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.

Sharswood School

Governance	DISTRICT	Report Type	Elementarymiddle
Address	2300 S. 2Nd St.	Enrollment	572
	Philadelphia, Pa 19148	Grade Range	'00-08'
Phone/Fax	215-952-6212 / 215-952-6405	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Sharswood	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	**26.74%**	**$10,031,183**	**$37,510,744**
Building	26.97 %	$9,776,523	$36,249,119
Grounds	20.19 %	$254,660	$1,261,625

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	89.29 %	$806,358	$903,030
Exterior Walls (Shows condition of the structural condition of the exterior facade)	00.36 %	$9,687	$2,694,430
Windows (Shows functionality of exterior windows)	115.14 %	$1,513,843	$1,314,730
Exterior Doors (Shows condition of exterior doors)	06.60 %	$6,987	$105,850
Interior Doors (Classroom doors)	13.03 %	$33,394	$256,230
Interior Walls (Paint and Finishes)	21.09 %	$243,860	$1,156,320
Plumbing Fixtures	06.14 %	$60,634	$986,960
Boilers	00.00 %	$0	$1,362,910
Chillers/Cooling Towers	40.44 %	$722,673	$1,787,040
Radiators/Unit Ventilators/HVAC	22.82 %	$716,264	$3,138,270
Heating/Cooling Controls	132.68 %	$1,307,533	$985,500
Electrical Service and Distribution	122.30 %	$865,981	$708,100
Lighting	26.67 %	$675,296	$2,531,640
Communications and Security (Cameras, Pa System and Fire Alarm)	34.60 %	$328,123	$948,270

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

S263001;Sharswood

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):	80,000
Year Built:	1906
Last Renovation:	
Replacement Value:	$37,510,744
Repair Cost:	$10,031,183.03
Total FCI:	26.74 %
Total RSLI:	60.45 %

Description:

Facility Assessment

July 21th, 2015

School District of Philadelphia

Sharswood Elementary School

2300 S 2nd Street

Philadelphia, PA 19148

73,000 SF / 596 Students / LN 01

GENERAL

Building Engineer, accompanied us on our tour of the school and provided us with detailed information on the building systems and maintenance

history.

The 4 story, 73,000 square foot building was originally constructed in 1906. The building has a multi-level basement.

ARCHITECHURAL/STRUCTURAL SYSTEMS

The building rests on concrete foundations and bearing walls that are not showing signs of settlement or damage. The main structure consists typically of cast-in-place concrete columns, beams, and concrete one way ribbed slab. The roof structure consists of concrete one-way slab supported by main structural frame. Roofing is built up application in poor condition, uneven with evidence of ponding and in need of replacement. The building envelope is typically masonry with face brick. Elevations are enhanced minimally with decorative stonework around entrances and windows. In general, masonry is in good condition with some cracks in parapet wall. All elevations are face brick in need of re-pointing. The original windows were replaced in early 1990s with extruded aluminum, double hung windows, Lexan Plexiglas with insect/security screens. All windows are generally in poor condition with heavy hazing. Exterior doors are typically hollow metal in fair condition. Public access doors have granite stoops with granite stairs; service doors have concrete stoops and stairs. Generally, the building is not accessible per ADA requirements due to first floor- grade separation with no ramps or lifts.

Partition wall types include plastered ceramic hollow blocks with some CMU added at a later date. Interior doors are generally wood frame with solid core and wood panel doors with lites and transoms in fair condition. Doors leading to exit stairways are hollow metal doors and frames in good condition. Interior doors do not have lever type handles. Fittings include: toilet accessories in good condition; composite plastic toilet partitions, generally in good condition; handrails and ornamental metals, generally in fair condition. Toilet partitions and accessories are not ADA accessible. Interior identifying signage is typically directly painted on wall or door surfaces generally in poor condition. Stair construction is generally steel and concrete with cast iron treads and nosing in good condition. Stair railings are cast iron balusters with wood handrail in fair condition.

The interior wall finishes include painted plaster, brick, or CMU with glazed brick wainscot in fire towers, basement corridor, and cafeteria in good condition; and tile wainscot in toilets areas in good condition. Generally, paint is in good condition with some deterioration in basement areas and fire towers. Flooring includes: patterned or bare concrete in corridors, stairways, and fire towers in good condition; hardwood in most classrooms, auditorium, and stage in fair condition; vinyl tile in some classrooms, cafeteria, and offices; and ceramic tile in toilets in good condition. Wood base is typically in fair-good condition. Ceiling finishes include: suspended acoustic tile system in some classrooms, IMC, and offices; painted plaster or structural concrete in most classrooms, corridors, toilets, auditorium, cafeteria and basement areas in fair condition with some areas in need or re-painting.

The building has no elevators.

Institutional and Commercial equipment includes: stage equipment, generally in fair condition. Other equipment includes kitchen equipment (heat and serve only), generally in good condition.

Fixed furnishings include: fixed casework in classrooms, corridors and library, generally in fair to good condition; window shades/blinds in fair condition; and fixed auditorium seating in good condition.

MECHANICAL SYSTEMS

Building plumbing fixtures are mostly modern low flow equipment. Restroom fixtures on each floor consist of wall hung urinals and lavatories, and water closets. Sinks have push button momentary action mixing faucets while others have twist knob, momentary action, separate hot and cold faucets. Kindergarten room has child sized, floor mounted water closets. Faucets and flush valves work well. The fixtures should provide reliable service for at least 5 to 10 years.

Third floor science classroom has a stainless steel single basin lab sink with two swan neck faucets. There is a single basin, rim mounted, stainless steel kitchen sink in the second floor teacher lounge which is in good condition. Life skills classroom in the basement is equipped similarly to the lounge. The cafeteria kitchen has a floor standing, stainless steel, 2 basin cook sink, and there is a wall mounted porcelain lavatory in the cafeteria dining room. Janitor closets on each floor have floor mounted polymer service sinks with mixing faucets with vacuum breaker spouts. Sinks will not need replacement in the next 10 years.

Drinking fountains in the corridors, kindergarten room, and teacher lounge are a variety of styles, generally non-accessible. They have exceeded their service life and should be replaced.

Domestic water distribution piping is soldiered copper and provides adequate flow for all fixtures. The building does not a pressure booster pump system. The water heater is a Bradford White, gas fired, 75 gallon vertical tank installed in January 2015. It has a circulation pump controlled by an aquastat. The domestic water distribution should be serviceable until at least 2025.

Sanitary drain pipes are primarily hub and spigot cast iron with hubless banded connection pipe for repairs in some locations. Due to their age they should be inspected in detail and repaired as needed. There is no sewage ejector.

Roof drain pipes were inaccessible because their pipe chases have been covered over with metal sheeting. They should be inspected and repaired at the time of roof replacement or sanitary drain pipe inspection.

The building was originally constructed with central forced air and steam radiator heating. When the ells were added to the original construction, the system was expanded with additional air handlers in the new construction. Since then, the radiators have been mostly replaced by finned tube steam convectors and the air handlers have fallen into disuse.

Steam for heat is generated by 2 Weil-McLain model 1694, 3,385 MBH (101 HP) net capacity, cast iron boilers with dual fuel Power Flame burners. They were installed in 1991 and have 10 years life remaining. Boiler feed water is supplied by two primary and 1 spare pump located at the feed water tank. There is a water softener for make-up water. Gas service enters the building in the northeast corner along 2nd street. There is a gas booster. Fuel oil is stored in an 8,000 gallon underground tank in the yard. Two oil pumps are located in the basement generator room behind the boiler room. Combustion make-up air enters the building through automatically controlled louvers in the generator room.

The IMC is cooled by a 5 ton direct expansion outside unit located on the southwestern fire tower roof and a fan coil unit located above the drop ceiling. The computer network room is cooled by a Mitsubishi mini-split system. Several classrooms and offices have window unit air conditions. In total, the building has about 30 tons of cooling presently, which is insufficient. A central cooling system of 150 ton capacity should be installed.

The air handlers in the basement mechanical rooms provided ventilation and heat but are obsolete and currently appear to be unused. The original masonry ducts which connect the air handlers to the classrooms and then to the attic plenum are open in most of the rooms. The existing air handlers should be removed and replaced with modern units including cooling coils and digital controls and the duct work should be renovated to restore classroom ventilation. Steam and condensate pipe is threaded steel estimated installed in 1991 the same time as the boilers, and it should have 6 years useful life remaining.

Classrooms and offices are heated with finned tube steam convectors however radiators remain in the basement level. All units have exceeded their service life, but the convectors are in good condition and can be expected to last another 10 years. The cast iron and steel radiators are estimated to be 80 years old (or older) and should be upgraded to finned tube units.

Pneumatic controls were added to the build some time ago. They include wall mounted thermostats in the classrooms and remote control steam valves on the convectors and radiators. They are past their service life, obsolete, damaged, and most likely inoperable. They should be upgraded to DDC when other HVAC system components replaced.

The school does not have stand pipes or sprinkler system. A sprinkler system should be added including fire pump if needed.

ELECTRICAL SYSTEMS

Most probably a service drop on S. 2nd Street provides the incoming service to this school. The electrical service entrance is located in the basement at the fan room. The fan room houses the utility main disconnect switch, the utility meters 222MU-13460 and PECO 47123576785 and (2) 400A, 120/240V distribution sections. The existing service has no extra capacity for expansion or new Heating, Ventilation, Air Conditioning (HVAC) system. The electrical service entrance should be upgraded. The new service will be 480V/277V, 3 phase power, approximate 1000 Amperes and will be located in the vicinity of the existing electrical service. The new electrical service would feed a 480V Motor Control Center (MCC) and HVAC (Heating, Ventilation and Air Conditioning) equipment and a 480V 3 phase to 120V/208V 3 phase, 300KVA step-down transformer to feed receptacles, lighting fixtures and other smaller loads.

There are 120/240V panel-boards in each floor for lighting and receptacles. These panel-boards and associated wiring have exceeded the end of their useful life and are undersized to absorb additional loads. The entire distribution system needs to be replaced with new 208/120 volt, 3 phase panelboards and new wiring. The raceway is mainly conduits run above the ceiling. There is a 50KVA phase converter from 240V to 120/208V which normally feeds newest mechanical equipment. Panel-board's doors at corridors are not locked and represent a potential hazard for students. As a safety issue all panel-boards at corridor or in areas where students are present must be provided with lockable devices.

There number of receptacles in classrooms varies, approximate 15% of the classrooms have been remodeled and provided with the proper amount of receptacles but 85% of them the quantity of receptacles are inadequate. Teachers use extension cords. Provide approximate 27 classrooms with the teacher's whiteboard wall and the opposite of it with double compartment surface raceways, the other two walls with minimum two duplex outlets each, when feasible.

The school is illuminated with pendant mounted fluorescent fixtures except some remodeled rooms that are illuminated with recessed mounted fluorescent fixtures. Approximate 85% of the lighting fixtures are provided with T-12 lamps. Provide lighting fixtures with T-8 lamps.

A tap ahead of the main disconnect switch serves the fire alarm control panel (FACP).The Fire Alarm system is manufactured by S.H. COUCH INC The system is approximately 30 years old. The present Fire Alarm system does not meet current code. Fire alarm system is tested every day in the morning. Provide a new fire alarm system.

The present telephone system is adequate.

An independent and separate PA system does not exist. School uses the telephone systems for public announcement. This system is working adequately for most part. The obsolete, non-functional devices should be removed from all rooms.

The present clocks is old and manufactured by Simplex and does not work. A new clock system should be provided with battery operated and wireless.

There is not television system.

The security system consists of CCTV cameras at first floor and basement and motion sensors at first floor. The location of the video surveillance monitor was not determined.

The emergency power system consists of a gas powered generator, manufactured by Generac rated 15KVA, 120/240V with (3) 70A output circuit breakers. The present emergency power system serves the corridor, exit signs, auditorium, library, gymnasium, stair ways and fire tower. The gas powered generator is approximately 20 years old and has reached its useful service life. Provide an outdoor, diesel powered 75KW generator.

There is adequate UPS in the IT room.

The emergency lighting is obtained with dedicated fixtures connected to the emergency generator. Exit signs are located at each exit door and corridors and are connected to the school emergency system.

The chimney is provided with one air terminal. A study should be conducted to determine if the existing lightning system provide the proper protection to the school building.

The auditorium is not provided with theatrical lighting nor dimming control system. Provide theatrical lighting and dimming control system

The auditorium is provided with local sound system. Provide a more complete sound system

GROUNDS SYSTEMS

The site surrounds the building on all four sides which is set back from the street. Yard area on north, south, and west sides is concrete paving with parking for staff vehicles on south east corner separated by metal fence and accessible via Ritner St. Paving, including driveway and access to entrances is in fair condition with some cracks and spalling developed. Metal fence surrounding most of the site is in good condition with a need for lockable gates for security of the property.

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.

The school perimeter is illuminated from wall mounted fixtures, as a safety issue provide 6 pole mounted lighting fixtures in the parking area and playground.

There are (2) CCTV cameras on the building exterior. Provide additional CCTV cameras to provide complete coverage of the building perimeter.

There are not exterior speakers for site paging. Provide two loud speakers in front of the parking lot and playground.

RECOMMENDATIONS

- Repair and re-point parapet walls
- Replace Plexiglas windows – hazed
- Replace built-up roofing system – leaking, failing, and beyond service life

- Provide ADA compliant exterior door hardware at one entrance
- Provide ADA lever handle lock/latchsets on interior doors
- Provide new toilet partitions and toilet accessories including grab bars for accessibility
- Install new ID signage
- Repaint interior walls in basement & fire towers
- Repaint ceilings in basement
- Install elevator for accessibility (location TBD)
- Provide ADA compliant ramp at one entrance (location TBD)

- Replace aged, non-accessible drinking fountains.
- Inspect drainage pipes and repair as needed.
- Install 150 ton central cooling system for entire building.
- Replace obsolete air handlers and radiators with modern equipment including cooling coils and digital controls and renovate ductwork to supply fresh air to classrooms.
- Upgrade obsolete pneumatic control system to digital.
- Install fire sprinkler system including fire pump if needed.
- Provide a new electrical service 480V/277V, 3 phase power, approximate 1000 Amperes and will be located in the vicinity of the existing electrical service.
- Replace the entire distribution system with new panels and new wiring/conduits. Approximate (15) 208/120V
- Provide (2)25FT of surface raceways with 24" receptacles on center and two-duplex wall mount receptacles. Approximate 27 classrooms
- Approximate 90% of the lighting fixtures are provided with T-12 lamps. Provide lighting fixtures with T-8 lamps. Approximate 869 fixtures.
- Replace old fire alarm system with addressable type with audio/visual devices in the entire school. Approximate 100 devices
- Provide a new clock system, wireless battery operated. Approximate 55 clocks
- Provide an outdoor, diesel powered 75KW generator.
- Prepare a study to determine if existing lightning protection system provide the proper coverage to the school building.
- Provide the auditorium with theatrical lighting and dimming control system
- Provide a more complete sound system
- Provide 6 pole mounted lighting fixtures in the parking area and playground.
- Provide additional CCTV cameras to provide complete coverage of the building perimeter. Approximate 4
- Provide two loud speakers in front of the parking lot and playground.

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 1 / Tm 3
Status:	Accepted by SDP	Team:	Tm 3
Site ID:	S263001		

Site Condition Summary

The Table below shows the CI and FCI for each major system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

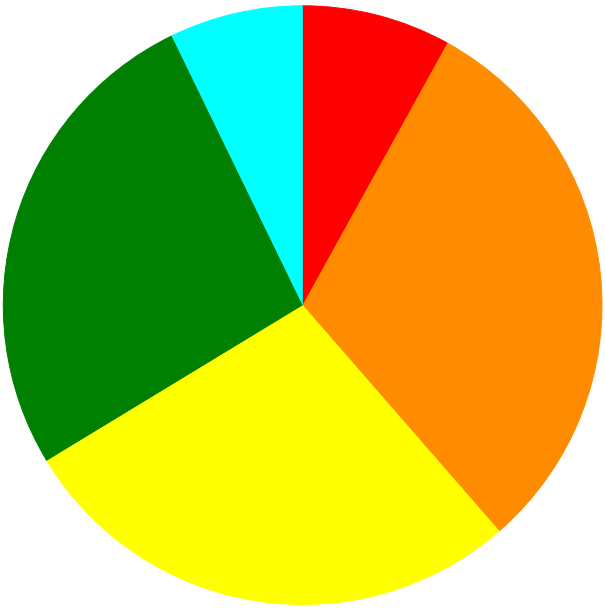
Current Investment Requirement and Condition by Uniformat Classification

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	37.00 %	0.00 %	$0.00
A20 - Basement Construction	37.00 %	0.00 %	$0.00
B10 - Superstructure	37.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	38.04 %	37.19 %	$1,530,517.35
B30 - Roofing	110.00 %	89.29 %	$806,357.98
C10 - Interior Construction	36.74 %	3.09 %	$55,395.71
C20 - Stairs	37.00 %	0.00 %	$0.00
C30 - Interior Finishes	50.33 %	9.57 %	$331,222.83
D10 - Conveying	0.00 %	257.94 %	$670,322.07
D20 - Plumbing	33.57 %	28.09 %	$418,753.25
D30 - HVAC	89.05 %	33.82 %	$2,746,469.49
D40 - Fire Protection	92.47 %	177.49 %	$1,044,299.01
D50 - Electrical	110.11 %	48.53 %	$2,082,382.43
E10 - Equipment	48.49 %	7.81 %	$90,802.49
E20 - Furnishings	12.50 %	0.00 %	$0.00
G20 - Site Improvements	50.10 %	6.38 %	$59,181.86
G40 - Site Electrical Utilities	0.00 %	58.51 %	$195,478.56
Totals:	**60.45 %**	**26.74 %**	**$10,031,183.03**

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)
B263001;Sharswood	73,000	26.97	$806,357.98	$2,869,959.66	$2,721,207.52	$2,656,324.74	$722,672.71
G263001;Grounds	57,500	20.19	$0.00	$195,478.56	$59,181.86	$0.00	$0.00
Total:		**26.74**	**$806,357.98**	**$3,065,438.22**	**$2,780,389.38**	**$2,656,324.74**	**$722,672.71**

Deficiencies By Priority



- 1 - Response Time (< 2 yr) - $806,357.98
- 2 - Response Time (2-3 yrs) - $3,065,438.22
- 3 - Response Time (3-4 yrs) - $2,780,389.38
- 4 - Response Time (4-5 yrs) - $2,656,324.74
- 5 - Response Time (> 5 yrs) - $722,672.71

Budget Estimate Total: $10,031,183.03

Executive Summary

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

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

Function:	Elementary School
Gross Area (SF):	73,000
Year Built:	1906
Last Renovation:	
Replacement Value:	$36,249,119
Repair Cost:	$9,776,522.61
Total FCI:	26.97 %
Total RSLI:	61.27 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B263001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S263001		

Condition Summary

The Table below shows the CI and FCI for each major building system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

UNIFORMAT Classification	RSLI %	FCI %	Current Repair Cost
A10 - Foundations	37.00 %	0.00 %	$0.00
A20 - Basement Construction	37.00 %	0.00 %	$0.00
B10 - Superstructure	37.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	38.04 %	37.19 %	$1,530,517.35
B30 - Roofing	110.00 %	89.29 %	$806,357.98
C10 - Interior Construction	36.74 %	3.09 %	$55,395.71
C20 - Stairs	37.00 %	0.00 %	$0.00
C30 - Interior Finishes	50.33 %	9.57 %	$331,222.83
D10 - Conveying	0.00 %	257.94 %	$670,322.07
D20 - Plumbing	33.57 %	28.09 %	$418,753.25
D30 - HVAC	89.05 %	33.82 %	$2,746,469.49
D40 - Fire Protection	92.47 %	177.49 %	$1,044,299.01
D50 - Electrical	110.11 %	48.53 %	$2,082,382.43
E10 - Equipment	48.49 %	7.81 %	$90,802.49
E20 - Furnishings	12.50 %	0.00 %	$0.00
Totals:	**61.27 %**	**26.97 %**	**$9,776,522.61**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
A1010	Standard Foundations	$18.40	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$1,343,200
A1030	Slab on Grade	$7.73	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$564,290
A2010	Basement Excavation	$6.55	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$478,150
A2020	Basement Walls	$12.70	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$927,100
B1010	Floor Construction	$75.10	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$5,482,300
B1020	Roof Construction	$13.88	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$1,013,240
B2010	Exterior Walls	$36.91	S.F.	73,000	100	1906	2006	2052	37.00 %	0.36 %	37		$9,686.84	$2,694,430
B2020	Exterior Windows	$18.01	S.F.	73,000	40	1991	2031		40.00 %	115.14 %	16		$1,513,843.23	$1,314,730
B2030	Exterior Doors	$1.45	S.F.	73,000	25	2000	2025		40.00 %	6.60 %	10		$6,987.28	$105,850
B3010105	Built-Up	$37.76	S.F.	23,799	20	1995	2015	2037	110.00 %	89.73 %	22		$806,357.98	$898,650
B3020	Roof Openings	$0.06	S.F.	73,000	20	1995	2015	2037	110.00 %	0.00 %	22			$4,380
C1010	Partitions	$17.91	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$1,307,430
C1020	Interior Doors	$3.51	S.F.	73,000	40	1980	2020		12.50 %	13.03 %	5		$33,394.17	$256,230
C1030	Fittings	$3.12	S.F.	73,000	40	2000	2040		62.50 %	9.66 %	25		$22,001.54	$227,760
C2010	Stair Construction	$1.41	S.F.	73,000	100	1906	2006	2052	37.00 %	0.00 %	37			$102,930
C3010230	Paint & Covering	$15.05	S.F.	73,000	10	2012	2022		70.00 %	22.20 %	7		$243,859.57	$1,098,650
C3010232	Wall Tile	$0.79	S.F.	73,000	30	2000	2030		50.00 %	0.00 %	15			$57,670
C3020412	Terrazzo & Tile	$75.52	S.F.	1,460	50	2000	2050		70.00 %	0.00 %	35			$110,259

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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 $
C3020413	Vinyl Flooring	$9.68	S.F.	14,600	20	2000	2020		25.00 %	0.00 %	5			$141,328
C3020414	Wood Flooring	$22.27	S.F.	21,900	25	2000	2025		40.00 %	0.00 %	10			$487,713
C3020415	Concrete Floor Finishes	$0.97	S.F.	35,040	50	2000	2050		70.00 %	0.00 %	35			$33,989
C3030	Ceiling Finishes	$20.97	S.F.	73,000	25	2000	2025		40.00 %	5.71 %	10		$87,363.26	$1,530,810
D1010	Elevators and Lifts	$3.56	S.F.	73,000	35				0.00 %	257.94 %			$670,322.07	$259,880
D2010	Plumbing Fixtures	$13.52	S.F.	73,000	35	1994	2029	2025	28.57 %	6.14 %	10		$60,633.52	$986,960
D2020	Domestic Water Distribution	$1.68	S.F.	73,000	25	1906	1931	2025	40.00 %	0.00 %	10			$122,640
D2030	Sanitary Waste	$2.90	S.F.	73,000	25	1906	1931	2027	48.00 %	169.16 %	12		$358,119.73	$211,700
D2040	Rain Water Drainage	$2.32	S.F.	73,000	30	1906	1936	2027	40.00 %	0.00 %	12			$169,360
D3020	Heat Generating Systems	$18.67	S.F.	73,000	35	1991	2026		31.43 %	0.00 %	11			$1,362,910
D3030	Cooling Generating Systems	$24.48	S.F.	73,000	30	1906	1936	2047	106.67 %	40.44 %	32		$722,672.71	$1,787,040
D3040	Distribution Systems	$42.99	S.F.	73,000	25	1906	1931	2042	108.00 %	22.82 %	27		$716,264.14	$3,138,270
D3050	Terminal & Package Units	$11.60	S.F.	73,000	20	1906	1926	2025	50.00 %	0.00 %	10			$846,800
D3060	Controls & Instrumentation	$13.50	S.F.	73,000	20	1960	1980	2037	110.00 %	132.68 %	22		$1,307,532.64	$985,500
D4010	Sprinklers	$7.05	S.F.	73,000	35			2052	105.71 %	202.91 %	37		$1,044,299.01	$514,650
D4020	Standpipes	$1.01	S.F.	73,000	35				0.00 %	0.00 %				$73,730
D5010	Electrical Service/Distribution	$9.70	S.F.	73,000	30	1906	1936	2047	106.67 %	122.30 %	32		$865,981.29	$708,100
D5020	Lighting and Branch Wiring	$34.68	S.F.	73,000	20	1906	1926	2037	110.00 %	26.67 %	22		$675,295.89	$2,531,640
D5030	Communications and Security	$12.99	S.F.	73,000	15	1906	1921	2032	113.33 %	34.60 %	17		$328,123.29	$948,270
D5090	Other Electrical Systems	$1.41	S.F.	73,000	30	1906	1936	2047	106.67 %	206.92 %	32		$212,981.96	$102,930
E1020	Institutional Equipment	$4.82	S.F.	73,000	35	1990	2025		28.57 %	25.81 %	10		$90,802.49	$351,860
E1090	Other Equipment	$11.10	S.F.	73,000	35	2000	2035		57.14 %	0.00 %	20			$810,300
E2010	Fixed Furnishings	$2.13	S.F.	73,000	40	1980	2020		12.50 %	0.00 %	5			$155,490
								Total	**61.27 %**	**26.97 %**			**$9,776,522.61**	**$36,249,119**

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: 95% - Paint & Coverings
5% - Wall Tile (3% glazed brick, 2% ceramic tile)

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

Note: 2% - Terrazzo & tile (ceramic tile)
20% - Vinyl Flooring
30% - Wood Flooring
48% - Concrete Floor Finishes

System: D5010 - Electrical Service/Distribution

Note:

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:	**$9,776,523**	**$0**	**$0**	**$0**	**$0**	**$705,248**	**$0**	**$1,486,321**	**$0**	**$0**	**$6,552,796**	**$18,520,888**
*** 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	$9,687	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$9,687**
B2020 - Exterior Windows	$1,513,843	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,513,843**
B2030 - Exterior Doors	$6,987	$0	$0	$0	$0	$0	$0	$0	$0	$0	$156,479	**$163,466**
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	$806,358	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$806,358**
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	$33,394	$0	$0	$0	$0	$326,745	$0	$0	$0	$0	$0	**$360,139**
C1030 - Fittings	$22,002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$22,002**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

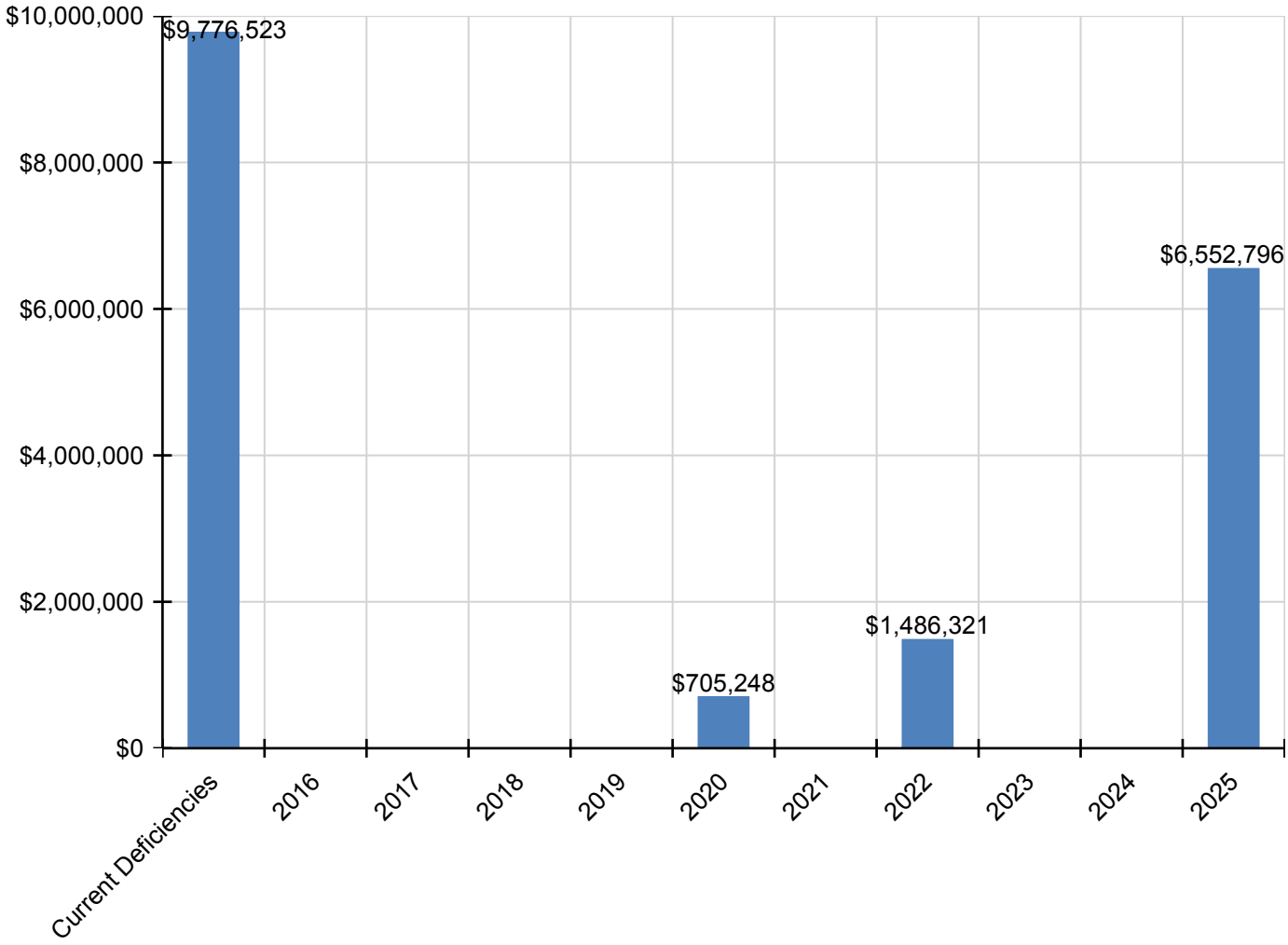
C2010 - Stair Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C30 - Interior Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010 - Wall Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010230 - Paint & Covering	$243,860	$0	$0	$0	$0	$0	$0	$1,486,321	$0	$0	$0	**$1,730,181**
C3010232 - Wall Tile	$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**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$0	$0	$0	$0	$0	$180,222	$0	$0	$0	$0	$0	**$180,222**
C3020414 - Wood Flooring	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$720,990	**$720,990**
C3020415 - Concrete Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3030 - Ceiling Finishes	$87,363	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,263,009	**$2,350,372**
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	$60,634	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,459,031	**$1,519,664**
D2020 - Domestic Water Distribution	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$181,300	**$181,300**
D2030 - Sanitary Waste	$358,120	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$358,120**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3030 - Cooling Generating Systems	$722,673	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$722,673**
D3040 - Distribution Systems	$716,264	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$716,264**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,251,831	**$1,251,831**
D3060 - Controls & Instrumentation	$1,307,533	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,307,533**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$1,044,299	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,044,299**
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	$865,981	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$865,981**
D5020 - Lighting and Branch Wiring	$675,296	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$675,296**
D5030 - Communications and Security	$328,123	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$328,123**
D5090 - Other Electrical Systems	$212,982	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$212,982**

E - Equipment & Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E10 - Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E1020 - Institutional Equipment	$90,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$520,157	**$610,960**
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	$198,281	$0	$0	$0	$0	$0	**$198,281**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

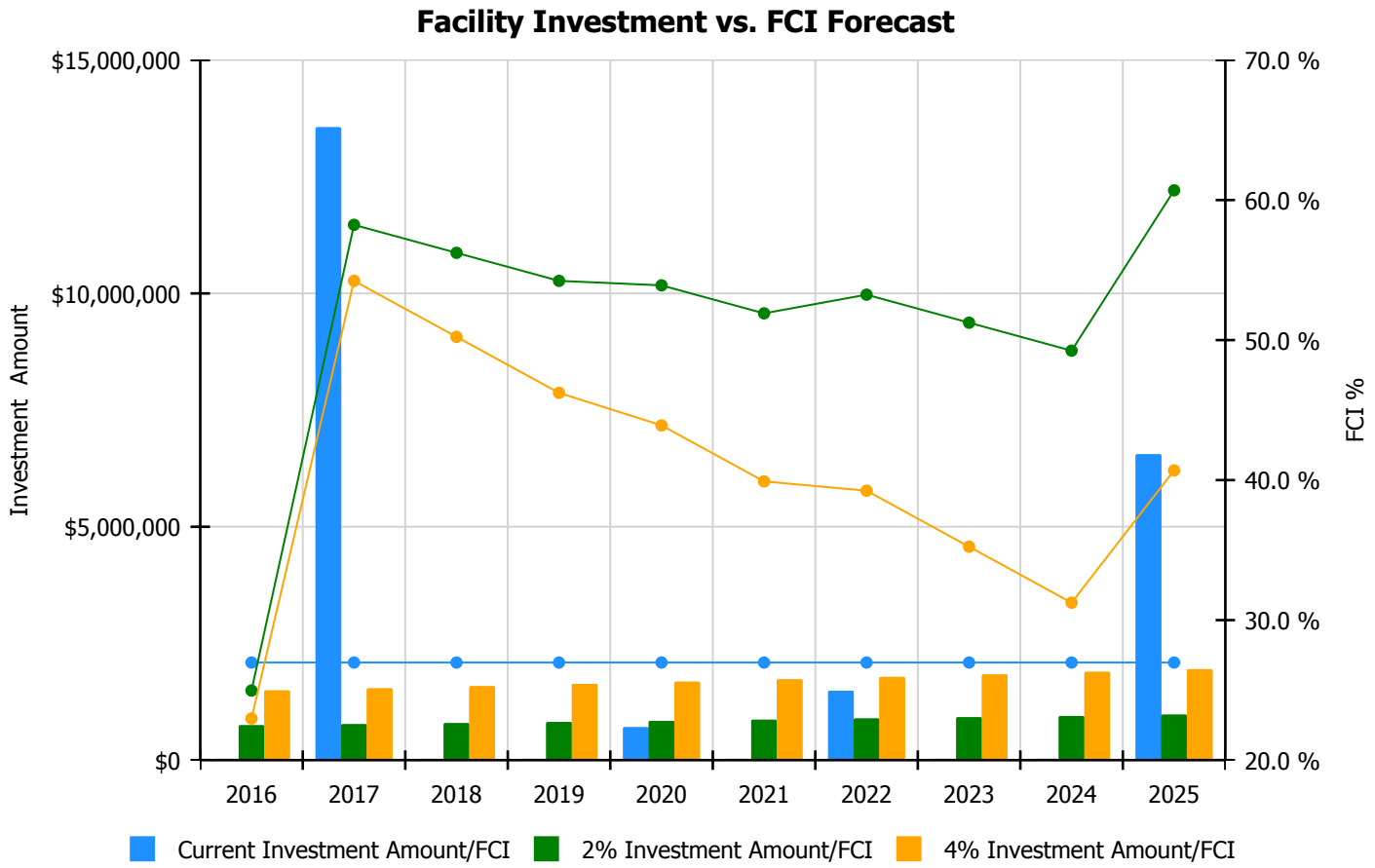
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

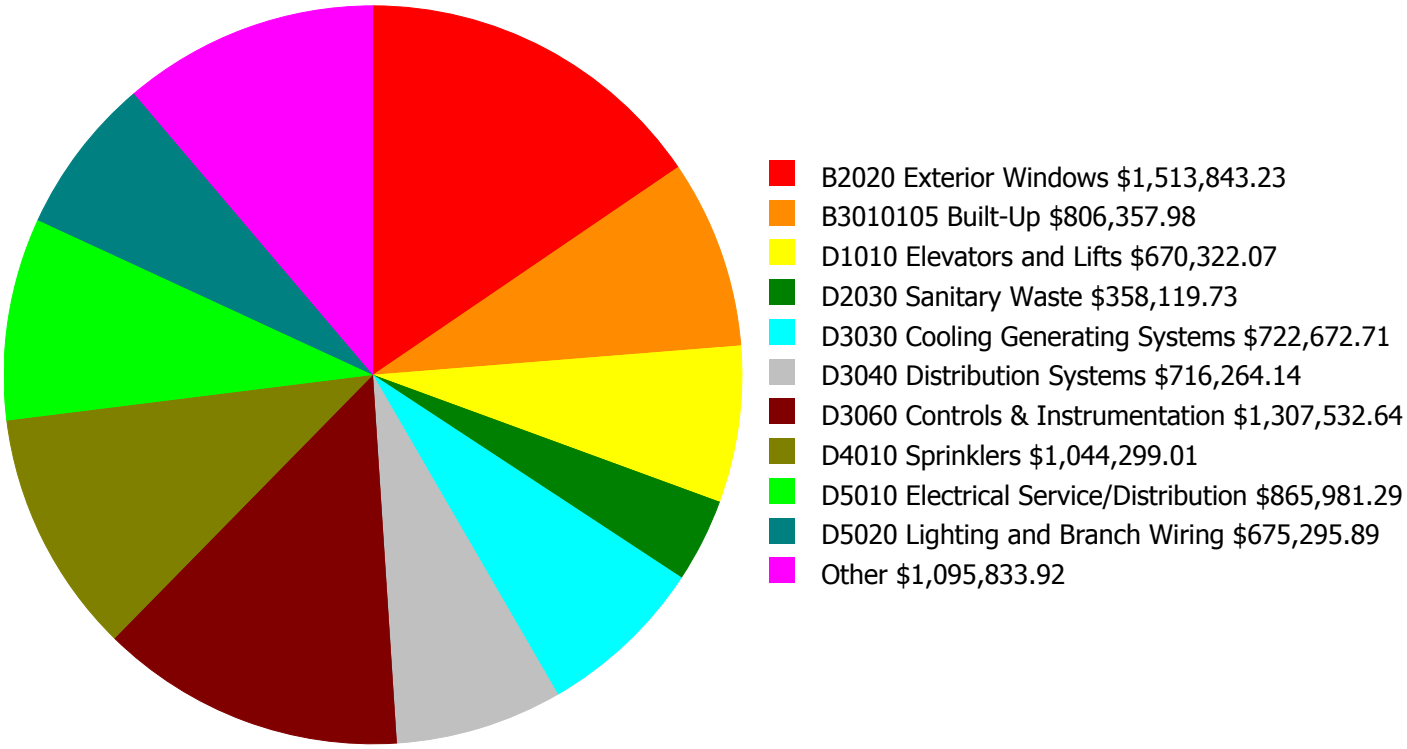
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 26.97%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$746,732.00	24.97 %	$1,493,464.00	22.97 %
2017	$13,559,759	$769,134.00	58.23 %	$1,538,268.00	54.23 %
2018	$0	$792,208.00	56.23 %	$1,584,416.00	50.23 %
2019	$0	$815,974.00	54.23 %	$1,631,948.00	46.23 %
2020	$705,248	$840,453.00	53.91 %	$1,680,907.00	43.91 %
2021	$0	$865,667.00	51.91 %	$1,731,334.00	39.91 %
2022	$1,486,321	$891,637.00	53.24 %	$1,783,274.00	39.24 %
2023	$0	$918,386.00	51.24 %	$1,836,772.00	35.24 %
2024	$0	$945,938.00	49.24 %	$1,891,875.00	31.24 %
2025	$6,552,796	$974,316.00	60.69 %	$1,948,631.00	40.69 %
Total:	**$22,304,124**	**$8,560,445.00**		**$17,120,889.00**	

Deficiency Summary by System

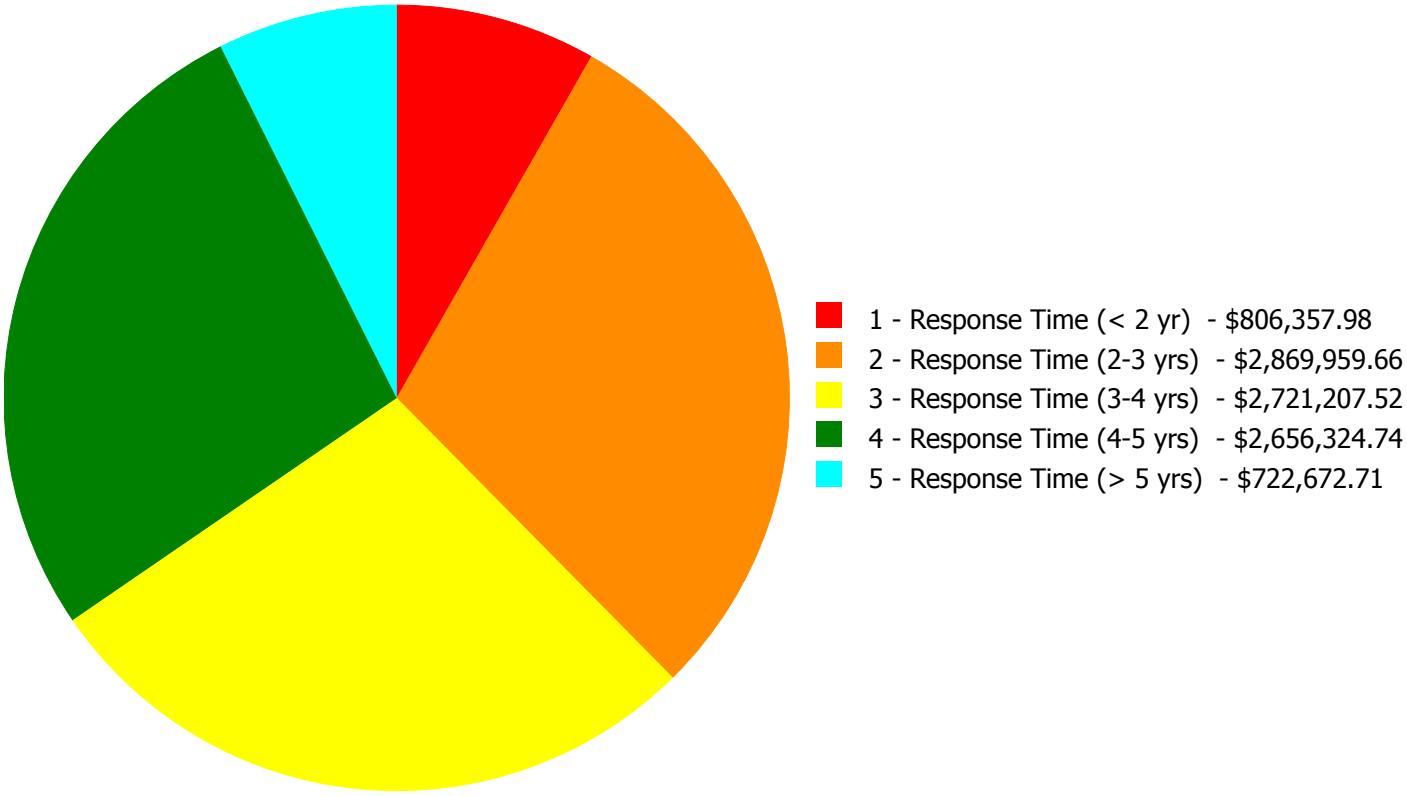
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $9,776,522.61

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: $9,776,522.61

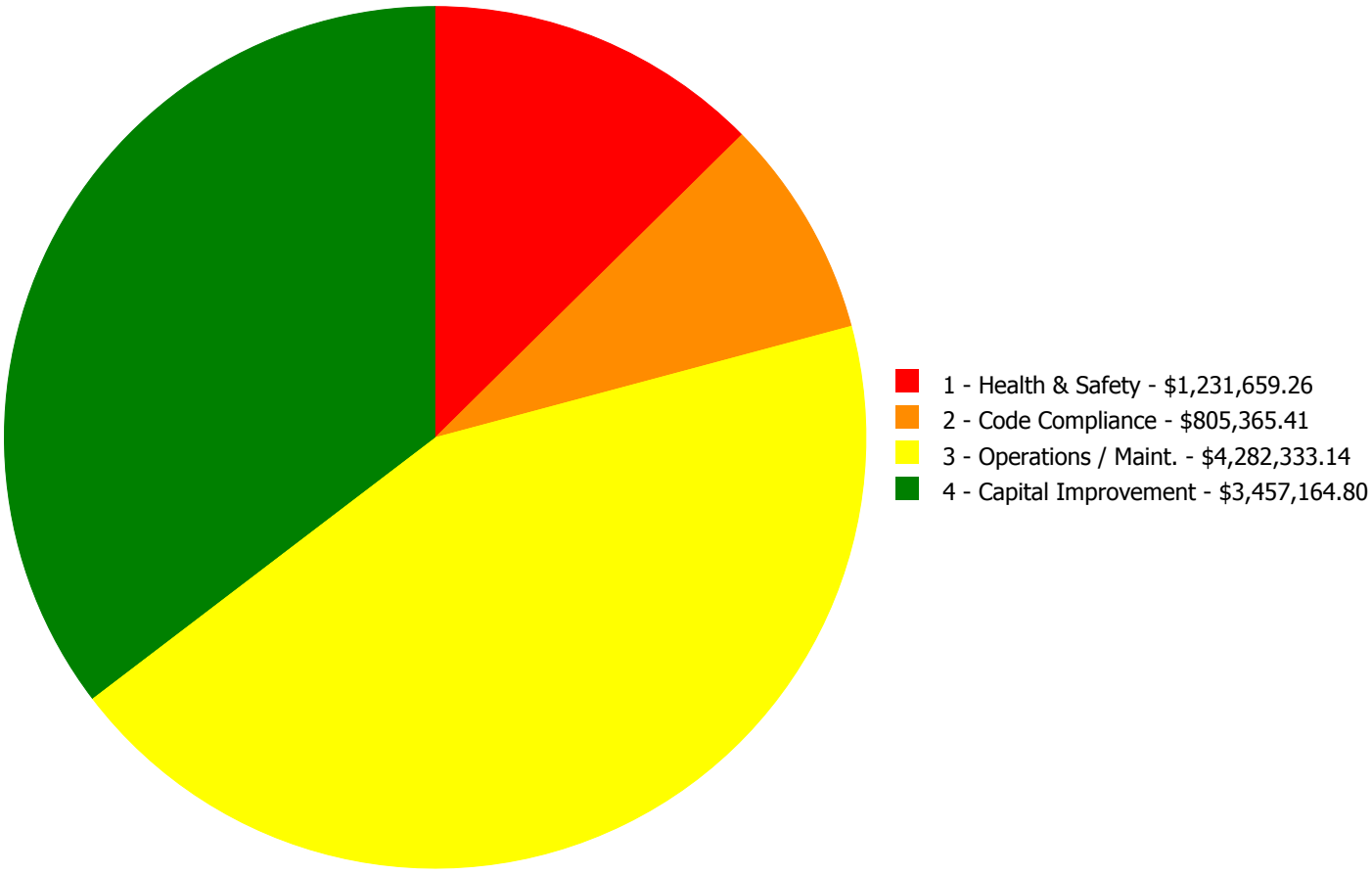
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
B2010	Exterior Walls	$0.00	$9,686.84	$0.00	$0.00	$0.00	$9,686.84
B2020	Exterior Windows	$0.00	$0.00	$1,513,843.23	$0.00	$0.00	$1,513,843.23
B2030	Exterior Doors	$0.00	$6,987.28	$0.00	$0.00	$0.00	$6,987.28
B3010105	Built-Up	$806,357.98	$0.00	$0.00	$0.00	$0.00	$806,357.98
C1020	Interior Doors	$0.00	$0.00	$33,394.17	$0.00	$0.00	$33,394.17
C1030	Fittings	$0.00	$9,778.55	$12,222.99	$0.00	$0.00	$22,001.54
C3010230	Paint & Covering	$0.00	$0.00	$0.00	$243,859.57	$0.00	$243,859.57
C3030	Ceiling Finishes	$0.00	$0.00	$87,363.26	$0.00	$0.00	$87,363.26
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	$0.00	$60,633.52	$0.00	$60,633.52
D2030	Sanitary Waste	$0.00	$0.00	$358,119.73	$0.00	$0.00	$358,119.73
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$722,672.71	$722,672.71
D3040	Distribution Systems	$0.00	$0.00	$716,264.14	$0.00	$0.00	$716,264.14
D3060	Controls & Instrumentation	$0.00	$0.00	$0.00	$1,307,532.64	$0.00	$1,307,532.64
D4010	Sprinklers	$0.00	$0.00	$0.00	$1,044,299.01	$0.00	$1,044,299.01
D5010	Electrical Service/Distribution	$0.00	$865,981.29	$0.00	$0.00	$0.00	$865,981.29
D5020	Lighting and Branch Wiring	$0.00	$675,295.89	$0.00	$0.00	$0.00	$675,295.89
D5030	Communications and Security	$0.00	$328,123.29	$0.00	$0.00	$0.00	$328,123.29
D5090	Other Electrical Systems	$0.00	$212,981.96	$0.00	$0.00	$0.00	$212,981.96
E1020	Institutional Equipment	$0.00	$90,802.49	$0.00	$0.00	$0.00	$90,802.49
	Total:	$806,357.98	$2,869,959.66	$2,721,207.52	$2,656,324.74	$722,672.71	$9,776,522.61

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: $9,776,522.61

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: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Remove and Replace Built Up Roof

Qty: 23,799.00

Unit of Measure: S.F.

Estimate: $806,357.98

Assessor Name: System

Date Created: 09/01/2015

Notes: Replace built-up roofing system – leaking, failing, and beyond service life

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

System: B2010 - Exterior Walls

Location: Parapit wall

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 300.00

Unit of Measure: S.F.

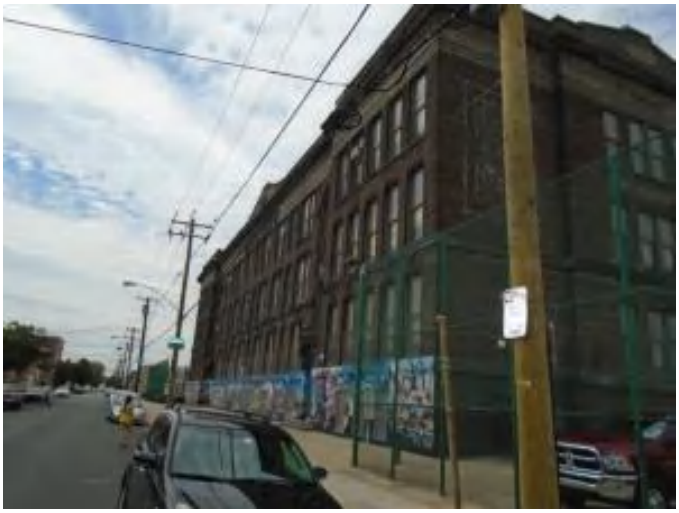
Estimate: $9,686.84

Assessor Name: System

Date Created: 09/01/2015

Notes: Repair and re-point parapet walls

System: B2030 - Exterior Doors



Location: Ext. Entrance

Distress: Accessibility

Category: 2 - Code Compliance

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

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

Qty: 2.00

Unit of Measure: Ea.

Estimate: $6,987.28

Assessor Name: System

Date Created: 09/01/2015

Notes: Provide ADA compliant exterior door hardware at one entrance

System: C1030 - Fittings

Location: Toiles

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Remove and replace damaged toilet paritions - handicap units

Qty: 10.00

Unit of Measure: Ea.

Estimate: $9,778.55

Assessor Name: System

Date Created: 09/01/2015

Notes: Provide new toilet partitions and toilet accessories including grab bars for accessibility

System: D1010 - Elevators and Lifts

Location: B263001;Sharswood

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: 09/01/2015

Notes: Install elevator for accessibility (location TBD)

System: D5010 - Electrical Service/Distribution

Location: Corridors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Add Panelboard

Qty: 15.00

Unit of Measure: Ea.

Estimate: $451,856.62

Assessor Name: System

Date Created: 08/12/2015

Notes: Replace the entire distribution system with new panels and new wiring/conduits. Approximate (15) 208/120V

System: D5010 - Electrical Service/Distribution

Location: Fan room

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Replace Switchboard

Qty: 1.00

Unit of Measure: Ea.

Estimate: $414,124.67

Assessor Name: System

Date Created: 08/12/2015

Notes: The new service will be 480V/277V, 3 phase power, approximate 1000 Amperes and will be located in the vicinity of the existing electrical service.

System: D5020 - Lighting and Branch Wiring

Location: Entire school
Distress: Energy Efficiency
Category: 4 - Capital Improvement
Priority: 2 - Response Time (2-3 yrs)
Correction: Add Lighting Fixtures
Qty: 869.00
Unit of Measure: Ea.
Estimate: $516,591.62
Assessor Name: System
Date Created: 08/12/2015

Notes: Approximate 90% of the lighting fixtures are provided with T-12 lamps. Provide lighting fixtures with T-8 lamps. Approximate 869 fixtures.

System: D5020 - Lighting and Branch Wiring

Location: Classrooms
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 2 - Response Time (2-3 yrs)
Correction: Add wiring device
Qty: 432.00
Unit of Measure: Ea.
Estimate: $158,704.27
Assessor Name: System
Date Created: 08/12/2015

Notes: Provide (2)25FT of surface raceways with 24” receptacles on center and two-duplex wall mount receptacles. Approximate 27 classrooms

System: D5030 - Communications and Security

Location: Entire school
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 2 - Response Time (2-3 yrs)
Correction: Add fire alarm device
Qty: 100.00
Unit of Measure: Ea.
Estimate: $187,360.25
Assessor Name: System
Date Created: 08/12/2015

Notes: Replace old fire alarm system with addressable type with audio/visual devices in the entire school. Approximate 100 devices

System: D5030 - Communications and Security

Location: Classrooms
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Add/Replace Clock System or Components
Qty: 55.00
Unit of Measure: Ea.
Estimate: $112,560.22
Assessor Name: System
Date Created: 08/12/2015

Notes: Provide a new clock system, wireless battery operated. Approximate 55 clocks

System: D5030 - Communications and Security

Location: Auditorium
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 2 - Response Time (2-3 yrs)
Correction: Add/Replace Sound System
Qty: 1.00
Unit of Measure: LS
Estimate: $28,202.82
Assessor Name: System
Date Created: 08/12/2015

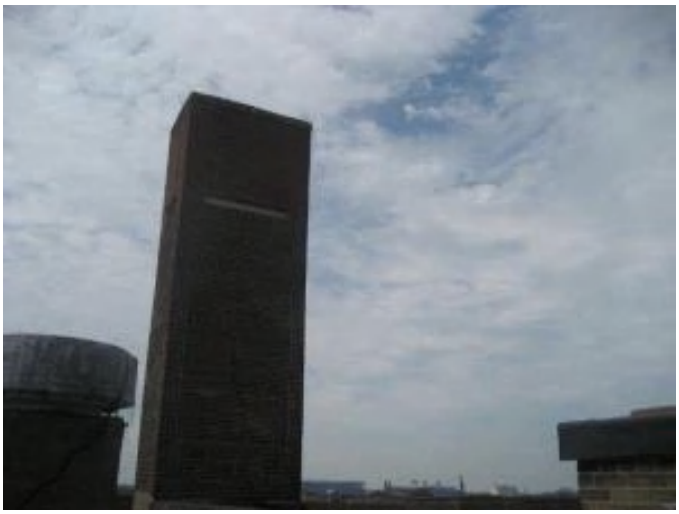
Notes: Provide a more complete sound system

System: D5090 - Other Electrical Systems

Location: Outdoor
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Add Standby Generator System
Qty: 1.00
Unit of Measure: Ea.
Estimate: $188,732.14
Assessor Name: System
Date Created: 08/12/2015

Notes: Provide an outdoor, diesel powered 75KW generator.

System: D5090 - Other Electrical Systems



Location: Roof

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Repair Lightning Protection System

Qty: 1.00

Unit of Measure: Job

Estimate: $24,249.82

Assessor Name: System

Date Created: 08/12/2015

Notes: Prepare a study to determine if existing lightning protection system provide the proper coverage to the school building.

System: E1020 - Institutional Equipment

Location: Auditorium

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Add/Replace Stage Theatrical Lighting System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $90,802.49

Assessor Name: System

Date Created: 08/12/2015

Notes: The auditorium is not provided with theatrical lighting nor dimming control system. Provide theatrical lighting and dimming control system

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

System: B2020 - Exterior Windows

Location: Throughout
Distress: Energy Efficiency
Category: 4 - Capital Improvement
Priority: 3 - Response Time (3-4 yrs)
Correction: Remove and replace double slider windows
Qty: 300.00
Unit of Measure: Ea.
Estimate: $1,513,843.23
Assessor Name: System
Date Created: 09/01/2015

Notes: Replace Plexiglas windows – hazed

System: C1020 - Interior Doors

Location: Int. doors
Distress: Accessibility
Category: 2 - Code Compliance
Priority: 3 - Response Time (3-4 yrs)
Correction: Replace door knobs with compliant lever type
Qty: 60.00
Unit of Measure: Ea.
Estimate: $33,394.17
Assessor Name: System
Date Created: 09/01/2015

Notes: Provide ADA lever handle lock/latchsets on interior doors

System: C1030 - Fittings

Location: Throughout

Distress: Inadequate

Category: 4 - Capital Improvement

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

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

Qty: 80.00

Unit of Measure: Ea.

Estimate: $12,222.99

Assessor Name: System

Date Created: 09/01/2015

Notes: Install new ID signage

System: C3030 - Ceiling Finishes

Location: Basement

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Re-paint ceilings - SF of ceilings

Qty: 18,250.00

Unit of Measure: S.F.

Estimate: $87,363.26

Assessor Name: System

Date Created: 09/01/2015

Notes: Repaint ceilings in basement

System: D2030 - Sanitary Waste

Location: Entire building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 73,000.00

Unit of Measure: S.F.

Estimate: $358,119.73

Assessor Name: System

Date Created: 09/08/2015

Notes: Inspect drainage pipes and repair as needed.

System: D3040 - Distribution Systems

Location: Mechanical rooms

Distress: Obsolete

Category: 3 - Operations / Maint.

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

Correction: Install / replace HVAC unit for Auditorium (800 seat).

Qty: 800.00

Unit of Measure: Seat

Estimate: $716,264.14

Assessor Name: System

Date Created: 09/08/2015

Notes: Replace obsolete air handlers and radiators with modern equipment including cooling coils and digital controls and renovate ductwork to supply fresh air to classrooms.

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

System: C3010230 - Paint & Covering

Location: Basement, fire tower

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 36,000.00

Unit of Measure: S.F.

Estimate: $243,859.57

Assessor Name: System

Date Created: 09/01/2015

Notes: Repaint interior walls in basement fire towers

System: D2010 - Plumbing Fixtures

Location: Entire building

Distress: Accessibility

Category: 2 - Code Compliance

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

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

Qty: 8.00

Unit of Measure: Ea.

Estimate: $60,633.52

Assessor Name: System

Date Created: 09/08/2015

Notes: Replace aged, non-accessible drinking fountains.

System: D3060 - Controls & Instrumentation

Location: Entire building
Distress: Obsolete
Category: 3 - Operations / Maint.
Priority: 4 - Response Time (4-5 yrs)
Correction: Replace pneumatic controls with DDC (150KSF)
Qty: 73,000.00
Unit of Measure: S.F.
Estimate: $1,307,532.64
Assessor Name: System
Date Created: 09/08/2015

Notes: Upgrade obsolete pneumatic control system to digital.

System: D4010 - Sprinklers

Location: Entire building
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 4 - Response Time (4-5 yrs)
Correction: Install a fire protection sprinkler system
Qty: 73,000.00
Unit of Measure: S.F.
Estimate: $1,044,299.01
Assessor Name: System
Date Created: 09/08/2015

Notes: Install fire sprinkler system including fire pump if needed.

Priority 5 - Response Time (> 5 yrs):

System: D3030 - Cooling Generating Systems

Location: Entire building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 45,000.00

Unit of Measure: S.F.

Estimate: $722,672.71

Assessor Name: System

Date Created: 09/08/2015

Notes: Install 150 ton central cooling system for entire building.

Equipment Inventory

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

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 3270 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boile room					35	1991	2026	$58,084.00	$127,784.80
D3040 Distribution Systems	Air-handling unit, built-up, horizontal/vertical, constant volume, single zone, 27,000 CFM, with cooling/heating coil section, filters, mixing box	3.00	Ea.	Mechanical rooms					25	1925	2042	$70,587.00	$232,937.10
D3050 Terminal & Package Units	Hydronic heating, convector, multifin, with cabinet, 2 pipe, 21" H x 48" L, excludes main supply pipe	36.00	Ea.	Basement					20	1945	1965	$419.43	$16,609.43
												Total:	**$377,331.33**

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):	57,500
Year Built:	1906
Last Renovation:	
Replacement Value:	$1,261,625
Repair Cost:	$254,660.42
Total FCI:	20.19 %
Total RSLI:	36.83 %

Description:

Attributes:

General Attributes:

Bldg ID:	S263001	Site ID:	S263001

Condition Summary

The Table below shows the CI and FCI for each major building system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

UNIFORMAT Classification	RSLI %	FCI %	Current Repair Cost
G20 - Site Improvements	50.10 %	6.38 %	$59,181.86
G40 - Site Electrical Utilities	0.00 %	58.51 %	$195,478.56
Totals:	**36.83 %**	**20.19 %**	**$254,660.42**

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 $
G2020	Parking Lots	$8.50	S.F.	8,000	30	2000	2030		50.00 %	0.00 %	15			$68,000
G2030	Pedestrian Paving	$12.30	S.F.	49,500	40	2000	2040		62.50 %	9.72 %	25		$59,181.86	$608,850
G2040	Site Development	$4.36	S.F.	57,500	25	1995	2020		20.00 %	0.00 %	5			$250,700
G4020	Site Lighting	$4.84	S.F.	57,500	30				0.00 %	42.65 %			$118,697.96	$278,300
G4030	Site Communications & Security	$0.97	S.F.	57,500	30				0.00 %	137.66 %			$76,780.60	$55,775
								Total	**36.83 %**	**20.19 %**			**$254,660.42**	**$1,261,625**

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.

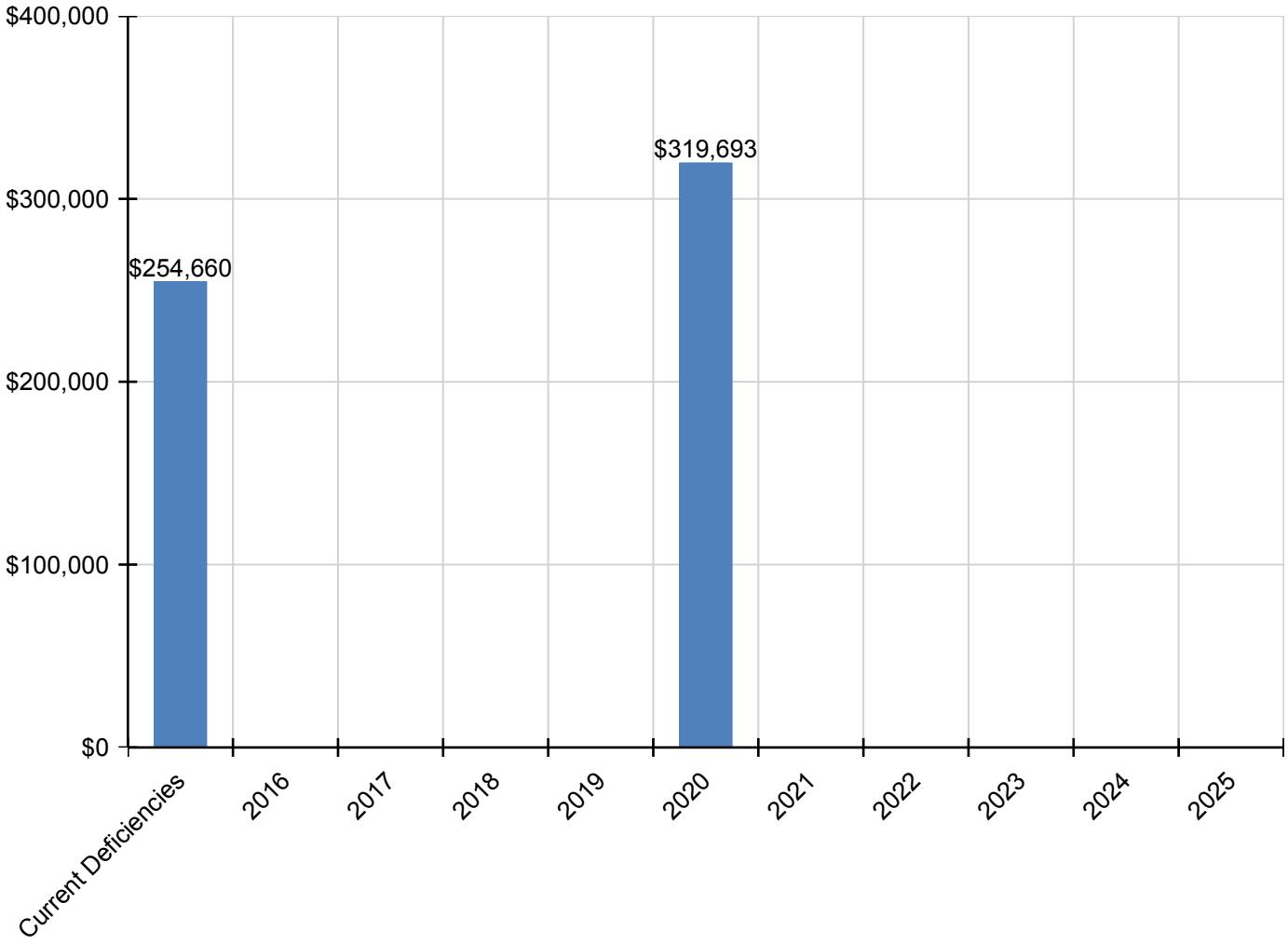
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$254,660**	**$0**	**$0**	**$0**	**$0**	**$319,693**	**$0**	**$0**	**$0**	**$0**	**$0**	**$574,353**
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**
G2020 - Parking Lots	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2030 - Pedestrian Paving	$59,182	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$59,182**
G2040 - Site Development	$0	$0	$0	$0	$0	$319,693	$0	$0	$0	$0	$0	**$319,693**
G40 - Site Electrical Utilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4020 - Site Lighting	$118,698	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$118,698**
G4030 - Site Communications & Security	$76,781	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$76,781**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

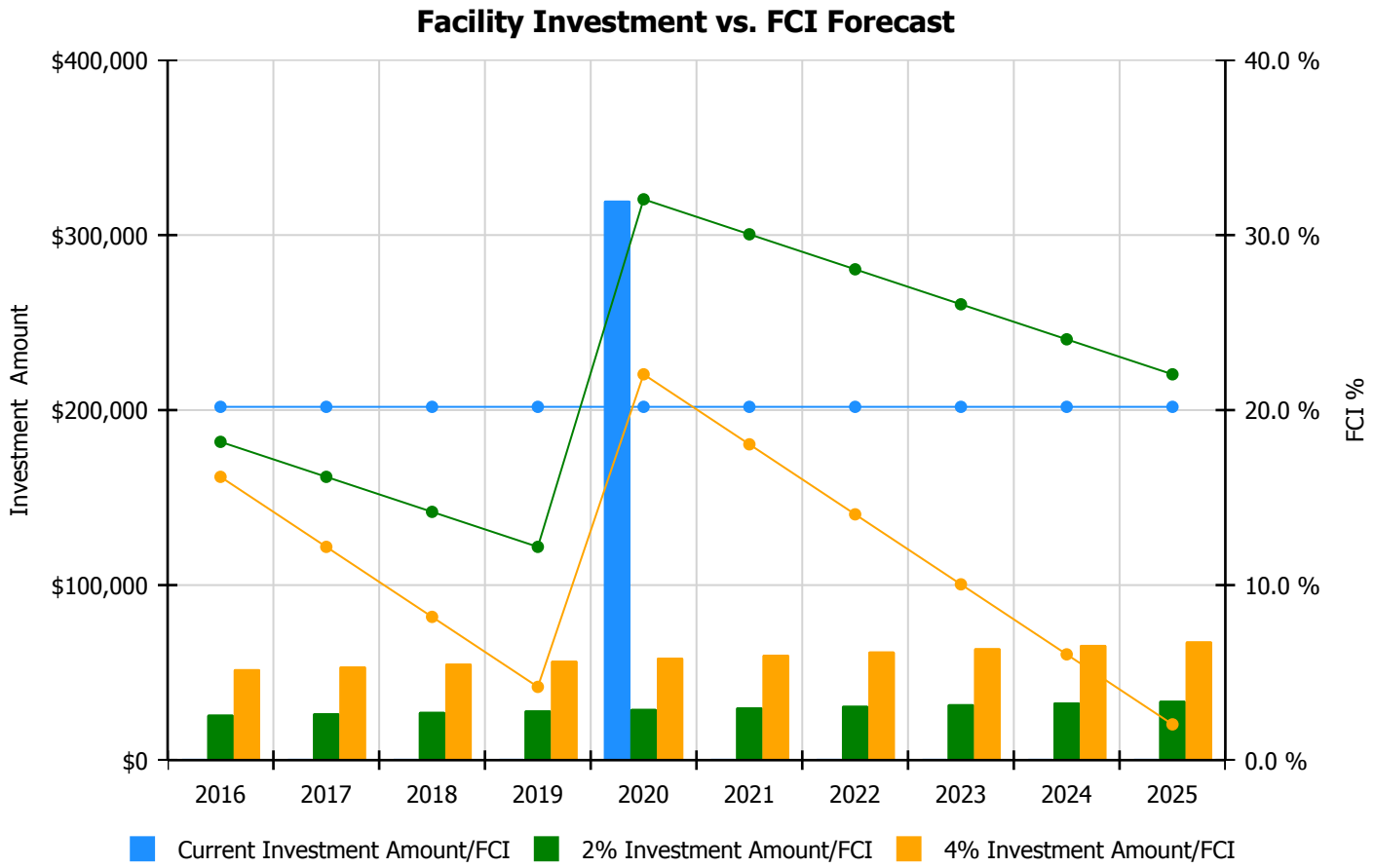
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

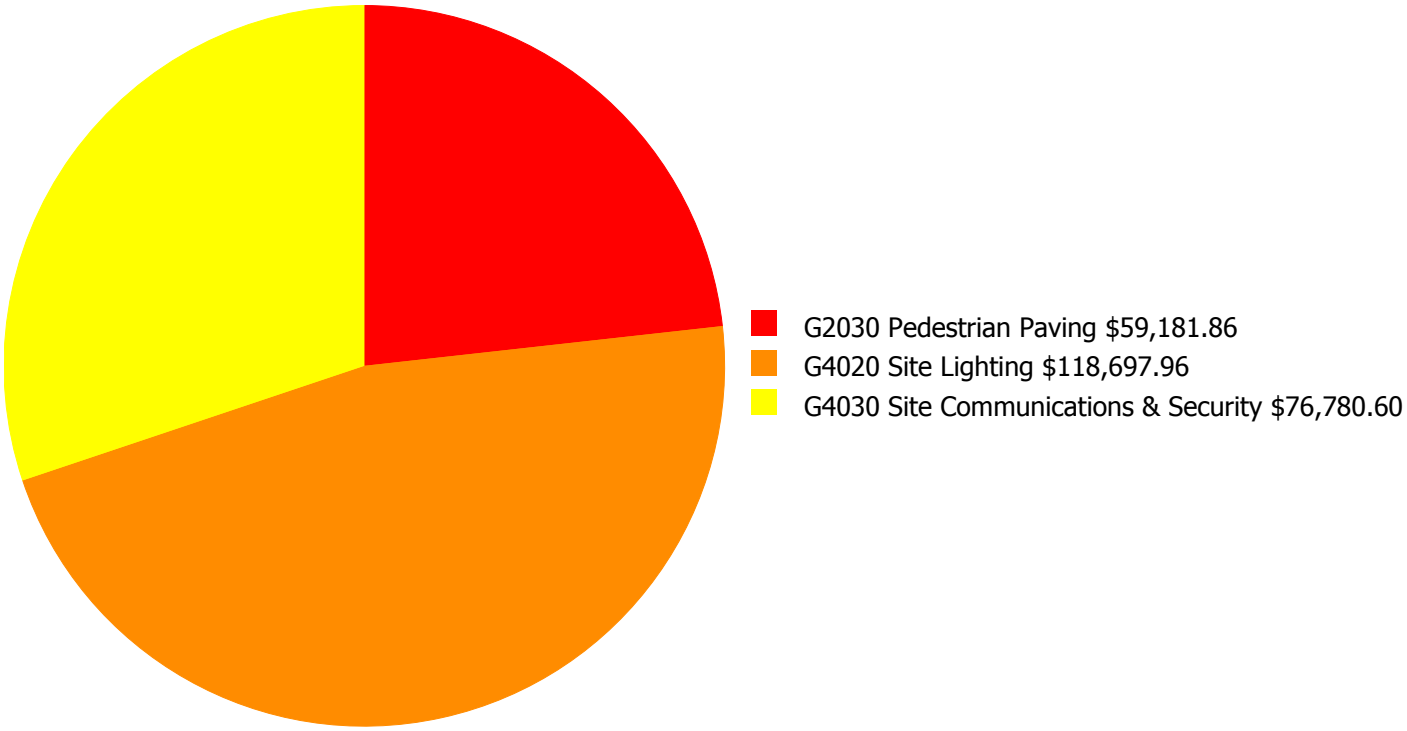
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 20.19%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$25,989.00	18.19 %	$51,979.00	16.19 %
2017	$0	$26,769.00	16.19 %	$53,538.00	12.19 %
2018	$0	$27,572.00	14.19 %	$55,144.00	8.19 %
2019	$0	$28,399.00	12.19 %	$56,799.00	4.19 %
2020	$319,693	$29,251.00	32.04 %	$58,503.00	22.04 %
2021	$0	$30,129.00	30.04 %	$60,258.00	18.04 %
2022	$0	$31,033.00	28.04 %	$62,066.00	14.04 %
2023	$0	$31,964.00	26.04 %	$63,928.00	10.04 %
2024	$0	$32,923.00	24.04 %	$65,845.00	6.04 %
2025	$0	$33,910.00	22.04 %	$67,821.00	2.04 %
Total:	**$319,693**	**$297,939.00**		**$595,881.00**	

Deficiency Summary by System

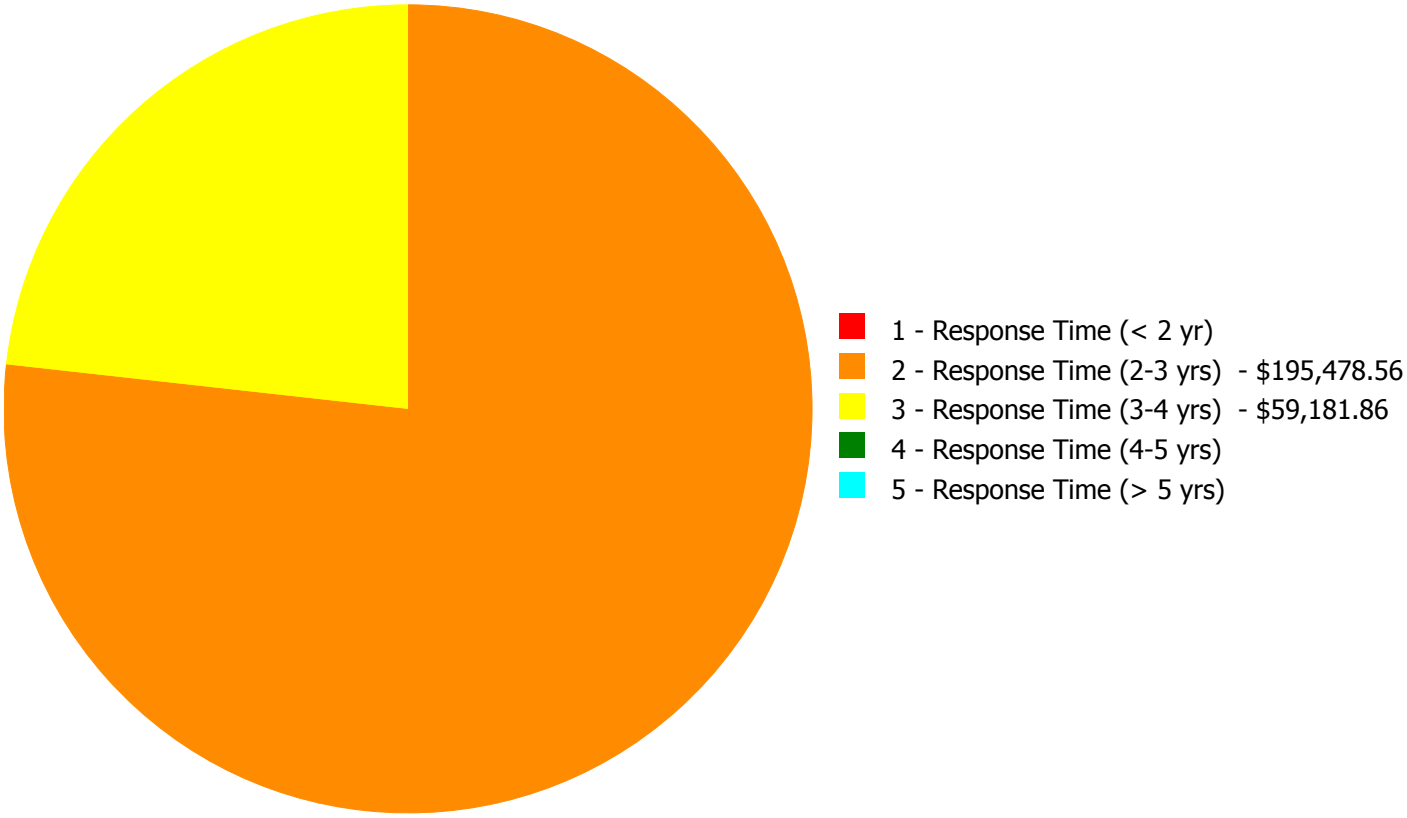
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $254,660.42

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: $254,660.42

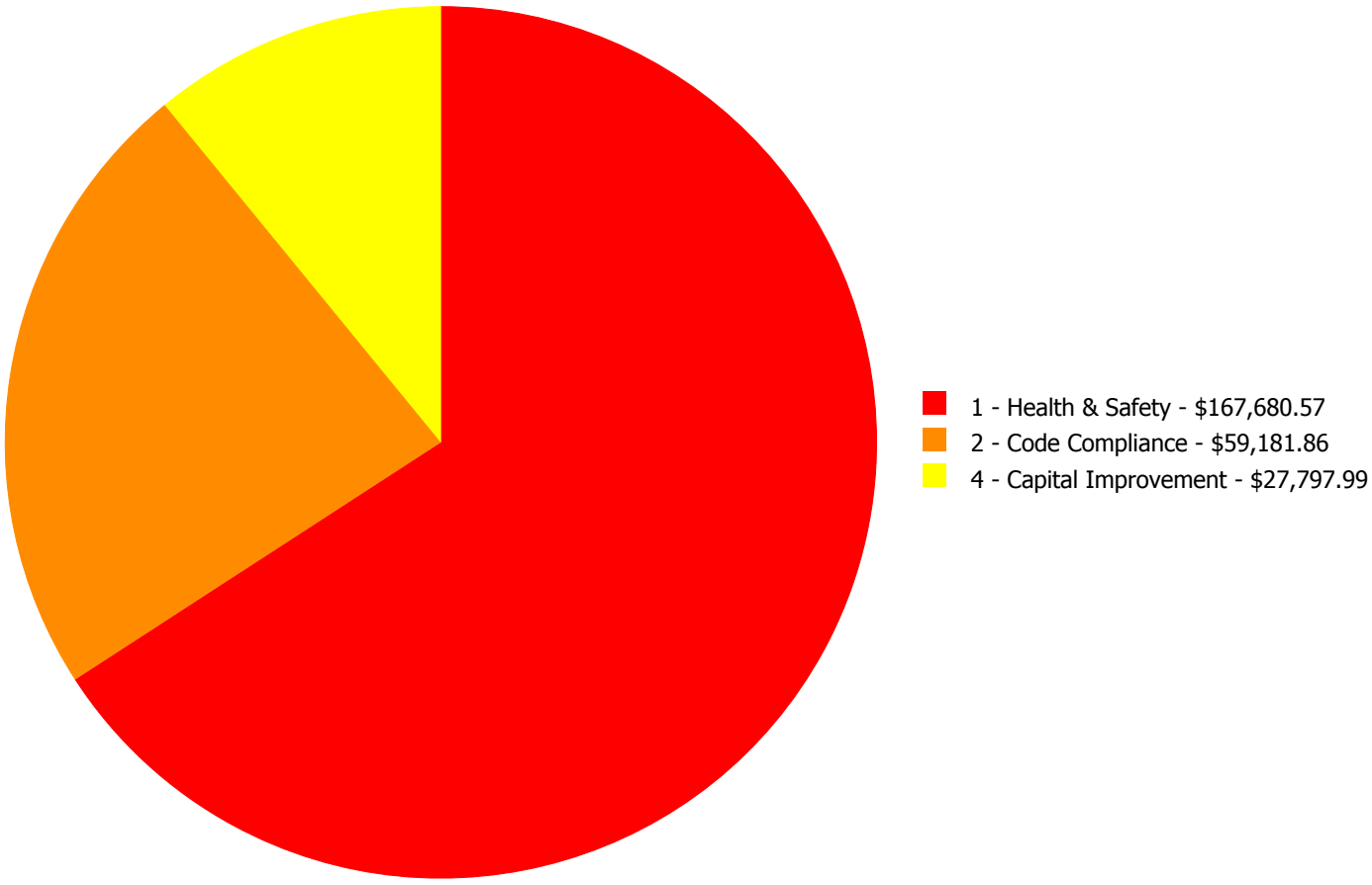
Deficiency By Priority Investment Table

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	$59,181.86	$0.00	$0.00	$59,181.86
G4020	Site Lighting	$0.00	$118,697.96	$0.00	$0.00	$0.00	$118,697.96
G4030	Site Communications & Security	$0.00	$76,780.60	$0.00	$0.00	$0.00	$76,780.60
	Total:	$0.00	$195,478.56	$59,181.86	$0.00	$0.00	$254,660.42

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: $254,660.42

Deficiency Details by Priority

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

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

System: G4020 - Site Lighting

Location: Outdoor

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

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

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

Qty: 6.00

Unit of Measure: Ea.

Estimate: $118,697.96

Assessor Name: Ben Nixon

Date Created: 08/12/2015

Notes: The school perimeter is illuminated from wall mounted fixtures, as a safety issue provide 6 pole mounted lighting fixtures in the parking area and playground.

System: G4030 - Site Communications & Security

Location: Outdoor

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

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

Correction: Add Video Surveillance System

Qty: 4.00

Unit of Measure: Ea.

Estimate: $48,982.61

Assessor Name: Ben Nixon

Date Created: 08/12/2015

Notes: Provide additional CCTV cameras to provide complete coverage of the building perimeter. Approximate 4

System: G4030 - Site Communications & Security

Location: Outdoor

Distress: Inadequate

Category: 4 - Capital Improvement

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

Correction: Add Site Paging System

Qty: 4.00

Unit of Measure: Ea.

Estimate: $27,797.99

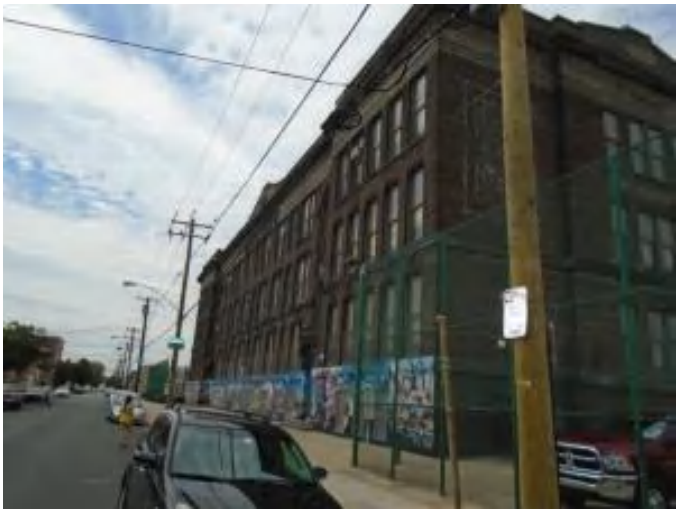
Assessor Name: Ben Nixon

Date Created: 08/12/2015

Notes: Provide two loud speakers in front of the parking lot and playground.

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

System: G2030 - Pedestrian Paving



Location: Entrance

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Install an exterior ADA ramp - based on 5' wide by the linear foot - up to 84" rise - per LF of ramp - figure 1 LF of ramp per inch of rise

Qty: 25.00

Unit of Measure: L.F.

Estimate: $59,181.86

Assessor Name: Ben Nixon

Date Created: 09/01/2015

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

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