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.

Ludlow School

Governance	DISTRICT	Report Type	Elementarymiddle
Address	550 W. Master St.	Enrollment	308
	Philadelphia, Pa 19122	Grade Range	'00-08'
Phone/Fax	215-684-5060 / 215-684-4387	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Ludlow	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	**48.87%**	**$17,140,258**	**$35,073,521**
Building	48.27 %	$16,734,340	$34,668,921
Grounds	100.33 %	$405,918	$404,600

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	91.22 %	$563,317	$617,565
Exterior Walls (Shows condition of the structural condition of the exterior facade)	24.91 %	$645,789	$2,592,189
Windows (Shows functionality of exterior windows)	02.26 %	$28,583	$1,264,842
Exterior Doors (Shows condition of exterior doors)	30.88 %	$31,443	$101,834
Interior Doors (Classroom doors)	55.05 %	$135,706	$246,507
Interior Walls (Paint and Finishes)	09.75 %	$115,156	$1,180,566
Plumbing Fixtures	18.15 %	$172,332	$949,510
Boilers	82.12 %	$1,076,800	$1,311,194
Chillers/Cooling Towers	65.60 %	$1,127,851	$1,719,230
Radiators/Unit Ventilators/HVAC	158.86 %	$4,796,236	$3,019,188
Heating/Cooling Controls	158.90 %	$1,506,580	$948,105
Electrical Service and Distribution	83.04 %	$565,685	$681,231
Lighting	37.19 %	$905,763	$2,435,576
Communications and Security (Cameras, Pa System and Fire Alarm)	02.55 %	$23,255	$912,288

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

S534001;Ludlow

Final

Site Assessment Report

January 31, 2017

PARSONS

Table of Contents

Site Executive Summary

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

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

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

Gross Area (SF):	70,230
Year Built:	1927
Last Renovation:	
Replacement Value:	$35,073,521
Repair Cost:	$17,140,258.19
Total FCI:	48.87 %
Total RSLI:	81.90 %

Description:

Facility assessment, July 2015

School District of Philadelphia

Ludlow Elementary School

550 Master Street

Philadelphia, PA 19122

70,230 SF / 596 Students / LN 03

The Ludlow Elementary school building is located at 550 Master Street in Philadelphia, PA. The 3 story, 70,230 square foot building was originally constructed in 1927. The building has a basement partially above ground and two penthouses on the roof partially open to roof area.

Mr. Derek Parker, Facility Area Coordinator provided input to the Parsons assessment team on current problems and planned

renovation projects. Mr. Pedro Martinez, Building Engineer, accompanied us on our tour of the school and provided us with detailed information on the building systems and recent maintenance history.

STRUCTURAL/ EXTERIOR CLOSURE:

The building typically rests on concrete foundations and bearing walls that are not showing signs of settlement. However, there is severe water seepage through basement walls during rain, especially in the unused coal and ash bunkers located directly below exposed first floor terrace on east side of the building. Foundation walls show signs of deterioration in some areas including cracks, spalled concrete and exposed reinforcement. The mold build-up is evident in bunkers and other parts of mechanical spaces. Substantial portion of boiler room floor is covered with water. 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 partially exposed to weather, above the penthouses exhibit similar deterioration.

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; the chimney shows cracks below steel banding reinforcing its top portion.

The original windows were replaced in 2010 with extruded aluminum double hung windows, double glazed. Basement and first floor windows are fitted with integral security screens. All windows are generally in good condition; however sealant at their perimeter is deteriorated.

Roofing is typically built-up in fair condition. All roofing and flashing is typically in poor condition with some deterioration of the built-up system including water ponding and soft spots; no leaks have been reported.

Exterior doors are typically hollow metal in fair to good 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. 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 auditorium. Some of the wainscot tiles are missing. 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, gym and auditorium is generally hardwood; and patterned concrete in most corridors and toilets. Most flooring is original and in poor condition, however, is often uneven creating possible tripping hazard; cove base is typically in fair condition. Some areas in basement have VCT tile, generally in fair condition. Interior doors are generally rail and stile wood doors, some glazed with matching wood frame side lights and transoms, some doors are missing closers. Door finishes are typically in poor condition. 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.

Institutional and Commercial equipment includes: stage equipment, generally in poor condition; A/V equipment in fair condition; 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 - The original plumbing fixtures remain in service. Fixtures in the restrooms consist of floor mounted flush valve water closets, floor mounted urinals and lavatories with flush handle faucets. The fixtures are in good condition and appear to be within their useful life. They do not require replacement. Drinking fountains in the corridors and at the restrooms are wall hung with integral refrigerated coolers. They are beyond their service life and should be replaced; most are NOT accessible type.

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

There is a food preparation area in the Cafeteria that has one, two compartment stainless steel prep sink with lever operated faucets. There are no sanitizing chemicals or
grease trap.

Domestic Water Distribution - A 2" city water service enters the building in the mechanical room from 6th Street. The 2" meter and valves are located in the mechanical room near the school's main entrance. A reduced pressure backflow preventer is not installed. The original 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 Bradford White Defender gas fired, 50 gallon, vertical hot water heater without a circulating pump, installation date of 9/12/2013, supplies hot water for domestic use. The unit is located in the mechanical room, near the main school entrance. The hot water heater is equipped with a T&P relief valve. An expansion tank is also located in the mechanical room. The water heater is within its service life and should provide reliable service for the next 6-8 years. A water softening system was present in the mechanical room.

Sanitary Waste - The original storm and sanitary sewer piping was not accessible during the site visit. Downspouts from the roof run down the interior of the building and connect to the storm sewer system in an unknown location under the foundation.

No sump pump or sewage ejector was present.

The maintenance staff didn't report any problems with the sanitary waste piping systems.

Other Plumbing Systems - A 3" city gas line is located in the mechanical room with service from N. Marshall Street. The gas train serving the building does not appear to have code required venting of the regulators and dual solenoid valves with venting of the chamber between.

MECHANICAL:

The maintenance staff reported mostly minor problems with the sanitary waste piping systems. However, the sewer piping has been in service for nearly 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.

Energy Supply - A 6" city gas service enters the building from N. Sixth Street near the intersection with W. Master Street. The meter is 6" and located in a room adjacent to the Auditorium.

The reserve oil supply is stored in an underground storage tank (UST), size unknown, located in the paved play area. Duplex pumps located in the boiler room circulate oil through the system. Oil is used as a backup fuel and the District receives credit from the gas utility as an interruptible service. The current supply has been in storage for some time and should be tested for quality on a regular schedule. USTs have an anticipated service life of 20 years. 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 net IBR rating of 5,412MBH Weil-McLain cast iron sectional boilers installation date unknown. Each boiler is equipped with a Power Flame burner designed to operate on natural gas or fuel oil. Combustion makeup air is supplied by louvers equipped with motorized dampers. Burner controls provide full modulation with electronic ignition, digital flame sensing and pressure atomization on oil. Burner oil pumps are loose and not driven by the fan motor. The Building Engineer reports the system loses a significant amount of condensate due to failed traps, which is made up with chemically treated city water. Cast iron sectional boilers have an anticipated service life of 35 years or more; these units have been in service many years and need to be replaced. The boilers have not been maintained well and show significant wear and tear. The District should replace these boilers in the next 1-3 years.

The condensate receiver, boiler feed pump and tank assembly are installed in the basement level boiler room. A serious problem was reported with failed steam traps. Live steam passes into the condensate piping system from the failed traps and then vents from the

condensate handling equipment. The District replaced the steam traps in 2014 but the problem persists.

Distribution Systems - Steam piping is black steel (ASTM A53) with welded fittings. The condensate piping is Schedule 80 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. All of the piping in the boiler room has rust on its exterior. 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 classrooms, offices, and hallways. These radiators are well beyond their service life and are original to the building. Ventilation for the building is provided by 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 only a Cafeteria to heat the meals. A roof mounted exhaust fan served the food preparation area.

The school has no operable mechanical ventilation, except in the restrooms and Cafeteria. The existing building ventilation system is inoperable. An exhaust fan mounted on the first floor serves the boys restrooms on the basement and first floor levels. An exhaust fan mounted in the attic serves the boys restrooms on the second and third floor. An exhaust fan mounted on the first floor serves the girls restrooms on the basement and first floor levels. An exhaust fan mounted in the attic serves the girls restrooms on the second and third floor. All four of these exhaust fans should be replaced.

A small exhaust fan in the Cafeteria provided exhaust. Provide ventilation for the Cafeteria by installing a constant volume air handling unit with distribution ductwork and registers. For the administrative offices a fan coil air handling unit could be hung from the ceiling with outdoor air ducted to the unit from louvers in the window openings. Provide ventilation for the Auditorium by installing a constant volume air handling unit with distribution ductwork and registers. These units would be equipped with hot water heating coils and chilled water cooling coils. Steam converters could 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 175 ton air-cooled chiller on the roof with pumps located in a mechanical room and chilled water distribution piping could supply more reliable air conditioning for the building with a much longer service life.

A Mitsubishi split system air conditioning system provided cooling to the LAN room located on the first floor off of the Main Office. The installation date of this unit is unknown; the anticipated service life of a split system air conditioner is 15 years. The district should budget to replace this unit within the next 7-10 years.

Controls & Instrumentation - The original pneumatic systems still 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 duplex Quincy compressor and dryer located in the boiler room. The maintenance staff reports no problems with oil, moisture or dirt in the pneumatic copper tubing. The air compressor is within its service life, but the control valves are beyond their service life and do not operate. 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.

ELECTRICAL:

Electrical Service- The electrical service is an underground secondary from a pair of pole mounted transformers located on the north side of W Master St. The service enters the building underground to a 240V, 2 phase, disconnect switch located in a small dead end

corridor. This service does not meet code requirements for working space, nor is adequate to provide power for an air conditioning system. It is recommended to provide a new 480/277V service sized for the addition of an air conditioning system.

Distribution System and Raceway System- Each floor has electrical panels to serve receptacles and lighting on that floor. A main distribution panel could not be located, and our building engineer did not know of the existence of one. These panels are past their useful life, with some containing open buses with fuses, and other panels in poor condition with rust.

Receptacles- Classrooms are typically supplied with duplex receptacles spaced along all walls. Receptacle count for a typical classroom is ranged from 2 to 4. Receptacles should be added to each classroom so that each wall contains a minimum of 2 receptacles.

Lighting- The facility uses T12 lamps in its fluorescent fixtures. Corridors typically have 4 lamp surface mounted as well as grid lay in 2X4 fixtures. Classrooms contain 2X4, 4 lamp lay in fixtures. Classrooms are equipped with dual light switches to allow for inboard/outboard switching. Cafeteria lighting included 2X4 lay in and 8' industrial type strip lights. Lighting levels were found to be around 30 fc in classrooms, with the exception of a few rooms such as the media center, and room 108 (small auditorium style room), where the levels were 50 fc. Due to the extinction of T12 lamps, all fixtures should be replaced with newer fixtures containing T8 lamps.

Fire Alarm System – The fire alarm system is an antiquated 120V system with pull stations and bells located in the corridors only.

Telephone/LAN – The present telephone/LAN system is adequate.

Public Address/Intercom/Paging – The paging system is adequate and in good condition. Each classroom contains a ceiling mounted speaker. Two way communication is not available through the public announcement system. Communication back to the office is through a wall mounted phone located in each classroom.

Clock and Program System – The clock system is in adequate condition. The programmed bell system is by Simplex and is in adequate condition.

Television System - The present television system is adequate. All classrooms have been wired for CATV, but no televisions are provided.

Security System There is no security system in place. It is recommended that door contacts be installed on all exterior doors.

Emergency Power System – An emergency generator does not exist for this facility.

Emergency Lighting System / Exit Lighting- The emergency lighting is provided by wall mounted battery packs that are plugged into wall outlets. Many of these fixtures are inoperable. Exit lighting is in adequate condition.

Lightning Protection System- A lightning protection system exists on the roof but it does not provide adequate coverage. Lightning protection is only installed on the stack. The conductors have kinks which impairs the conductor's ability to ground a lightning strike. Complete coverage should be obtained, and existing kinked conductors be replaced.

Site Lighting - Site lighting is provided by building mounted flood lights installed around the entire perimeter of the school. The site lighting provides an adequate amount of lighting.

Video Surveillance – There are exterior cameras and cameras located on the first floor for video surveillance. The system is in adequate condition.

Site Paging – There are no exterior speakers for site paging. Speaker should be installed along exterior walls in the paved play area

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. Original perimeter fences are generally in poor condition and rusting. The landscaping is generally in poor condition with portions of the grass missing; a few plants are not mature yet.

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:

- Repair cracks in foundation walls
- Install membrane waterproofing above coal and ash bunkers slab
- Replace deteriorated slab sections above basement (coal and ash bunkers area)
- Repair deteriorated structural roof slabs above open penthouses
- Repair cracks in masonry including chimney, 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 sealant at windows perimeter (50%)
- Repaint exterior doors; provide weatherstripping
- Replace all suspended acoustical ceilings
- Repair and repaint exposed ceilings
- Repair and repaint interior walls (50% area)
- Repair & refinish hardwood flooring
- Install new signage throughout
- Install 4000 lb traction elevator serving all floors and basement
- Provide ADA compliant ramp at one entrance (location TBD)
- Repair and refinish all original interior doors
- Provide ADA compliant hardware on interior doors
- Replace original chalk boards
- Replace signage throughout
- Reconfigure toilets on each floor for accessibility, provide new toilet partitions
- Provide new toilet accessories including grab bars
- Resurface playground
- Replace chain link fence
- Replace the lavatories in the restrooms with new code compliant fixtures.
- Replace the wall hung drinking fountains and integral refrigerated coolers in the corridors and at the restrooms. These units are well beyond their service life and most are NOT accessible type.
- Install reduced pressure backflow preventer on the incoming domestic water line.
- Hire a qualified contractor to perform a detailed examination of the sanitary waste piping using visual inspection and video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.
- Replace existing sump pump system and piping in the boiler room as it looks beyond its useful service life and add drain from flooded coal ash area to pit.
- Inspect and replace current fuel oil pumping system with new system and control scheme.
- Replace the two existing 5,412MBH cast iron sectional boilers and burners with new cast iron sectional boilers of similar size, burners, and power ventilators.
- 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.
- Hire a qualified contractor to identify and replace failed traps passing live steam into the condensate piping system.
- Remove the existing cast iron steam radiators and install units with hot and chilled water coils and integral heat exchangers to introduce outdoor air to the building.
- Remove the window air conditioning units and install a 175 ton air-cooled chiller on the roof with chilled water distribution piping and pumps located in a mechanical room to supply more reliable air conditioning for the building with a much longer service life.
- Provide adequate ventilation for the Cafeteria 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.
- Ventilation needs be provided for the Auditorium by installing a constant volume air handling unit with distribution ductwork and registers
- Replace four (4) existing exhaust fans located on the first floor and attic serving the restrooms and utilize the existing ductwork.
- 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.
- Add security system with contacts to exterior doors for intrusion detection.
- Repair the existing lightning protection system.
- Provide an emergency generator of sufficient size to support an elevator and emergency lighting.
- Replace existing service with new 480/277V three phase service.
- Provide a new distribution system to replace old panels.
- Provide new emergency fixtures for emergency egress.
- Upgrade lighting system to T8 fluorescent fixtures.
- Add exterior speakers along play areas.

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 1 / Tm 4
Status:	Accepted by SDP	Team:	Tm 4
Site ID:	S534001		

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	62.00 %	18.49 %	$339,306.17
A20 - Basement Construction	62.00 %	0.00 %	$0.00
B10 - Superstructure	62.00 %	9.92 %	$619,978.57
B20 - Exterior Enclosure	69.27 %	17.83 %	$705,814.94
B30 - Roofing	90.00 %	91.22 %	$563,317.01
C10 - Interior Construction	61.94 %	17.24 %	$297,110.88
C20 - Stairs	62.00 %	0.00 %	$0.00
C30 - Interior Finishes	100.13 %	46.56 %	$1,729,267.48
D10 - Conveying	105.71 %	268.11 %	$670,322.07
D20 - Plumbing	39.44 %	41.25 %	$591,578.09
D30 - HVAC	102.25 %	108.90 %	$8,507,467.66
D40 - Fire Protection	92.47 %	177.49 %	$1,004,671.48
D50 - Electrical	110.11 %	41.31 %	$1,705,505.93
E10 - Equipment	28.57 %	0.00 %	$0.00
E20 - Furnishings	87.50 %	0.00 %	$0.00
G20 - Site Improvements	138.47 %	127.81 %	$405,917.91
G40 - Site Electrical Utilities	55.90 %	0.00 %	$0.00
Totals:	**81.90 %**	**48.87 %**	**$17,140,258.19**

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)
B534001;Ludlow	70,230	48.27	$2,847,434.23	$1,440,588.03	$2,599,088.71	$1,873,910.32	$7,973,318.99
G534001;Grounds	20,000	100.33	$0.00	$0.00	$0.00	$377,920.96	$27,996.95
Total:		**48.87**	**$2,847,434.23**	**$1,440,588.03**	**$2,599,088.71**	**$2,251,831.28**	**$8,001,315.94**

Deficiencies By Priority

- 1 - Response Time (< 2 yr) - $2,847,434.23
- 2 - Response Time (2-3 yrs) - $1,440,588.03
- 3 - Response Time (3-4 yrs) - $2,599,088.71
- 4 - Response Time (4-5 yrs) - $2,251,831.28
- 5 - Response Time (> 5 yrs) - $8,001,315.94

Budget Estimate Total: $17,140,258.19

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):	70,230
Year Built:	1927
Last Renovation:	
Replacement Value:	$34,668,921
Repair Cost:	$16,734,340.28
Total FCI:	48.27 %
Total RSLI:	81.45 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B534001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S534001		

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	62.00 %	18.49 %	$339,306.17
A20 - Basement Construction	62.00 %	0.00 %	$0.00
B10 - Superstructure	62.00 %	9.92 %	$619,978.57
B20 - Exterior Enclosure	69.27 %	17.83 %	$705,814.94
B30 - Roofing	90.00 %	91.22 %	$563,317.01
C10 - Interior Construction	61.94 %	17.24 %	$297,110.88
C20 - Stairs	62.00 %	0.00 %	$0.00
C30 - Interior Finishes	100.13 %	46.56 %	$1,729,267.48
D10 - Conveying	105.71 %	268.11 %	$670,322.07
D20 - Plumbing	39.44 %	41.25 %	$591,578.09
D30 - HVAC	102.25 %	108.90 %	$8,507,467.66
D40 - Fire Protection	92.47 %	177.49 %	$1,004,671.48
D50 - Electrical	110.11 %	41.31 %	$1,705,505.93
E10 - Equipment	28.57 %	0.00 %	$0.00
E20 - Furnishings	87.50 %	0.00 %	$0.00
Totals:	**81.45 %**	**48.27 %**	**$16,734,340.28**

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.	70,230	100	1927	2027	2077	62.00 %	26.26 %	62		$339,306.17	$1,292,232
A1030	Slab on Grade	$7.73	S.F.	70,230	100	1927	2027	2077	62.00 %	0.00 %	62			$542,878
A2010	Basement Excavation	$6.55	S.F.	70,230	100	1927	2027	2077	62.00 %	0.00 %	62			$460,007
A2020	Basement Walls	$12.70	S.F.	70,230	100	1927	2027	2077	62.00 %	0.00 %	62			$891,921
B1010	Floor Construction	$75.10	S.F.	70,230	100	1927	2027	2077	62.00 %	5.61 %	62		$295,637.13	$5,274,273
B1020	Roof Construction	$13.88	S.F.	70,230	100	1927	2027	2077	62.00 %	33.27 %	62		$324,341.44	$974,792
B2010	Exterior Walls	$36.91	S.F.	70,230	100	1927	2027	2077	62.00 %	24.91 %	62		$645,789.44	$2,592,189
B2020	Exterior Windows	$18.01	S.F.	70,230	40	2010	2050		87.50 %	2.26 %	35		$28,582.74	$1,264,842
B2030	Exterior Doors	$1.45	S.F.	70,230	25	1927	1952	2022	28.00 %	30.88 %	7		$31,442.76	$101,834
B3010105	Built-Up	$37.76	S.F.	16,355	20	1927	1947	2033	90.00 %	91.22 %	18		$563,317.01	$617,565
B3010120	Single Ply Membrane	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3010130	Preformed Metal Roofing	$54.22	S.F.		30				0.00 %	0.00 %				$0
B3010140	Shingle & Tile	$38.73	S.F.		25				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.06	S.F.		20				0.00 %	0.00 %				$0
C1010	Partitions	$17.91	S.F.	70,230	100	1927	2027	2077	62.00 %	0.00 %	62			$1,257,819
C1020	Interior Doors	$3.51	S.F.	70,230	40	1927	1967	2035	50.00 %	55.05 %	20		$135,705.74	$246,507
C1030	Fittings	$3.12	S.F.	70,230	40	1927	1967	2045	75.00 %	73.66 %	30		$161,405.14	$219,118
C2010	Stair Construction	$1.41	S.F.	70,230	100	1927	2027	2077	62.00 %	0.00 %	62			$99,024

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System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
C3010230	Paint & Covering	$13.21	S.F.	70,230	10	2005	2015	2027	120.00 %	12.41 %	12		$115,155.91	$927,738
C3010231	Vinyl Wall Covering	$0.97	S.F.	70,230	15				0.00 %	0.00 %				$68,123
C3010232	Wall Tile	$2.63	S.F.	70,230	30				0.00 %	0.00 %				$184,705
C3020411	Carpet	$7.30	S.F.		10				0.00 %	0.00 %				$0
C3020412	Terrazzo & Tile	$75.52	S.F.	3,000	50	1990	2040		50.00 %	0.00 %	25			$226,560
C3020413	Vinyl Flooring	$9.68	S.F.	5,920	20	1995	2015	2037	110.00 %	0.00 %	22			$57,306
C3020414	Wood Flooring	$22.27	S.F.	34,500	25	1927	1952	2042	108.00 %	62.76 %	27		$482,180.75	$768,315
C3020415	Concrete Floor Finishes	$0.97	S.F.	8,900	50	1927	1977	2067	104.00 %	0.00 %	52			$8,633
C3030	Ceiling Finishes	$20.97	S.F.	70,230	25	1927	1952	2042	108.00 %	76.86 %	27		$1,131,930.82	$1,472,723
D1010	Elevators and Lifts	$3.56	S.F.	70,230	35			2052	105.71 %	268.11 %	37		$670,322.07	$250,019
D2010	Plumbing Fixtures	$13.52	S.F.	70,230	35	1927	1962	2025	28.57 %	18.15 %	10		$172,331.65	$949,510
D2020	Domestic Water Distribution	$1.68	S.F.	70,230	25	1927	1952	2025	40.00 %	29.08 %	10		$34,306.86	$117,986
D2030	Sanitary Waste	$2.90	S.F.	70,230	25	1927	1952	2042	108.00 %	189.00 %	27		$384,939.58	$203,667
D2040	Rain Water Drainage	$2.32	S.F.	70,230	30	1927	1957	2020	16.67 %	0.00 %	5			$162,934
D3020	Heat Generating Systems	$18.67	S.F.	70,230	35	1927	1962	2052	105.71 %	82.12 %	37		$1,076,799.74	$1,311,194
D3030	Cooling Generating Systems	$24.48	S.F.	70,230	20			2037	110.00 %	65.60 %	22		$1,127,851.20	$1,719,230
D3040	Distribution Systems	$42.99	S.F.	70,230	25	1927	1952	2042	108.00 %	158.86 %	27		$4,796,236.28	$3,019,188
D3050	Terminal & Package Units	$11.60	S.F.	70,230	20	2005	2025		50.00 %	0.00 %	10			$814,668
D3060	Controls & Instrumentation	$13.50	S.F.	70,230	20	1927	1947	2037	110.00 %	158.90 %	22		$1,506,580.44	$948,105
D4010	Sprinklers	$7.05	S.F.	70,230	35			2052	105.71 %	202.91 %	37		$1,004,671.48	$495,122
D4020	Standpipes	$1.01	S.F.	70,230	35				0.00 %	0.00 %				$70,932
D5010	Electrical Service/Distribution	$9.70	S.F.	70,230	30	1927	1957	2047	106.67 %	83.04 %	32		$565,684.94	$681,231
D5020	Lighting and Branch Wiring	$34.68	S.F.	70,230	20	1927	1947	2037	110.00 %	37.19 %	22		$905,762.63	$2,435,576
D5030	Communications and Security	$12.99	S.F.	70,230	15	1927	1942	2032	113.33 %	2.55 %	17		$23,255.33	$912,288
D5090	Other Electrical Systems	$1.41	S.F.	70,230	30	1927	1957	2047	106.67 %	212.88 %	32		$210,803.03	$99,024
E1020	Institutional Equipment	$4.82	S.F.		35				0.00 %	0.00 %				$0
E1090	Other Equipment	$11.10	S.F.	70,230	35	1990	2025		28.57 %	0.00 %	10			$779,553
E2010	Fixed Furnishings	$2.13	S.F.	70,230	40	2010	2050		87.50 %	0.00 %	35			$149,590
								Total	**81.45 %**	**48.27 %**			**$16,734,340.28**	**$34,668,921**

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: Walls 90% paint
Faux stone wainscot 10%

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

Note: Hardwood 70%
VCT 12%
Concrete 18%

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:	**$16,734,340**	**$0**	**$0**	**$0**	**$0**	**$207,773**	**$0**	**$137,767**	**$0**	**$0**	**$3,934,838**	**$21,014,718**
*** 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	$339,306	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$339,306**
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	$295,637	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$295,637**
B1020 - Roof Construction	$324,341	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$324,341**
B20 - Exterior Enclosure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2010 - Exterior Walls	$645,789	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$645,789**
B2020 - Exterior Windows	$28,583	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$28,583**
B2030 - Exterior Doors	$31,443	$0	$0	$0	$0	$0	$0	$137,767	$0	$0	$0	**$169,210**
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	$563,317	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$563,317**
B3010120 - Single Ply Membrane	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010130 - Preformed Metal Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010140 - Shingle & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3020 - Roof Openings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C - Interiors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C10 - Interior Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1010 - Partitions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

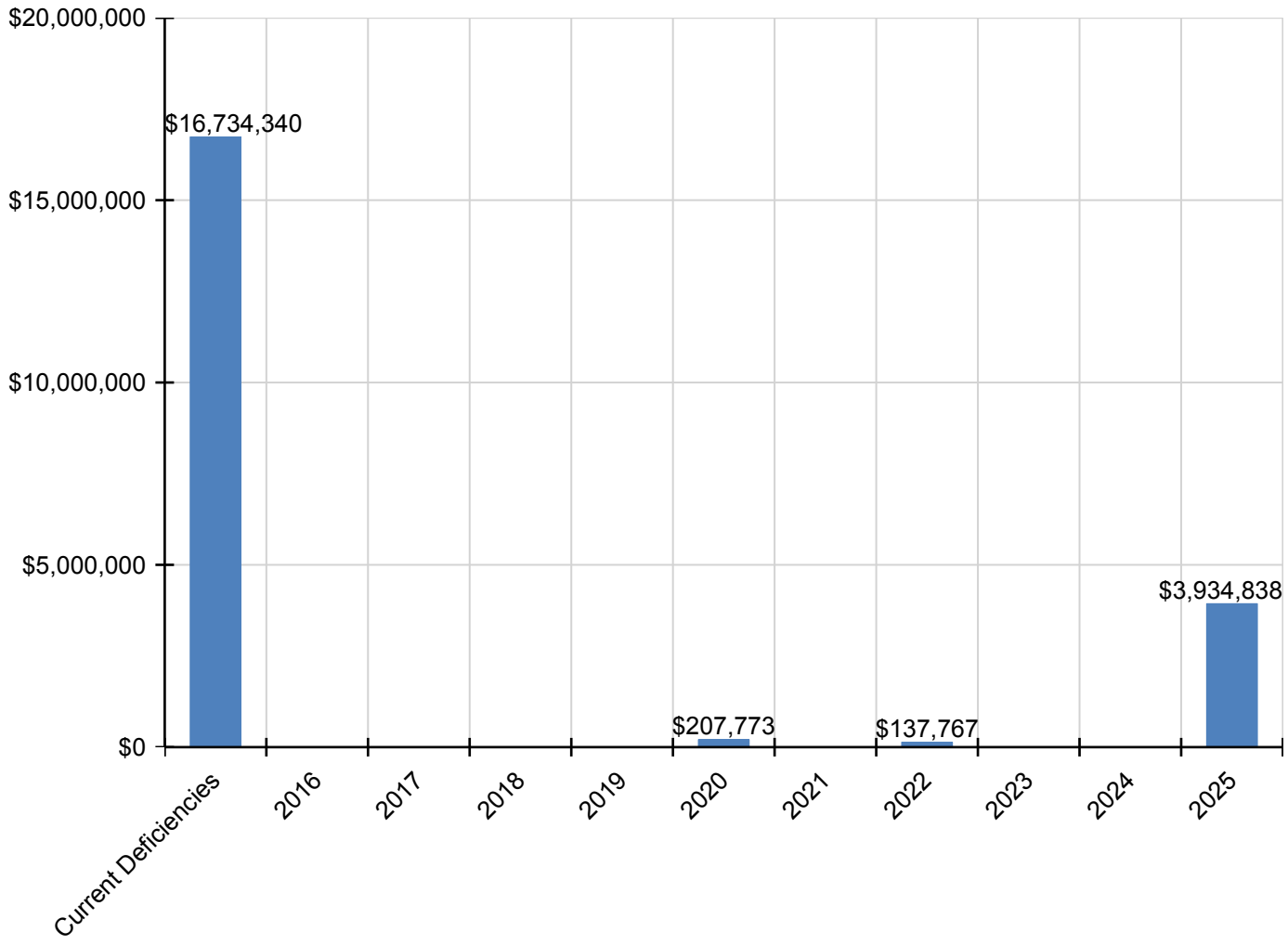
C1020 - Interior Doors	$135,706	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$135,706**
C1030 - Fittings	$161,405	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$161,405**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C30 - Interior Finishes	$0	$0	$0	$0	$0	$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	$115,156	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$115,156**
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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020414 - Wood Flooring	$482,181	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$482,181**
C3020415 - Concrete Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3030 - Ceiling Finishes	$1,131,931	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,131,931**
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	$670,322	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$670,322**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$172,332	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,403,668	**$1,576,000**
D2020 - Domestic Water Distribution	$34,307	$0	$0	$0	$0	$0	$0	$0	$0	$0	$174,420	**$208,727**
D2030 - Sanitary Waste	$384,940	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$384,940**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$207,773	$0	$0	$0	$0	$0	**$207,773**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$1,076,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,076,800**
D3030 - Cooling Generating Systems	$1,127,851	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,127,851**
D3040 - Distribution Systems	$4,796,236	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$4,796,236**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,204,331	**$1,204,331**
D3060 - Controls & Instrumentation	$1,506,580	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,506,580**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$1,004,671	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,004,671**
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	$565,685	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$565,685**
D5020 - Lighting and Branch Wiring	$905,763	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$905,763**
D5030 - Communications and Security	$23,255	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$23,255**
D5090 - Other Electrical Systems	$210,803	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$210,803**
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	$1,152,419	**$1,152,419**
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

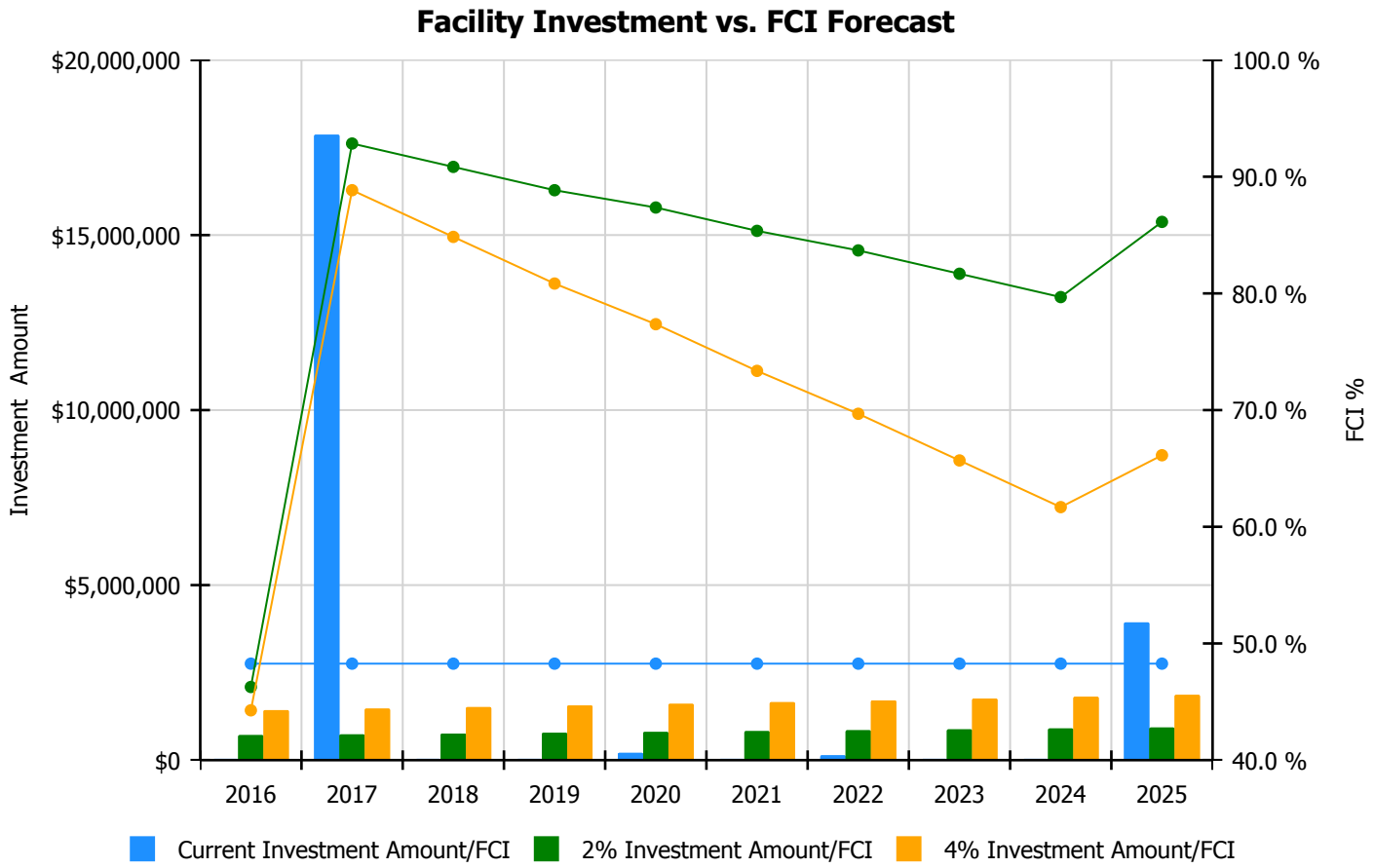
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

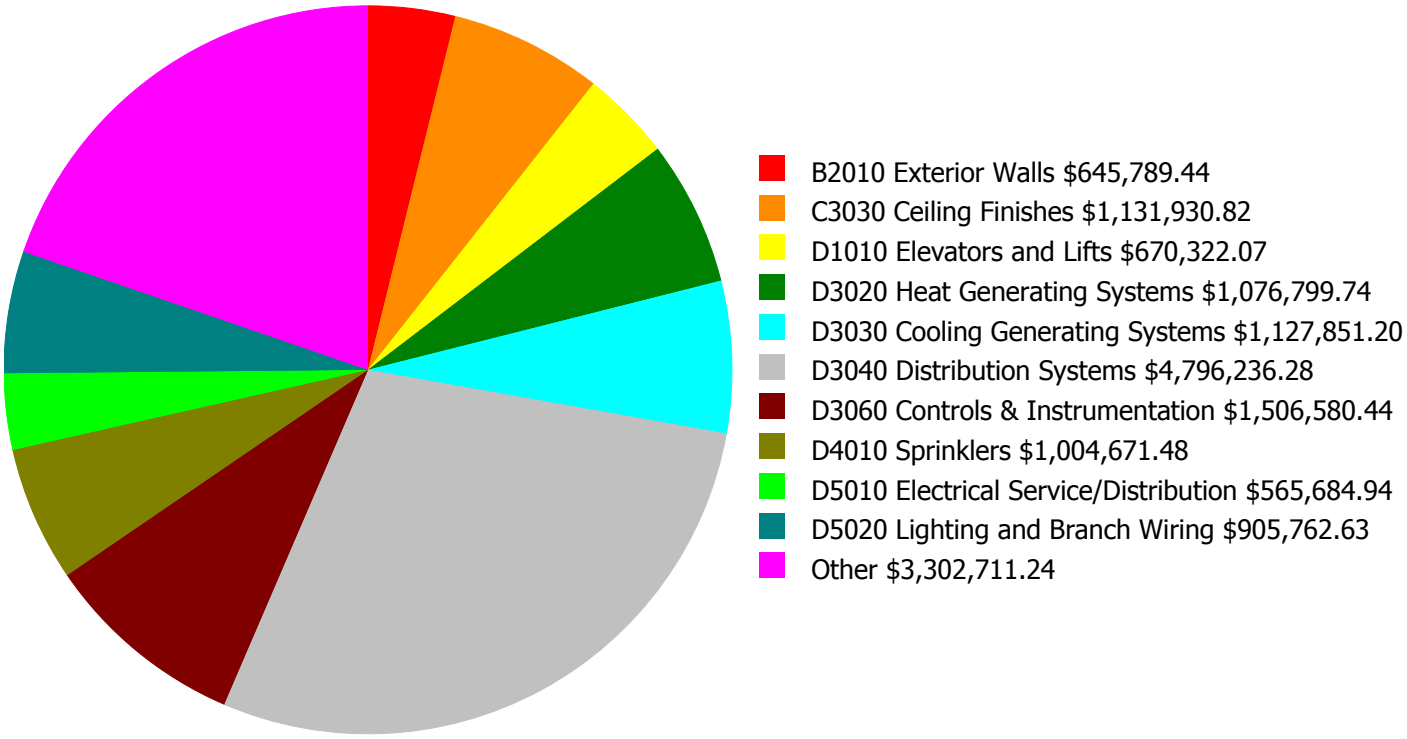
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 48.27%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$714,180.00	46.27 %	$1,428,360.00	44.27 %
2017	$17,865,869	$735,605.00	92.84 %	$1,471,210.00	88.84 %
2018	$0	$757,673.00	90.84 %	$1,515,347.00	84.84 %
2019	$0	$780,404.00	88.84 %	$1,560,807.00	80.84 %
2020	$207,773	$803,816.00	87.36 %	$1,607,631.00	77.36 %
2021	$0	$827,930.00	85.36 %	$1,655,860.00	73.36 %
2022	$137,767	$852,768.00	83.68 %	$1,705,536.00	69.68 %
2023	$0	$878,351.00	81.68 %	$1,756,702.00	65.68 %
2024	$0	$904,702.00	79.68 %	$1,809,403.00	61.68 %
2025	$3,934,838	$931,843.00	86.13 %	$1,863,685.00	66.13 %
Total:	**$22,146,247**	**$8,187,272.00**		**$16,374,541.00**	

Deficiency Summary by System

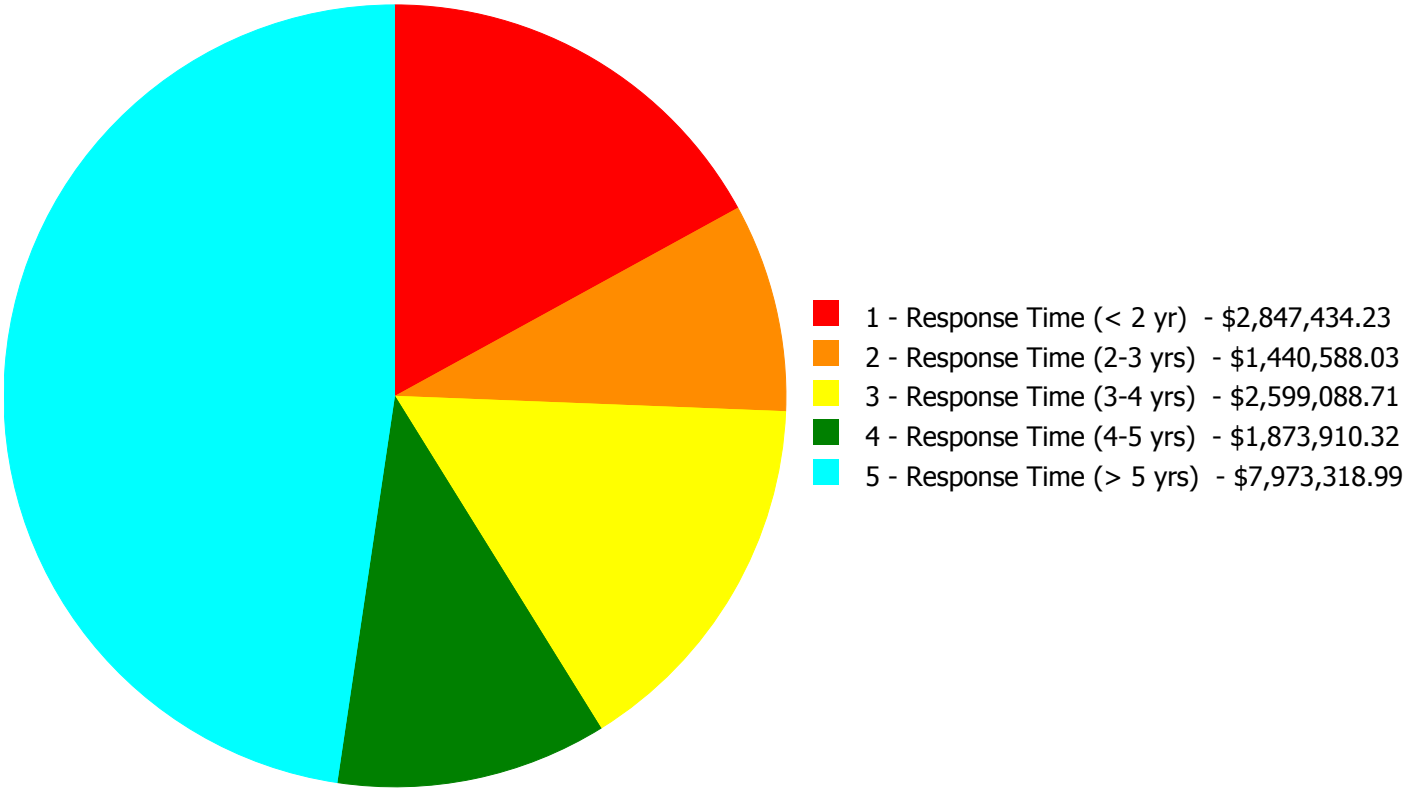
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $16,734,340.28

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: $16,734,340.28

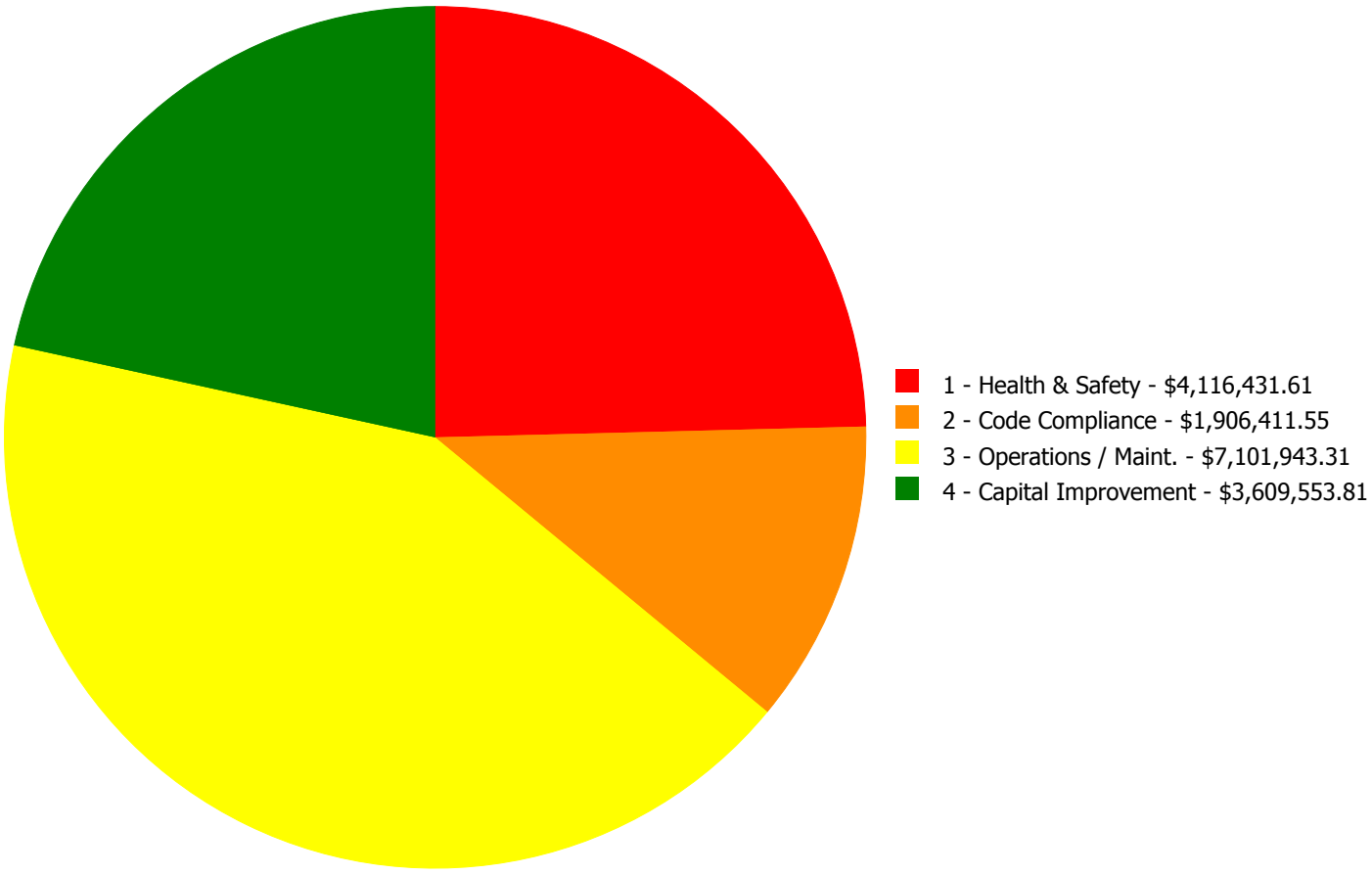
Deficiency By Priority Investment Table

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
A1010	Standard Foundations	$339,306.17	$0.00	$0.00	$0.00	$0.00	$339,306.17
B1010	Floor Construction	$295,637.13	$0.00	$0.00	$0.00	$0.00	$295,637.13
B1020	Roof Construction	$0.00	$324,341.44	$0.00	$0.00	$0.00	$324,341.44
B2010	Exterior Walls	$0.00	$0.00	$645,789.44	$0.00	$0.00	$645,789.44
B2020	Exterior Windows	$0.00	$0.00	$0.00	$28,582.74	$0.00	$28,582.74
B2030	Exterior Doors	$0.00	$0.00	$0.00	$0.00	$31,442.76	$31,442.76
B3010105	Built-Up	$0.00	$0.00	$0.00	$563,317.01	$0.00	$563,317.01
C1020	Interior Doors	$0.00	$0.00	$0.00	$135,705.74	$0.00	$135,705.74
C1030	Fittings	$0.00	$0.00	$0.00	$75,285.89	$86,119.25	$161,405.14
C3010230	Paint & Covering	$0.00	$0.00	$0.00	$115,155.91	$0.00	$115,155.91
C3020414	Wood Flooring	$0.00	$0.00	$0.00	$0.00	$482,180.75	$482,180.75
C3030	Ceiling Finishes	$0.00	$0.00	$0.00	$136,490.43	$995,440.39	$1,131,930.82
D1010	Elevators and Lifts	$0.00	$670,322.07	$0.00	$0.00	$0.00	$670,322.07
D2010	Plumbing Fixtures	$0.00	$0.00	$172,331.65	$0.00	$0.00	$172,331.65
D2020	Domestic Water Distribution	$0.00	$34,306.86	$0.00	$0.00	$0.00	$34,306.86
D2030	Sanitary Waste	$0.00	$384,939.58	$0.00	$0.00	$0.00	$384,939.58
D3020	Heat Generating Systems	$1,050,121.66	$26,678.08	$0.00	$0.00	$0.00	$1,076,799.74
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$1,127,851.20	$1,127,851.20
D3040	Distribution Systems	$157,697.79	$0.00	$664,401.96	$230,432.33	$3,743,704.20	$4,796,236.28
D3060	Controls & Instrumentation	$0.00	$0.00	$0.00	$0.00	$1,506,580.44	$1,506,580.44
D4010	Sprinklers	$1,004,671.48	$0.00	$0.00	$0.00	$0.00	$1,004,671.48
D5010	Electrical Service/Distribution	$0.00	$0.00	$0.00	$565,684.94	$0.00	$565,684.94
D5020	Lighting and Branch Wiring	$0.00	$0.00	$905,762.63	$0.00	$0.00	$905,762.63
D5030	Communications and Security	$0.00	$0.00	$0.00	$23,255.33	$0.00	$23,255.33
D5090	Other Electrical Systems	$0.00	$0.00	$210,803.03	$0.00	$0.00	$210,803.03
	Total:	$2,847,434.23	$1,440,588.03	$2,599,088.71	$1,873,910.32	$7,973,318.99	$16,734,340.28

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: $16,734,340.28

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: A1010 - Standard Foundations

Location: Basement/ Exterior

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Apply waterproofing on existing foundation walls - SF of foundation wall - add for sump and discharge piping

Qty: 3,600.00

Unit of Measure: S.F.

Estimate: $220,371.76

Assessor Name: System

Date Created: 08/07/2015

Notes: Install membrane waterproofing above coal and ash bunkers slab

---

System: A1010 - Standard Foundations

Location: Basement

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Apply waterproofing on existing foundation walls - SF of foundation wall - add for sump and discharge piping

Qty: 1,800.00

Unit of Measure: S.F.

Estimate: $118,934.41

Assessor Name: System

Date Created: 08/10/2015

Notes: Install membrane waterproofing at coal and ash bunkers below first floor terrace

---

System: B1010 - Floor Construction

Location: Basement

Distress: Failing

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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

Qty: 1,100.00

Unit of Measure: S.F.

Estimate: $295,637.13

Assessor Name: System

Date Created: 08/10/2015

Notes: Replace deteriorated slab sections above basement (coal and ash bunkers area)

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 (150 HP)

Qty: 2.00

Unit of Measure: Ea.

Estimate: $1,050,121.66

Assessor Name: System

Date Created: 07/30/2015

Notes: Replace the two existing 5,412MBH cast iron sectional boilers and burners with new cast iron sectional boilers of similar size, burners, and power ventilators.

System: D3040 - Distribution Systems

Location: Restrooms

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 1 - Response Time (< 2 yr)

Correction: Replace utility set exhaust fan (5 HP)

Qty: 4.00

Unit of Measure: Ea.

Estimate: $157,697.79

Assessor Name: System

Date Created: 08/06/2015

Notes: Replace four (4) existing exhaust fans located on the first floor and attic serving the restrooms and utilize the existing ductwork.

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: 70,230.00

Unit of Measure: S.F.

Estimate: $1,004,671.48

Assessor Name: System

Date Created: 08/06/2015

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: B1020 - Roof Construction

Location: Roof

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Repair and epoxy grout exposed rebar on the underside of roof structure and roof beams

Qty: 4,000.00

Unit of Measure: S.F.

Estimate: $324,341.44

Assessor Name: System

Date Created: 08/10/2015

Notes: Repair deteriorated structural roof slabs above open penthouses

System: D1010 - Elevators and Lifts

This deficiency has no image.

Location: Interiors

Distress: Accessibility

Category: 2 - Code Compliance

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

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

Qty: 1.00

Unit of Measure: Ea.

Estimate: $670,322.07

Assessor Name: System

Date Created: 08/10/2015

Notes: Install 4000 lb traction elevator serving all floors and basement

System: D2020 - Domestic Water Distribution

Location: Boiler Room

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Provide 3" reduced pressure back flow preventer

Qty: 1.00

Unit of Measure: Ea.

Estimate: $34,306.86

Assessor Name: System

Date Created: 07/30/2015

Notes: Install reduced pressure backflow preventer on the incoming domestic water line.

System: D2030 - Sanitary Waste

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 70,230.00

Unit of Measure: S.F.

Estimate: $344,530.83

Assessor Name: System

Date Created: 07/30/2015

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: D2030 - Sanitary Waste

Location: Boiler Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace sanitary sewage ejector pit and pumps. (48" dia.)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $40,408.75

Assessor Name: System

Date Created: 07/30/2015

Notes: Replace existing sump pump system and piping in the boiler room as it looks beyond its useful service life and add drain from flooded coal ash area to pit.

System: D3020 - Heat Generating Systems

Location: Boiler Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace fuel oil pumps

Qty: 1.00

Unit of Measure: Ea.

Estimate: $26,678.08

Assessor Name: System

Date Created: 07/30/2015

Notes: Inspect and replace current fuel oil pumping system with new system and control scheme.

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

System: B2010 - Exterior Walls

Location: Exterior

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

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

Qty: 20,000.00

Unit of Measure: S.F.

Estimate: $645,789.44

Assessor Name: System

Date Created: 08/10/2015

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

System: D2010 - Plumbing Fixtures

Location: Restrooms

Distress: Accessibility

Category: 2 - Code Compliance

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

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

Qty: 17.00

Unit of Measure: Ea.

Estimate: $126,856.51

Assessor Name: System

Date Created: 07/30/2015

Notes: Replace the water closets in the restrooms with new code compliant fixtures.

System: D2010 - Plumbing Fixtures

Location: Throughout building

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: 6.00

Unit of Measure: Ea.

Estimate: $45,475.14

Assessor Name: System

Date Created: 07/30/2015

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

System: D3040 - Distribution Systems

Location: Throughout building

Distress: Maintenance Required

Category: 3 - Operations / Maint.

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

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

Qty: 70,230.00

Unit of Measure: S.F.

Estimate: $664,401.96

Assessor Name: System

Date Created: 07/30/2015

Notes: 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.

System: D5020 - Lighting and Branch Wiring

Location: Throughout Building
Distress: Energy Efficiency
Category: 4 - Capital Improvement
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace Lighting Fixtures (SF)
Qty: 70,230.00
Unit of Measure: S.F.
Estimate: $905,762.63
Assessor Name: System
Date Created: 08/07/2015

Notes: Upgrade lighting system to T8 fluorescent fixtures.

System: D5090 - Other Electrical Systems

This deficiency has no image.

Location: Basement
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 3 - Response Time (3-4 yrs)
Correction: Add Standby Generator System
Qty: 1.00
Unit of Measure: Ea.
Estimate: $121,157.99
Assessor Name: System
Date Created: 08/07/2015

Notes: Provide an emergency generator of sufficient size to support an elevator and emergency lighting.

System: D5090 - Other Electrical Systems

Location: Throughout Building
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace Emergency/Exit Lighting
Qty: 1.00
Unit of Measure: Ea.
Estimate: $57,000.88
Assessor Name: System
Date Created: 08/07/2015

Notes: Provide new emergency fixtures for emergency egress

System: D5090 - Other Electrical Systems

Location: Roof
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Repair Lightning Protection System
Qty: 1.00
Unit of Measure: Job
Estimate: $32,644.16
Assessor Name: System
Date Created: 08/07/2015

Notes: Repair the existing lightning protection system.

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

System: B2020 - Exterior Windows

Location: Exterior

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

Correction: Replacement of failing perimeter window sealant - per LF of sealant

Qty: 4,500.00

Unit of Measure: L.F.

Estimate: $28,582.74

Assessor Name: System

Date Created: 08/10/2015

Notes: Replace sealant at windows perimeter (50%)

System: B3010105 - Built-Up

Location: Roof

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

Correction: Remove and Replace Built Up Roof

Qty: 16,000.00

Unit of Measure: S.F.

Estimate: $563,317.01

Assessor Name: System

Date Created: 08/10/2015

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

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System: C1020 - Interior Doors

Location: Interiors

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Refinish interior doors

Qty: 98.00

Unit of Measure: Ea.

Estimate: $81,161.93

Assessor Name: System

Date Created: 08/10/2015

Notes: Repair and refinish all original interior doors

System: C1020 - Interior Doors

Location: Interiors

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Replace door knobs with compliant lever type

Qty: 98.00

Unit of Measure: Ea.

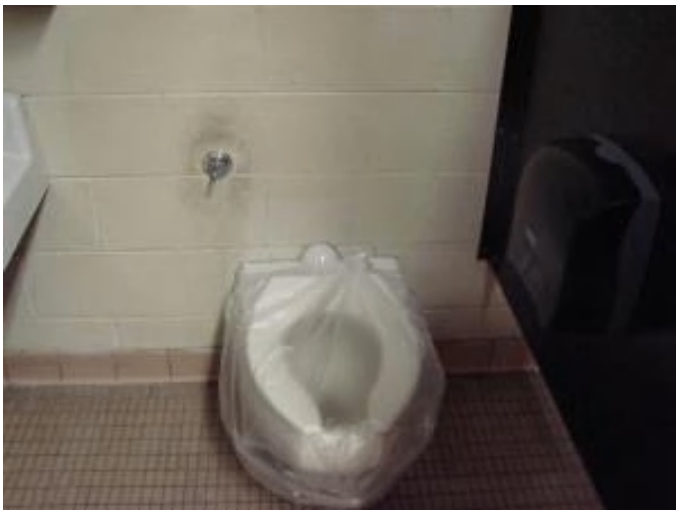
Estimate: $54,543.81

Assessor Name: System

Date Created: 08/10/2015

Notes: Provide ADA compliant hardware on interior doors

System: C1030 - Fittings



Location: Interiors/ Toilets

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Replace toilet accessories - select accessories and quantity

Qty: 20.00

Unit of Measure: Ea.

Estimate: $42,806.72

Assessor Name: System

Date Created: 08/10/2015

Notes: • Provide new toilet accessories including grab bars

System: C1030 - Fittings

Location: Interiors/ Toilets

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Remove and replace damaged toilet paritions - handicap units

Qty: 10.00

Unit of Measure: Ea.

Estimate: $32,479.17

Assessor Name: System

Date Created: 08/10/2015

Notes: Reconfigure toilets on each floor for accessibility, provide new toilet partitions and toilet accessories including grab bars

System: C3010230 - Paint & Covering

Location: Interiors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 17,000.00

Unit of Measure: S.F.

Estimate: $115,155.91

Assessor Name: System

Date Created: 08/10/2015

Notes: Repair and repaint interior walls (50% area)

System: C3030 - Ceiling Finishes

Location: Interiors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Repair and resurface plaster ceilings - 2 coats plaster

Qty: 10,400.00

Unit of Measure: S.F.

Estimate: $136,490.43

Assessor Name: System

Date Created: 08/10/2015

Notes: Repair and repaint exposed ceilings

System: D3040 - Distribution Systems

Location: Throughout building

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 70,230.00

Unit of Measure: S.F.

Estimate: $230,432.33

Assessor Name: System

Date Created: 07/30/2015

Notes: Hire a qualified contractor to identify and replace failed traps passing live steam into the condensate piping system.

System: D5010 - Electrical Service/Distribution

Location: Throughout Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace Electrical DIstribution System (U1)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $437,816.04

Assessor Name: System

Date Created: 08/07/2015

Notes: Provide a new distribution system to replace old panels.

System: D5010 - Electrical Service/Distribution

Location: Basement

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Add Electrical Switchgear and Distribution System

Qty: 0.00

Unit of Measure: Ea.

Estimate: $127,868.90

Assessor Name: System

Date Created: 08/07/2015

Notes: Replace existing service with new 480/277V three phase service

System: D5030 - Communications and Security

Location: Exterior at Play areas

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Add/Replace Paging System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $11,652.79

Assessor Name: System

Date Created: 08/07/2015

Notes: Add exterior speakers along play areas.

System: D5030 - Communications and Security

Location: 1st Floor

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Add/Replace Security System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $11,602.54

Assessor Name: System

Date Created: 08/07/2015

Notes: Add security system with contacts to exterior doors for intrusion detection

Priority 5 - Response Time (> 5 yrs):

System: B2030 - Exterior Doors

Location: Exterior

Distress: Maintenance Required

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace hardware with compliant hardware, paint and weatherstrip - per leaf

Qty: 9.00

Unit of Measure: Ea.

Estimate: $31,442.76

Assessor Name: System

Date Created: 08/10/2015

Notes: Repaint exterior doors; provide weatherstripping

System: C1030 - Fittings

Location: Interiors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 150.00

Unit of Measure: Ea.

Estimate: $62,719.36

Assessor Name: System

Date Created: 08/10/2015

Notes: Replace signage throughout

System: C1030 - Fittings

Location: Interiors/ Classrooms

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 34.00

Unit of Measure: Ea.

Estimate: $23,399.89

Assessor Name: System

Date Created: 08/10/2015

Notes: • Replace original chalk boards

System: C3020414 - Wood Flooring

Location: Interiors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 34,500.00

Unit of Measure: S.F.

Estimate: $482,180.75

Assessor Name: System

Date Created: 08/10/2015

Notes: Repair refinish hardwood flooring

System: C3030 - Ceiling Finishes

Location: Interiors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 34,500.00

Unit of Measure: S.F.

Estimate: $520,343.84

Assessor Name: System

Date Created: 08/10/2015

Notes: Replace all suspended acoustical ceilings

System: C3030 - Ceiling Finishes

Location: Interiors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 31,500.00

Unit of Measure: S.F.

Estimate: $475,096.55

Assessor Name: System

Date Created: 08/10/2015

Notes: Replace all suspended acoustical ceilings

System: D3030 - Cooling Generating Systems

Location: Roof

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 70,230.00

Unit of Measure: S.F.

Estimate: $1,127,851.20

Assessor Name: System

Date Created: 07/30/2015

Notes: Remove the window air conditioning units and install a 175 ton air-cooled chiller on the roof with chilled water distribution piping and pumps located in a mechanical room to supply more reliable air conditioning for the building with a much longer service life.

System: D3040 - Distribution Systems

Location: Throughout building

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 70,230.00

Unit of Measure: S.F.

Estimate: $2,921,998.72

Assessor Name: System

Date Created: 07/30/2015

Notes: Remove the existing cast iron steam radiators and install units with hot and chilled water coils and integral heat exchangers to introduce outdoor air to the building.

System: D3040 - Distribution Systems

Location: Auditorium

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 200.00

Unit of Measure: Seat

Estimate: $285,085.41

Assessor Name: System

Date Created: 08/06/2015

Notes: Ventilation could be provided for the Auditorium by installing a constant volume air handling unit with distribution ductwork and registers

System: D3040 - Distribution Systems

Location: Cafeteria

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 596.00

Unit of Measure: Pr.

Estimate: $278,657.16

Assessor Name: System

Date Created: 07/30/2015

Notes: Provide adequate ventilation for the Cafeteria 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: 596.00

Unit of Measure: Pr.

Estimate: $257,962.91

Assessor Name: System

Date Created: 07/30/2015

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: 70,230.00

Unit of Measure: S.F.

Estimate: $1,506,580.44

Assessor Name: System

Date Created: 08/06/2015

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-McClain	H-2594W			35	1965	2000	$122,870.00	$270,314.00
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-McClain	H-2594W			35	1965	2000	$122,870.00	$270,314.00
												Total:	**$540,628.00**

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):	20,000
Year Built:	1927
Last Renovation:	
Replacement Value:	$404,600
Repair Cost:	$405,917.91
Total FCI:	100.33 %
Total RSLI:	120.71 %

Description:

Attributes:

General Attributes:

Bldg ID:	S534001	Site ID:	S534001

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	138.47 %	127.81 %	$405,917.91
G40 - Site Electrical Utilities	55.90 %	0.00 %	$0.00
Totals:	**120.71 %**	**100.33 %**	**$405,917.91**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
G2010	Roadways	$11.52	S.F.		30				0.00 %	0.00 %				$0
G2020	Parking Lots	$7.65	S.F.		30				0.00 %	0.00 %				$0
G2030	Pedestrian Paving	$11.52	S.F.	20,000	40	1985	2025	2075	150.00 %	164.03 %	60		$377,920.96	$230,400
G2040	Site Development	$4.36	S.F.	20,000	25	1990	2015	2042	108.00 %	32.11 %	27		$27,996.95	$87,200
G2050	Landscaping & Irrigation	$3.78	S.F.		15				0.00 %	0.00 %				$0
G4020	Site Lighting	$3.58	S.F.	20,000	30	2000	2030		50.00 %	0.00 %	15			$71,600
G4030	Site Communications & Security	$0.77	S.F.	20,000	30	2010	2040		83.33 %	0.00 %	25			$15,400
								Total	**120.71 %**	**100.33 %**			**$405,917.91**	**$404,600**

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.

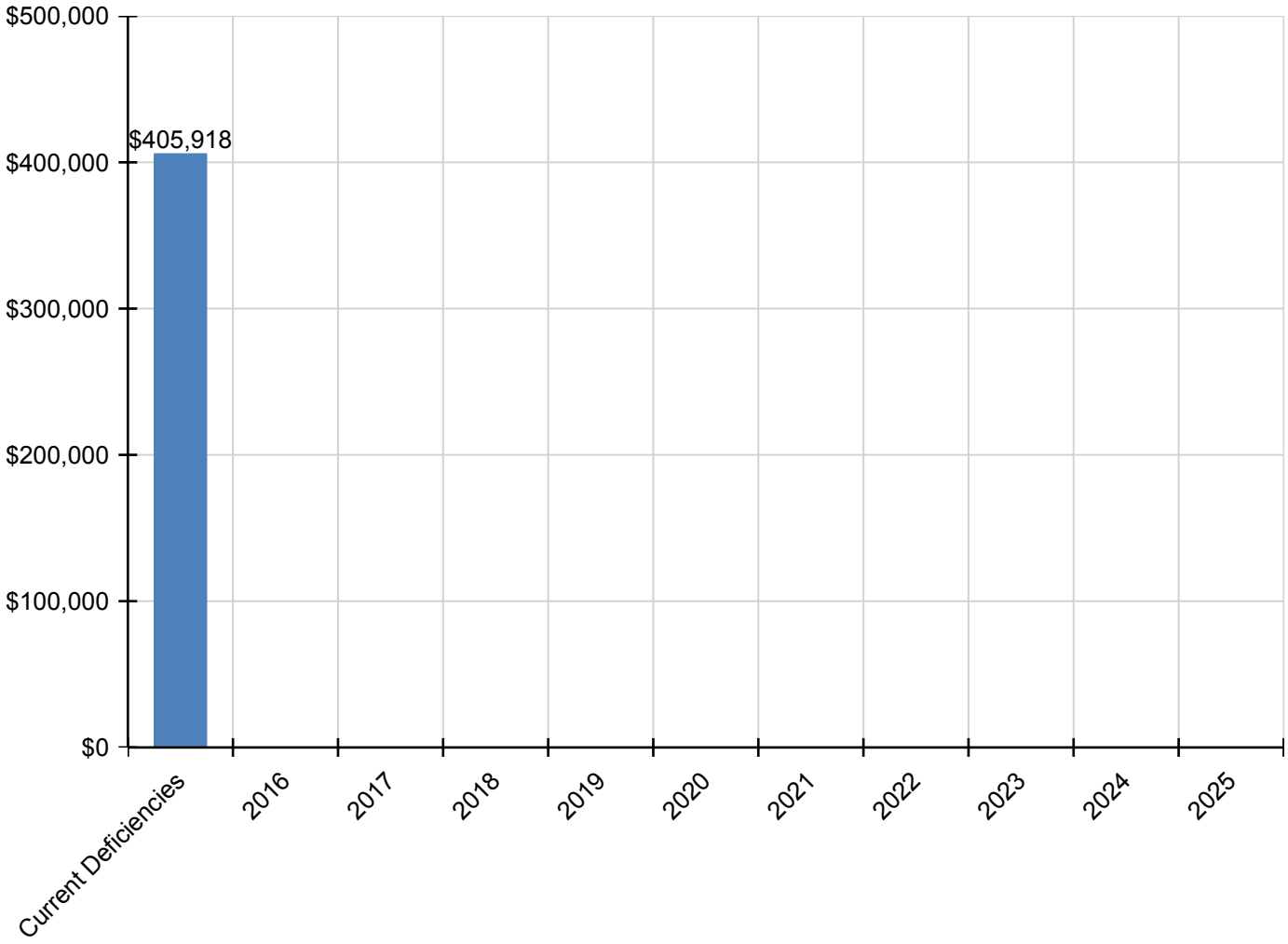
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$405,918**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405,918**
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	$377,921	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$377,921**
G2040 - Site Development	$27,997	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$27,997**
G2050 - Landscaping & Irrigation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G40 - Site Electrical Utilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4020 - Site Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4030 - Site Communications & Security	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

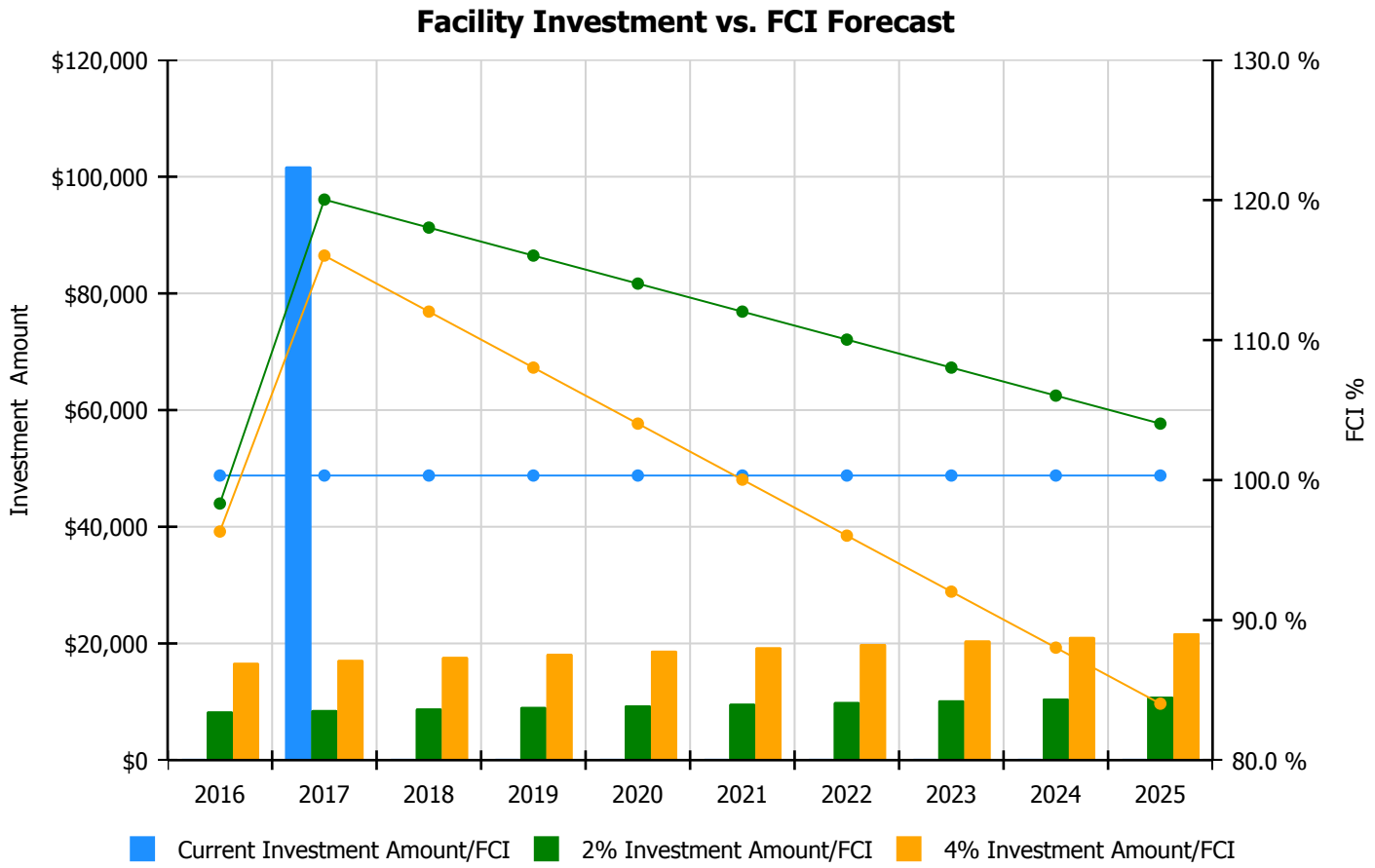
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



10 Year FCI Forecast by Investment Scenario

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

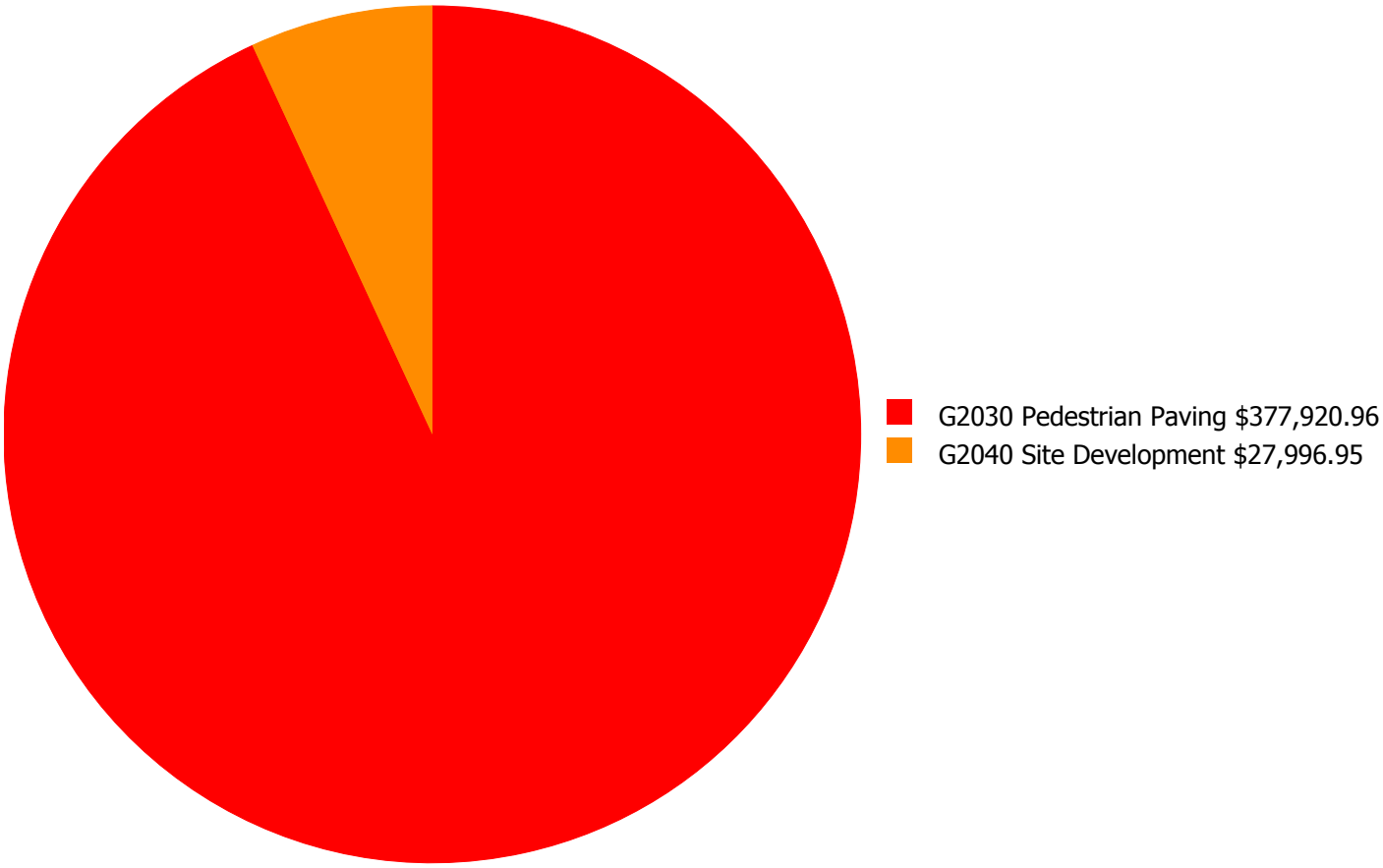
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 100.33%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$8,335.00	98.33 %	$16,670.00	96.33 %
2017	$101,762	$8,585.00	120.03 %	$17,170.00	116.03 %
2018	$0	$8,842.00	118.03 %	$17,685.00	112.03 %
2019	$0	$9,108.00	116.03 %	$18,215.00	108.03 %
2020	$0	$9,381.00	114.03 %	$18,762.00	104.03 %
2021	$0	$9,662.00	112.03 %	$19,325.00	100.03 %
2022	$0	$9,952.00	110.03 %	$19,904.00	96.03 %
2023	$0	$10,251.00	108.03 %	$20,501.00	92.03 %
2024	$0	$10,558.00	106.03 %	$21,116.00	88.03 %
2025	$0	$10,875.00	104.03 %	$21,750.00	84.03 %
Total:	**$101,762**	**$95,549.00**		**$191,098.00**	

Deficiency Summary by System

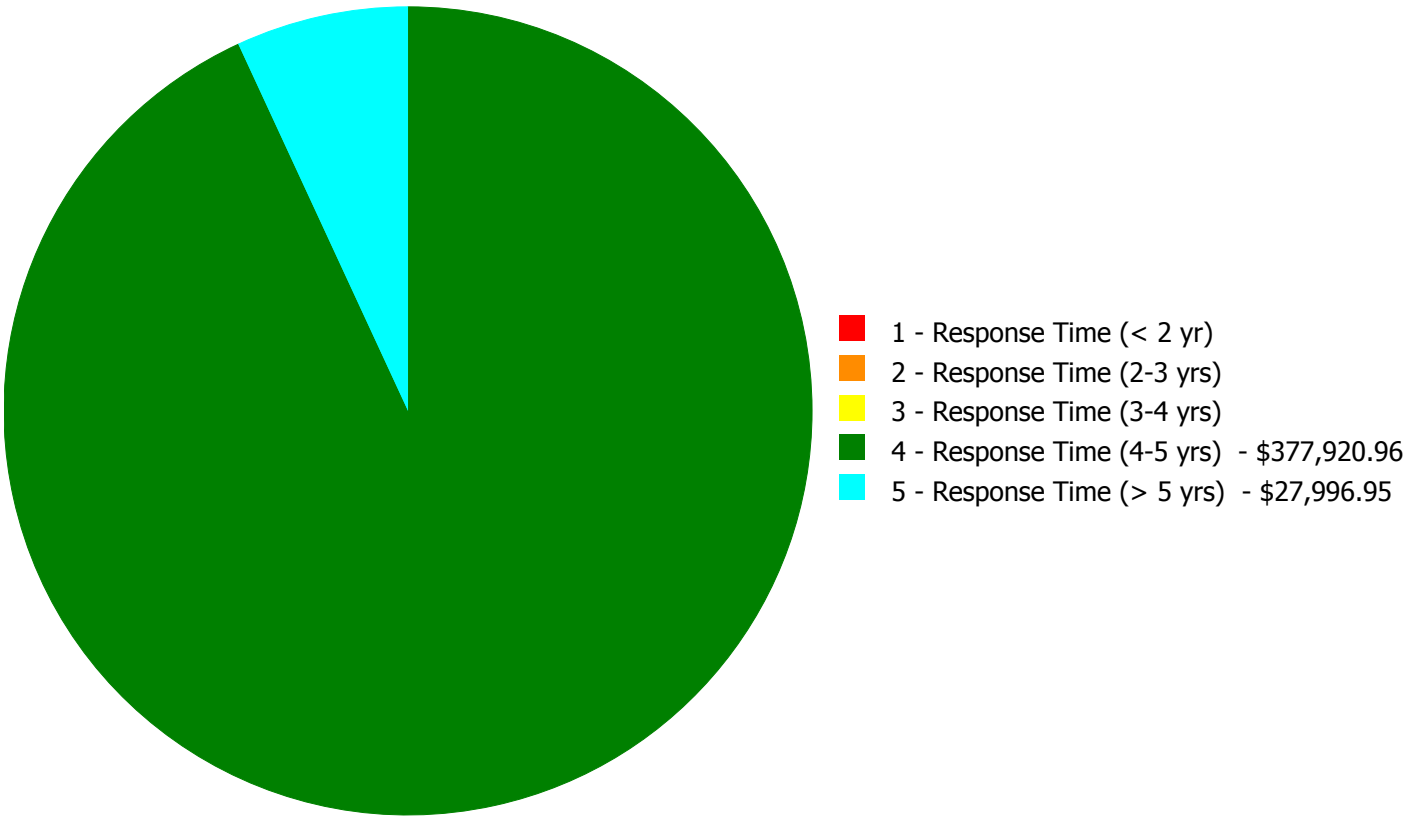
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $405,917.91

Deficiency Summary by Priority

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



Budget Estimate Total: $405,917.91

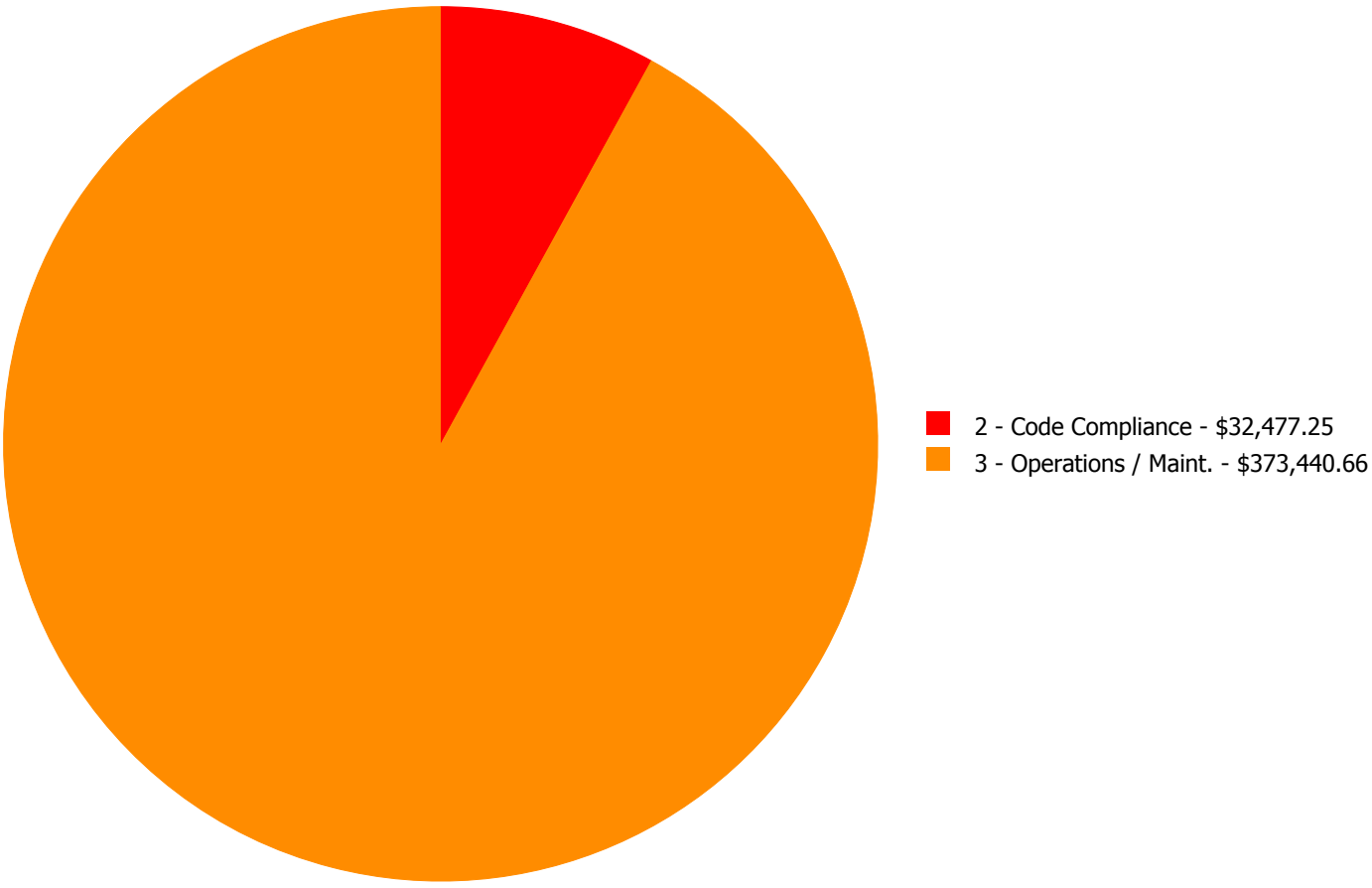
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
G2030	Pedestrian Paving	$0.00	$0.00	$0.00	$377,920.96	$0.00	$377,920.96
G2040	Site Development	$0.00	$0.00	$0.00	$0.00	$27,996.95	$27,996.95
	Total:	$0.00	$0.00	$0.00	$377,920.96	$27,996.95	$405,917.91

Deficiency Summary by Category

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



Budget Estimate Total: $405,917.91

Deficiency Details by Priority

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

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

System: G2030 - Pedestrian Paving

Location: Gorunds/ Site

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: 20,000.00

Unit of Measure: S.F.

Estimate: $345,443.71

Assessor Name: Ben Nixon

Date Created: 08/10/2015

Notes: Resurface playground

System: G2030 - Pedestrian Paving

This deficiency has no image.

Location: Grounds/ Site

Distress: Accessibility

Category: 2 - Code Compliance

Priority: 4 - Response Time (4-5 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: 25.00

Unit of Measure: L.F.

Estimate: $32,477.25

Assessor Name: Ben Nixon

Date Created: 08/10/2015

Notes: Provide ADA compliant ramp at one entrance (location TBD)

Priority 5 - Response Time (> 5 yrs):

System: G2040 - Site Development

Location: Grounds/ Site

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace chain link fence - 8' high

Qty: 250.00

Unit of Measure: L.F.

Estimate: $27,996.95

Assessor Name: Ben Nixon

Date Created: 08/10/2015

Notes: Replace chain link fence

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

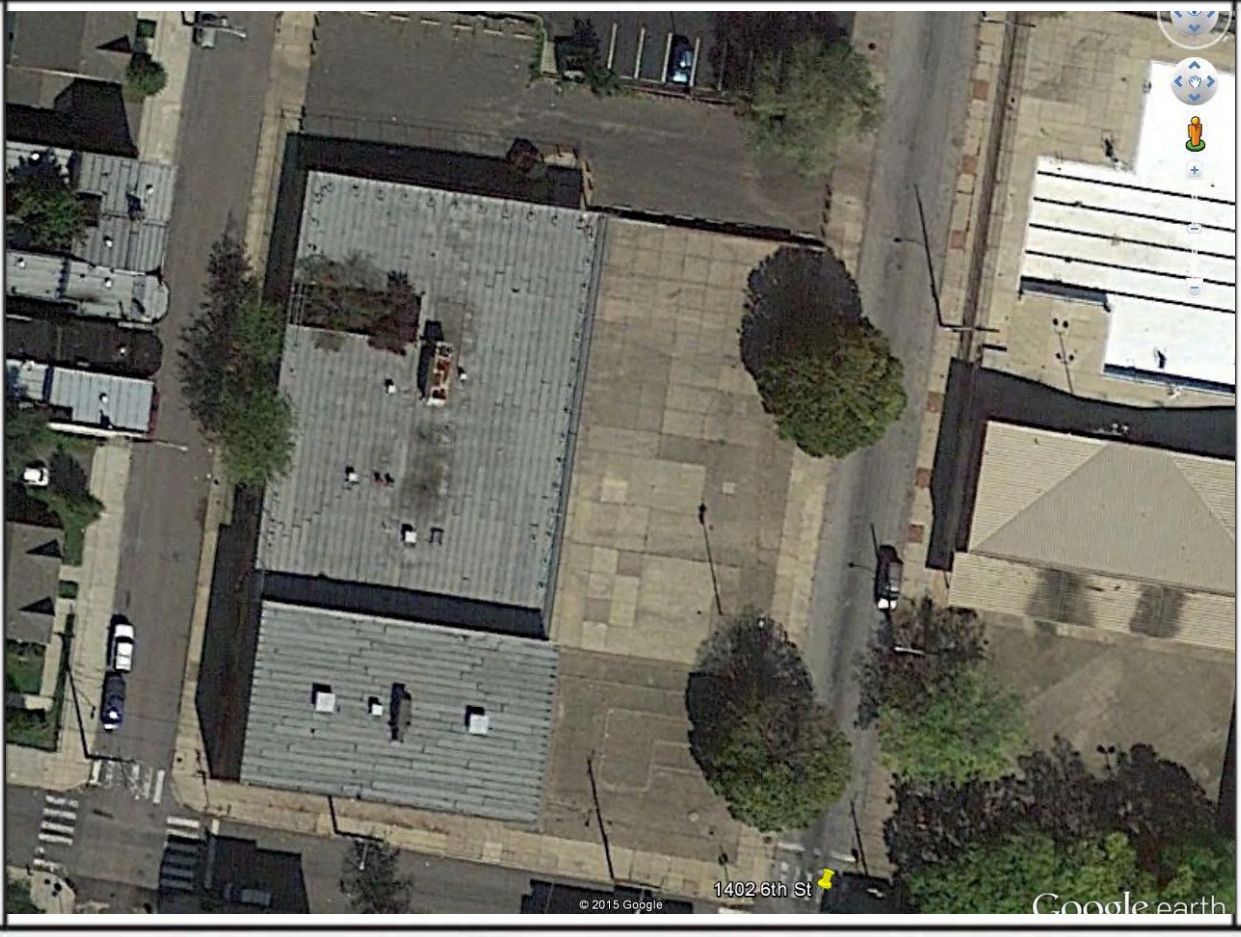
School District of Philadelphia

S534201;Ludlow Community

Final

Site Assessment Report

January 31, 2017



PARSONS

Table of Contents

Site Executive Summary

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

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

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

Gross Area (SF):	17,200
Year Built:	1970
Last Renovation:	
Replacement Value:	$12,079,168
Repair Cost:	$3,065,707.84
Total FCI:	25.38 %
Total RSLI:	72.98 %

Description:

Facility assessment, July 2015

School District of Philadelphia

Ludlow Community Annex

1402 N. 6th Street

Philadelphia, PA 19122

17,200 SF / 80 Students / LN 03

The Ludlow Community Annex building is located at 1402 N. 6th Street in Philadelphia, PA. The 1 story, 17,200 square foot building was originally constructed in 1970. The building has no basement.

Mr. Derek Parker, Facility Area Coordinator provided input to the Parsons assessment team on current problems and planned renovation projects. Mr. Pedro Martinez, Building Engineer, accompanied us on our tour of the school and provided us with detailed

information on the building systems and recent maintenance history.

STRUCTURAL/ EXTERIOR CLOSURE:

The building typically rests on concrete, spread and strip footings and foundation walls that are not showing signs of settlement or deterioration.

The superstructure consists typically of steel columns, steel girders and bar joists supporting precast concrete roof panels. The entire main structure is in very good condition

The building envelope is typically face brick masonry with CMU backup. In general, masonry is in good condition.

The windows appear to be original, clerestory type painted steel, single glazed windows with security screens. Windows surrounding internal patio are storefront type, hollow metal framed single glazed. All windows are generally in fair condition with rusting security screens; they are not energy efficient and approaching the end of their useful life.

Roofing is typically built-up. All roofing and flashing is typically in poor condition with deterioration of the built-up system including water ponding and soft spots; several leaks have been reported and observed especially near and under mechanical equipment.

Exterior doors are typically hollow metal in hollow metal frames in fair to poor condition.

INTERIORS:

Partition wall types include CMU in good condition. The interior wall finishes are generally painted concrete block in good condition. Most ceilings are 2x4 suspended acoustical panels and exposed, painted in gym. The suspension system and tile are old and approaching the end of their useful life. Paint on exposed ceilings is in good condition. Flooring in classrooms, gym and auditorium is generally resilient sheet and VCT; and ceramic tile in most corridors, locker rooms and toilets. Most flooring is original and in good condition; portions of classrooms are covered with carpet in very poor condition. Interior doors are generally solid core wood doors in classrooms/ office spaces and hollow metal in custodial and mechanical spaces; some glazed with vision lights and transoms. Door frames are generally painted hollow metal. Door finishes are typically in fair to good condition. Most doors are fitted with door knobs and are not ADA compliant.

Fittings include lockers, generally in good condition; toilet accessories in good condition; toilet partitions, generally in fair condition not ADA compliant. Interior identifying signage is typically directly painted on wall or door surfaces generally in good condition; however some rooms are not identified.

The building has no interior stairs.

Institutional and Commercial equipment includes gym equipment – basketball backstops, scoreboards, etc.; generally in good condition.

Furnishings include fixed casework in classrooms, generally in good condition; window shades/blinds, generally in fair condition.

Conveying systems - The building has no elevators.

PLUMBING:

Plumbing Fixtures - The original plumbing fixtures remain in service. Fixtures in the restrooms consist of floor mounted flush valve water closets, floor mounted urinals and lavatories with flush handle faucets. The fixtures are in good condition and appear to be within their useful life. They do not require replacement.

Drinking fountains in the corridors and at the restrooms are wall hung with integral refrigerated coolers. They are beyond their service life and should be replaced; most are NOT accessible type.

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

There is a food preparation area in the Cafeteria that has one, two compartment stainless steel prep sink with lever operated faucets. There are no sanitizing chemicals or grease trap.

Domestic Water Distribution - A 2" city water service enters the building in the mechanical room from 6th Street. The 2" meter and valves are located in the mechanical room near the school's main entrance. A reduced pressure backflow preventer is not installed. The original 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 Bradford White Defender gas fired, 50 gallon, vertical hot water heater without a circulating pump, installation date of 9/12/2013, supplies hot water for domestic use. The unit is located in the mechanical room, near the main school entrance. The hot water heater is equipped with a T&P relief valve. An expansion tank is also located in the mechanical room. The water heater is within its service life and should provide reliable service for the next 6-8 years. A water softening system was present in the mechanical room.

Sanitary Waste - The original storm and sanitary sewer piping was not accessible during the site visit. Downspouts from the roof run down the interior of the building and connect to the storm sewer system in an unknown location under the foundation.

No sump pump or sewage ejector was present.

The maintenance staff didn't report any problems with the sanitary waste piping systems.

Other Plumbing Systems - A 3" city gas line is located in the mechanical room with service from N. Marshall Street. The gas train serving the building does not appear to have code required venting of the regulators and dual solenoid valves with venting of the chamber between.

MECHANICAL:

Heat Generating Systems - Building heating hot water is generated by a single 526MBH Weil McLain LGB-6 natural gas fired boiler, installation date estimated to be 2013. The boiler can handle the heating load. Combustion air makeup is supplied by ductwork in the ceiling of the mechanical room. Three water booster pumps located above the boiler ensure adequate water pressure for the system. Steel water-tube boilers have an anticipated service life of 24 years or more; this unit has been in service for an unknown amount of time. The boiler appears to have been maintained well. The District should provide reliable service for approximately the next 15-20 years.

Distribution Systems - Hot water piping is copper with sweat fittings. The distribution piping has been in use for an unknown amount of time and should be inspected by a certified plumber. The District should hire a qualified contractor to examine the hot water distribution piping.

As this building serves only premade meals; there was no kitchen, only an area to heat the meals. A roof mounted exhaust fan served the food preparation area.

The restrooms and locker rooms are ventilated by four (4) exhaust fans located on the lower roof of the main school building.

Terminal & Package Units - A single Thermal Zone packaged roof top unit provides heating and cooling for the classrooms, office, and hallway. This unit is gas and electric operated and is equipped with scroll compressors. The unit serving the main school is located on the roof of the school. A drop ceiling return air plenum provides return air. This unit is capable of outdoor air intake to provide ventilation for the spaces it serves. Packaged air handling units have an anticipated service life of 25 years. This unit was installed in 2013; the District should provide reliable service for the next 20-25 years.

A single packaged roof top unit provides conditioning for the gymnasium. This unit is located on the roof of the gym and was not accessible for inspection. This unit is capable of outdoor air intake to provide ventilation for the spaces it serves. Packaged air handling units have an anticipated service life of 25 years. This unit was not accessible but the District should provide reliable service for the next 20-25 years.

Heating is provided to the gym by eight (8) ceiling hung Modine gas fired unit heaters. The building engineer said that two of the eight units are currently not operational and require maintenance.

Controls & Instrumentation - The controls are DDC and thermostats provide temperature control for the main school building. The building engineer did not report any problems with the controls.

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

ELECTRICAL:

Electrical Service- The electrical service is provided by an underground primary from overhead lines along N Marshall St. The underground primary enters a transformer vault located on the west side (N Marshall St) of the building. The service enters the electrical room to a meter cabinet, then to a 400A, 230V, 3 phase panel, MDP.

Distribution System and Raceway System - There 2 panels located in the building that feed receptacles and lighting. These panels are served by a 300A, 208/120V panel PP1 located in the electrical room. Panel PP1 is fed from MDP via 100 kVA 230:208/120V transformer. All electrical panels have exceeded their useful life and should be replaced.

Receptacles- Room 113 has above counter receptacles spaced approximately 9 feet apart. This is true for all sides of the room. Rooms 117 and 123 have receptacles spaced approximately 10 feet apart. Depending on intended us of the room, this may or may not be a sufficient amount of receptacles.

Lighting- The facility uses T12 lamps in its fluorescent fixtures. The classrooms and corridors 2 lamp surface mounted 1X4 fixtures. Rooms are equipped with multiple light switches to allow for either zone or alternate fixture switching. The gymnasium consists of mercury vapor fixtures, many of which were not operable. The community room uses surface mounted can fixtures with incandescent lamps. Locker rooms are provided with surface mounted square fixtures with incandescent lamps. Lighting levels were adequate in rooms 117 and 123, with readings in the 40 – 50 fc range. Community room lighting was low at 10 fc, and locker room lighting was low with readings around 2 fc. There were numerous fixtures that were out in the gymnasium and room 113, which did not allow for an accurate foot candle reading. All fluorescent lighting in the facility should be upgraded to T8 lamps, with incandescent fixtures being replaced with more energy efficient fluorescent lamps. Exterior lighting is provided by recessed incandescent fixtures mounded under the canopy at the main entrance. Emergency egress lighting is provided by surface mounted incandescent fixtures at the exits. The incandescent fixtures should be replaced with more energy efficient HID fixtures.

Fire Alarm System – The fire alarm system is an antiquated 120V system with pull stations located at building exits and bells located in the corridors only. There are no visual devices in the building.

Telephone/LAN – The present telephone/LAN system is adequate.

Public Address/Intercom/Paging – The paging system is adequate and in good condition. Each classroom contains a ceiling mounted speaker. Two way communication is not available through the public announcement system but is achieved by using wall mounted phones located in each classroom.

Clock and Program System – There is no clock or program system in this facility.

Television System – There is no CATV system in the facility.

Security System – The facility is equipped with a security system that is composed of motion sensors only.

Emergency Power System – The facility is equipped with a 5 kW, 208/120V emergency generator. The generator was manufactured by Kohler and has a gasoline engine. Due to the age of the generator and type of fuel, it is recommended that the generator be removed.

Emergency Lighting System / Exit Lighting- The emergency lighting is provided by selected fixtures being connected to the emergency panel. Exit lighting is not in adequate condition with fixtures not being lit and some missing faces.

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

Site Lighting - Site lighting is provided by building mounted flood lights installed along the eastern side only, and provides lighting for the plaza. The site lighting provides an adequate amount of lighting.

Video Surveillance – There is no video surveillance at this facility.

Site Paging – There are no exterior speakers for site paging.

GROUNDS (SITE):

There is 21 spaces parking lot at the site. Pavement is in poor condition; spaces are unmarked. Parking is separated from sidewalk with series of bollards on east and west side and by a brick knee wall from the plaza.

There is no playground at the site; however, adjacent to the building there is an elevated concrete paved plaza (level with floor in the building) in poor condition, paving is cracked and deteriorated; plaza steps are deteriorated and present a tripping hazard. There is no landscaping except for small patio with mature vegetation.

ACCESSIBILITY:

The building does have accessible entrance, however no accessible route from parking and sidewalk 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:

- Replace existing windows with energy efficient windows and integral security screens
- Install all new roofing system including insulation within next 4 to 5 years; tear-down existing roofing; install flashing and counter flashing
- Replace exterior doors; provide weather-stripping and hardware
- Replace carpet flooring
- Install new signage throughout
- Provide ADA compliant ramp at exterior plaza (location TBD)
- Provide ADA compliant hardware on interior doors
- Replace aged suspended acoustical ceiling
- Replace signage throughout
- Reconfigure toilets for accessibility, provide new toilet partitions
- Replace parking lot pavement. Stripe parking stalls including accessible space with aisle, remove and reinstall wheel stops
- Resurface plaza; replace exterior stairs
- Replace the 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 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
- 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
- Add security system with contacts to exterior doors for intrusion detection
- Replace existing electrical panels
- Remove existing gasoline generator
- Provide new emergency fixtures for emergency egress
- Upgrade lighting system to T8 fluorescent fixtures
- Replace existing LED EXIT fixtures
- Replace existing fire alarm system

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 1 / Tm 4
Status:	Accepted by SDP	Team:	Tm 4
Site ID:	S534201		

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.

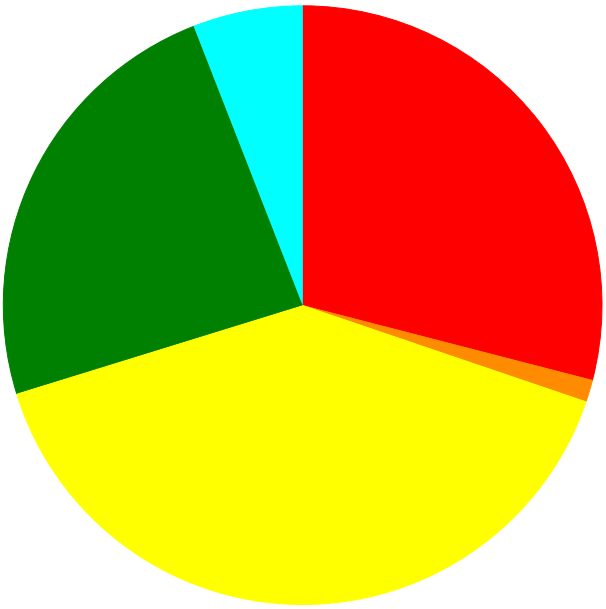
Current Investment Requirement and Condition by Uniformat Classification

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	55.00 %	0.00 %	$0.00
A20 - Basement Construction	55.00 %	0.00 %	$0.00
B10 - Superstructure	55.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	58.81 %	61.53 %	$492,334.87
B30 - Roofing	110.00 %	88.14 %	$643,758.21
C10 - Interior Construction	83.50 %	2.27 %	$21,501.79
C20 - Stairs	55.00 %	0.00 %	$0.00
C30 - Interior Finishes	94.24 %	12.45 %	$189,893.34
D20 - Plumbing	35.44 %	16.40 %	$114,695.62
D30 - HVAC	71.40 %	0.00 %	$0.00
D40 - Fire Protection	94.10 %	158.77 %	$246,055.12
D50 - Electrical	110.11 %	90.01 %	$910,060.33
E10 - Equipment	73.71 %	0.00 %	$0.00
E20 - Furnishings	162.50 %	0.00 %	$0.00
G20 - Site Improvements	37.85 %	99.41 %	$444,315.41
G40 - Site Electrical Utilities	102.54 %	2.38 %	$3,093.15
Totals:	**72.98 %**	**25.38 %**	**$3,065,707.84**

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)
B534201;Ludlow Community	41,600	22.76	$889,813.33	$36,439.02	$1,109,081.48	$401,387.11	$181,578.34
G534201;Grounds	29,900	77.54	$0.00	$0.00	$117,685.68	$329,722.88	$0.00
Total:		**25.38**	**$889,813.33**	**$36,439.02**	**$1,226,767.16**	**$731,109.99**	**$181,578.34**

Deficiencies By Priority



- 1 - Response Time (< 2 yr) - $889,813.33
- 2 - Response Time (2-3 yrs) - $36,439.02
- 3 - Response Time (3-4 yrs) - $1,226,767.16
- 4 - Response Time (4-5 yrs) - $731,109.99
- 5 - Response Time (> 5 yrs) - $181,578.34

Budget Estimate Total: $3,065,707.84

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:	Annex
Gross Area (SF):	41,600
Year Built:	1970
Last Renovation:	
Replacement Value:	$11,502,142
Repair Cost:	$2,618,299.28
Total FCI:	22.76 %
Total RSLI:	74.01 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B534201
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S534201		

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	55.00 %	0.00 %	$0.00
A20 - Basement Construction	55.00 %	0.00 %	$0.00
B10 - Superstructure	55.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	58.81 %	61.53 %	$492,334.87
B30 - Roofing	110.00 %	88.14 %	$643,758.21
C10 - Interior Construction	83.50 %	2.27 %	$21,501.79
C20 - Stairs	55.00 %	0.00 %	$0.00
C30 - Interior Finishes	94.24 %	12.45 %	$189,893.34
D20 - Plumbing	35.44 %	16.40 %	$114,695.62
D30 - HVAC	71.40 %	0.00 %	$0.00
D40 - Fire Protection	94.10 %	158.77 %	$246,055.12
D50 - Electrical	110.11 %	90.01 %	$910,060.33
E10 - Equipment	73.71 %	0.00 %	$0.00
E20 - Furnishings	162.50 %	0.00 %	$0.00
Totals:	**74.01 %**	**22.76 %**	**$2,618,299.28**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
A1010	Standard Foundations	$24.32	S.F.	17,200	100	1970	2070		55.00 %	0.00 %	55			$418,304
A1030	Slab on Grade	$15.51	S.F.	17,200	100	1970	2070		55.00 %	0.00 %	55			$266,772
A2010	Basement Excavation	$13.07	S.F.	17,200	100	1970	2070		55.00 %	0.00 %	55			$224,804
A2020	Basement Walls	$23.02	S.F.	17,200	100	1970	2070		55.00 %	0.00 %	55			$395,944
B1010	Floor Construction	$92.20	S.F.	17,200	100	1970	2070		55.00 %	0.00 %	55			$1,585,840
B1020	Roof Construction	$24.11	S.F.	19,000	100	1970	2070		55.00 %	0.00 %	55			$458,090
B2010	Exterior Walls	$31.22	S.F.	17,200	100	1970	2070		55.00 %	0.00 %	55			$536,984
B2020	Exterior Windows	$13.63	S.F.	17,200	40	1970	2010	2040	62.50 %	165.11 %	25		$387,085.82	$234,436
B2030	Exterior Doors	$1.67	S.F.	17,200	25	1970	1995	2040	100.00 %	366.42 %	25		$105,249.05	$28,724
B3010105	Built-Up	$37.76	S.F.	19,000	20	1990	2010	2037	110.00 %	89.73 %	22		$643,758.21	$717,440
B3010120	Single Ply Membrane	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3010130	Preformed Metal Roofing	$54.22	S.F.		30				0.00 %	0.00 %				$0
B3010140	Shingle & Tile	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.68	S.F.	19,000	20	1990	2010	2037	110.00 %	0.00 %	22			$12,920
C1010	Partitions	$14.93	S.F.	41,600	100	1970	2070		55.00 %	0.00 %	55			$621,088
C1020	Interior Doors	$3.76	S.F.	41,600	40	1990	2030	2070	137.50 %	3.91 %	55		$6,122.26	$156,416
C1030	Fittings	$4.12	S.F.	41,600	40	1990	2030	2070	137.50 %	8.97 %	55		$15,379.53	$171,392
C2010	Stair Construction	$1.41	S.F.	41,600	100	1970	2070		55.00 %	0.00 %	55			$58,656

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System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
C3010230	Paint & Covering	$13.21	S.F.	41,600	10	2005	2015	2025	100.00 %	0.00 %	10			$549,536
C3010231	Vinyl Wall Covering	$0.97	S.F.	41,600	15				0.00 %	0.00 %				$40,352
C3010232	Wall Tile	$2.63	S.F.	41,600	30				0.00 %	0.00 %				$109,408
C3020411	Carpet	$7.30	S.F.	1,200	10	2005	2015	2025	100.00 %	153.30 %	10		$13,428.91	$8,760
C3020412	Terrazzo & Tile	$75.52	S.F.	4,600	50	1970	2020	2070	110.00 %	0.00 %	55			$347,392
C3020413	Vinyl Flooring	$9.68	S.F.	11,250	20	2000	2020	2040	125.00 %	0.00 %	25			$108,900
C3020414	Wood Flooring	$22.27	S.F.		25				0.00 %	0.00 %				$0
C3020415	Concrete Floor Finishes	$0.97	S.F.		50				0.00 %	0.00 %				$0
C3030	Ceiling Finishes	$20.97	S.F.	17,200	25	1990	2015	2040	100.00 %	48.92 %	25		$176,464.43	$360,684
D2010	Plumbing Fixtures	$31.58	S.F.	17,200	35	1970	2005	2025	28.57 %	5.58 %	10		$30,316.76	$543,176
D2020	Domestic Water Distribution	$2.90	S.F.	17,200	25	1970	1995	2025	40.00 %	0.00 %	10			$49,880
D2030	Sanitary Waste	$2.90	S.F.	17,200	25	1970	1995	2042	108.00 %	169.16 %	27		$84,378.86	$49,880
D2040	Rain Water Drainage	$3.29	S.F.	17,200	30	1970	2000	2025	33.33 %	0.00 %	10			$56,588
D3020	Heat Generating Systems	$18.67	S.F.	17,200	24	2013	2037		91.67 %	0.00 %	22			$321,124
D3030	Cooling Generating Systems	$24.48	S.F.	17,200	25	2013	2038		92.00 %	0.00 %	23			$421,056
D3040	Distribution Systems	$42.99	S.F.	17,200	25	1970	1995	2025	40.00 %	0.00 %	10			$739,428
D3050	Terminal & Package Units	$11.60	S.F.	17,200	20	2013	2033		90.00 %	0.00 %	18			$199,520
D3060	Controls & Instrumentation	$13.50	S.F.	17,200	20	2013	2033		90.00 %	0.00 %	18			$232,200
D4010	Sprinklers	$8.02	S.F.	17,200	35			2052	105.71 %	178.37 %	37		$246,055.12	$137,944
D4020	Standpipes	$0.99	S.F.	17,200	35				0.00 %	0.00 %				$17,028
D5010	Electrical Service/Distribution	$9.70	S.F.	17,200	30	1970	2000	2047	106.67 %	16.26 %	32		$27,132.32	$166,840
D5020	Lighting and Branch Wiring	$34.68	S.F.	17,200	20	1970	1990	2037	110.00 %	135.19 %	22		$806,389.58	$596,496
D5030	Communications and Security	$12.99	S.F.	17,200	15	1970	1985	2032	113.33 %	24.17 %	17		$54,002.31	$223,428
D5090	Other Electrical Systems	$1.41	S.F.	17,200	30	1970	2000	2047	106.67 %	92.92 %	32		$22,536.12	$24,252
E1020	Institutional Equipment	$4.82	S.F.	17,200	35				0.00 %	0.00 %				$82,904
E1090	Other Equipment	$11.10	S.F.	17,200	35	1970	2005	2052	105.71 %	0.00 %	37			$190,920
E2010	Fixed Furnishings	$2.13	S.F.	17,200	40	2000	2040	2080	162.50 %	0.00 %	65			$36,636
								Total	**74.01 %**	**22.76 %**			**$2,618,299.28**	**$11,502,142**

System Notes

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

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

Note: Painted CMU 100%

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

Note: Resilient flooring 65%
Ceramic tile 25%
Carpet 8%
Concrete 2%

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

Note: Acoustic tile 68%
exposed, painted ceiling 32%

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:	**$2,618,299**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$2,878,811**	**$5,497,111**
*** 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	$387,086	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$387,086**
B2030 - Exterior Doors	$105,249	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$105,249**
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	$643,758	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$643,758**
B3010120 - Single Ply Membrane	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010130 - Preformed Metal Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010140 - Shingle & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3020 - Roof Openings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C - Interiors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C10 - Interior Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1010 - Partitions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

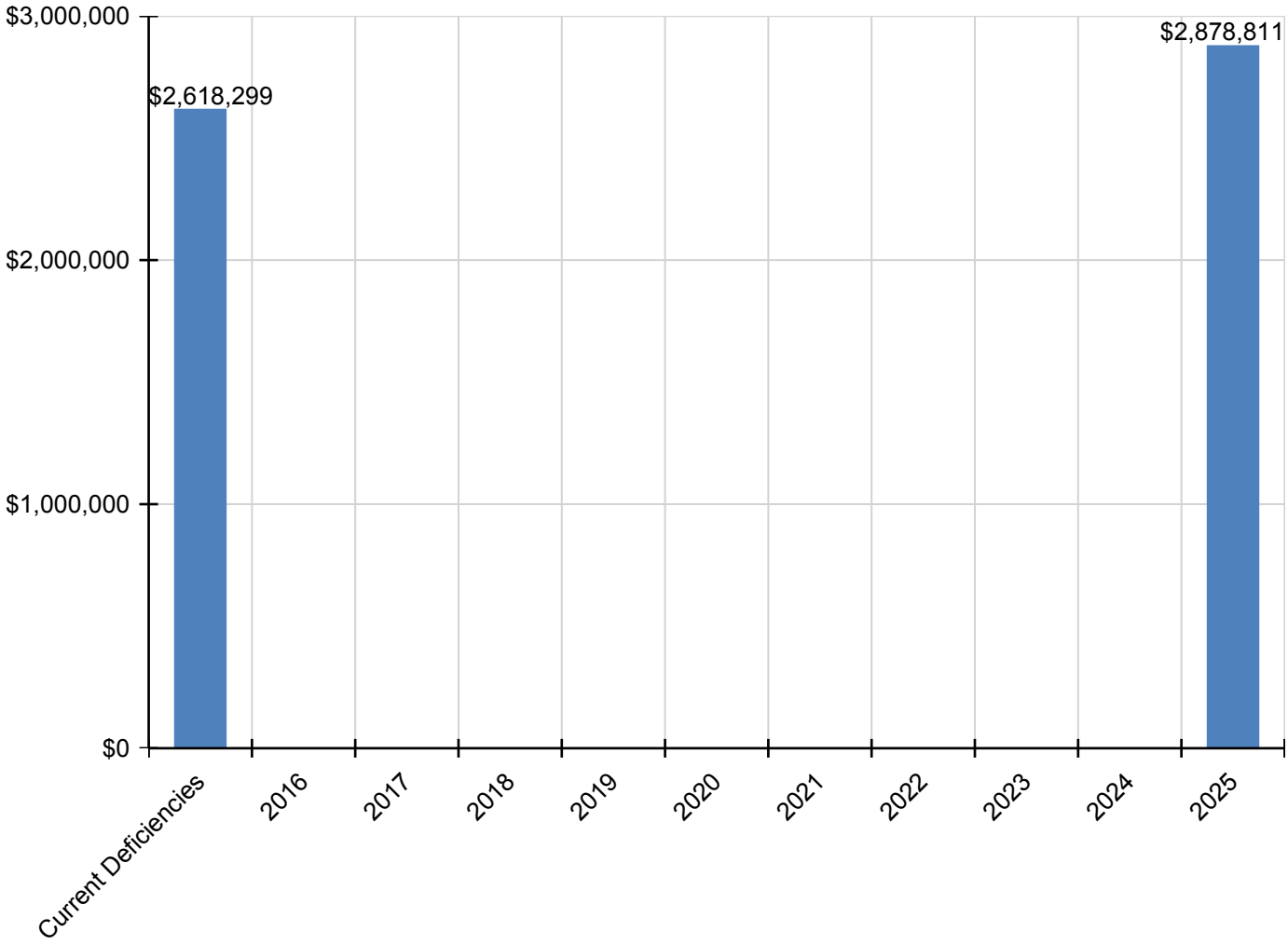
C1020 - Interior Doors	$6,122	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$6,122**
C1030 - Fittings	$15,380	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$15,380**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C30 - Interior Finishes	$0	$0	$0	$0	$0	$0	$0	$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	$0	$0	$0	$812,384	**$812,384**
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	$13,429	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,950	**$26,379**
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	$0	$0	$0	$0	**$0**
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	$176,464	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$176,464**
D - Services	$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	$30,317	$0	$0	$0	$0	$0	$0	$0	$0	$0	$802,982	**$833,299**
D2020 - Domestic Water Distribution	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$73,738	**$73,738**
D2030 - Sanitary Waste	$84,379	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$84,379**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$83,655	**$83,655**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3030 - Cooling Generating Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3040 - Distribution Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,093,103	**$1,093,103**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$246,055	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$246,055**
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	$27,132	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$27,132**

D5020 - Lighting and Branch Wiring	$806,390	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$806,390**
D5030 - Communications and Security	$54,002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$54,002**
D5090 - Other Electrical Systems	$22,536	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$22,536**
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

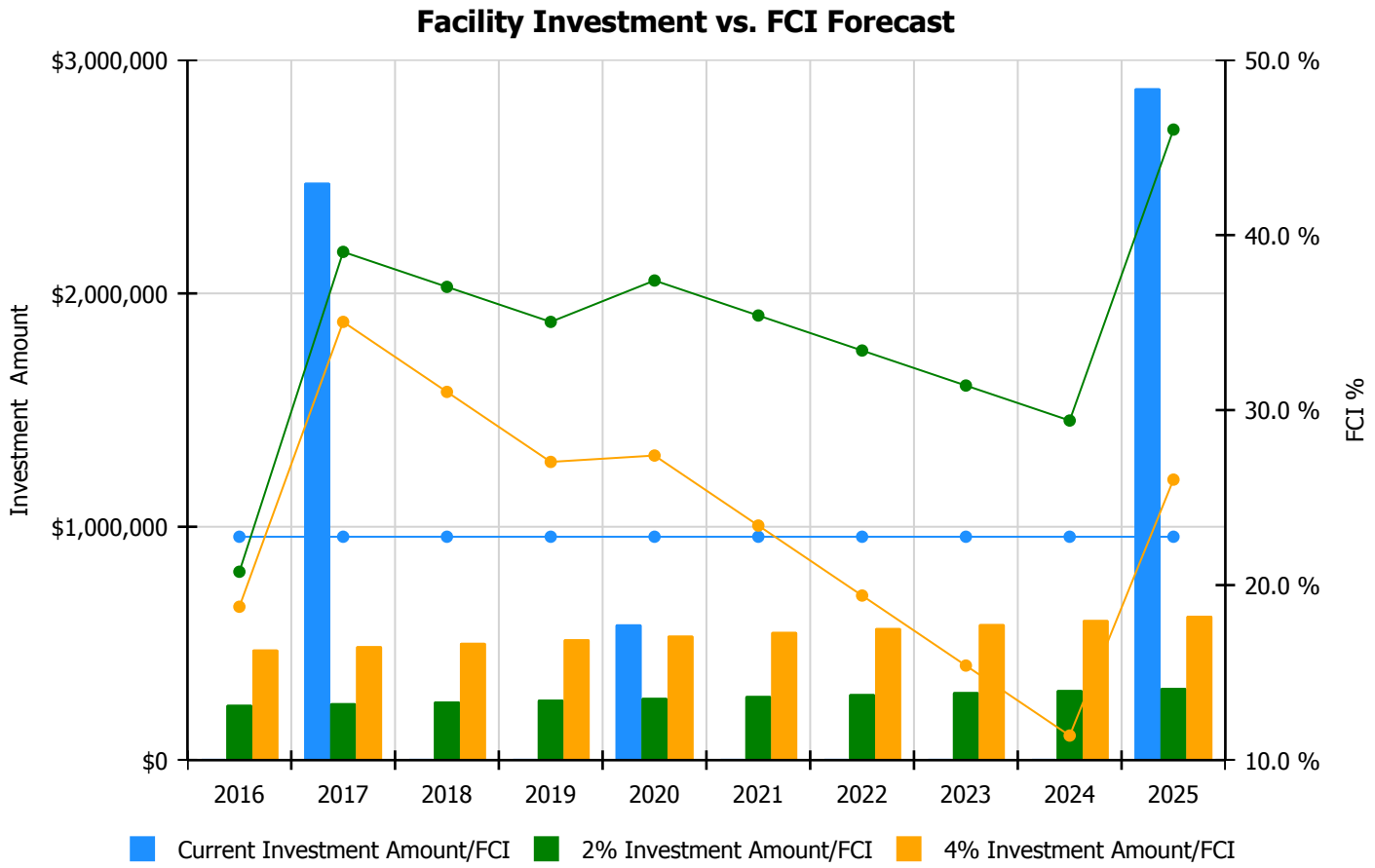
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

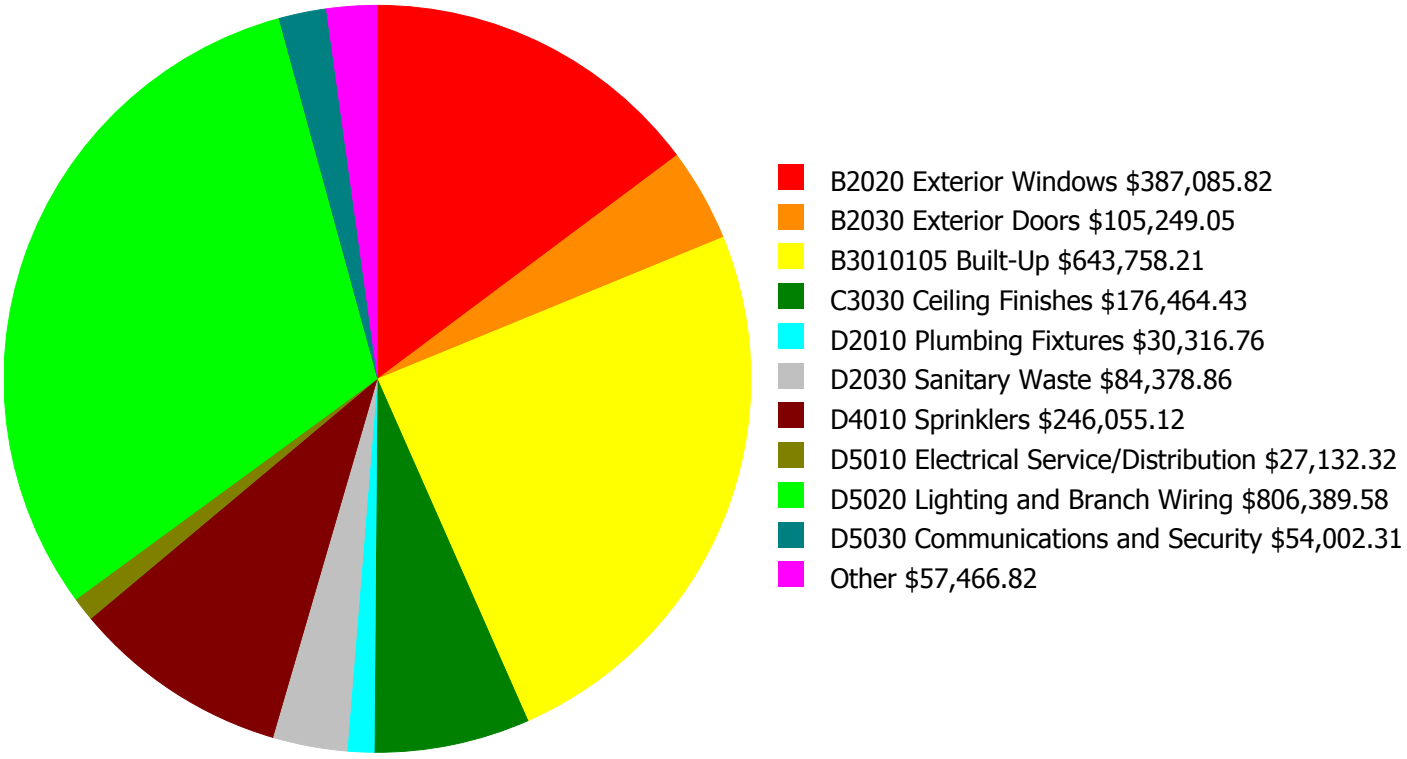
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 22.76%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$236,944.00	20.76 %	$473,888.00	18.76 %
2017	$2,474,159	$244,052.00	39.04 %	$488,105.00	35.04 %
2018	$0	$251,374.00	37.04 %	$502,748.00	31.04 %
2019	$0	$258,915.00	35.04 %	$517,830.00	27.04 %
2020	$581,864	$266,683.00	37.40 %	$533,365.00	27.40 %
2021	$0	$274,683.00	35.40 %	$549,366.00	23.40 %
2022	$0	$282,924.00	33.40 %	$565,847.00	19.40 %
2023	$0	$291,411.00	31.40 %	$582,823.00	15.40 %
2024	$0	$300,154.00	29.40 %	$600,307.00	11.40 %
2025	$2,878,811	$309,158.00	46.03 %	$618,317.00	26.03 %
Total:	**$5,934,834**	**$2,716,298.00**		**$5,432,596.00**	

Deficiency Summary by System

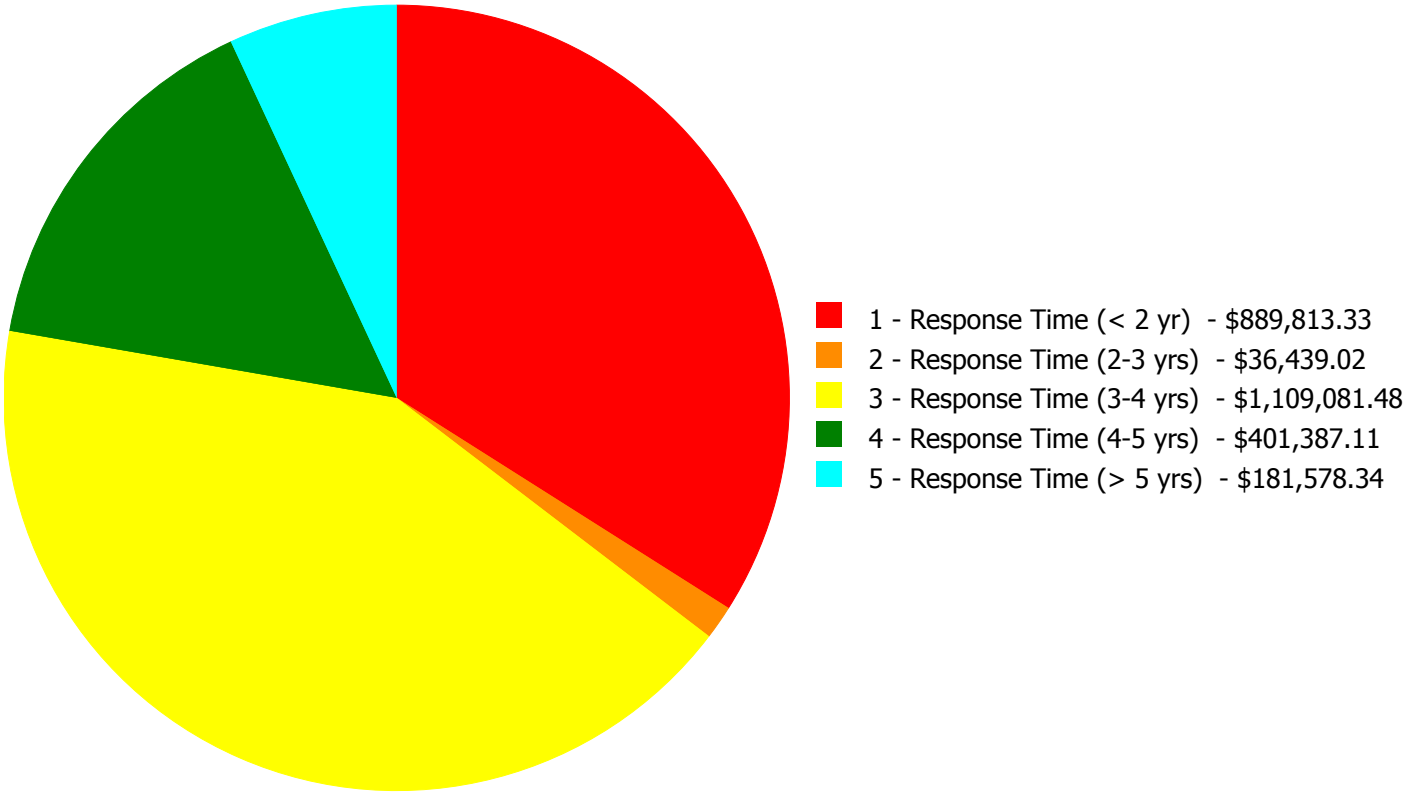
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $2,618,299.28

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: $2,618,299.28

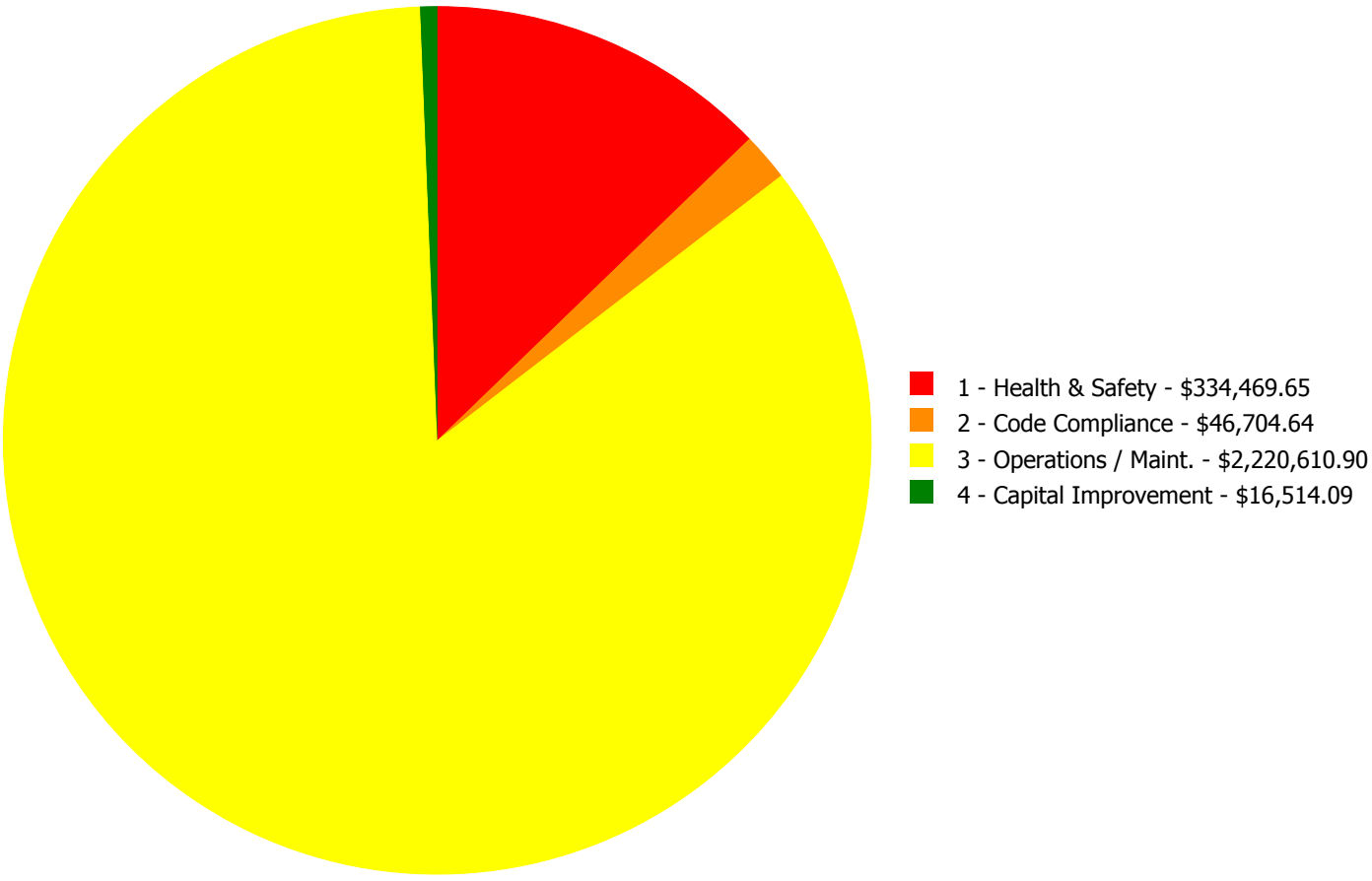
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
B2020	Exterior Windows	$0.00	$0.00	$0.00	$387,085.82	$0.00	$387,085.82
B2030	Exterior Doors	$0.00	$0.00	$105,249.05	$0.00	$0.00	$105,249.05
B3010105	Built-Up	$643,758.21	$0.00	$0.00	$0.00	$0.00	$643,758.21
C1020	Interior Doors	$0.00	$6,122.26	$0.00	$0.00	$0.00	$6,122.26
C1030	Fittings	$0.00	$0.00	$0.00	$10,265.62	$5,113.91	$15,379.53
C3020411	Carpet	$0.00	$0.00	$13,428.91	$0.00	$0.00	$13,428.91
C3030	Ceiling Finishes	$0.00	$0.00	$0.00	$0.00	$176,464.43	$176,464.43
D2010	Plumbing Fixtures	$0.00	$30,316.76	$0.00	$0.00	$0.00	$30,316.76
D2030	Sanitary Waste	$0.00	$0.00	$84,378.86	$0.00	$0.00	$84,378.86
D4010	Sprinklers	$246,055.12	$0.00	$0.00	$0.00	$0.00	$246,055.12
D5010	Electrical Service/Distribution	$0.00	$0.00	$27,132.32	$0.00	$0.00	$27,132.32
D5020	Lighting and Branch Wiring	$0.00	$0.00	$806,389.58	$0.00	$0.00	$806,389.58
D5030	Communications and Security	$0.00	$0.00	$49,966.64	$4,035.67	$0.00	$54,002.31
D5090	Other Electrical Systems	$0.00	$0.00	$22,536.12	$0.00	$0.00	$22,536.12
	Total:	$889,813.33	$36,439.02	$1,109,081.48	$401,387.11	$181,578.34	$2,618,299.28

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: $2,618,299.28

Deficiency Details by Priority

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

Priority 1 - Response Time (< 2 yr):

System: B3010105 - Built-Up

Location: Exterior/ Roof
Distress: Building Envelope Integrity
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Remove and Replace Built Up Roof
Qty: 19,000.00
Unit of Measure: S.F.
Estimate: $643,758.21
Assessor Name: Craig Anding
Date Created: 08/11/2015

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

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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: 17,200.00
Unit of Measure: S.F.
Estimate: $246,055.12
Assessor Name: Craig Anding
Date Created: 07/31/2015

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: C1020 - Interior Doors

Location: Interiors

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Replace door knobs with compliant lever type

Qty: 11.00

Unit of Measure: Ea.

Estimate: $6,122.26

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Provide ADA compliant hardware on interior doors

System: D2010 - Plumbing Fixtures

Location: Throughout building

Distress: Accessibility

Category: 2 - Code Compliance

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

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

Qty: 4.00

Unit of Measure: Ea.

Estimate: $30,316.76

Assessor Name: Craig Anding

Date Created: 07/31/2015

Notes: Replace the 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.

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

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: 13.00
Unit of Measure: Ea.
Estimate: $105,249.05
Assessor Name: Craig Anding
Date Created: 08/11/2015

Notes: Replace exterior doors; provide weatherstripping and hardware

System: C3020411 - Carpet

Location: Interiors
Distress: Failing
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Remove and replace carpet
Qty: 1,200.00
Unit of Measure: S.F.
Estimate: $13,428.91
Assessor Name: Craig Anding
Date Created: 08/11/2015

Notes: Replace carpet flooring

System: D2030 - Sanitary Waste

Location: Throughout buliding

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

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

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

Qty: 17,200.00

Unit of Measure: S.F.

Estimate: $84,378.86

Assessor Name: Craig Anding

Date Created: 07/31/2015

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: D5010 - Electrical Service/Distribution

Location: Throughout Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace Panelboard

Qty: 1.00

Unit of Measure: Ea.

Estimate: $27,132.32

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Replace existing electrical panels.

System: D5020 - Lighting and Branch Wiring

Location: Throughout 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: $806,389.58
Assessor Name: Craig Anding
Date Created: 08/11/2015

Notes: Upgrade lighting system to T8 fluorescent fixtures.

System: D5030 - Communications and Security

Location: Throughout Building
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace fire alarm system
Qty: 1.00
Unit of Measure: S.F.
Estimate: $49,966.64
Assessor Name: Craig Anding
Date Created: 08/11/2015

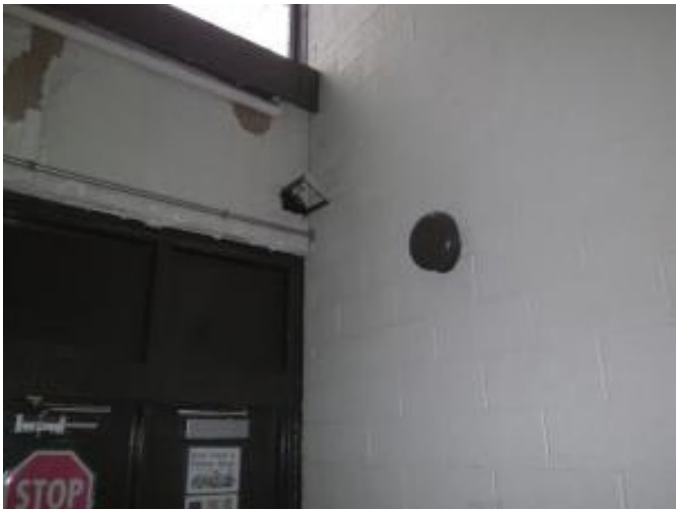
Notes: Replace existing fire alarm system.

System: D5090 - Other Electrical Systems

Location: Throughout Building
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace Emergency/Exit Lighting
Qty: 1.00
Unit of Measure: Ea.
Estimate: $11,400.18
Assessor Name: Craig Anding
Date Created: 08/11/2015

Notes: Provide new emergency fixtures for emergency egress

System: D5090 - Other Electrical Systems



Location: Throughout building
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace Emergency/Exit Lighting
Qty: 1.00
Unit of Measure: Ea.
Estimate: $8,238.96
Assessor Name: Craig Anding
Date Created: 08/11/2015

Notes: Replace existing LED EXIT fixtures.

System: D5090 - Other Electrical Systems

Location: Electrical Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace standby generator system

Qty: 1.00

Unit of Measure: Ea.

Estimate: $2,896.98

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Remove existing gasoline generator.

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

System: B2020 - Exterior Windows

Location: Exterior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 150.00

Unit of Measure: Ea.

Estimate: $387,085.82

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Replace existing windows with energy efficient windows and integral security screens

System: C1030 - Fittings

Location: Interiors

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Remove and replace toilet partitions

Qty: 4.00

Unit of Measure: Ea.

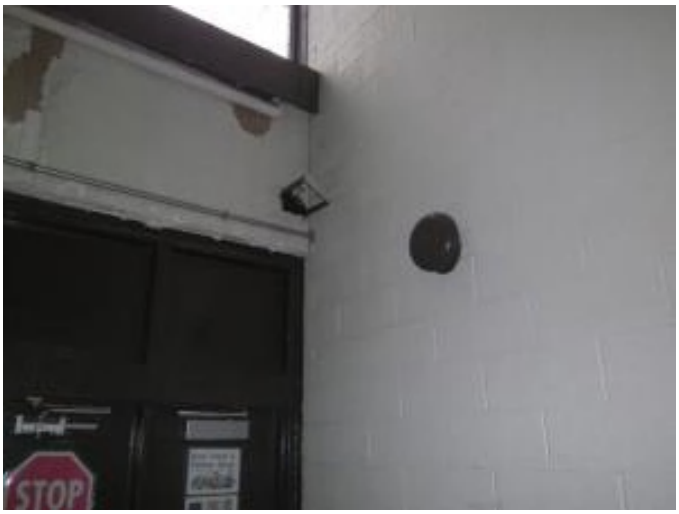
Estimate: $10,265.62

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Reconfigure toilets for accessibility, provide new toilet partitions

System: D5030 - Communications and Security



Location: Throughout Building

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Add/Replace Security System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $4,035.67

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Add security system with contacts to exterior doors for intrusion detection.

Priority 5 - Response Time (> 5 yrs):

System: C1030 - Fittings

Location: Intriors

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 20.00

Unit of Measure: Ea.

Estimate: $5,113.91

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Install new signage throughout

System: C3030 - Ceiling Finishes

Location: Interiors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 11,700.00

Unit of Measure: S.F.

Estimate: $176,464.43

Assessor Name: Craig Anding

Date Created: 08/11/2015

Notes: Replace aged suspended acoustical ceiling

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, cast iron, hot water, 544 MBH	1.00	Ea.	Boiler Room	Weil McLain	LGB-6			35	1995	2030	$18,289.80	$20,118.78
D3050 Terminal & Package Units	A/C packaged, DX, air cooled, hot water heat, VAV, 30 ton	1.00	Ea.	Roof	Thermal Zone				20	2013	2033	$65,820.70	$72,402.77
D3050 Terminal & Package Units	A/C packaged, DX, air cooled, hot water heat, VAV, 30 ton	1.00	Ea.	Roof	Thermal Zone	TZCGE-180	2L8348ADBA F071304708		20	2013	2033	$65,820.70	$72,402.77
D5010 Electrical Service/Distribution	Panelboard, 4 wire w/conductor & conduit, NQOD, 120/208 V, 400 A, 0 stories, 0' horizontal	1.00	Ea.	Electrical Room	Kinney				30			$7,824.60	$8,607.06
												Total:	**$173,531.38**

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):	29,900
Year Built:	1970
Last Renovation:	
Replacement Value:	$577,026
Repair Cost:	$447,408.56
Total FCI:	77.54 %
Total RSLI:	52.43 %

Description:

Attributes:

General Attributes:

Bldg ID:	S534201	Site ID:	S534201

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	37.85 %	99.41 %	$444,315.41
G40 - Site Electrical Utilities	102.54 %	2.38 %	$3,093.15
Totals:	**52.43 %**	**77.54 %**	**$447,408.56**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
G2010	Roadways	$11.52	S.F.		30				0.00 %	0.00 %				$0
G2020	Parking Lots	$7.65	S.F.	7,900	30	1970	2000	2050	116.67 %	194.73 %	35		$117,685.68	$60,435
G2030	Pedestrian Paving	$11.52	S.F.	22,000	40	1970	2010	2030	37.50 %	128.88 %	15		$326,629.73	$253,440
G2040	Site Development	$4.36	S.F.	29,900	25				0.00 %	0.00 %				$130,364
G2050	Landscaping & Irrigation	$3.78	S.F.	720	15	2005	2020	2035	133.33 %	0.00 %	20			$2,722
G4020	Site Lighting	$3.58	S.F.	29,900	30	1970	2000	2047	106.67 %	2.89 %	32		$3,093.15	$107,042
G4030	Site Communications & Security	$0.77	S.F.	29,900	30	2010	2040		83.33 %	0.00 %	25			$23,023
								Total	**52.43 %**	**77.54 %**			**$447,408.56**	**$577,026**

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.

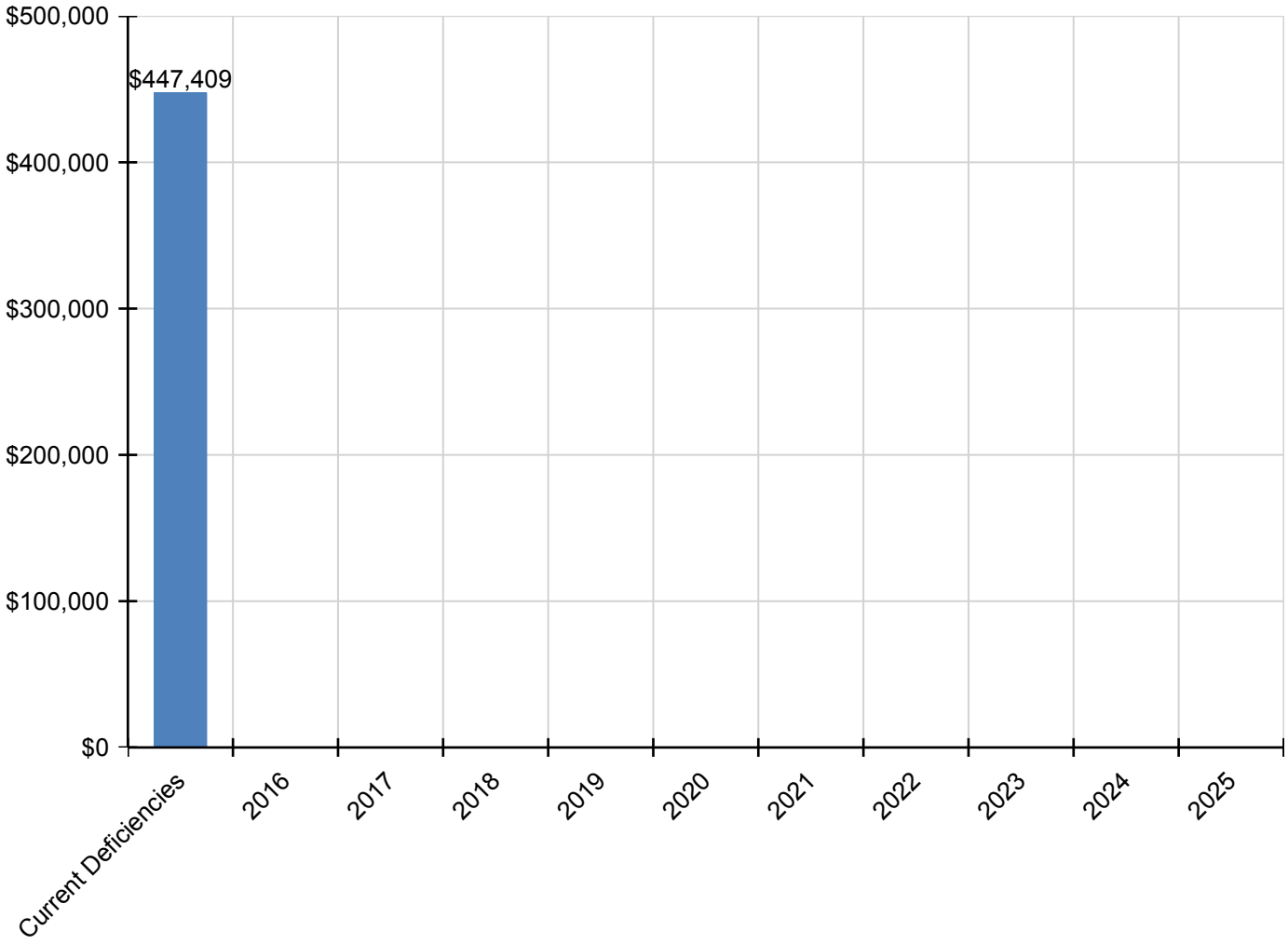
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$447,409**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$447,409**
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	$117,686	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$117,686**
G2030 - Pedestrian Paving	$326,630	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$326,630**
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	$3,093	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$3,093**
G4030 - Site Communications & Security	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

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

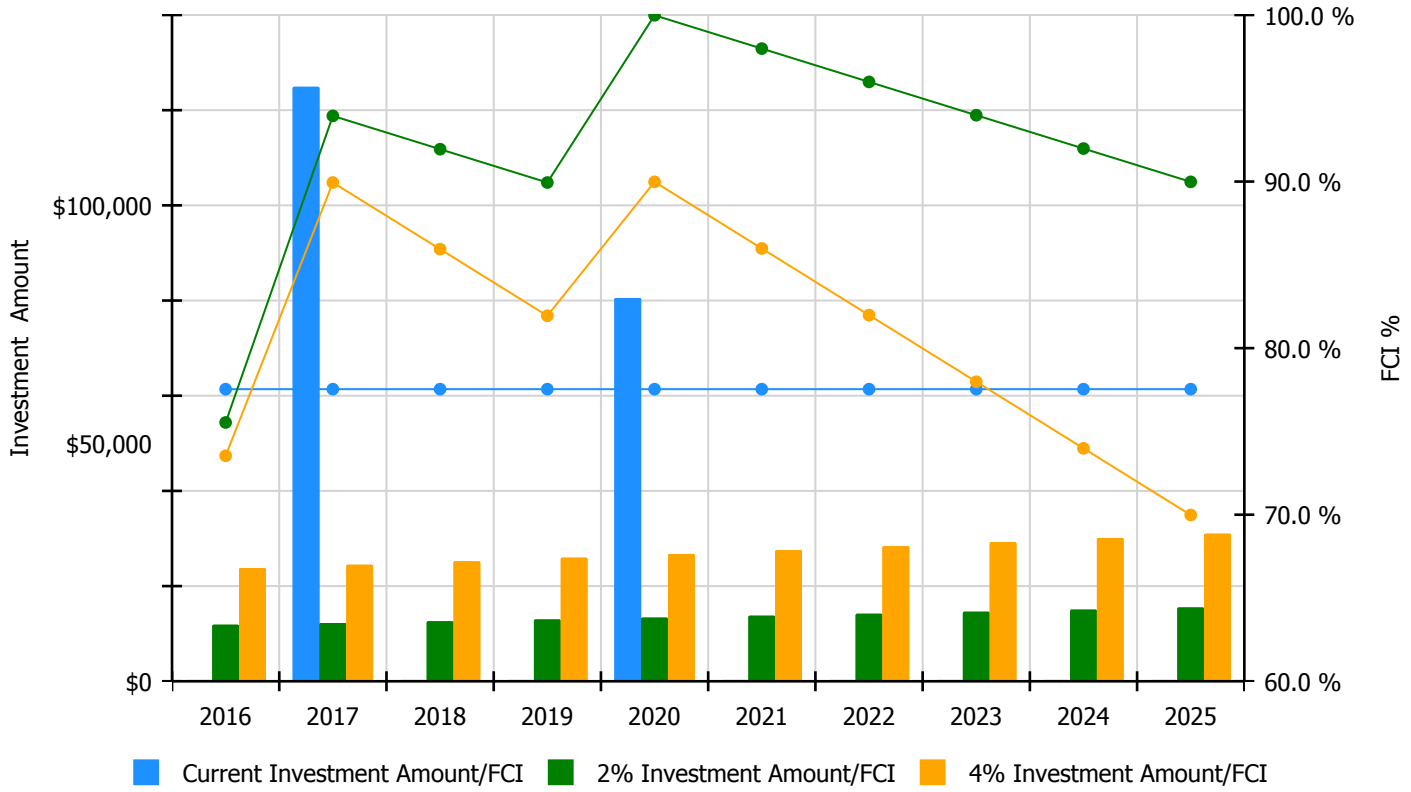


10 Year FCI Forecast by Investment Scenario

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

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

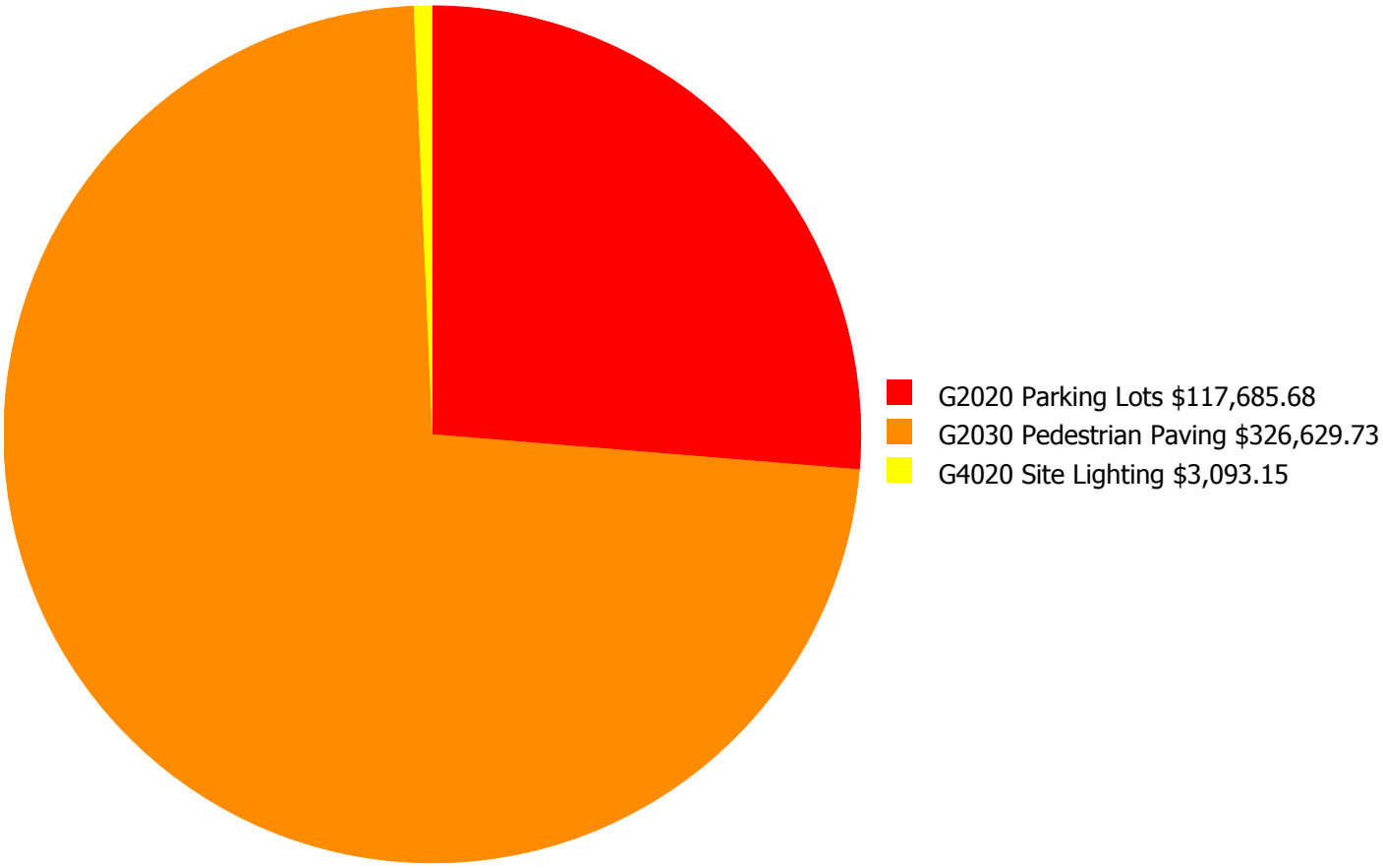
Facility Investment vs. FCI Forecast



Year	Investment Amount Current FCI - 77.54%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$11,887.00	75.54 %	$23,773.00	73.54 %
2017	$124,917	$12,243.00	93.94 %	$24,487.00	89.94 %
2018	$0	$12,611.00	91.94 %	$25,221.00	85.94 %
2019	$0	$12,989.00	89.94 %	$25,978.00	81.94 %
2020	$80,538	$13,379.00	99.98 %	$26,757.00	89.98 %
2021	$0	$13,780.00	97.98 %	$27,560.00	85.98 %
2022	$0	$14,193.00	95.98 %	$28,387.00	81.98 %
2023	$0	$14,619.00	93.98 %	$29,238.00	77.98 %
2024	$0	$15,058.00	91.98 %	$30,116.00	73.98 %
2025	$0	$15,509.00	89.98 %	$31,019.00	69.98 %
Total:	**$205,455**	**$136,268.00**		**$272,536.00**	

Deficiency Summary by System

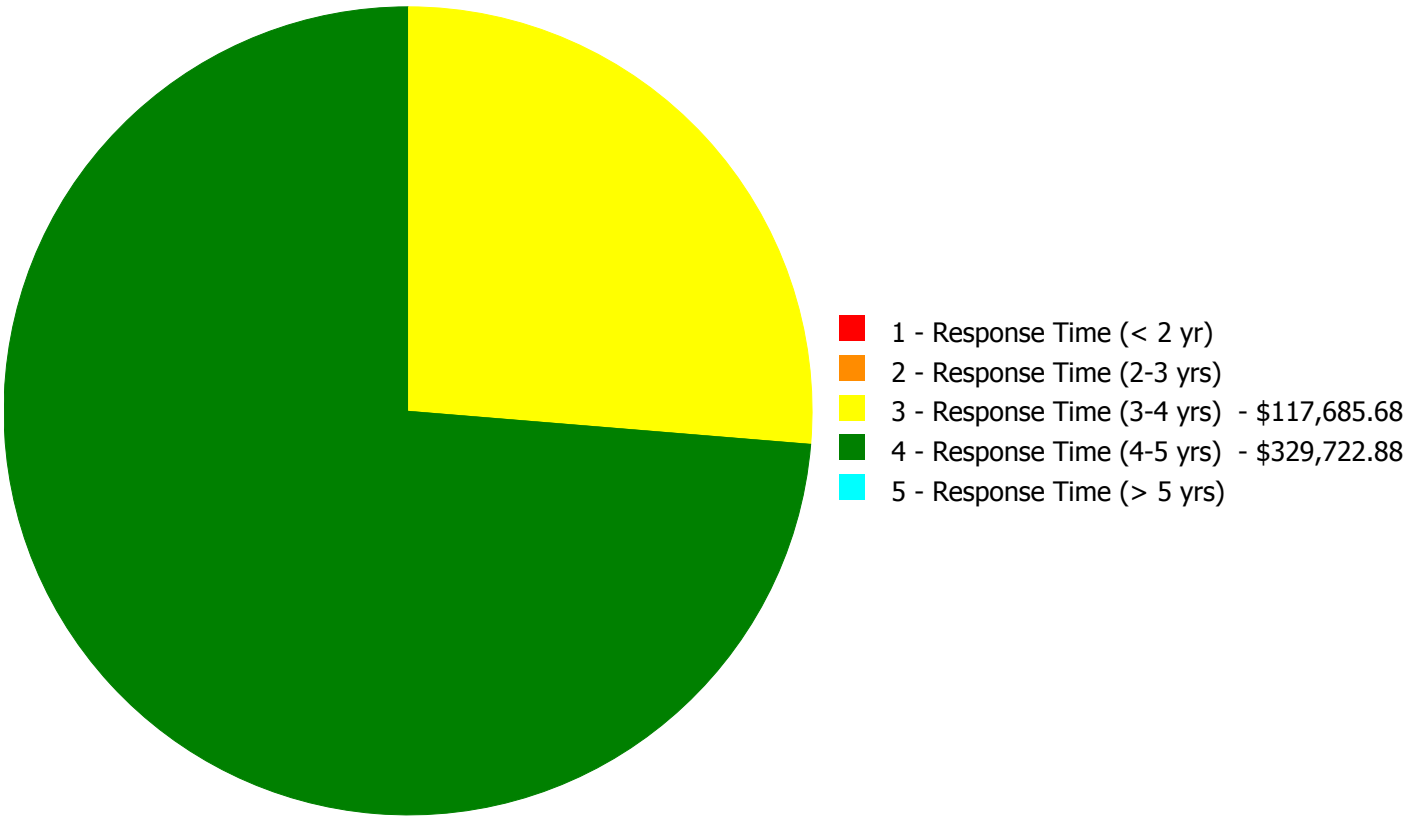
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $447,408.56

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: $447,408.56

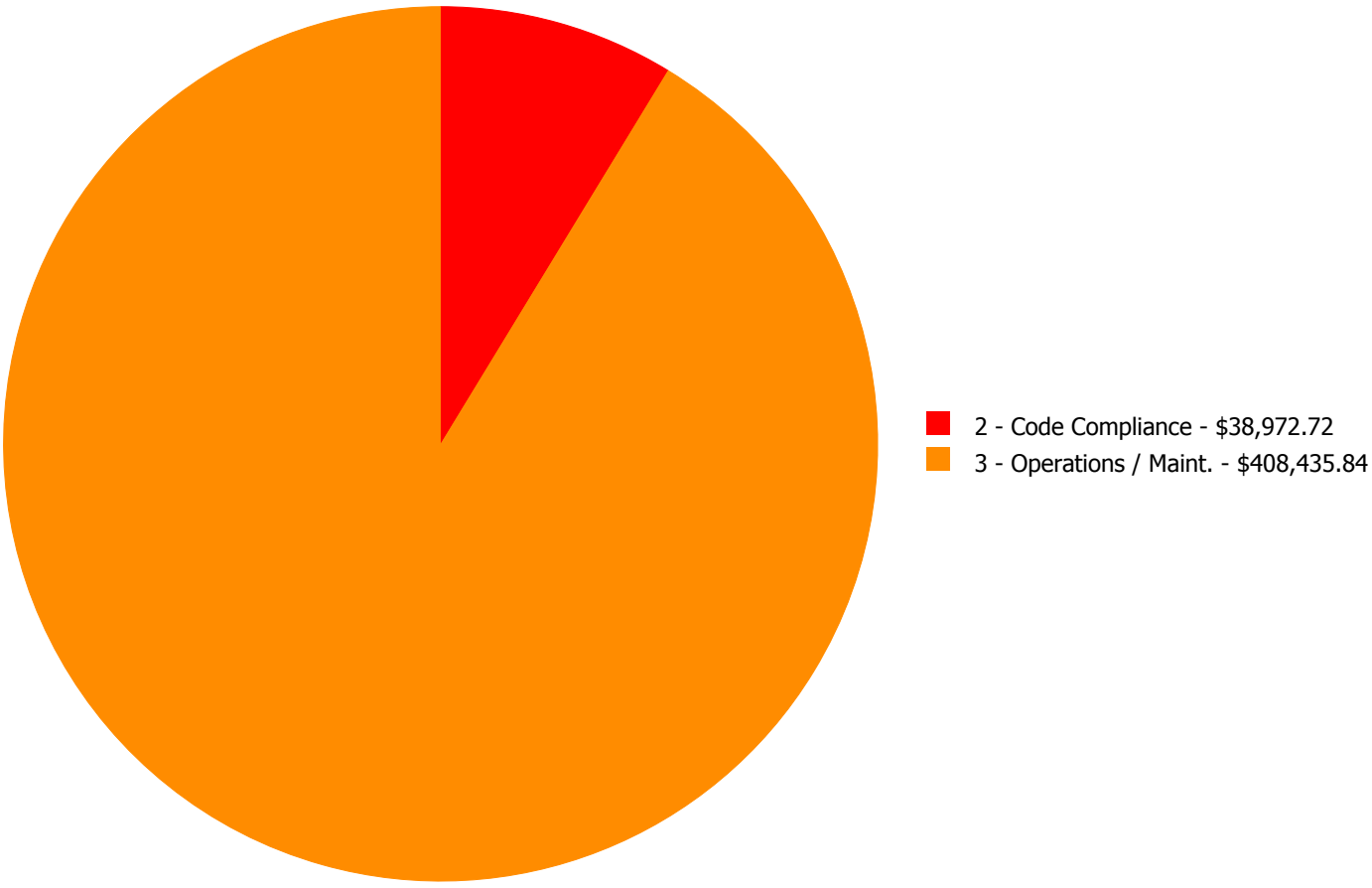
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
G2020	Parking Lots	$0.00	$0.00	$117,685.68	$0.00	$0.00	$117,685.68
G2030	Pedestrian Paving	$0.00	$0.00	$0.00	$326,629.73	$0.00	$326,629.73
G4020	Site Lighting	$0.00	$0.00	$0.00	$3,093.15	$0.00	$3,093.15
	Total:	$0.00	$0.00	$117,685.68	$329,722.88	$0.00	$447,408.56

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: $447,408.56

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: G2020 - Parking Lots

Location: Grounds/ Site

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace AC paving parking lot

Qty: 8,100.00

Unit of Measure: S.F.

Estimate: $117,685.68

Assessor Name: Ben Nixon

Date Created: 08/11/2015

Notes: Replace parking lot pavement. Stripe parking stalls including accessible space with aisle, remove and reinstall wheel stops

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

System: G2030 - Pedestrian Paving

Location: Grounds/ Site

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: 20,000.00

Unit of Measure: S.F.

Estimate: $287,657.01

Assessor Name: Tom Moe

Date Created: 08/11/2015

Notes: Resurface plaza; replace exterior steps

System: G2030 - Pedestrian Paving

This deficiency has no image.

Location: Grounds/ Site

Distress: Accessibility

Category: 2 - Code Compliance

Priority: 4 - Response Time (4-5 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: 30.00

Unit of Measure: L.F.

Estimate: $38,972.72

Assessor Name: Ben Nixon

Date Created: 08/11/2015

Notes: Provide ADA compliant ramp at exterior plaza (location TBD)

System: G4020 - Site Lighting

Location: North Side of Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Maintain Site Lighting Fixture

Qty: 3.00

Unit of Measure: Ea.

Estimate: $3,093.15

Assessor Name: Tom Moe

Date Created: 08/11/2015

Notes: Replace exterior lighting.

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