement Walls	$12.70	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$1,071,334
B1010	Floor Construction	$75.10	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$6,335,211
B1020	Roof Construction	$13.88	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$1,170,875
B2010	Exterior Walls	$36.91	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$3,113,617
B2020	Exterior Windows	$18.01	S.F.	84,357	40	2002	2042		67.50 %	0.00 %	27			$1,519,270
B2030	Exterior Doors	$1.45	S.F.	84,357	25	2002	2027		48.00 %	0.00 %	12			$122,318
B3010105	Built-Up	$37.76	S.F.	18,684	20	2002	2022		35.00 %	0.00 %	7			$705,508
B3010120	Single Ply Membrane	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3010130	Preformed Metal Roofing	$54.22	S.F.	12,456	30	2002	2032		56.67 %	0.00 %	17			$675,364
B3010140	Shingle & Tile	$38.73	S.F.		25				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.06	S.F.	84,357	20	2002	2022		35.00 %	0.00 %	7			$5,061
C1010	Partitions	$17.91	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$1,510,834
C1020	Interior Doors	$3.51	S.F.	84,357	40	2002	2042		67.50 %	0.00 %	27			$296,093
C1030	Fittings	$3.12	S.F.	84,357	40	2002	2042		67.50 %	0.00 %	27			$263,194
C2010	Stair Construction	$1.41	S.F.	84,357	100	2002	2102		87.00 %	0.00 %	87			$118,943

Site Assessment Report - B128001;Penn Alexander

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	$17.70	S.F.	84,357	10	2012	2022		70.00 %	0.00 %	7			$1,493,119
C3010231	Vinyl Wall Covering	$0.00	S.F.	84,357	15				0.00 %	0.00 %				$0
C3010232	Wall Tile	$1.98	S.F.	84,357	30	2002	2032		56.67 %	0.00 %	17			$167,027
C3020411	Carpet	$7.30	S.F.	21,089	10	2012	2022		70.00 %	0.00 %	7			$153,950
C3020412	Terrazzo & Tile	$75.52	S.F.	8,436	50	2002	2052		74.00 %	0.00 %	37			$637,087
C3020413	Vinyl Flooring	$9.68	S.F.	42,179	20	2002	2022		35.00 %	0.00 %	7			$408,293
C3020414	Wood Flooring	$22.27	S.F.	12,654	25	2002	2027		48.00 %	0.00 %	12			$281,805
C3020415	Concrete Floor Finishes	$0.97	S.F.		50	2002	2052		74.00 %	0.00 %	37			$0
C3030	Ceiling Finishes	$20.97	S.F.	84,357	25	2002	2027		48.00 %	0.61 %	12		$10,708.01	$1,768,966
D1010	Elevators and Lifts	$1.53	S.F.	84,357	35	2002	2037		62.86 %	0.00 %	22			$129,066
D2010	Plumbing Fixtures	$13.52	S.F.	84,357	35	2002	2037		62.86 %	0.00 %	22			$1,140,507
D2020	Domestic Water Distribution	$1.68	S.F.	84,357	25	2002	2027		48.00 %	0.00 %	12			$141,720
D2030	Sanitary Waste	$2.90	S.F.	84,357	25	2002	2027		48.00 %	0.00 %	12			$244,635
D2040	Rain Water Drainage	$2.32	S.F.	84,357	30	2002	2032		56.67 %	0.00 %	17			$195,708
D3020	Heat Generating Systems	$18.67	S.F.	84,357	35	2002	2037		62.86 %	0.00 %	22			$1,574,945
D3030	Cooling Generating Systems	$24.48	S.F.	84,357	30	2002	2032		56.67 %	64.92 %	17		$1,340,640.71	$2,065,059
D3040	Distribution Systems	$42.99	S.F.	84,357	25	2002	2027		48.00 %	0.00 %	12			$3,626,507
D3050	Terminal & Package Units	$11.60	S.F.	84,357	20	2002	2022		35.00 %	0.00 %	7			$978,541
D3060	Controls & Instrumentation	$13.50	S.F.	84,357	20	2002	2022		35.00 %	0.00 %	7			$1,138,820
D4010	Sprinklers	$7.05	S.F.	84,357	35	2002	2037		62.86 %	0.00 %	22			$594,717
D4020	Standpipes	$1.01	S.F.	84,357	35	2002	2037		62.86 %	0.00 %	22			$85,201
D5010	Electrical Service/Distribution	$9.70	S.F.	84,357	30	2002	2032	2032	56.67 %	0.00 %	17			$818,263
D5020	Lighting and Branch Wiring	$34.68	S.F.	84,357	20	2002	2022	2022	35.00 %	0.00 %	7			$2,925,501
D5030	Communications and Security	$12.99	S.F.	84,357	15	2002	2017	2020	33.33 %	5.95 %	5		$65,157.51	$1,095,797
D5090	Other Electrical Systems	$1.41	S.F.	84,357	30	2002	2032	2032	56.67 %	46.52 %	17		$55,334.79	$118,943
E1020	Institutional Equipment	$4.82	S.F.	84,357	35	2002	2037		62.86 %	0.00 %	22			$406,601
E1090	Other Equipment	$11.10	S.F.	84,357	35	2002	2037		62.86 %	0.00 %	22			$936,363
E2010	Fixed Furnishings	$2.13	S.F.	84,357	40	2002	2042		67.50 %	0.00 %	27			$179,680
								Total	**65.10 %**	**3.43 %**			**$1,471,841.02**	**$42,971,230**

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:
90% - Paint & Covering
10% - Wall Tile (ceramic)

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

Note:
25% - Carpet
10% - Terrazzo/Tile (ceramic)
50% - Vinyl Flooring
15% - Wood Flooring

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:	**$1,471,841**	**$0**	**$0**	**$0**	**$0**	**$1,397,362**	**$0**	**$10,564,213**	**$0**	**$0**	**$0**	**$13,433,416**
*** A - Substructure**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A10 - Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1010 - Standard Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1030 - Slab on Grade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A20 - Basement Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2010 - Basement Excavation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2020 - Basement Walls	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B10 - Superstructure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1010 - Floor Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1020 - Roof Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B20 - Exterior Enclosure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2010 - Exterior Walls	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2020 - Exterior Windows	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2030 - Exterior Doors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B30 - Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010 - Roof Coverings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010105 - Built-Up	$0	$0	$0	$0	$0	$0	$0	$954,455	$0	$0	$0	**$954,455**
B3010120 - Single Ply Membrane	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010130 - Preformed Metal Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010140 - Shingle & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3020 - Roof Openings	$0	$0	$0	$0	$0	$0	$0	$6,848	$0	$0	$0	**$6,848**
C - Interiors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C10 - Interior Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1010 - Partitions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

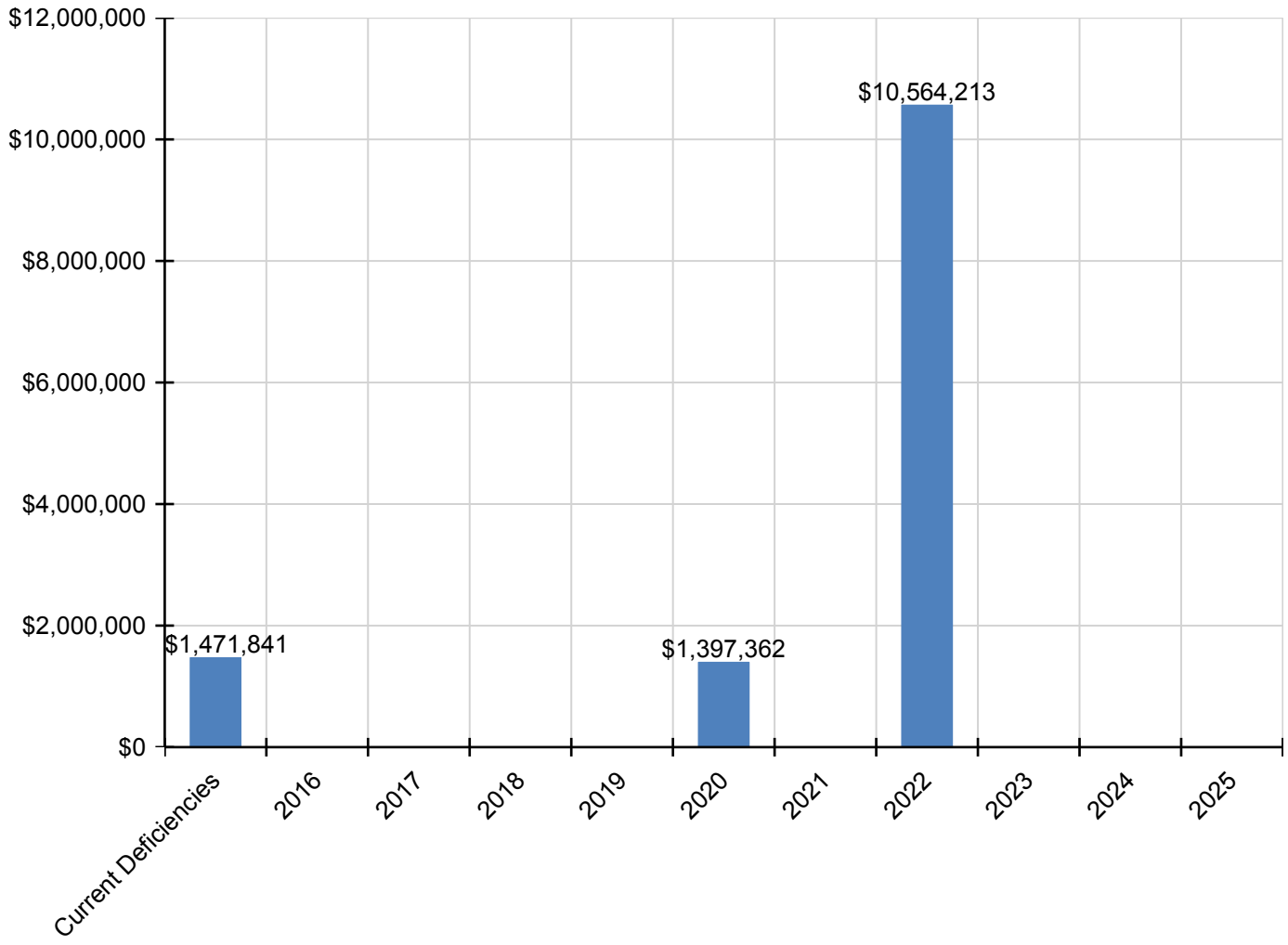
C1020 - Interior Doors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1030 - Fittings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C30 - Interior Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010 - Wall Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010230 - Paint & Covering	$0	$0	$0	$0	$0	$0	$0	$2,019,983	$0	$0	$0	**$2,019,983**
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	$208,273	$0	$0	$0	**$208,273**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$0	$0	$0	$0	$0	$0	$0	$552,363	$0	$0	$0	**$552,363**
C3020414 - Wood Flooring	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020415 - Concrete Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3030 - Ceiling Finishes	$10,708	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$10,708**
D - Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D10 - Conveying	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D1010 - Elevators and Lifts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2020 - Domestic Water Distribution	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2030 - Sanitary Waste	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3030 - Cooling Generating Systems	$1,340,641	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,340,641**
D3040 - Distribution Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$1,323,830	$0	$0	$0	**$1,323,830**
D3060 - Controls & Instrumentation	$0	$0	$0	$0	$0	$0	$0	$1,540,664	$0	$0	$0	**$1,540,664**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4020 - Standpipes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

D50 - Electrical	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5010 - Electrical Service/Distribution	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5020 - Lighting and Branch Wiring	$0	$0	$0	$0	$0	$0	$0	$3,957,797	$0	$0	$0	**$3,957,797**
D5030 - Communications and Security	$65,158	$0	$0	$0	$0	$1,397,362	$0	$0	$0	$0	$0	**$1,462,520**
D5090 - Other Electrical Systems	$55,335	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$55,335**
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

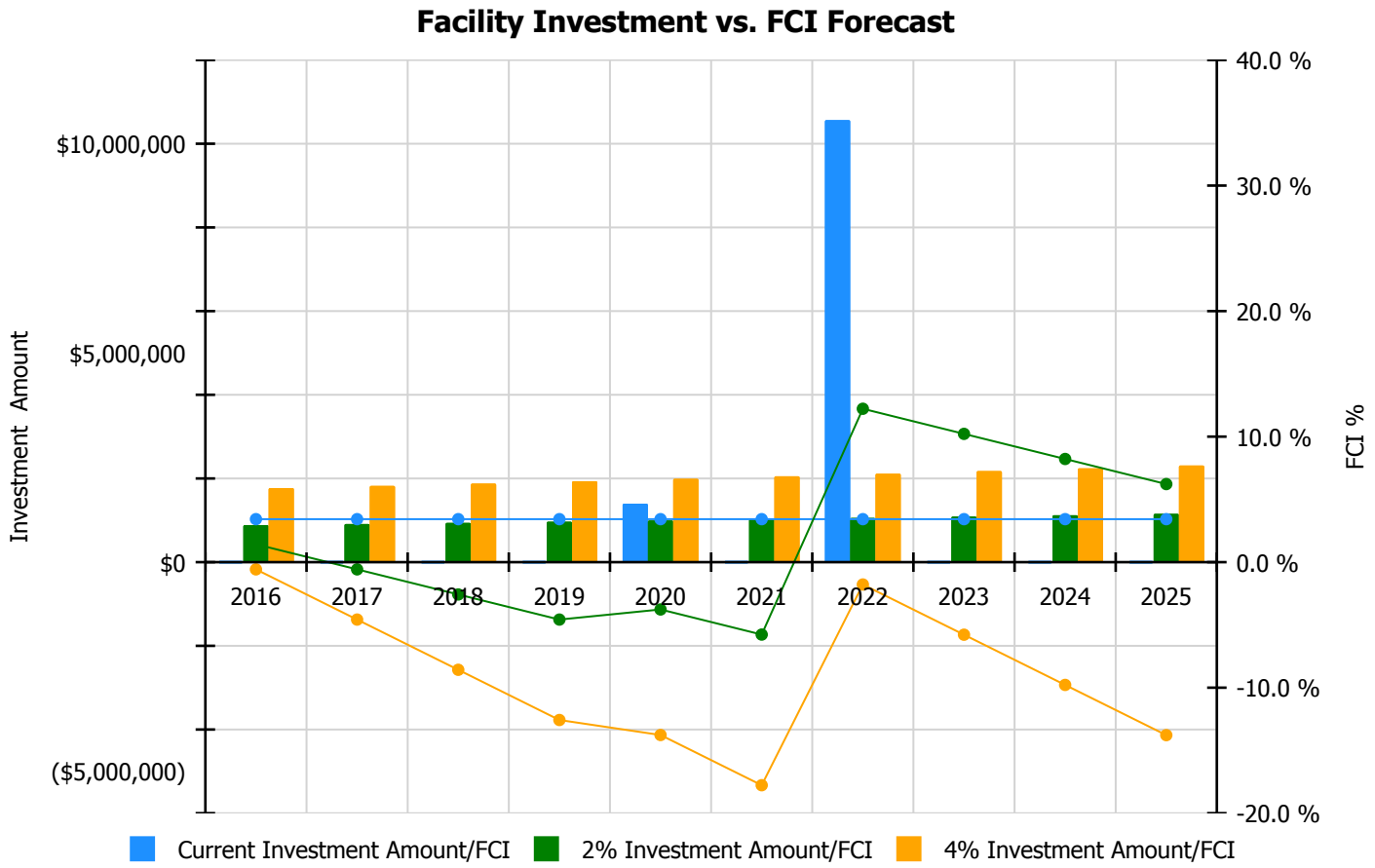
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

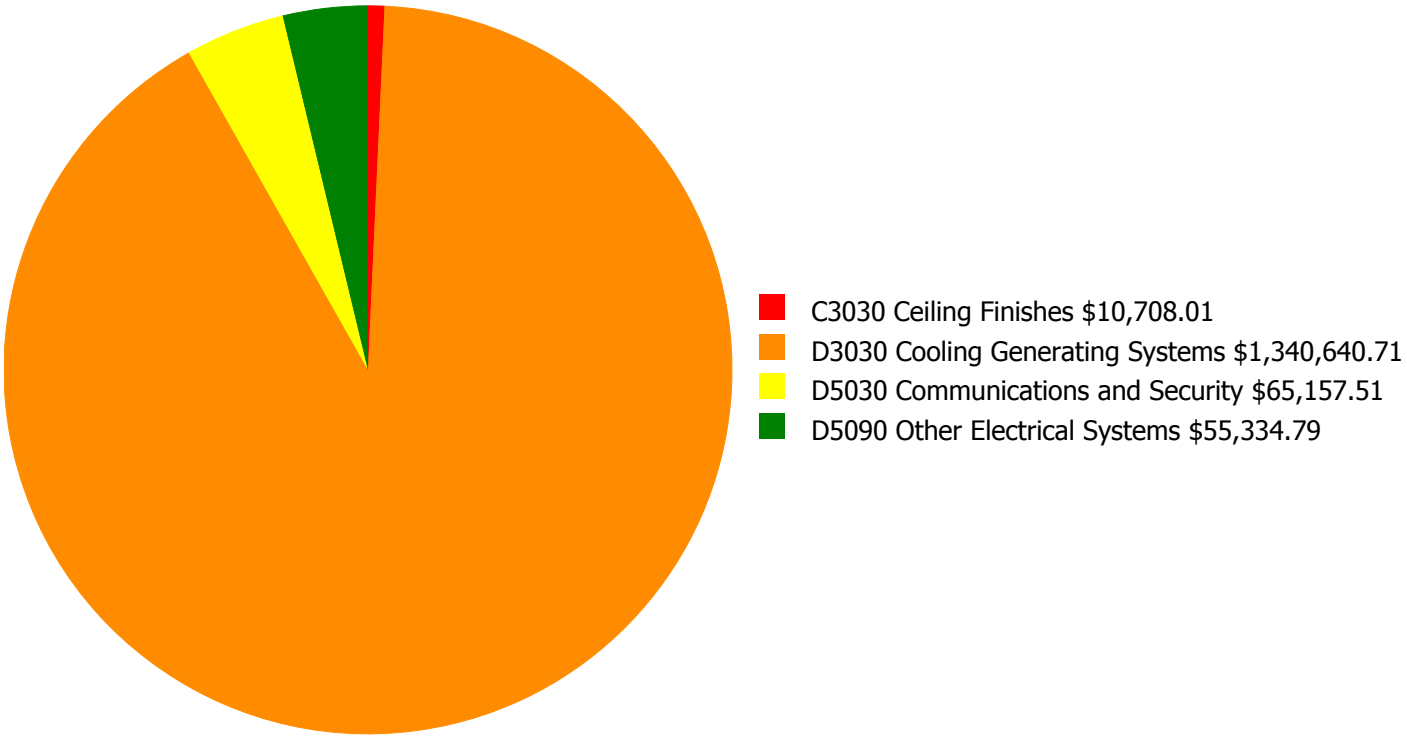
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 3.43%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$885,207.00	1.43 %	$1,770,415.00	-0.57 %
2017	$0	$911,764.00	-0.57 %	$1,823,527.00	-4.57 %
2018	$0	$939,116.00	-2.57 %	$1,878,233.00	-8.57 %
2019	$0	$967,290.00	-4.57 %	$1,934,580.00	-12.57 %
2020	$1,397,362	$996,309.00	-3.77 %	$1,992,617.00	-13.77 %
2021	$0	$1,026,198.00	-5.77 %	$2,052,396.00	-17.77 %
2022	$10,564,213	$1,056,984.00	12.22 %	$2,113,968.00	-1.78 %
2023	$0	$1,088,693.00	10.22 %	$2,177,387.00	-5.78 %
2024	$0	$1,121,354.00	8.22 %	$2,242,708.00	-9.78 %
2025	$0	$1,154,995.00	6.22 %	$2,309,990.00	-13.78 %
Total:	**$11,961,575**	**$10,147,910.00**		**$20,295,821.00**	

Deficiency Summary by System

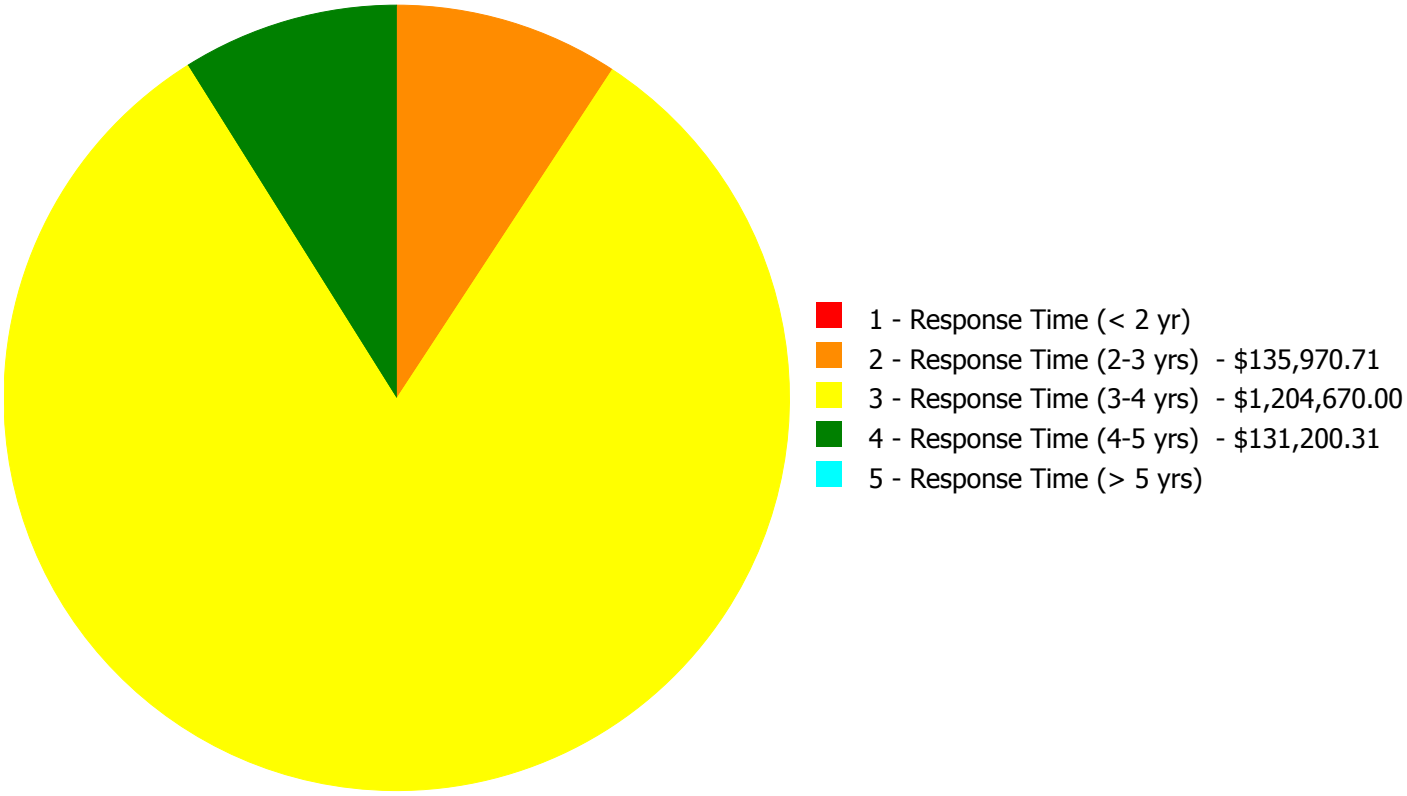
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $1,471,841.02

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: $1,471,841.02

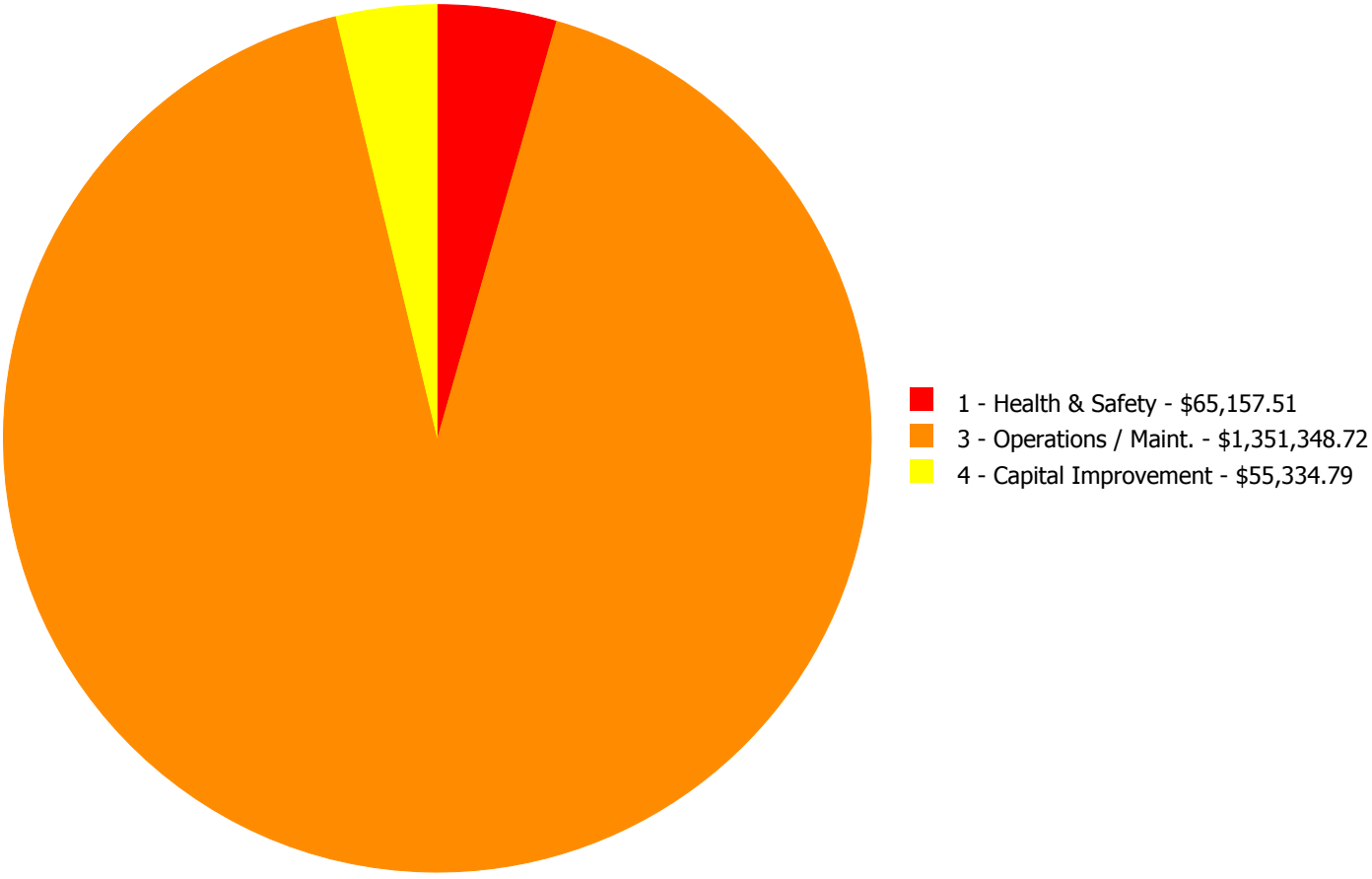
Deficiency By Priority Investment Table

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
C3030	Ceiling Finishes	$0.00	$0.00	$0.00	$10,708.01	$0.00	$10,708.01
D3030	Cooling Generating Systems	$0.00	$135,970.71	$1,204,670.00	$0.00	$0.00	$1,340,640.71
D5030	Communications and Security	$0.00	$0.00	$0.00	$65,157.51	$0.00	$65,157.51
D5090	Other Electrical Systems	$0.00	$0.00	$0.00	$55,334.79	$0.00	$55,334.79
	Total:	$0.00	$135,970.71	$1,204,670.00	$131,200.31	$0.00	$1,471,841.02

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: $1,471,841.02

Deficiency Details by Priority

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

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

System: D3030 - Cooling Generating Systems

Location: Basement mechanical room

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Replace base mounted, end suction CHW pump (6" size, 25 HP, to 1550 GPM)

Qty: 0.80

Unit of Measure: Ea.

Estimate: $135,970.71

Assessor Name: Craig Anding

Date Created: 02/09/2016

Notes: Replace the 20HP chilled water return pump, P-12, which is damaged from water leaking from the chilled water piping, including the associated leaking piping.

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

System: D3030 - Cooling Generating Systems

Location: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace cooling tower, ID, galv. (250 tons)

Qty: 2.00

Unit of Measure: Ea.

Estimate: $1,204,670.00

Assessor Name: Craig Anding

Date Created: 02/09/2016

Notes: Replace the two (2) roof mounted single cell cooling towers, serving two (2) nominal 245 ton chillers, which are approaching the end of their service lives and have internally leaking pipes.

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

System: C3030 - Ceiling Finishes

Location: Various

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 1,012.00

Unit of Measure: S.F.

Estimate: $10,708.01

Assessor Name: Craig Anding

Date Created: 02/10/2016

Notes: Replace damaged ceiling panels (2% of suspended ceiling)

System: D5030 - Communications and Security

This deficiency has no image.

Location: throughout the building

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

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

Correction: Add/Replace Video Surveillance System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $65,157.51

Assessor Name: Craig Anding

Date Created: 02/19/2016

Notes: Install a new interior video surveillance system.
Note: There is no picture attached since the school does not have a video surveillance system presently.

System: D5090 - Other Electrical Systems

Location: roof

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Provide Lightning Protection System

Qty: 1.00

Unit of Measure: LS

Estimate: $55,334.79

Assessor Name: Craig Anding

Date Created: 02/19/2016

Notes: Install a new Lightning Protection System

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, hot water, gross output, 4088 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Room	Weil McLain	1594			35	2002	2037	$94,386.50	$207,650.30
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, hot water, gross output, 4088 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Room	Weil McLain	1594			35	2002	2037	$94,386.50	$207,650.30
D3030 Cooling Generating Systems	Cooling tower, galvanized steel, packaged unit, draw thru, 300 ton	2.00	Ea.	Roof	BAC	33269 RWS	U014000103		18	2002	2020	$75,868.80	$166,911.36
D3030 Cooling Generating Systems	Cooling tower, galvanized steel, packaged unit, draw thru, 300 ton	2.00	Ea.	Roof	BAC	33269 RWS	U014000101		18	2002	2020	$75,868.80	$166,911.36
D3030 Cooling Generating Systems	Water chiller, screw liquid chiller, air cooled, insulated evaporator, 270 ton, includes standard controls	2.00	Ea.	Basement Mechanical Room	Carrier	23XL3030ED40	2301Q65707		20	2002	2022	$202,554.00	$445,618.80
D3030 Cooling Generating Systems	Water chiller, screw liquid chiller, air cooled, insulated evaporator, 270 ton, includes standard controls	2.00	Ea.	Basement Mechanical Room	Carrier	23XL3030ED40	2301Q65706		20	2002	2022	$202,554.00	$445,618.80
D3040 Distribution Systems	Air handling unit, packaged weatherproof, with cooling/heating coil section, filters, mixing box, constant volume, single zone, 20,000 CFM, cooling coils may be chilled water or DX, heating coils may be hot water, steam or electric	2.00	Ea.	Roof	Racan-Carrier	A2D-102-89-DO	701090-003-F932		25	2002	2027	$136,570.50	$300,455.10
D3040 Distribution Systems	Air handling unit, packaged weatherproof, with cooling/heating coil section, filters, mixing box, constant volume, single zone, 20,000 CFM, cooling coils may be chilled water or DX, heating coils may be hot water, steam or electric	2.00	Ea.	Roof	Racan-Carrier	A2D-96/85-DO	701090-004-F935		25	2002	2027	$136,570.50	$300,455.10
D3040 Distribution Systems	Air-handling unit, built-up, horizontal or vertical, blow-thru fan, multizone, 22,000 CFM, with cooling/heating coil section, filters, mixing box	2.00	Ea.	Basement Mechanical Room	Racan-Carrier	A2D-94/84-DI	701090-002-F924		25	2002	2027	$50,945.40	$112,079.88
D3040 Distribution Systems	Air-handling unit, built-up, horizontal or vertical, blow-thru fan, multizone, 22,000 CFM, with cooling/heating coil section, filters, mixing box	2.00	Ea.	Basement Mechanical Room	Racan-Carrier	A2D-94/84-DI	701090-001-F902		25	2002	2027	$50,945.40	$112,079.88
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Basement Mechanical Room	Paco				25	2002	2027	$23,598.00	$51,915.60
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Basement Mechanical Room	Paco				25	2002	2027	$23,598.00	$51,915.60
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Basement Mechanical Room	Paco				25	2002	2027	$23,598.00	$51,915.60

D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Basement Mechanical Room	Paco				25	2002	2027	$23,598.00	$51,915.60
D3040 Distribution Systems	Pump, general utility, centrifugal, in-line, vertical mount, iron body, 125 lb. flanged, 1800 RPM, single stage, 10 H.P., 8" suction and discharge, includes TEFC motor	2.00	Ea.	Basement Mechanical Room	Paco				25	2002	2027	$11,029.50	$24,264.90
D3040 Distribution Systems	Pump, general utility, centrifugal, in-line, vertical mount, iron body, 125 lb. flanged, 1800 RPM, single stage, 10 H.P., 8" suction and discharge, includes TEFC motor	2.00	Ea.	Basement Mechanical Room	Paco				25	2002	2027	$11,029.50	$24,264.90
D5010 Electrical Service/Distribution	Bus duct, aluminum, 3 pole 4 wire, indoor, feeder, 3000 amp	20.00	L.F.	electrical room					30	2002	2032	$763.83	$16,804.26
D5010 Electrical Service/Distribution	Circuit breaker, 3 pole, 600 volt, 1200 amp, enclosed (NEMA 1)	4.00	Ea.	electrical room					30	2002	2032	$13,662.00	$60,112.80
D5010 Electrical Service/Distribution	Load interrupter switch, 2 position, 400 kVA & above, 13.8 kV, 600 amp w/CLF fuses, NEMA 1	1.00	Ea.	electrical room					30	2002	2032	$42,849.00	$47,133.90
D5010 Electrical Service/Distribution	Motor control center, structures, 22,000 rms, takes any combination of starters, 600 amp, up to 72" high	6.00	Ea.	electrical room					30	2002	2032	$3,663.90	$24,181.74
D5010 Electrical Service/Distribution	Panelboard, 4 wire w/conductor & conduit, NQOD, 120/208 V, 600 A, 5 stories, 50' horizontal	2.00	Ea.	electrical room					30	2002	2032	$34,030.80	$74,867.76
D5010 Electrical Service/Distribution	Switchboards, distribution section, aluminum bus bars, 4 W, 120/208 or 277/480 V, 2000 amp, excl breakers	2.00	Ea.	electrical room					30	2002	2032	$8,352.45	$18,375.39
D5010 Electrical Service/Distribution	Switchboards, distribution section, aluminum bus bars, subfeed lug-rated, 400 amp, excl breakers	4.00	Ea.	electrical room					30	2002	2032	$3,167.10	$13,935.24
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	2002	2032	$50,797.80	$55,877.58
												Total:	**$3,032,911.75**

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:	
Gross Area (SF):	4,500
Year Built:	2002
Last Renovation:	
Replacement Value:	$153,232
Repair Cost:	$195,730.54
Total FCI:	127.73 %
Total RSLI:	60.62 %

Description:

NOTE: Please take a look at the attached site view and confirm that I found the right site, the address on Google Earth wasn't all that clear. If it is the wrong site please advise. Tom Moe

Attributes:

General Attributes:

Bldg ID:	S128001	Site ID:	S128001

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	64.72 %	0.00 %	$0.00
G40 - Site Electrical Utilities	56.67 %	250.98 %	$195,730.54
Totals:	**60.62 %**	**127.73 %**	**$195,730.54**

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	2002	2032		56.67 %	0.00 %	17			$0
G2020	Parking Lots	$8.50	S.F.		30	2002	2032		56.67 %	0.00 %	17			$0
G2030	Pedestrian Paving	$18.15	S.F.	2,300	40	2002	2042		67.50 %	0.00 %	27			$41,745
G2040	Site Development	$4.36	S.F.	4,500	25	2002	2027		48.00 %	0.00 %	12			$19,620
G2050	Landscaping & Irrigation	$6.31	S.F.	2,200	15	2002	2017	2027	80.00 %	0.00 %	12			$13,882
G4020	Site Lighting	$12.45	S.F.	4,500	30	2002	2032	2032	56.67 %	259.54 %	17		$145,405.98	$56,025
G4030	Site Communications & Security	$4.88	S.F.	4,500	30	2002	2032	2032	56.67 %	229.16 %	17		$50,324.56	$21,960
								Total	**60.62 %**	**127.73 %**			**$195,730.54**	**$153,232**

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.

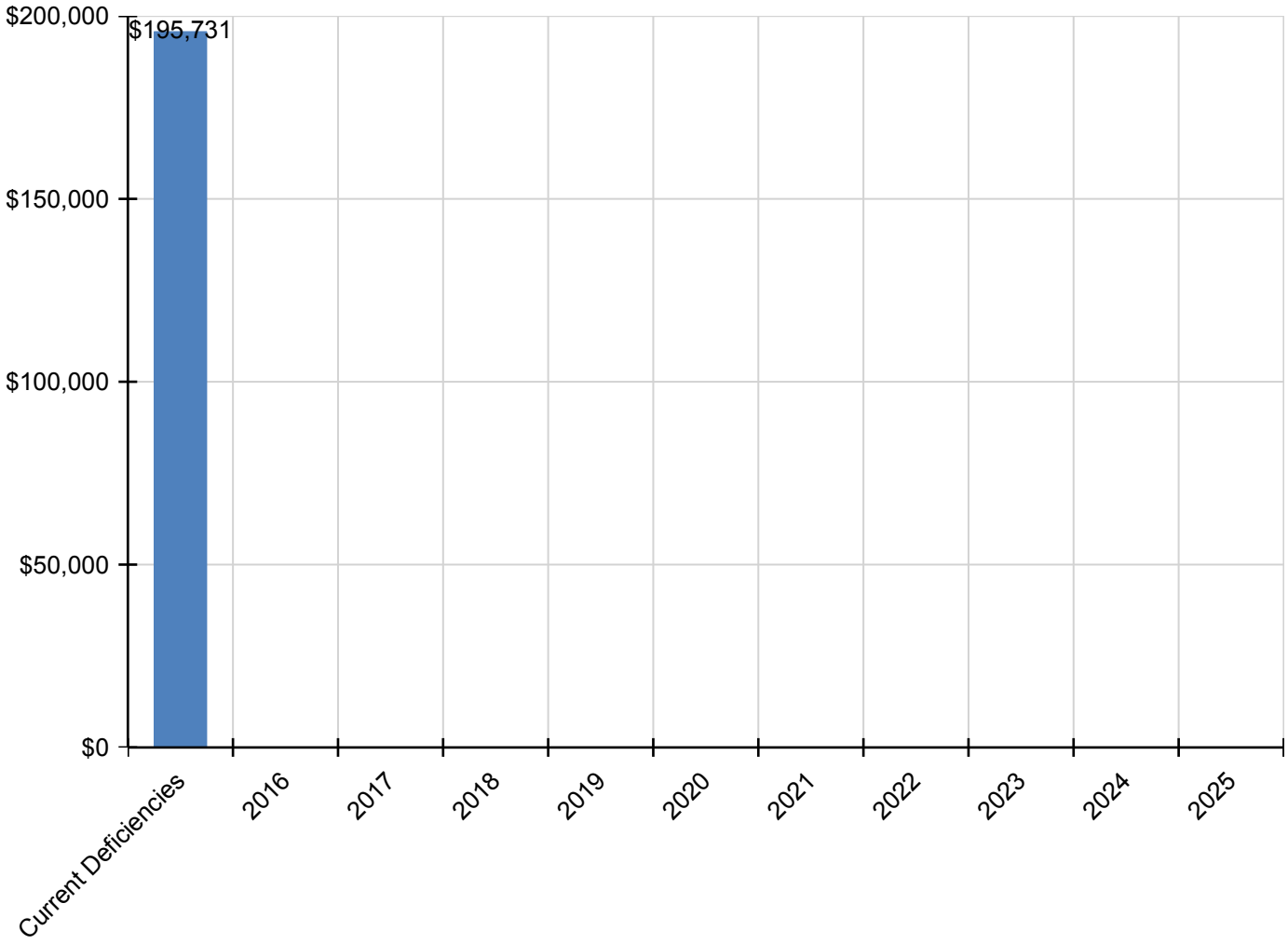
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$195,731**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$195,731**
G - Building Sitework	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G20 - Site Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2010 - Roadways	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2020 - Parking Lots	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2030 - Pedestrian Paving	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2040 - Site Development	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2050 - Landscaping & Irrigation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G40 - Site Electrical Utilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4020 - Site Lighting	$145,406	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$145,406**
G4030 - Site Communications & Security	$50,325	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$50,325**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

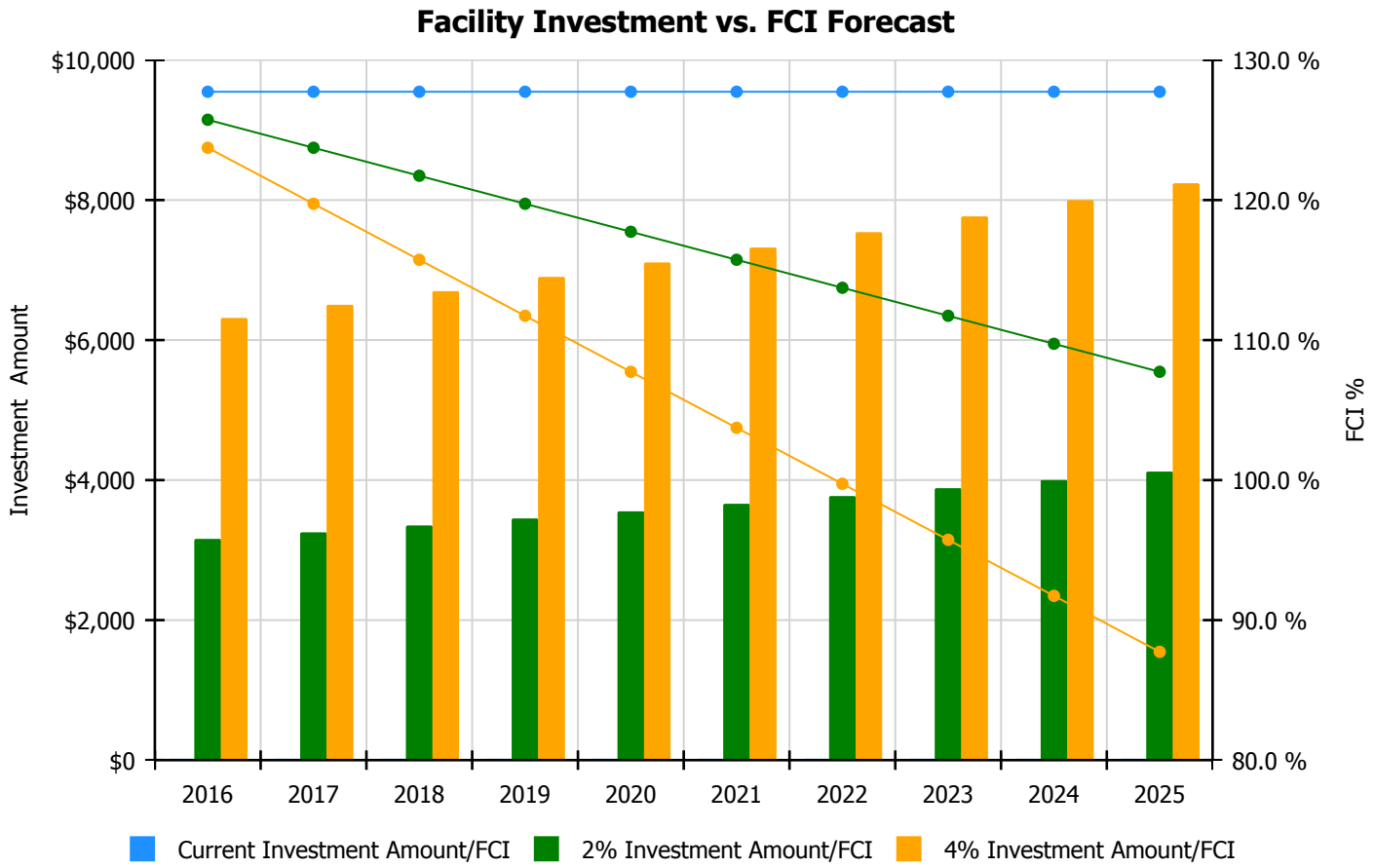
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

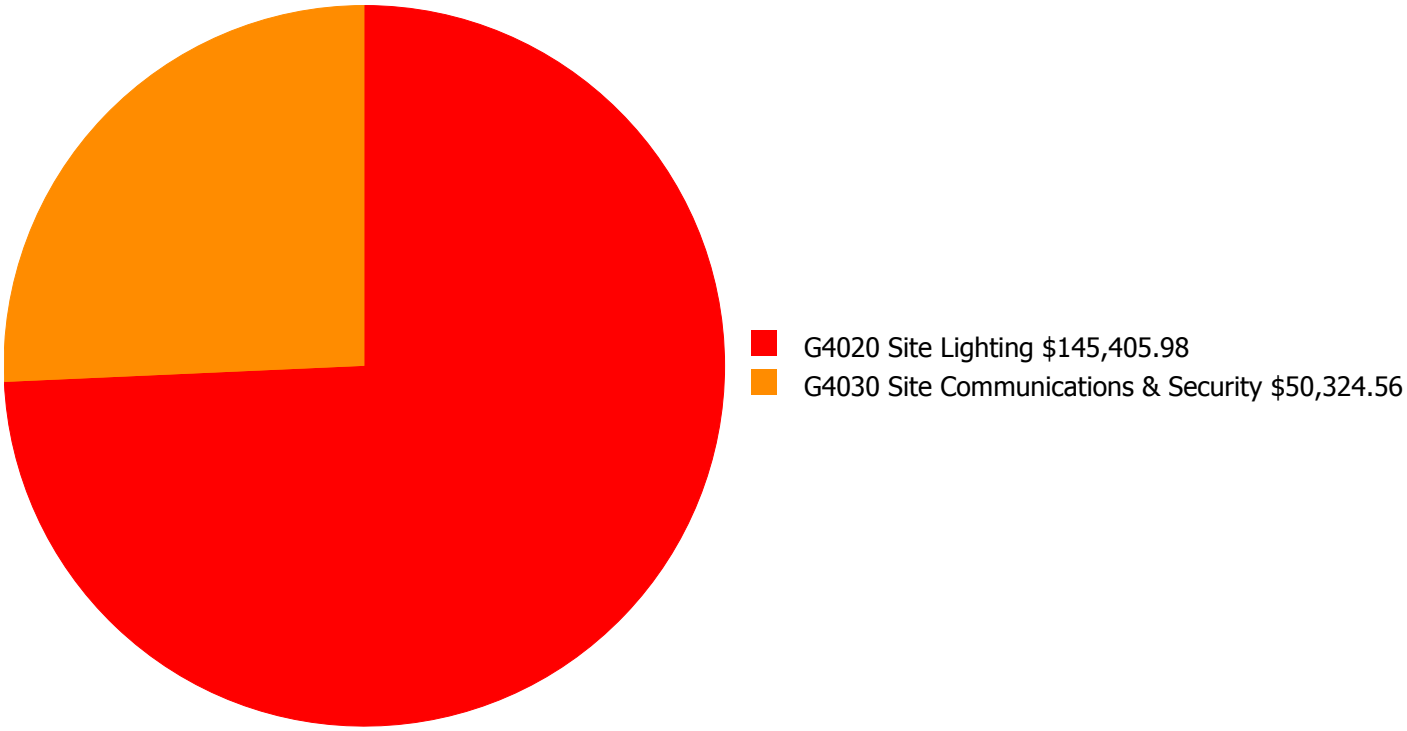
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 127.73%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$3,157.00	125.73 %	$6,313.00	123.73 %
2017	$0	$3,251.00	123.73 %	$6,503.00	119.73 %
2018	$0	$3,349.00	121.73 %	$6,698.00	115.73 %
2019	$0	$3,449.00	119.73 %	$6,899.00	111.73 %
2020	$0	$3,553.00	117.73 %	$7,106.00	107.73 %
2021	$0	$3,659.00	115.73 %	$7,319.00	103.73 %
2022	$0	$3,769.00	113.73 %	$7,538.00	99.73 %
2023	$0	$3,882.00	111.73 %	$7,764.00	95.73 %
2024	$0	$3,999.00	109.73 %	$7,997.00	91.73 %
2025	$0	$4,119.00	107.73 %	$8,237.00	87.73 %
Total:	**$0**	**$36,187.00**		**$72,374.00**	

Deficiency Summary by System

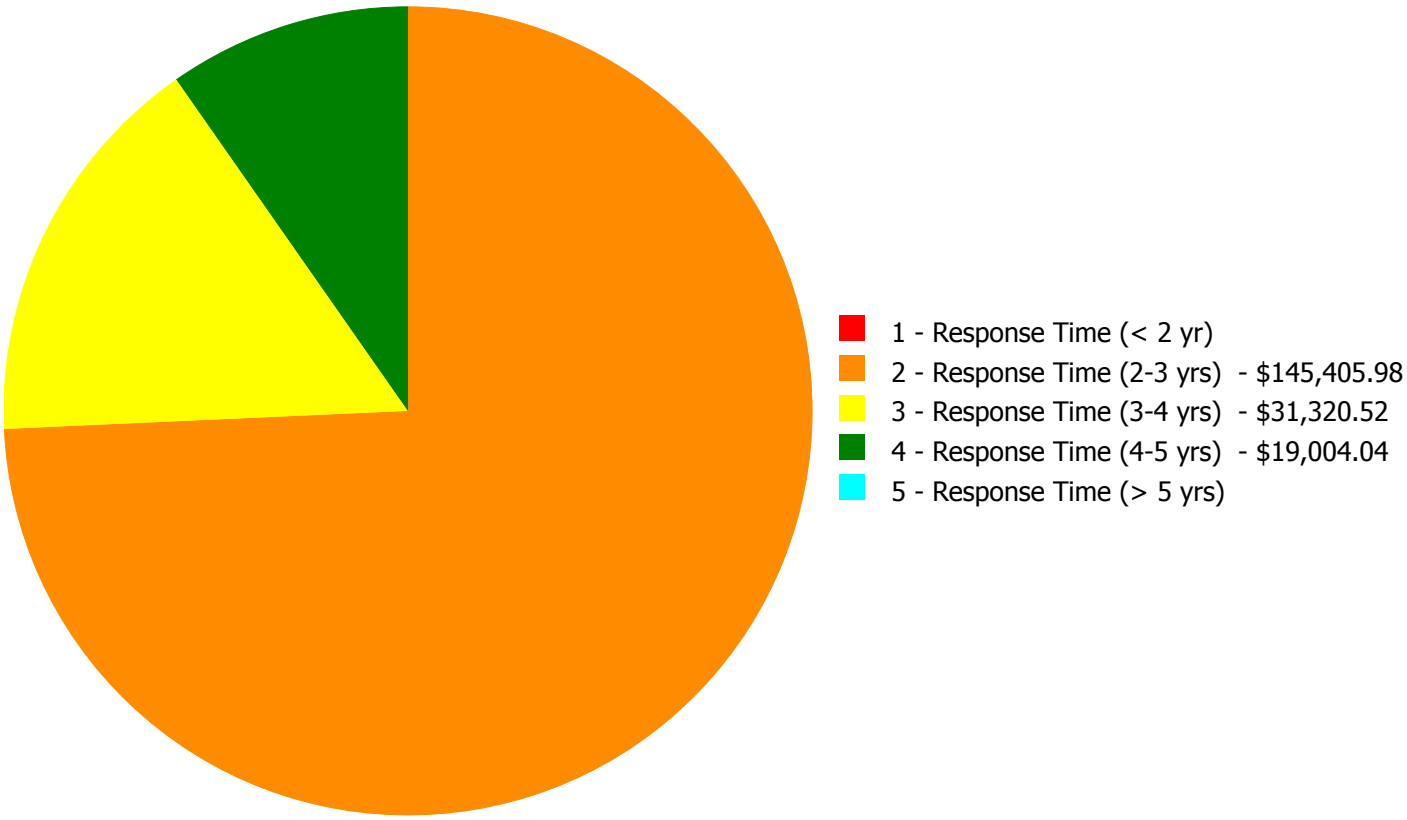
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $195,730.54

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: $195,730.54

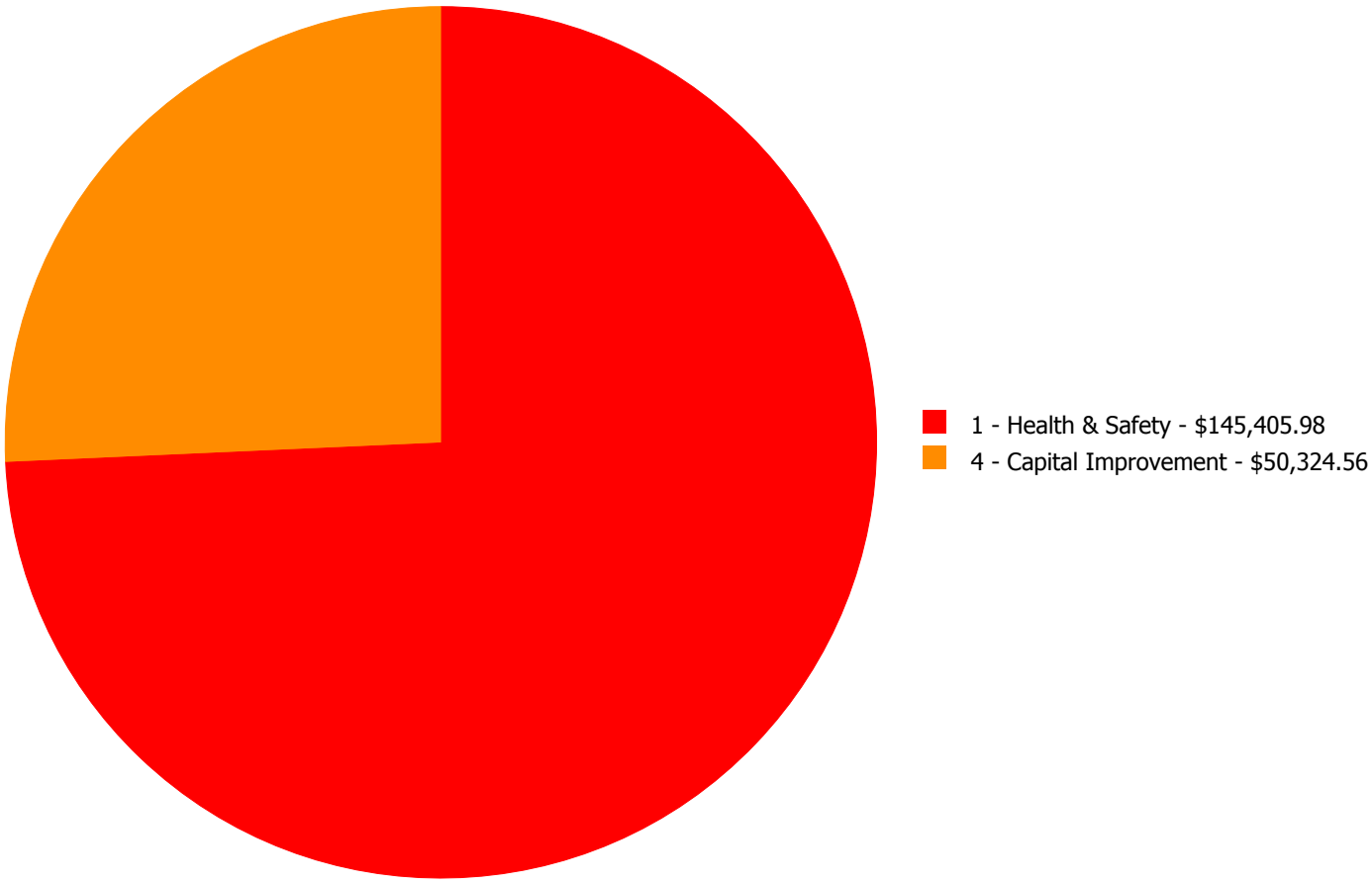
Deficiency By Priority Investment Table

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
G4020	Site Lighting	$0.00	$145,405.98	$0.00	$0.00	$0.00	$145,405.98
G4030	Site Communications & Security	$0.00	$0.00	$31,320.52	$19,004.04	$0.00	$50,324.56
	Total:	$0.00	$145,405.98	$31,320.52	$19,004.04	$0.00	$195,730.54

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: $195,730.54

Deficiency Details by Priority

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

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

System: G4020 - Site Lighting

Location: grounds

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Add Site Lighting - pole mounted - select the proper light and pole

Qty: 1.00

Unit of Measure: Ea.

Estimate: $145,405.98

Assessor Name: Craig Anding

Date Created: 02/19/2016

Notes: Install pole-mounted lighting fixtures for the grounds.

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

System: G4030 - Site Communications & Security

Location: grounds

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Add Video Surveillance System

Qty: 6.00

Unit of Measure: Ea.

Estimate: $31,320.52

Assessor Name: Craig Anding

Date Created: 02/19/2016

Notes: Install exterior cameras for site surveillance system

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

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: 8.00

Unit of Measure: Ea.

Estimate: $19,004.04

Assessor Name: Craig Anding

Date Created: 02/19/2016

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