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.

Fels High School

Governance	DISTRICT	Report Type	High
Address	5500 Langdon St.	Enrollment	1022
	Philadelphia, Pa 19124	Grade Range	'09-12'
Phone/Fax	215-537-2516 / 215-537-2556	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Fels	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	**00.82%**	**$1,252,704**	**$152,877,662**
Building	00.83 %	$1,181,853	$141,757,959
Grounds	00.64 %	$70,851	$11,119,703

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	00.02 %	$1,284	$6,654,002
Exterior Walls (Shows condition of the structural condition of the exterior facade)	00.01 %	$1,094	$10,790,798
Windows (Shows functionality of exterior windows)	00.00 %	$254	$6,874,138
Exterior Doors (Shows condition of exterior doors)	00.00 %	$0	$289,753
Interior Doors (Classroom doors)	03.70 %	$34,782	$939,199
Interior Walls (Paint and Finishes)	01.16 %	$48,498	$4,198,919
Plumbing Fixtures	00.13 %	$4,239	$3,377,120
Boilers	00.00 %	$0	$4,663,523
Chillers/Cooling Towers	00.00 %	$0	$6,114,786
Radiators/Unit Ventilators/HVAC	00.00 %	$0	$10,738,343
Heating/Cooling Controls	22.03 %	$742,817	$3,372,125
Electrical Service and Distribution	00.00 %	$0	$2,422,934
Lighting	00.29 %	$24,736	$8,662,613
Communications and Security (Cameras, Pa System and Fire Alarm)	00.00 %	$0	$3,244,733

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

S712001;Fels

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):	249,787
Year Built:	2009
Last Renovation:	
Replacement Value:	$152,877,662
Repair Cost:	$1,252,703.63
Total FCI:	0.82 %
Total RSLI:	83.61 %

Description:

Facility Condition Assessment
July 2015

School District of Philadelphia FCA
Samuel Fels High School
5500 Langdon Street
Philadelphia, PA 19111

249,787sf; 1,418 students; LN 07

General

Samuel Fels High School is located at 5500 Langdon Street. This building was constructed on a site previously occupied by other buildings, demolished for construction of this new facility. The new Fels High School was completed and opened in 2009, has 249,787 square feet, and is 1 and 2 stories tall. The main student entrance, main parking lot, and school bus drop off of this new facility face the rear (northeast). Park bench seating and open land on the Langdon Street (southeast) side of the property are not normally used by students; the doors on this side of the building serve mainly as emergency egress. The auditorium has a dedicated outside

entrance to the south facing the secondary parking area. The pool water filtration and pumping equipment is located in a small partial basement under the northeast corner of the pool wing of the building. The mechanical equipment room and electrical substation are located on the northeast (rear) side of the building at grade on the first floor level between the library and gymnasium. Kevin McAfee, the Building Engineer accompanied the team during the building inspection.

Architectural/Structural

Foundations are constructed of concrete as seen only in the pool filtration equipment basement. Wall surfaces are in good condition with no major settlement cracks observed. Footings were not seen and their construction type or condition could not be ascertained.

Floor slabs in the partial basement are in good condition. Concrete floors in the mechanical room and electrical room are also in good condition. Upper floor slabs are also constructed of poured concrete on metal deck on steel beams. The few columns, beams, and floor deck that could be seen also appeared to be in good condition. There are some cracks forming on ground floor slabs along column lines and "diamonds" around columns, telegraphing through and causing cracking of vinyl composition floor tiles. It can be seen on historical aerial photographs that there were other buildings located on this site that had been demolished to allow for the construction of this new Samuel Fels High School Building. The center section of this new building is constructed in the same location as parts of the removed buildings and therefore is not constructed on virgin undisturbed soil. Further investigation of the subgrade conditions is recommended to ascertain the subsoil conditions under the new building. The observed slab on grade cracks could be due to settlement of pre-existing foundations and materials not fully compacted before construction of the new school.

Roof system construction is varied and there are a number of different roof heights. Not all roofs were accessible at the time of inspection and not all structural systems were seen, however assumptions were made based on the systems that were visible at the time of inspection. Roof systems over the library, cafeteria, and second floor classrooms (roof deck not seen) consist of metal deck on steel bar joists on steel beams supported by steel columns. This system is slightly pitched to form a slope to internal roof drains. The gymnasium roof deck consists of slightly curved metal deck on bowed bar joists on steel beams, pitched to a low side along the southeastern wall, drained to the lower roof with gutters and vertical leaders. The auditorium roof is sloped to the northwest and is constructed of metal deck on steel bar joists supported by steel beams and columns; it is drained to the lower roof with gutters and vertical leaders. The roof system over the pool consists of precast concrete T sections, bearing on a steel box beam or concrete ledger beam, supported on steel or concrete columns. This system is pitched to the southeast edge of the roof and drained to the lower roof with gutters and vertical leaders. The roof over the mechanical room supports heavy equipment and therefore consists of a steel deck supported by steel beams and girders, supported by steel columns. There are four personnel entrances with large flat roof vestibules constructed of steel deck and steel beams or bar joists on steel columns. Glass canopy overhangs extending outside the vestibules are supported by steel columns on the outside of the canopies and tension cables back to the vestibule wall on the building side. Canopy support columns have rusted in a few locations and need to be repainted.

Exterior walls are constructed of a few different systems. Most exterior walls viewed from the street have a limestone "foundation" level 3 feet in height, brick first floor, and insulated metal panel upper section from second floor to the top of the parapet. Some side sections consist of only limestone and brick. Interior courtyard walls are constructed of full height insulated metal panels. Walls above roof decks are insulated metal panel construction. All systems probably utilize a typical cavity wall system construction, typical for this type of construction. Most classroom and corridor walls have gypsum board facing occupied space and the pool, gym, and mechanical areas have block facing occupied spaces. Exterior masonry wall materials are in good condition with some repointing of limestone blocks required and some dirty stains evident in a few locations. Metal siding is a bright aluminum panel finish and is in good condition.

Exterior windows consist of double pane insulated glazing in clear anodized aluminum frames. Units in classrooms are triple stacked with the top unit consisting of an operable hopper unit with a bug screen on the outside. All classroom and corridor glazing units have "slimshades" (microblinds) inside the insulated glass lites, adjustable by use of small nobs on the inside frames. This is a very effective system providing good solar shading when needed, protecting the microblinds from damage since they are not exposed to human contact. Glazing units in the library, cafeteria, vestibules, stairways, and other large public spaces do not have the operable hopper units nor do they have slimshades. None of the hopper units were tested for operation and microblind operation was not tested since a special maintenance tool is required to make adjustments. Hopper units are supposed to have exterior bug screens, however a few windows' screens were missing. There were two windows seen with broken gaskets, but all other glazing units appeared to be in good condition with minimal damage observed. It should be noted that none of the glazing on this building has security screens which detract from the appearance of the building; additionally, none of the windows were observed to be cracked or broken, despite the absence of security screens.

Exterior doors are either gray-beige flush textured FRP units with painted steel door frames where exiting from mechanical/utility areas or clear anodized aluminum framed full height glass units where located in vestibules or exiting from stairways. Vestibule glass is insulated whereas door glass is single pane. The main entrance to the building is ADA accessible and has a curb cuts at the drop off

driveway outside the doors. Most other exit doors are at grade level and accessible to wheelchairs. The service entrance roll-up door is painted gray to match the other doors and the aluminum window framing. Galvanized steel framing surrounding the roll-up door is rusting at the base.

Roof coverings on the flat roofs consist of a fully adhered rolled asphalt sheet system with ceramic granules impregnated into the membrane surface. Flashing is a fully adhered granule-impregnated sheets same as the roofing membrane, adhered to the roof membrane and terminated under the painted aluminum coping or steel equipment flashing where equipment is roof mounted. Coping is less than 12" above the roof deck - there is no parapet. Some of the membrane surfaces are showing long wrinkles in the membrane surface indicating the start of membrane delamination. Roof coverings over the gymnasium, pool, auditorium and stairway to the roof consists of a black EPDM (ethylene propylene diene monomer, aka "rubber") Sarnafil membrane with vertical ribs to simulate a standing seam roof. Some of the EPDM edge flashing over the stairway and the gymnasium is wrinkled, but not damaged. Roof openings include toilet room vents, ventilation ductwork, exhaust fans, and roof drains with overflows, all with the appropriate fully adhered granule impregnated flashing system. Roof overflow inlets have gratings, matching main roof drains. Aluminum coping used on the tops walls is factory painted gray almost matching the satin-finish aluminum wall panels; the coping is beginning to fade. Gutters and leaders leading from upper roofs empty onto lower roofs are painted gray like the coping, also beginning to fade. Gray painted scupper boxes and vertical leaders from lower roofs lead down and connect to pipes leading to the underground storm water management system. There was no significant standing water observed on any roof or in any gutter; all roof drains, gutters and leaders appeared to be in good operating condition.

Partitions in the mechanical areas and gymnasium are constructed of painted concrete masonry units (block), which are in good condition. The classrooms, offices, cafeteria, library, and other special rooms have either painted block partitions or painted gypsum board and metal stud partitions. Corridors are generally painted gypsum board on metal studs but have block walls at classroom doorways, stairways, lobbies, and the gymnasium and pool supporting spaces. The auditorium has irregular surfaced gypsum board and metal stud partitions that is probably designed to be sound attenuating or sound diffusing. Toilet rooms have painted block walls with ceramic tile on plumbing walls and cove bases at floors.

Interior doors on stairways, classrooms, offices, and specialized rooms are solid core oak veneer wood; some have glass vision panels of either narrow wired glass lites (classroom doors) or two large glass panels (cafeteria). Mechanical area interior doors are solid core oak veneer wood in hollow metal frames. There are no hollow metal doors in this building. Many frames are beginning to rust where coming in contact with floors; these frames should be properly repainted to minimize future rust damage. Some wood doors have minor surface and edge damages from impact and general use; they should be repaired and refinished to rejuvenate the appearance. Doors are generally in good condition throughout the building and with continued good care and maintenance should last a long time. Classroom and office doors have lever locksets with updated security locking feature that allows for locking from inside the room. Some exit hardware in stairways needs adjustment to improve closing and latching operations.

Interior fittings/hardware include whiteboards attached to one wall and tackboards attached to another wall in each classroom. Smartboards are mounted in front of whiteboards in some classrooms and on other walls in other classrooms. Toilet room partitions are solid plastic partitions and doors. Toilet room accessories (toilet paper dispensers, soap, paper towel or dryers, grab bars, door latches) are located in all toilet rooms; it was notable that no components were seen to be missing or broken. Multiple toilet rooms are ADA compliant with grab bars, wrist-blade faucets and other accessible toilet room accessories. The library has wood veneer and plastic laminate book cases and areas with fabric chairs and tables for reading. Specialized rooms like the music rooms have wood veneer and plastic laminate counters. There are home arts rooms with small kitchen set-ups with plastic laminate cabinetry and countertops, including gas range/ovens, microwave ovens, and dishwashers. Chemistry labs have chemresin counter tops with oak cabinets and chemical resistant plastic laminate desks and tables; there is one chemical fume hood and one safety shower in each lab. There are art rooms with tables and counters, musical rooms with tiered floors for choir assembly and practice, and black painted TV/media instruction rooms. The auditorium has a production booth in the rear with a large multi-channel sound mixing board and DVR/video mixing system.

Stair construction consists of concrete filled treads, steel risers, and steel stringers with painted steel handrails 36" high, steel guards 42" high and steel balusters with mesh or 4" maximum spacing complying with today's building codes. Steel handrails and guards need to be repainted. Treads and platforms are exposed concrete that is in need of cleaning and painting. Landings at floors are vinyl composition tile.

Wall finishes consist of painted block or gypsum board. Most classroom entrances are formed of painted concrete block. Many walls in corridors or near doors have areas of minor surface damage. The building engineer indicated that in order to prevent damage to the fragile gypsum board corridor corners, he has been adding stainless steel corner guards. Classrooms have a combination of block or gypsum board. Where desks are adjacent to gypsum board, there is surface damage which can be spackled and repainted. Auditorium and music rooms have fabric panels for sound absorption. Toilet rooms have ceramic tile on walls with plumbing fixtures; there was no graffiti in the toilet rooms that were inspected.

Floor finishes in the building consist mostly of 12”x12” vinyl composition tile (VCT) in classrooms, offices, corridors, and the cafeteria. There are a number of cracks in VCT surfaces on ground floor corridors along column control joints that cross the corridors. In removing these tiles for repair, the slab should be studied to ascertain if there is a settlement problem. The auditorium aisles, library, and some offices have glued-down carpet. Floor finish under the auditorium seats is exposed concrete; some cracking was observed in that slab. There are linear bubbles formed in the library which could be signs of moisture or cracking underneath. The sub-slab condition in the library should be studied before carpet replacement. Slabs in the auditorium and corridors where cracking is evident also needs to be investigated as to the possible cause. The stage in the auditorium has an oak floor as does the TV/media rooms near the auditorium. The gymnasium floor and corridor outside the gym is an oak plank floor. The kitchen has quarry tile, which is in good condition. The main building entrance lobby is VCT, also in good condition. Building entrances used by students and guests have recessed carpets; although in fair condition, recessed walk-off mats are more effective surfaces for removing dirt and debris in high foot traffic areas, are more durable and easier to keep clean. Carpets in vestibules should be replaced with walk-off mat surfaces.

Ceiling finishes in classrooms and most corridors are 2x4 suspended acoustical tile ceiling system with recessed 2x4 fluorescent lighting fixtures throughout the building. Most 2x4 ceilings and lighting fixtures are in good condition. The auditorium has black-painted convex suspended gypsum board ceiling “clouds”, which allow for placement of spot lighting between the clouds while serving to provide some sound diffusion in the space. The library and cafeteria have large rectangular “clouds” consisting of 2x4 acoustical ceiling tiles and 2x4 recessed fluorescent lighting fixtures with spaces between each cloud. The Gymnasium and has an exposed ceiling with steel bar joists and metal deck above and the pool has exposed concrete T beams and a concrete roof deck above.

Furnishings in the building include dark oak plywood veneer folding seating for almost 900 people in the auditorium. Spaces for wheelchairs are located in various locations throughout the seating layout. Seating finish and operation seem to be in good condition. Casework and storage cabinets in the classrooms are plastic laminate or wood veneer, in good condition. Student lockers throughout the building appear to be in good condition. The pool facility has 3 rows of plastic bleachers on two sides of the pool.

Two, two-stop 3500 pound capacity hydraulic elevators are present in this school. They are finished with stainless steel walls and doors and are in good condition. Operation is by key activation. Backup electrical power is provided to the elevator. The front door into the building is the ADA accessible entrance, with handicap parking spaces located outside the door.

An automatic sprinkler system is provided in this school.

Mechanical

Plumbing Fixtures – The building is equipped with wall hung urinals (flush valve type), wall hung water closets (flush valve type), and wall hung lavatories with wheel handle faucets. The original plumbing fixtures remain in service which were installed in 2009 and will not need to be replaced for 30 years if a routine maintenance plan is carried out. The bathrooms are also equipped with floor drains.

Electric water coolers are wall hung type. These were installed in 2009 and will not need to be replaced for 30years if a routine maintenance plan is carried out.

The Cafeteria’s food prep/kitchen is equipped with one, three compartment stainless steel sink with lever handle operated faucets and its sanitary connection is served by a floor mounted grease trap. The kitchen is also equipped with a hand sink. These fixtures were installed in 2009 and will not need to be replaced for 30 years if a routine maintenance plan is carried out. Chemicals are injected manually into the sanitizing basin.

Domestic Water Distribution – There is a 4” domestic water service main serving the building. The piping system consists of soldered copper piping. The water service enters the building in the boiler room, with double check backflow preventer (RPZA – reduced pressure zone assembly). There is a dedicated RPZA BFP which serves the chiller water make up system as well. The 4” water meter on the main line is located at the curb in a hot box. The system is equipped with a booster duplex pump system.

Instantaneous natural gas fired tankless water heaters serve the bathrooms and kitchens. There are twelve heaters, Paloma Model PH -28 C IFSN-1 maximum gas input 199,900 btuh, minimum input 19,000 btuh, which serve the restrooms throughout the building. There are seven heaters, Paloma Model PH-28 C IFSN-1 maximum gas input 199,900 btuh, minimum input 19,000 btuh, which serve the kitchen. Both the restroom loop and kitchen loop are equipped with recirculation pumps and expansion tanks. All water heaters appear to be in satisfactory condition as they were installed in 2009 and should not need replacement within the next 10-15 years.

Sanitary Waste - The sanitary waste piping system in the original building cast iron with no hub joints and appears to be the original piping installed in the building. The sanitary system leaves the building by gravity flow.

Rain Water Drainage - The rain water drains from the roof are routed through mechanical chases in the building and connect to the underground site drainage system. There are overflow scuppers connected to conductors on the building exterior.

Energy Supply - Duplex fuel oil supply pumps provide the required fuel to the boilers when operating on fuel oil. The fuel storage tank is located underground below the concrete sidewalk area to north of the main entrance and just outside the boiler mechanical room. The fuel oil tank is a double wall tank construction with a level monitoring system and has a capacity of 15,000 gallons. The monitoring system is located on the wall in the Boiler Mechanical Equipment Room. The fuel pumps serve the underground fuel tank. Natural gas is supplied to the building from a location outside the building by exterior wall. The natural gas system is equipped with a booster system.

Heat Generating Systems – Heating water is generated by two HB Smith, Model 4500A-S/W-17, 5032 MBH, sectional, cast iron, hot water boilers with dual fuel burners. Both boilers are equipped with Power Flame dual fuel burners, natural gas and number 2 fuel oil. The boilers were installed in 2009 and have a 35 year life span. Burner oil pumps are driven by independent motors. In addition, each boiler's draft system consists of an induced draft system with an Auburn fan on the boiler flue. The two boilers are equipped with Power Flame dual fuel burners, natural gas and number 2 fuel oil, model LNIAC5-GO-30 (low NOx). Burner controls provide full modulation with electronic ignition, digital flame sensing and pressure atomization on oil. Burner oil pumps are driven by independent motors. The gas train serving each boiler appears to have code required venting of the regulators and dual solenoid valves with venting of the chamber between. The oil supply to the burner is equipped with dual solenoid valves and strainer/disposable media filter.

Cooling Generating Systems – The chiller plant consists of two, water cooled, centrifugal chillers, 250 nominal tonnage, two pass condenser and evaporator, 480V-3PH-60HZ, York/Johnson Controls Model YKDQDRQ4-CJGS. The chillers are equipped with variable speed drives. The Chillers are paired with Marley AV Series cooling towers which are located on the roof.

Distribution Systems – The building heating, chilled and condenser water distribution piping is black steel with welded fittings. The system is a four pipe system. Both the chilled water system and heating water system are treated with propylene glycol to enable operation at low temperatures. The pumping system for the cooling towers consist a primary and stand by pump arrangement, each pump is an end suction, constant volume pump, rated for 950 GPM, 80 FT HEAD, 25 HP, 1800 RPM. The pumping system for the chiller water loop consists a primary and stand by pump arrangement, each pump is an end suction, variable flow pump, rated for 650 GPM, 135 FT HEAD, 40 HP, 1800 RPM. The pumping system for the boiler circulation loop consist a primary and stand by pump arrangement, each pump is an end suction, constant volume pump, rated for 400 GPM, 80 FT HEAD, 7-1/2 HP, 1800 RPM. The pumping system for the heating primary loop consists a primary and stand by pump arrangement, each pump is an end suction, constant volume pump, rated for 800 GPM, 90 FT HEAD, 30 HP, 1800 RPM.

Fresh air is admitted into the building through 16 roof top units which serve the building and swimming pool. The pool is served with a rooftop unit that is equipped with heating, cooling and dehumidification ability.

The building uses rooftop units with heating water and chilled water coils to serve the classrooms, corridors and administrative offices. There are five rooftop units that serve the A side of the building, both the first and second floors. The B side is served by two units, one serves the first floor the other serves the second floor. The rooftop units are equipped with variable frequency drives which modulate to maintain the duct static pressure setpoint, while the variable air flow boxes serving the space modulate to deliver the required air flow to the zone which it serves. The VAVs are equipped with hot water reheat.

The gymnasium is served rooftop units with heating water coils and round supply air ductwork distribution with supply air diffusers. There is also a rooftop unit dedicated to each of the locker areas, girls' and boys'.

The cafeteria is served by rooftop units with heating water coils and chilled water coils. Similarly the auditorium, administrative offices, kitchen, Black Box theatre and library are served by rooftop units with heating and cooling coils.

The science classrooms are equipped with fume hoods and emergency eyewash and showers. There is a floor drain located at the emergency eyewash and shower location.

Controls & Instrumentation - The building automation system (BAS) consist of modern DDC modules, communications network and a front end software interface to monitor, track, command and control the building's HVAC systems. The DDC system is by Siemens Building Technologies. There are no pneumatic controllers for the building automation system as per the building engineer. There are however, air compressor which serve the compressed air turrets within the science lab classrooms.

Sprinklers - The school building is covered by an automatic sprinkler system and a fire pump, jockey pump arrangement. The fire pump's rated capacity is 500 GPM, 92.6 FT HEAD, 1750 RPM. The pump is diesel engine driven on number 2 fuel oil. The kitchen

hood exhaust system is equipped with an Ansul fire suppression system.

Electrical

An underground medium voltage cable drop from the utility power pole located on Langdon Street feeds the school main service switchgear located in the main electrical substation room. The main service switchgear consists of 600A medium voltage load interrupter, transformer section, (2500/3333KVA, 13200V to 480/277V, 3PH, 4 wires, dry type transformer), and a 4000A, 408/277V power distribution switchboard. The utility meter is installed in a separate enclosure located in the same room also a 400KVAR standard automatic capacitor bank and is connected to the main distribution switch board for power factor correction. The service entrance and building main power distribution systems are new and are in very good condition and have ample capacity.

The electrical distribution is accomplished with two distribution switchboards (SWBD #1 and SWBD3 #2). Switchboard A feeds several 480/277V distribution panelboards throughout the building and as well as one Motor Control Center (MCC) for mechanical loads. Switchboard B feeds the emergency generator auto transfer switches. Several secondary transformers are used to step down the voltage from 480V to 208/120V, 3 phase for receptacles and other loads. These transformers are located in main electrical room and other electrical rooms located throughout the building. All distribution equipment (transformers, panels, etc.) is in good condition.

There is a sufficient number of receptacles installed in classrooms, offices, corridors, and other areas throughout the building. No major deficiencies were observed during the assessment. However the vast majority of exterior receptacle enclosures are broken. Replacing the enclosures with corrosion resistance metallic type enclosures will remedy this situation.

Interior building spaces are illuminated by various types lighting fixtures (architectural Design). Typically, 2x4 recessed fluorescent fixtures with T8 lamps are used in areas like classrooms, corridors, offices, and the kitchen. Surface or pendent mounted industrial fluorescents are used in mechanical and electrical rooms. The Gymnasium is illuminated by metal halide fixtures enclosed in a glass fixture. A centralized lighting control system has been provided for controlling the lighting system. The Lighting Control system is connected to the school LAN system to allow for remote access for programming and maintenance. No deficiencies were observed during the assessment. All interior lighting fixtures are in a good condition and building illumination is sufficient.

The Fire Alarm system is fully automated, addressable, and in compliance with today's safety codes. The Smoke detection system consists of smoke detectors in ductwork and area smoke detectors in corridors. There are also manual pull stations for fire notification. There is a sufficient number of horn/strobes installed in the classrooms, corridors, offices and other areas in the school.

The school telephone and data systems are new and working adequately. A main distribution frame (MDF) along with a telephone PBX system (telephone within an enterprise that switches calls between enterprise users on local lines while allowing all users to share a certain number of external phone lines) services the communication system in the building. The School is also equipped with a WI-FI system.

A separate PA system does not exist. The telephone system is used for public announcements. This system is working adequately.

Each classroom has intercom telephone service. The system permits paging and intercom communications from the main office to classrooms, classrooms to the main office, and classroom to classroom. Outside line access from a classroom phone through the PBX is blocked. The system interfaces with the master clock system for class change signaling utilizing paging speakers. The system is also equipped with a tone generator and input from program/clock controller.

Clock and program system are working adequately. Classrooms are provided with a 12 inch, wall mounted, round clock. The clocks are controlled by central master control panel. The master control is also programmed for class change.

Television system is not provided in the school. All classes are provided with a smart board having ability to connect to a computer and the internet.

The school has a video surveillance system. A sufficient number of cameras is installed at exit doors, corridors and other critical areas, controlled by a Closed Circuit Television system (CCTV). The system is working properly.

The school has a 350KW, 480/277V, 3PH, 4W diesel generator (manufactured by Detroit Diesel) to feed the elevators, emergency lighting and other emergency loads via three transfer switches. The generator is new and in a very good condition.

An Uninterruptible Power System (UPS) is provided for the IT racks.

Emergency lighting, including exit lighting, is provided in corridors, library, auditorium, and exit ways. All exit signs are equipped with

batteries.

There is no lightning protection installed in the school. A Risk Assessment Study needs to be conducted to verify if a lightning protection system is required to protect the building.

A Grounding system is provided.

There are two 75HP hydraulic type elevators manufactured by ThyssenKrupp elevator model EP07025, in the school. The elevators are working properly - no major deficiencies were observed during the assessment.

Stage lighting is provided with front lighting, upstage lighting, high-side lighting, backlighting, and scenery lighting. Additionally, there are dimmable house lights and switchable stage work lights provided for general illumination during rehearsals other activities. Supplemental fluorescent lighting is also provided in stage area for lectures and testing. Supplemental lighting can be turned off by a dimmer bank during performances.

A full, professional-grade sound system, control board, and video recording/playback system is provided in the rear of the auditorium.

Parking areas and building perimeters have lighting to provide for the safety and security of property. However, front lighting on the Langdon Street side of the building is inadequate. There are seating areas in the lawn that had been lit by bollards which are now broken and removed with no replacement fixtures provided. Additional lighting is required to provide adequate night-time safety and surveillance. A full review of site and parking lighting is required to ensure adequate lighting around the property.

Site Video Surveillance of the building exterior and parking area is monitored by a video surveillance system that appears to be working adequately.

Site paging system appears to have a sufficient number of speakers located on building exterior walls and appears to be working adequately.

Grounds

Front, side and rear concrete walkways are generally in good condition with a few isolated concrete panels having cracks. The building engineer noted that there are no hose bibs around the building preventing the use of water for lawns, shrubs, or any other purpose. Lighting bollards (approximately 20) around the front area lawn benches and walkway have been broken by vandals. There are some bollards remaining, but they do not provide adequate lighting to the area. The low masonry wall along which seating is located has many areas requiring repointing. Better and more vandal-proof site lighting is required on Langdon Street side of building in front yard and seating area.

Asphalt parking areas in the rear and side are cracking and need to be restriped. ADA accessible parking spaces are provided in the rear entrance main drop off doors and the side doors that provide access to the auditorium. Curb cuts are provided and entrances do not require ramps since they are grade level. Cracks are beginning to form lengthwise in the parking lot surfaces; these should be filled with sealer. The number of required parking spaces for school staff and faculty is unknown, however restriping of the parking area is required to provide better markings. There is a full site fence constructed of painted steel post and balusters, located around the property. One section of the fence near the adjacent church parking lot is leaning and needs to be re-set. There is a gate at the main entrance off East Sanger Street (accessed from Langdon Avenue). There is also an area of "grass blocks" that was installed around the northeast side of the school to provide fire truck access to the rear sections of the school fronting on grass. This emergency access route exits to the east through an emergency exit gate to the adjacent property.

RECOMMENDATIONS

Architectural

- Clean and reseal/repaint concrete floor slab mechanical rooms and stair treads (6700sf)
- Repaint hollow metal door frames (50) 3'x7'
- Refinish oak doors where damaged (20 doors)
- Repaint stair handrails (300ft) and guards/balusters (150ft)
- Repair cracks in VCT floors at exit doors, along expansion joints, and column line control joints in corridors and classrooms – replace VCT (500sf)
- Replace carpet in 33% of MultiPurpose Room, auditorium, and offices (14000sf)

- Replace carpet with traffic mats at personnel entrances (1000sf)
- Repair and repaint damaged gypsum board from accidental impact, vandalism, or leaks - 15 areas 400sf each
- Powerwash dirt off glass overhangs
- Replace failing window gaskets - 3 windows
- Repair scratched and damaged folding wood auditorium chairs (25 chairs)

Mechanical

- Provide training to staff on operating the Building Energy Management System.
- Hire a contractor to perform retro-commissioning to establish an operational baseline for the operation of the building systems.
- Verify the operation of the CO2 sensors and replace or calibrate as required.

Electrical

- Provide improved site lighting on building on Langdon Street side front yard of building to replace broken bollards.
- Provide lightining protection studies to ascertain adequacy of existing lighting protection systems.
- Provide weatherproof metallic exterior duplex receptacle cover plates to protect exterior outlets

Grounds

- Repave damaged sections of concrete walkway (200sf)
- Repair broken curbing (50ft)
- Replace damaged chain link fencing (160lf x 10ft tall)
- Fill cracks in asphalt parking lot (1000ft)
- Restripe parking lots (100 spaces)
- Repair seating and masonry wall on Langdon Street side

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 1 / Tm 2
Status:	Accepted by SDP	Team:	Tm 2
Site ID:	S712001		

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.

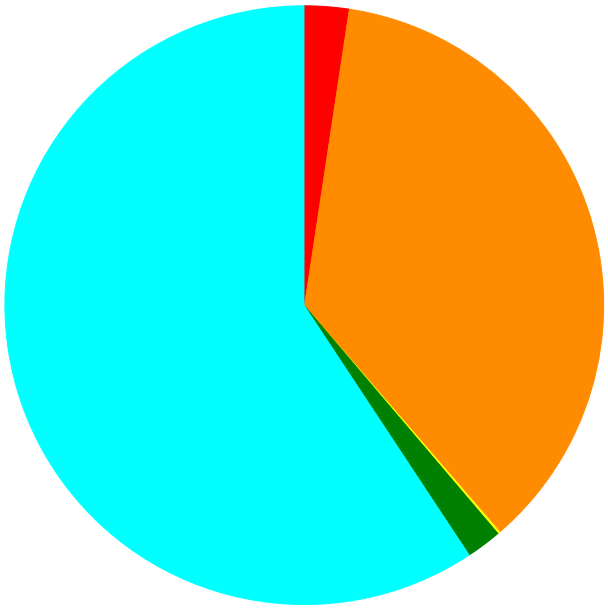
Current Investment Requirement and Condition by Uniformat Classification

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	94.00 %	0.00 %	$0.00
A20 - Basement Construction	94.00 %	0.00 %	$0.00
A30 - Pool Construction	87.40 %	0.00 %	$0.00
B10 - Superstructure	94.00 %	0.38 %	$95,856.75
B20 - Exterior Enclosure	90.26 %	0.01 %	$1,347.81
B30 - Roofing	70.02 %	0.02 %	$1,283.86
C10 - Interior Construction	91.84 %	0.50 %	$34,782.25
C20 - Stairs	90.52 %	0.96 %	$3,770.37
C30 - Interior Finishes	69.65 %	1.73 %	$226,305.27
D10 - Conveying	82.86 %	0.00 %	$0.00
D20 - Plumbing	81.64 %	0.09 %	$4,238.61
D30 - HVAC	76.68 %	2.67 %	$742,817.19
D40 - Fire Protection	82.86 %	0.00 %	$0.00
D50 - Electrical	84.41 %	0.37 %	$53,848.25
E10 - Equipment	82.86 %	0.00 %	$0.00
E20 - Furnishings	85.00 %	3.31 %	$17,602.30
G20 - Site Improvements	72.41 %	0.93 %	$70,850.97
G40 - Site Electrical Utilities	80.00 %	0.00 %	$0.00
Totals:	**83.61 %**	**0.82 %**	**$1,252,703.63**

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)
B712001;Fels	249,787	0.83	$29,919.89	$385,187.22	$0.00	$23,928.36	$742,817.19
G712001;Grounds	805,700	0.64	$0.00	$69,204.94	$1,646.03	$0.00	$0.00
Total:		**0.82**	**$29,919.89**	**$454,392.16**	**$1,646.03**	**$23,928.36**	**$742,817.19**

Deficiencies By Priority



Budget Estimate Total: $1,252,703.63

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:	High School
Gross Area (SF):	249,787
Year Built:	2009
Last Renovation:	
Replacement Value:	$141,757,959
Repair Cost:	$1,181,852.66
Total FCI:	0.83 %
Total RSLI:	84.30 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B712001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S712001		

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	94.00 %	0.00 %	$0.00
A20 - Basement Construction	94.00 %	0.00 %	$0.00
A30 - Pool Construction	87.40 %	0.00 %	$0.00
B10 - Superstructure	94.00 %	0.38 %	$95,856.75
B20 - Exterior Enclosure	90.26 %	0.01 %	$1,347.81
B30 - Roofing	70.02 %	0.02 %	$1,283.86
C10 - Interior Construction	91.84 %	0.50 %	$34,782.25
C20 - Stairs	90.52 %	0.96 %	$3,770.37
C30 - Interior Finishes	69.65 %	1.73 %	$226,305.27
D10 - Conveying	82.86 %	0.00 %	$0.00
D20 - Plumbing	81.64 %	0.09 %	$4,238.61
D30 - HVAC	76.68 %	2.67 %	$742,817.19
D40 - Fire Protection	82.86 %	0.00 %	$0.00
D50 - Electrical	84.41 %	0.37 %	$53,848.25
E10 - Equipment	82.86 %	0.00 %	$0.00
E20 - Furnishings	85.00 %	3.31 %	$17,602.30
Totals:	**84.30 %**	**0.83 %**	**$1,181,852.66**

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	$27.30	S.F.	249,787	100	2009	2109		94.00 %	0.00 %	94			$6,819,185
A1030	Slab on Grade	$5.17	S.F.	249,787	100	2009	2109		94.00 %	0.00 %	94			$1,291,399
A2010	Basement Excavation	$4.36	S.F.	249,787	100	2009	2109		94.00 %	0.00 %	94			$1,089,071
A2020	Basement Walls	$9.91	S.F.	249,787	100	2009	2109		94.00 %	0.00 %	94			$2,475,389
A3010	Pool Excavation	$38.73	S.F.	15,000	100	2009	2109		94.00 %	0.00 %	94			$580,950
A3020	Pool Shell	$106.51	S.F.	15,000	40	2009	2049		85.00 %	0.00 %	34			$1,597,650
B1010	Floor Construction	$85.34	S.F.	249,787	100	2009	2109		94.00 %	0.45 %	94		$95,856.75	$21,316,823
B1020	Roof Construction	$14.39	S.F.	249,787	100	2009	2109		94.00 %	0.00 %	94			$3,594,435
B2010	Exterior Walls	$43.20	S.F.	249,787	100	2009	2109		94.00 %	0.01 %	94		$1,093.74	$10,790,798
B2020	Exterior Windows	$27.52	S.F.	249,787	40	2009	2049		85.00 %	0.00 %	34		$254.07	$6,874,138
B2030	Exterior Doors	$1.16	S.F.	249,787	25	2009	2034		76.00 %	0.00 %	19			$289,753
B3010105	Built-Up	$37.76	S.F.	138,400	20	2009	2029		70.00 %	0.02 %	14		$1,283.86	$5,225,984
B3010120	Single Ply Membrane	$38.73	S.F.	36,600	20	2009	2029		70.00 %	0.00 %	14			$1,417,518
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	$0.06	S.F.	175,000	30	2009	2039		80.00 %	0.00 %	24			$10,500
C1010	Partitions	$21.05	S.F.	249,787	100	2009	2109		94.00 %	0.00 %	94			$5,258,016
C1020	Interior Doors	$3.76	S.F.	249,787	40	2009	2049		85.00 %	3.70 %	34		$34,782.25	$939,199

Site Assessment Report - B712001;Fels

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 $
C1030	Fittings	$2.90	S.F.	249,787	40	2009	2049		85.00 %	0.00 %	34			$724,382
C2010	Stair Construction	$1.18	S.F.	249,787	100	2009	2109		94.00 %	1.28 %	94		$3,770.37	$294,749
C2020	Stair Finishes	$0.39	S.F.	249,787	30	2009	2039		80.00 %	0.00 %	24			$97,417
C3010230	Paint & Covering	$13.21	S.F.	249,787	10	2009	2019	2020	50.00 %	1.47 %	5		$48,497.71	$3,299,686
C3010231	Vinyl Wall Covering	$0.97	S.F.	249,787	15	2009	2024		60.00 %	0.00 %	9			$242,293
C3010232	Wall Tile	$2.63	S.F.	249,787	30	2009	2039		80.00 %	0.00 %	24			$656,940
C3020411	Carpet	$7.30	S.F.	22,480	10	2009	2019	2026	110.00 %	81.01 %	11		$132,945.20	$164,104
C3020412	Terrazzo & Tile	$75.52	S.F.	12,490	50	2009	2059		88.00 %	0.00 %	44			$943,245
C3020413	Vinyl Flooring	$9.68	S.F.	184,842	20	2009	2029		70.00 %	0.34 %	14		$6,008.77	$1,789,271
C3020414	Wood Flooring	$22.27	S.F.	14,990	25	2009	2034		76.00 %	0.00 %	19			$333,827
C3020415	Concrete Floor Finishes	$0.97	S.F.	14,985	50	2009	2059		88.00 %	267.31 %	44		$38,853.59	$14,535
C3030	Ceiling Finishes	$20.97	S.F.	249,787	25	2009	2034		76.00 %	0.00 %	19			$5,238,033
C3040	Pool Finishes	$24.21	S.F.	15,000	20	2009	2029		70.00 %	0.00 %	14			$363,150
D1010	Elevators and Lifts	$1.28	S.F.	249,787	35	2009	2044		82.86 %	0.00 %	29			$319,727
D2010	Plumbing Fixtures	$13.52	S.F.	249,787	35	2009	2044		82.86 %	0.13 %	29		$4,238.61	$3,377,120
D2020	Domestic Water Distribution	$1.68	S.F.	249,787	25	2009	2034		76.00 %	0.00 %	19			$419,642
D2030	Sanitary Waste	$2.32	S.F.	249,787	30	2009	2039		80.00 %	0.00 %	24			$579,506
D2040	Rain Water Drainage	$1.90	S.F.	249,787	30	2009	2039		80.00 %	0.00 %	24			$474,595
D3020	Heat Generating Systems	$18.67	S.F.	249,787	35	2009	2044		82.86 %	0.00 %	29			$4,663,523
D3030	Cooling Generating Systems	$24.48	S.F.	249,787	30	2009	2039		80.00 %	0.00 %	24			$6,114,786
D3040	Distribution Systems	$42.99	S.F.	249,787	25	2009	2034		76.00 %	0.00 %	19			$10,738,343
D3050	Terminal & Package Units	$11.60	S.F.	249,787	20	2009	2029		70.00 %	0.00 %	14			$2,897,529
D3060	Controls & Instrumentation	$13.50	S.F.	249,787	20	2009	2029		70.00 %	22.03 %	14		$742,817.19	$3,372,125
D4010	Sprinklers	$7.05	S.F.	249,787	35	2009	2044		82.86 %	0.00 %	29			$1,760,998
D4020	Standpipes	$1.01	S.F.	249,787	35	2009	2044		82.86 %	0.00 %	29			$252,285
D5010	Electrical Service/Distribution	$9.70	S.F.	249,787	30	2009	2039	2039	80.00 %	0.00 %	24			$2,422,934
D5020	Lighting and Branch Wiring	$34.68	S.F.	249,787	20	2009	2029	2029	70.00 %	0.29 %	14		$24,736.46	$8,662,613
D5030	Communications and Security	$12.99	S.F.	249,787	15	2009	2024	2034	126.67 %	0.00 %	19			$3,244,733
D5090	Other Electrical Systems	$1.41	S.F.	249,787	30	2009	2039	2039	80.00 %	8.27 %	24		$29,111.79	$352,200
E1020	Institutional Equipment	$18.55	S.F.	249,787	35	2009	2044		82.86 %	0.00 %	29			$4,633,549
E1090	Other Equipment	$12.84	S.F.	249,787	35	2009	2044		82.86 %	0.00 %	29			$3,207,265
E2010	Fixed Furnishings	$2.13	S.F.	249,787	40	2009	2049		85.00 %	3.31 %	34		$17,602.30	$532,046
								Total	**84.30 %**	**0.83 %**			**$1,181,852.66**	**$141,757,959**

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:	B30 - Roofing	This system contains no images
Note:	Built-up roof = 138,400 (80%) EPDM roof = 36,600 (20%) TOTAL ROOF AREA = 175,000SF	
System:	C3010 - Wall Finishes	This system contains no images
Note:	painted - 97% ceramic tile - 3%	
System:	C3020 - Floor Finishes	This system contains no images
Note:	concrete 6% wood 6% VCT 74% ceramic tile / quarry tile 5% carpet 9%	
System:	C3030 - Ceiling Finishes	This system contains no images
Note:	gypsum board 5% acoustical tile 84% exposed structure 11%	
System:	D5090 - Other Electrical Systems	This system contains no images
Note:	1-150KVA, 480-208/120V transformer 1-112.5KVA, 480V-208/120V transformer 2-75KVA, 480-208/120V transformer 1-30KVA, 480V-208/120V transformer	
System:	E10 - Equipment	This system contains no images
Note:	Additional cost added to cost model for pool equipment	

Renewal Schedule

eCOMET forecasts future Capital Renewal funding needed to address expiring systems based on the Next Renewal year found in the Cost Models. A 3% annual inflation factor is applied to the costs for systems expiring in future years. The table below reflects recommended Capital Renewal funding needs over the next 10 years. Note: Cells with a zero value indicate systems for which renewal is not scheduled in that year.

Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$1,181,853**	**$0**	**$0**	**$0**	**$0**	**$4,207,765**	**$0**	**$0**	**$0**	**$347,752**	**$0**	**$5,737,370**
*** 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**
A30 - Pool Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A3010 - Pool Excavation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A3020 - Pool Shell	$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	$95,857	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$95,857**
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	$1,094	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,094**
B2020 - Exterior Windows	$254	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$254**
B2030 - Exterior Doors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B30 - Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010 - Roof Coverings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010105 - Built-Up	$1,284	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,284**
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**

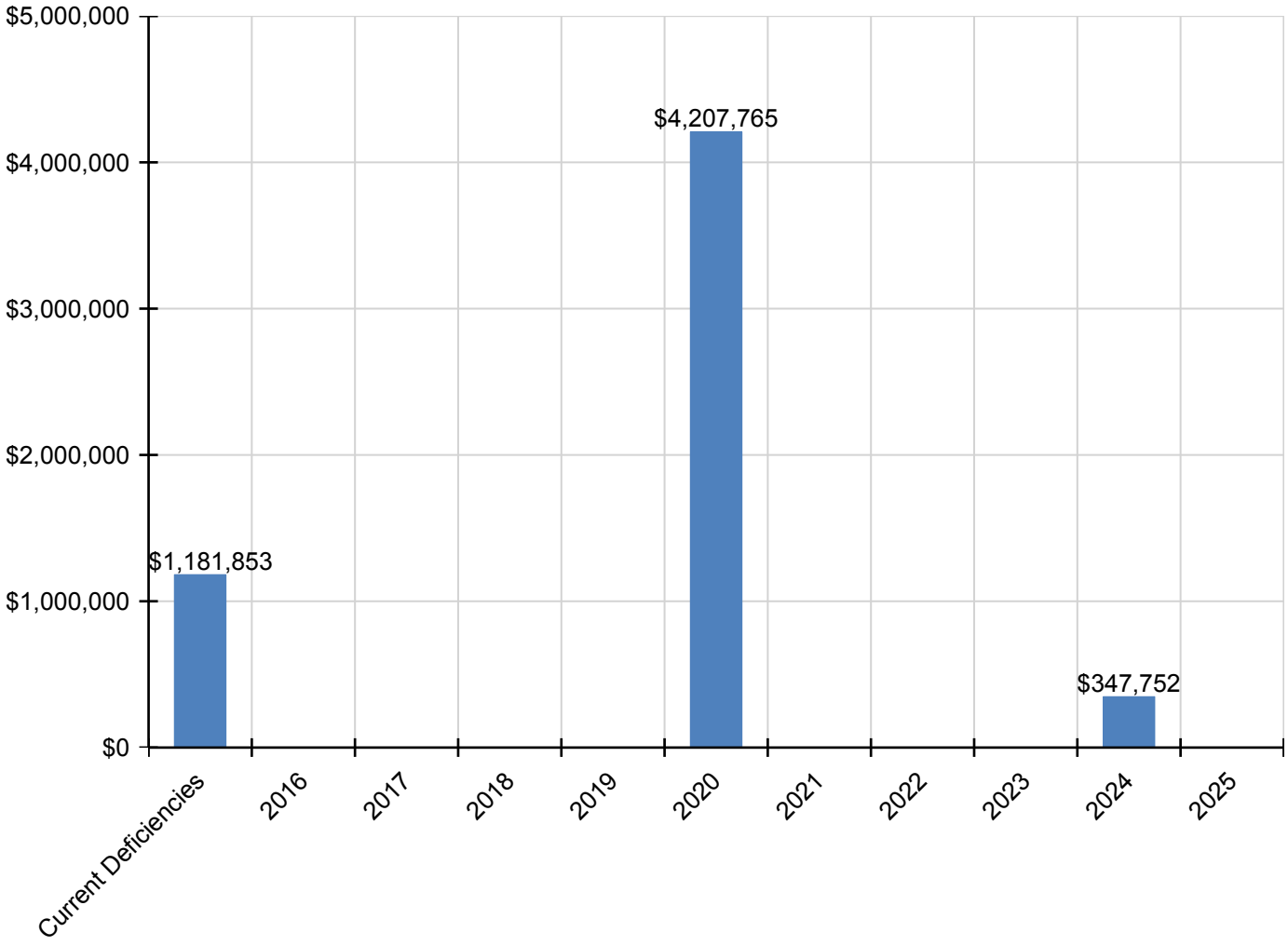
C - Interiors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C10 - Interior Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1010 - Partitions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1020 - Interior Doors	$34,782	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$34,782**
C1030 - Fittings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$3,770	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$3,770**
C2020 - Stair Finishes	$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	$48,498	$0	$0	$0	$0	$4,207,765	$0	$0	$0	$0	$0	**$4,256,263**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$347,752	$0	**$347,752**
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	$132,945	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$132,945**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$6,009	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$6,009**
C3020414 - Wood Flooring	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020415 - Concrete Floor Finishes	$38,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$38,854**
C3030 - Ceiling Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3040 - Pool Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D - Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D10 - Conveying	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D1010 - Elevators and Lifts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$4,239	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$4,239**
D2020 - Domestic Water Distribution	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2030 - Sanitary Waste	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3030 - Cooling Generating Systems	$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	$0	**$0**

D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$742,817	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$742,817**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4020 - Standpipes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D50 - Electrical	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5010 - Electrical Service/Distribution	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5020 - Lighting and Branch Wiring	$24,736	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$24,736**
D5030 - Communications and Security	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5090 - Other Electrical Systems	$29,112	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$29,112**
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	$17,602	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$17,602**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

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

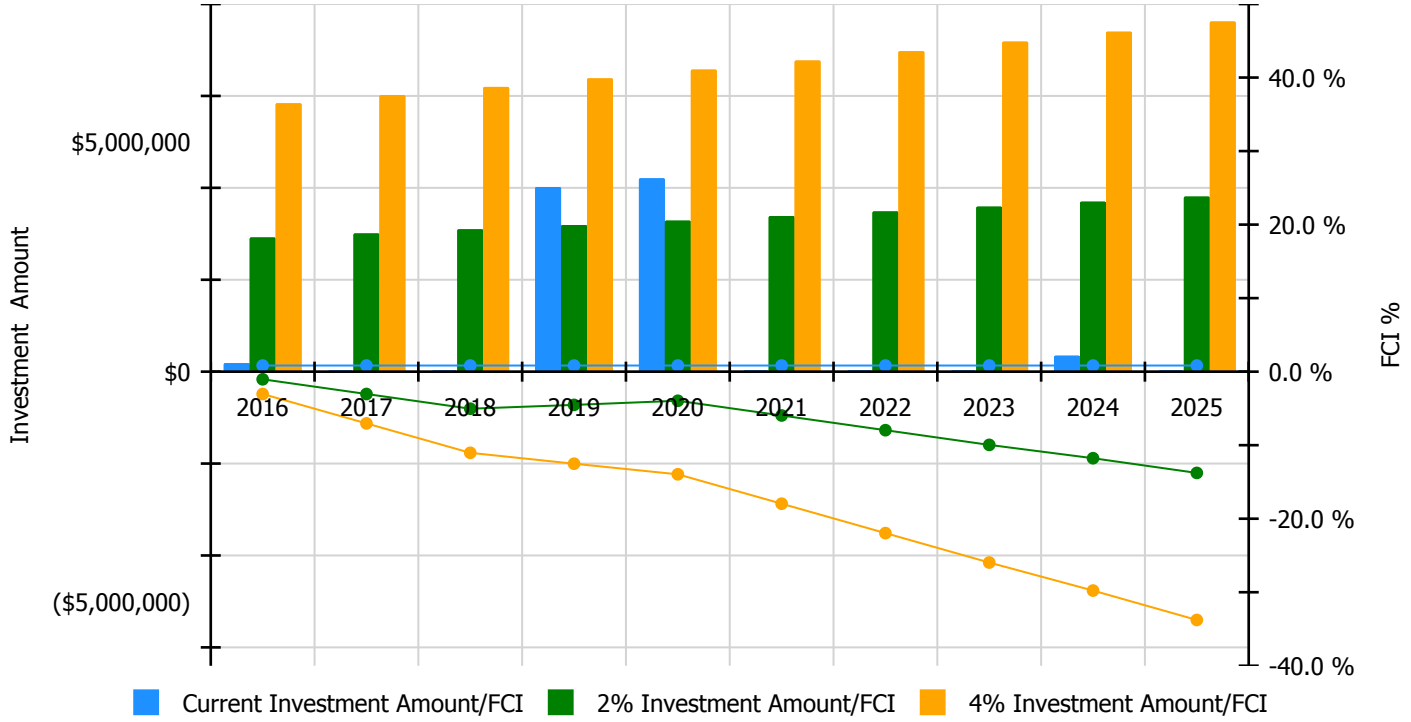


10 Year FCI Forecast by Investment Scenario

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

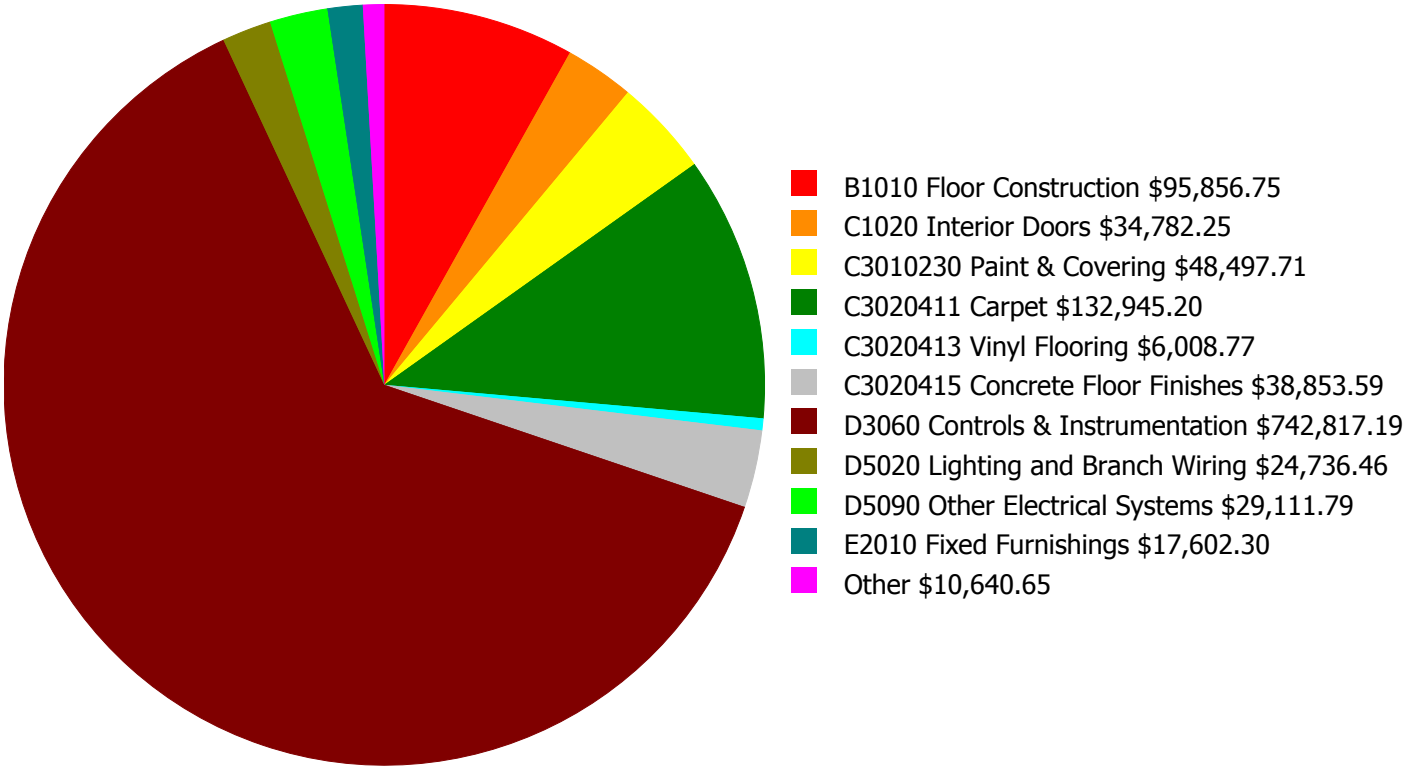
Facility Investment vs. FCI Forecast



Year	Investment Amount Current FCI - 0.83%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$185,929	$2,920,214.00	-1.04 %	$5,840,428.00	-3.04 %
2017	$0	$3,007,820.00	-3.04 %	$6,015,641.00	-7.04 %
2018	$0	$3,098,055.00	-5.04 %	$6,196,110.00	-11.04 %
2019	$4,017,173	$3,190,997.00	-4.52 %	$6,381,993.00	-12.52 %
2020	$4,207,765	$3,286,727.00	-3.96 %	$6,573,453.00	-13.96 %
2021	$0	$3,385,328.00	-5.96 %	$6,770,657.00	-17.96 %
2022	$0	$3,486,888.00	-7.96 %	$6,973,776.00	-21.96 %
2023	$0	$3,591,495.00	-9.96 %	$7,182,990.00	-25.96 %
2024	$347,752	$3,699,240.00	-11.77 %	$7,398,479.00	-29.77 %
2025	$0	$3,810,217.00	-13.77 %	$7,620,434.00	-33.77 %
Total:	**$8,758,619**	**$33,476,981.00**		**$66,953,961.00**	

Deficiency Summary by System

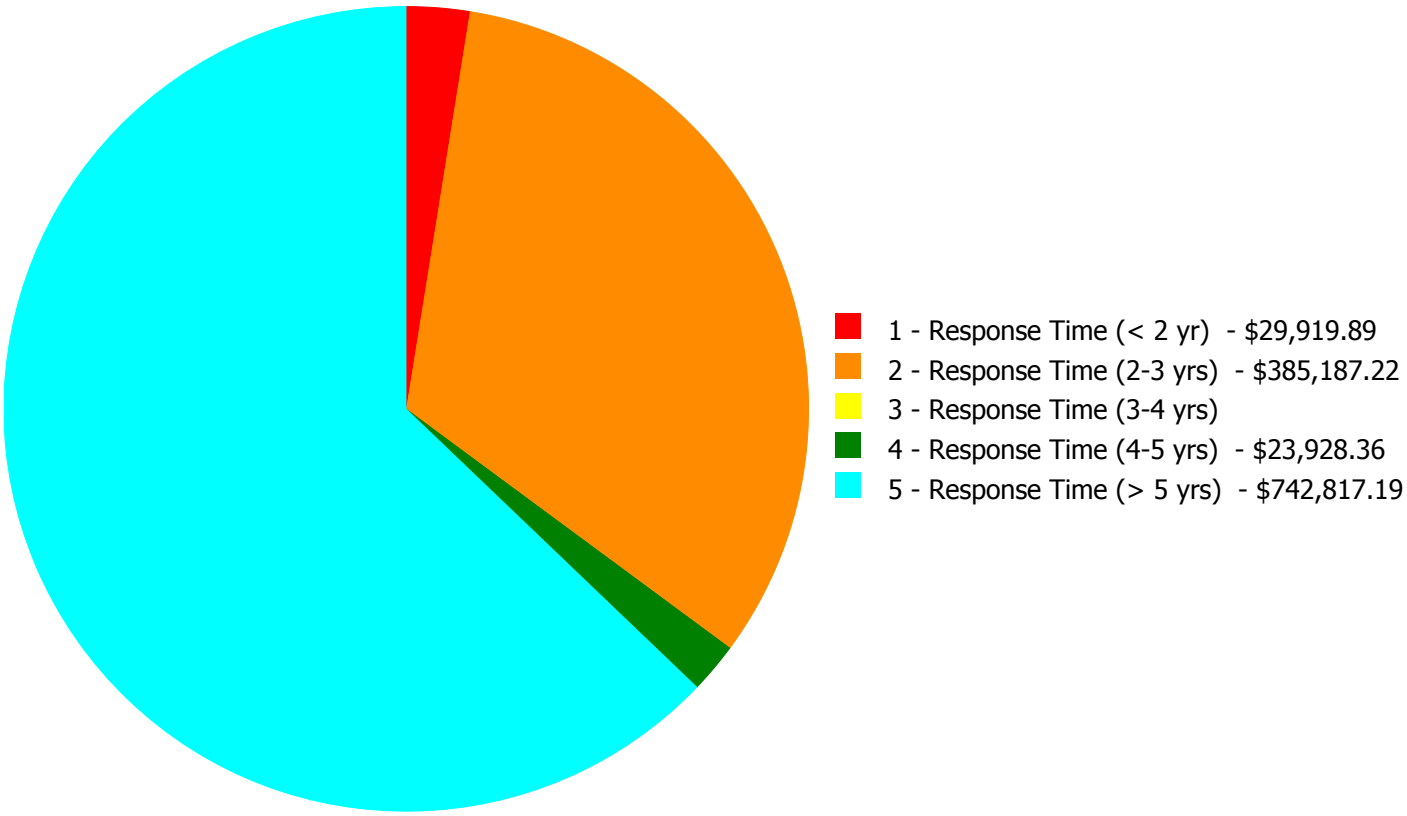
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $1,181,852.66

Deficiency Summary by Priority

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



Budget Estimate Total: $1,181,852.66

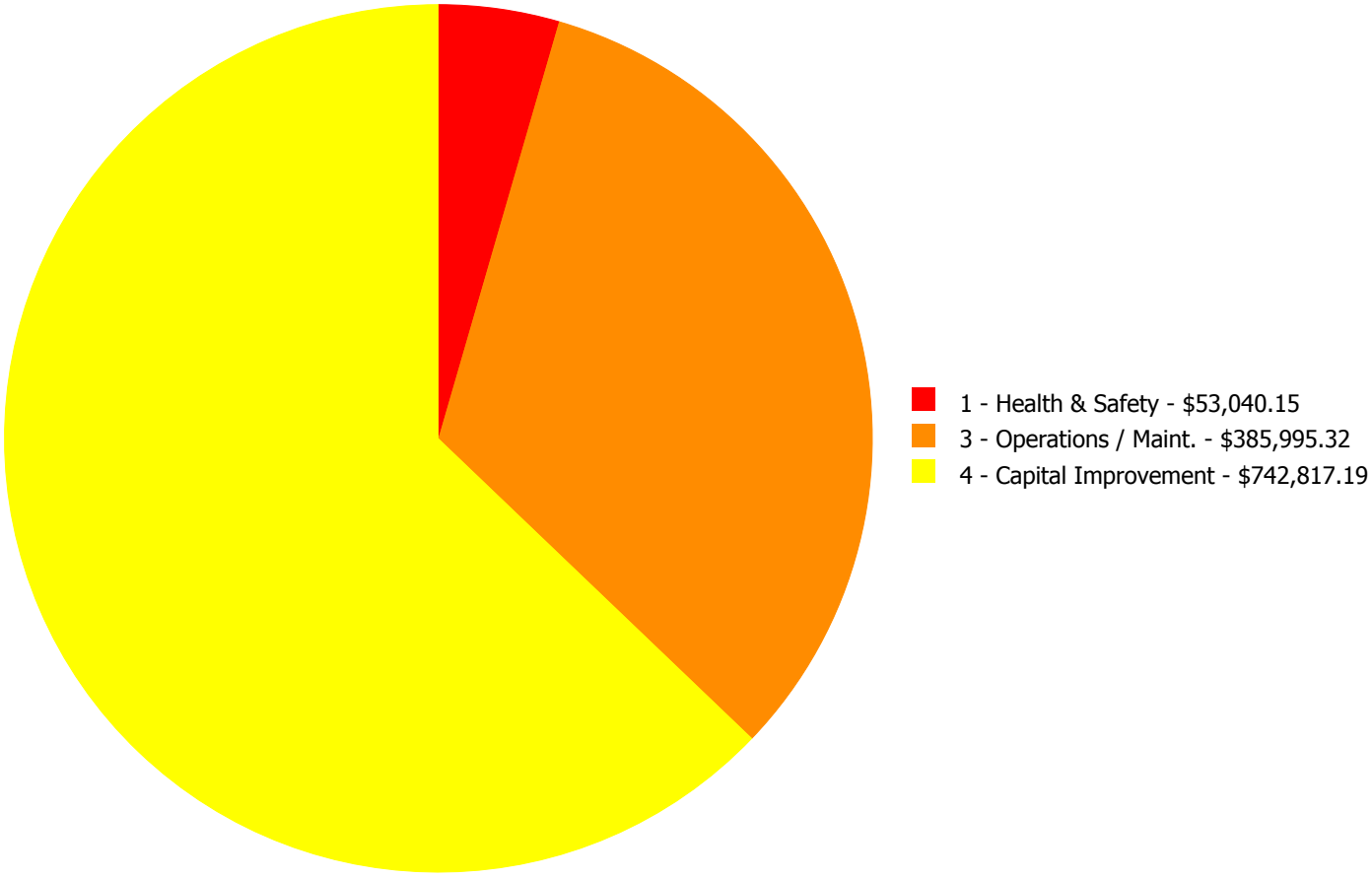
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
B1010	Floor Construction	$0.00	$95,856.75	$0.00	$0.00	$0.00	$95,856.75
B2010	Exterior Walls	$0.00	$1,093.74	$0.00	$0.00	$0.00	$1,093.74
B2020	Exterior Windows	$0.00	$254.07	$0.00	$0.00	$0.00	$254.07
B3010105	Built-Up	$0.00	$1,283.86	$0.00	$0.00	$0.00	$1,283.86
C1020	Interior Doors	$0.00	$34,782.25	$0.00	$0.00	$0.00	$34,782.25
C2010	Stair Construction	$0.00	$3,770.37	$0.00	$0.00	$0.00	$3,770.37
C3010230	Paint & Covering	$0.00	$48,497.71	$0.00	$0.00	$0.00	$48,497.71
C3020411	Carpet	$0.00	$132,945.20	$0.00	$0.00	$0.00	$132,945.20
C3020413	Vinyl Flooring	$0.00	$6,008.77	$0.00	$0.00	$0.00	$6,008.77
C3020415	Concrete Floor Finishes	$0.00	$38,853.59	$0.00	$0.00	$0.00	$38,853.59
D2010	Plumbing Fixtures	$0.00	$4,238.61	$0.00	$0.00	$0.00	$4,238.61
D3060	Controls & Instrumentation	$0.00	$0.00	$0.00	$0.00	$742,817.19	$742,817.19
D5020	Lighting and Branch Wiring	$808.10	$0.00	$0.00	$23,928.36	$0.00	$24,736.46
D5090	Other Electrical Systems	$29,111.79	$0.00	$0.00	$0.00	$0.00	$29,111.79
E2010	Fixed Furnishings	$0.00	$17,602.30	$0.00	$0.00	$0.00	$17,602.30
	Total:	$29,919.89	$385,187.22	$0.00	$23,928.36	$742,817.19	$1,181,852.66

Deficiency Summary by Category

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



Budget Estimate Total: $1,181,852.66

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: D5020 - Lighting and Branch Wiring

Location: exterior walls around bldg
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Replace Wiring Device
Qty: 30.00
Unit of Measure: Ea.
Estimate: $808.10
Assessor Name: Craig Anding
Date Created: 08/10/2015

Notes: Provide exterior duplex receptacle cover plates to protect exterior outlets

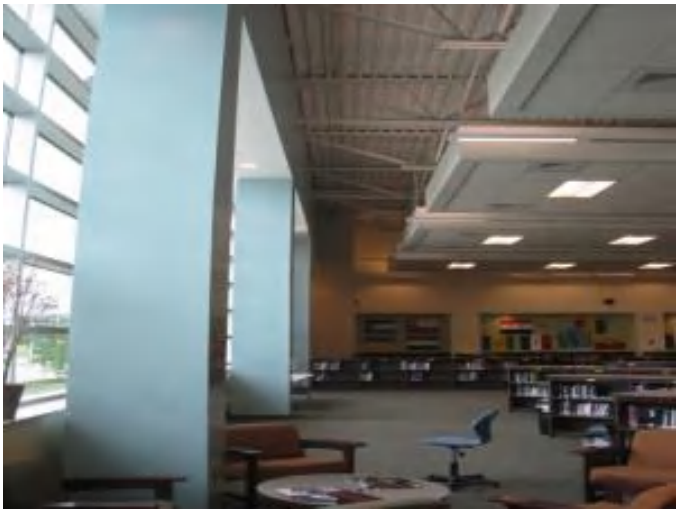
System: D5090 - Other Electrical Systems

Location: roof
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 1 - Response Time (< 2 yr)
Correction: Repair Lightning Protection System
Qty: 1.00
Unit of Measure: Job
Estimate: $29,111.79
Assessor Name: Craig Anding
Date Created: 08/10/2015

Notes: Provide lightning protection studies to ascertain adequacy of existing systems.

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

System: B1010 - Floor Construction



Location: entrance vestibules

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace metal floor grate or traffic mat

Qty: 1,000.00

Unit of Measure: S.F.

Estimate: $95,856.75

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Replace carpet with traffic mats at personnel entrances (1000sf)

System: B2010 - Exterior Walls

Location: exterior glass overhangs

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Sooty and dirty walls - powerwash

Qty: 1,000.00

Unit of Measure: S.F.

Estimate: $1,093.74

Assessor Name: Craig Anding

Date Created: 09/11/2015

Notes: Powerwash dirt off glass overhangs

System: B2020 - Exterior Windows

Location: exterior windows

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 40.00

Unit of Measure: L.F.

Estimate: $254.07

Assessor Name: Craig Anding

Date Created: 09/11/2015

Notes: replace failing window gaskets - 3 windows

System: B3010105 - Built-Up

Location: glass overhang

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace or replace parapet caps - BUR

Qty: 15.00

Unit of Measure: L.F.

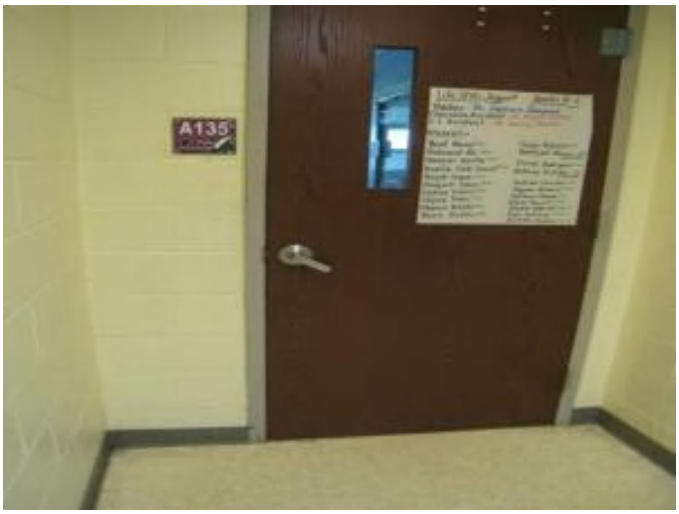
Estimate: $1,283.86

Assessor Name: Craig Anding

Date Created: 09/11/2015

Notes: Replace damaged aluminum coping on glass overhang

System: C1020 - Interior Doors



Location: all door frames

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Repair and repaint HM door frames - per frame

Qty: 50.00

Unit of Measure: Ea.

Estimate: $18,218.59

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Repaint hollow metal door frames

System: C1020 - Interior Doors

Location: interior locations

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Refinish interior doors

Qty: 20.00

Unit of Measure: Ea.

Estimate: $16,563.66

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Refinish oak doors where damaged (20 doors)

System: C2010 - Stair Construction

Location: stairways

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Re-paint stairway metal balustrade - based on SF of balustrades - paint both sides

Qty: 150.00

Unit of Measure: S.F.

Estimate: $2,126.28

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Repaint stair handrails (300ft) and guards/balusters (150ft)

System: C2010 - Stair Construction

Location: stairways

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Re-paint stairway handrails - per LF of handrail pipe

Qty: 300.00

Unit of Measure: L.F.

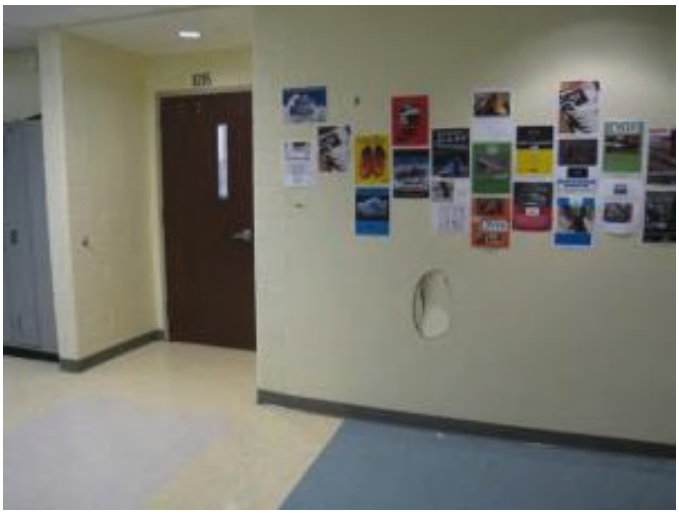
Estimate: $1,644.09

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Repaint stair handrails (300ft) and guards/balusters (150ft)

System: C3010230 - Paint & Covering



Location: classrooms, corridors

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 6,000.00

Unit of Measure: S.F.

Estimate: $48,497.71

Assessor Name: Craig Anding

Date Created: 09/11/2015

Notes: Repair and repaint damaged gypsum board from accidental impact, vandalism, or leaks - 15 areas 400sf each

System: C3020411 - Carpet

Location: multipurpose room, offices, auditorium

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace carpet

Qty: 12,000.00

Unit of Measure: S.F.

Estimate: $132,945.20

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Replace carpet in 20% of MultiPurpose Room, auditorium, and offices (12000sf)

System: C3020413 - Vinyl Flooring

Location: VCT floors

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace VCT

Qty: 500.00

Unit of Measure: S.F.

Estimate: $6,008.77

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Repair cracks in VCT floors at exit doors, along expansion joints, and column line control joints in corridors and classrooms – replace VCT (500sf)

System: C3020415 - Concrete Floor Finishes

Location: mechanical area floors and stair treads

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Prepare and repaint concrete floor

Qty: 6,700.00

Unit of Measure: S.F.

Estimate: $38,853.59

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Clean and reseal/repaint concrete floor slab mechanical rooms and stair treads (6700sf)

System: D2010 - Plumbing Fixtures

Location: around bldg exterior near sidewalk

Distress: Maintenance Required

Category: 3 - Operations / Maint.

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

Correction: Replace lavatory faucet

Qty: 4.00

Unit of Measure: Ea.

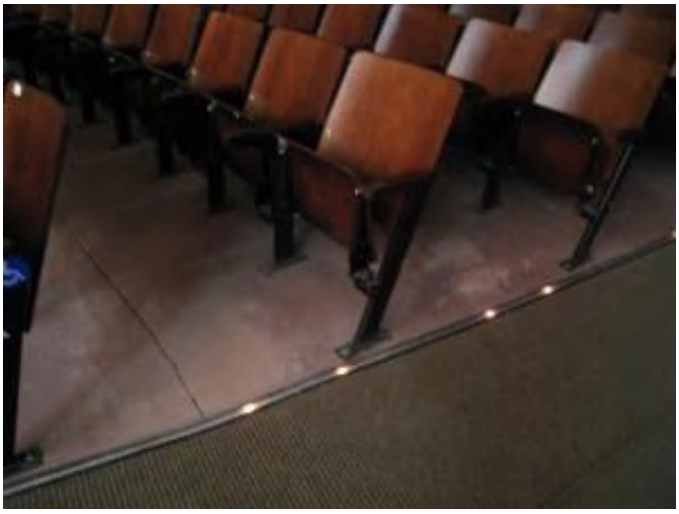
Estimate: $4,238.61

Assessor Name: Craig Anding

Date Created: 09/11/2015

Notes: Add hose bibs in 4 locations around building

System: E2010 - Fixed Furnishings



Location: auditorium

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 25.00

Unit of Measure: Ea.

Estimate: $17,602.30

Assessor Name: Craig Anding

Date Created: 09/11/2015

Notes: Repair scratched and damaged folding wood auditorium chairs (25 chairs)

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

System: D5020 - Lighting and Branch Wiring

Location: Langdon St. side of property

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Add Exterior Lighting

Qty: 10.00

Unit of Measure: Ea.

Estimate: $23,928.36

Assessor Name: Craig Anding

Date Created: 09/10/2015

Notes: Provide improved site lighting on building on Langdon Street side front yard of building to replace broken bollards

Priority 5 - Response Time (> 5 yrs):

System: D3060 - Controls & Instrumentation

This deficiency has no image.

Location:	Controls throughout the building
Distress:	Energy Efficiency
Category:	4 - Capital Improvement
Priority:	5 - Response Time (> 5 yrs)
Correction:	Recommission DDC Building Management System
Qty:	250,000.00
Unit of Measure:	S.F.
Estimate:	$742,817.19
Assessor Name:	Craig Anding
Date Created:	11/09/2015

Notes: Hire a contractor to perform retro-commissioning to establish an operational baseline for the operation of the building systems.

Equipment Inventory

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

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D1010 Elevators and Lifts	Hydraulic passenger elevators, base unit, standard finish, 1500 lb, 100 fpm, 2 stop	2.00	Ea.	inside the building					35	2009	2044	$61,999.00	$136,397.80
D2020 Domestic Water Distribution	Pump, pressure booster system, 5 HP pump, includes diaphragm tank, control and pressure switch	1.00	Ea.	Boiler Mechanical Equipment Room					25	2009	2034	$10,972.50	$12,069.75
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, hot water, gross output, 5256 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Mechanical Equipment Room	HB Smith	4500A-S/W-17			35	2009	2044	$112,817.00	$248,197.40
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, hot water, gross output, 5256 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Mechanical Equipment Room	HB Smith	4500A-S/W-17			35	2009	2044	$112,817.00	$248,197.40
D3030 Cooling Generating Systems	Cooling tower, galvanized steel, packaged unit, draw thru, 300 ton	2.00	Ea.	Roof	Marley	AV Series			30	2009	2039	$75,868.80	$166,911.36
D3030 Cooling Generating Systems	Cooling tower, galvanized steel, packaged unit, draw thru, 300 ton	2.00	Ea.	Roof	Marley	AV Series			30	2009	2039	$75,868.80	$166,911.36
D3030 Cooling Generating Systems	Water chiller, centrifugal liquid chiller, packaged unit, water cooled, 300 ton, includes standard controls, excludes water tower	2.00	Ea.	Chiller Mechanical Equipment Room	York	YKDQRQ4-CJGS			30	2009	2039	$126,852.00	$279,074.40
D3030 Cooling Generating Systems	Water chiller, centrifugal liquid chiller, packaged unit, water cooled, 300 ton, includes standard controls, excludes water tower	2.00	Ea.	Chiller Mechanical Equipment Room	York	YKDQRQ4-CJGS			30	2009	2039	$126,852.00	$279,074.40
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 25 H.P., to 1550 GPM, 6" size	2.00	Ea.	Chiller Mechanical Room	Bell & Gossett	1510			25	2009	2034	$26,334.00	$57,934.80
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 25 H.P., to 1550 GPM, 6" size	2.00	Ea.	Chiller Mechanical Room	Bell & Gossett	1510			25	2009	2034	$26,334.00	$57,934.80
D3040 Distribution Systems	Pump, general utility, centrifugal, end suction, horizontal base mounted, horizontal split case, rated @ 100' head, single stage, 1000 GPM, 40 H.P., 5" discharge, includes drip proof motor	2.00	Ea.	Chiller Mechanical Room	Bell & Gossett	1510			25	2009	2034	$19,380.00	$42,636.00
D3040 Distribution Systems	Pump, general utility, centrifugal, end suction, horizontal base mounted, horizontal split case, rated @ 100' head, single stage, 1000 GPM, 40 H.P., 5" discharge, includes drip proof motor	2.00	Ea.	Chiller Mechanical Room	Bell & Gossett	1510			25	2009	2034	$19,380.00	$42,636.00
D3040 Distribution Systems	Pump, general utility, centrifugal, end suction, horizontal base mounted, vertical split case, rated @ 100' head, single stage, 750 GPM, 30 H.P., 4" discharge, includes drip proof motor	2.00	Ea.	Chiller Mechanical Room	Bell & Gossett	1510			25	2009	2034	$9,832.50	$21,631.50

D3040 Distribution Systems	Pump, general utility, centrifugal, end suction, horizontal base mounted, vertical split case, rated @ 100' head, single stage, 750 GPM, 30 H.P., 4" discharge, includes drip proof motor	2.00	Ea.	Chiller Mechanical Room	Bell & Gossett	1510			25	2009	2034	$9,832.50	$21,631.50
D5010 Electrical Service/Distribution	Load interrupter switch, 2 position, 300 kVA & below, 13.8 kV, 600 amp w/CLF fuses, NEMA 1	1.00	Ea.	Main Electrical Room					30	2009	2039	$42,600.60	$46,860.66
D5010 Electrical Service/Distribution	Motor control center, structures, 22,000 rms, takes any combination of starters, 600 amp, up to 72" high	3.00	Ea.						30	2009	2039	$3,663.90	$12,090.87
D5010 Electrical Service/Distribution	Switchboards, no main disconnect, 4 wire, 277/480 V, 4000 amp, incl CT compartment, excl CT's or PT's	1.00	Ea.	main Electrical Room					30	2009	2039	$15,400.80	$16,940.88
D5010 Electrical Service/Distribution	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 2000 A	1.00	Ea.						20	2009	2029	$64,242.45	$70,666.70
D5010 Electrical Service/Distribution	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 2000 A	1.00	Ea.						20	2009	2029	$64,242.45	$70,666.70
D5010 Electrical Service/Distribution	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 800 A	1.00	Ea.	Main Electrical Room					20	2009	2029	$31,205.25	$34,325.78
D5010 Electrical Service/Distribution	Transformer, oil-filled, 15 kV with taps, 480 V secondary 3 phase, 2500 kVA, pad mounted	1.00	Ea.						30	2009	2039	$81,351.00	$89,486.10
D5090 Other Electrical Systems	Generator set, diesel, 3 phase 4 wire, 277/480 V, 125 kW, incl battery, charger, muffler, & day tank, excl conduit, wiring, & concrete	1.00	Ea.						30	2009	2039	$50,797.80	$55,877.58
												Total:	**$2,178,153.74**

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):	805,700
Year Built:	2009
Last Renovation:	
Replacement Value:	$11,119,703
Repair Cost:	$70,850.97
Total FCI:	0.64 %
Total RSLI:	74.80 %

Description:

Attributes:

General Attributes:

Bldg ID:	S712001	Site ID:	S712001

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	72.41 %	0.93 %	$70,850.97
G40 - Site Electrical Utilities	80.00 %	0.00 %	$0.00
Totals:	**74.80 %**	**0.64 %**	**$70,850.97**

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.	36,000	30	2009	2039		80.00 %	0.00 %	24			$414,720
G2020	Parking Lots	$7.65	S.F.	117,000	30	2009	2039		80.00 %	2.17 %	24		$19,395.21	$895,050
G2030	Pedestrian Paving	$11.52	S.F.	42,000	40	2009	2049		85.00 %	0.59 %	34		$2,876.57	$483,840
G2040	Site Development	$4.36	S.F.	805,700	25	2009	2034		76.00 %	1.38 %	19		$48,579.19	$3,512,852
G2050	Landscaping & Irrigation	$3.78	S.F.	610,700	15	2009	2024		60.00 %	0.00 %	9			$2,308,446
G4020	Site Lighting	$3.58	S.F.	805,700	30	2009	2039		80.00 %	0.00 %	24			$2,884,406
G4030	Site Communications & Security	$0.77	S.F.	805,700	30	2009	2039		80.00 %	0.00 %	24			$620,389
								Total	**74.80 %**	**0.64 %**			**$70,850.97**	**$11,119,703**

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.

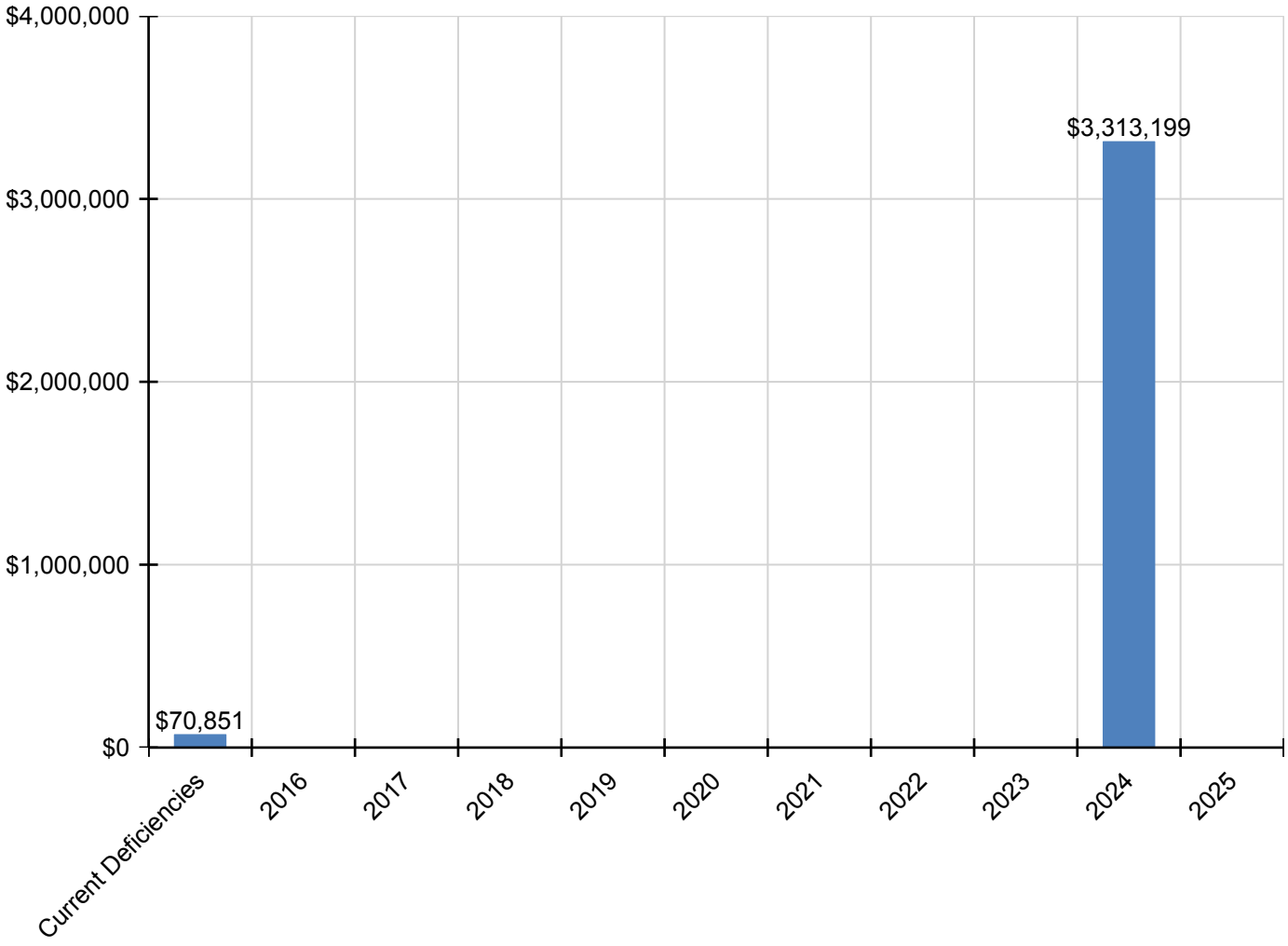
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$70,851**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$3,313,199**	**$0**	**$3,384,050**
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	$19,395	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$19,395**
G2030 - Pedestrian Paving	$2,877	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,877**
G2040 - Site Development	$48,579	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$48,579**
G2050 - Landscaping & Irrigation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,313,199	$0	**$3,313,199**
G40 - Site Electrical Utilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4020 - Site Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4030 - Site Communications & Security	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

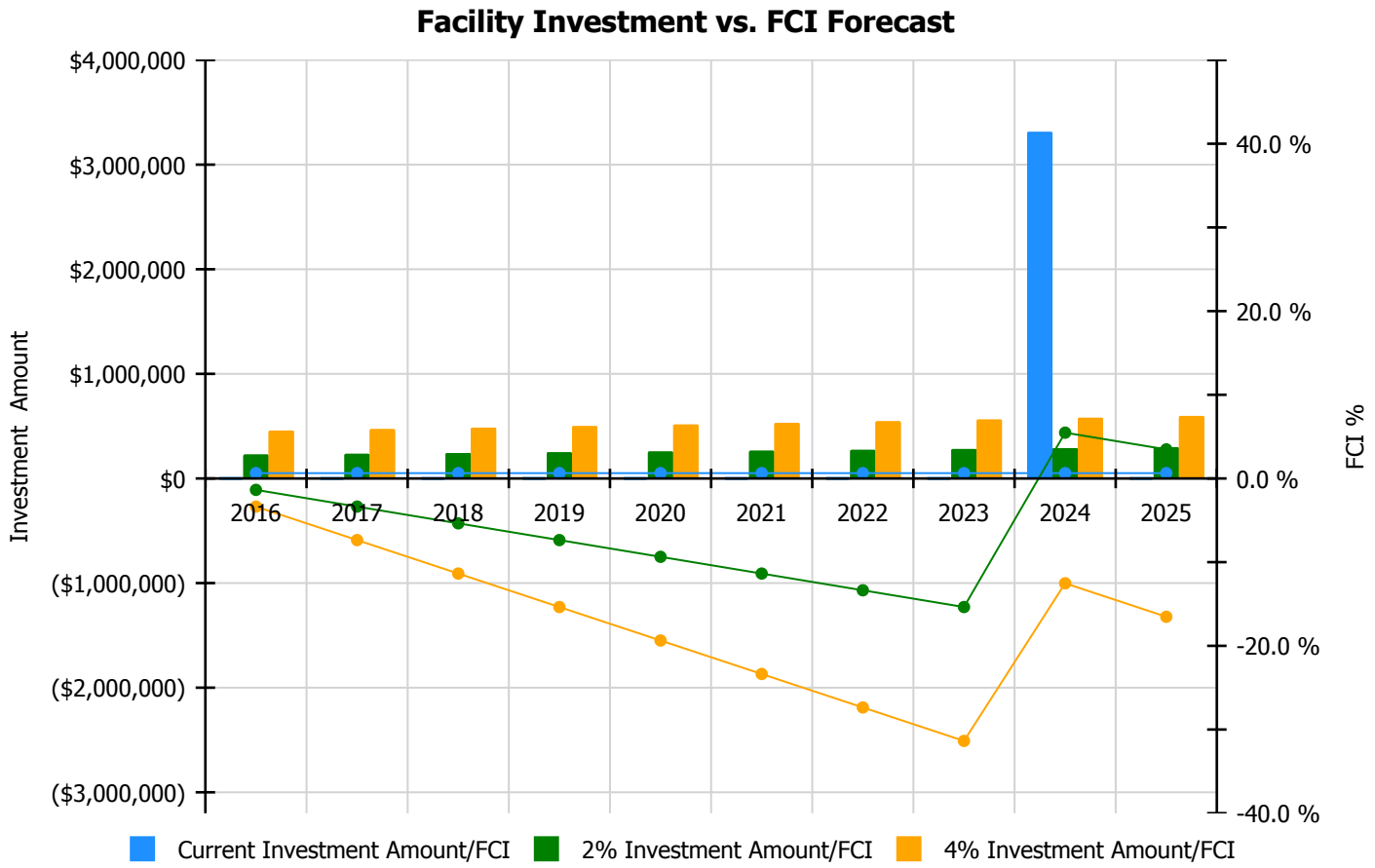
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



10 Year FCI Forecast by Investment Scenario

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

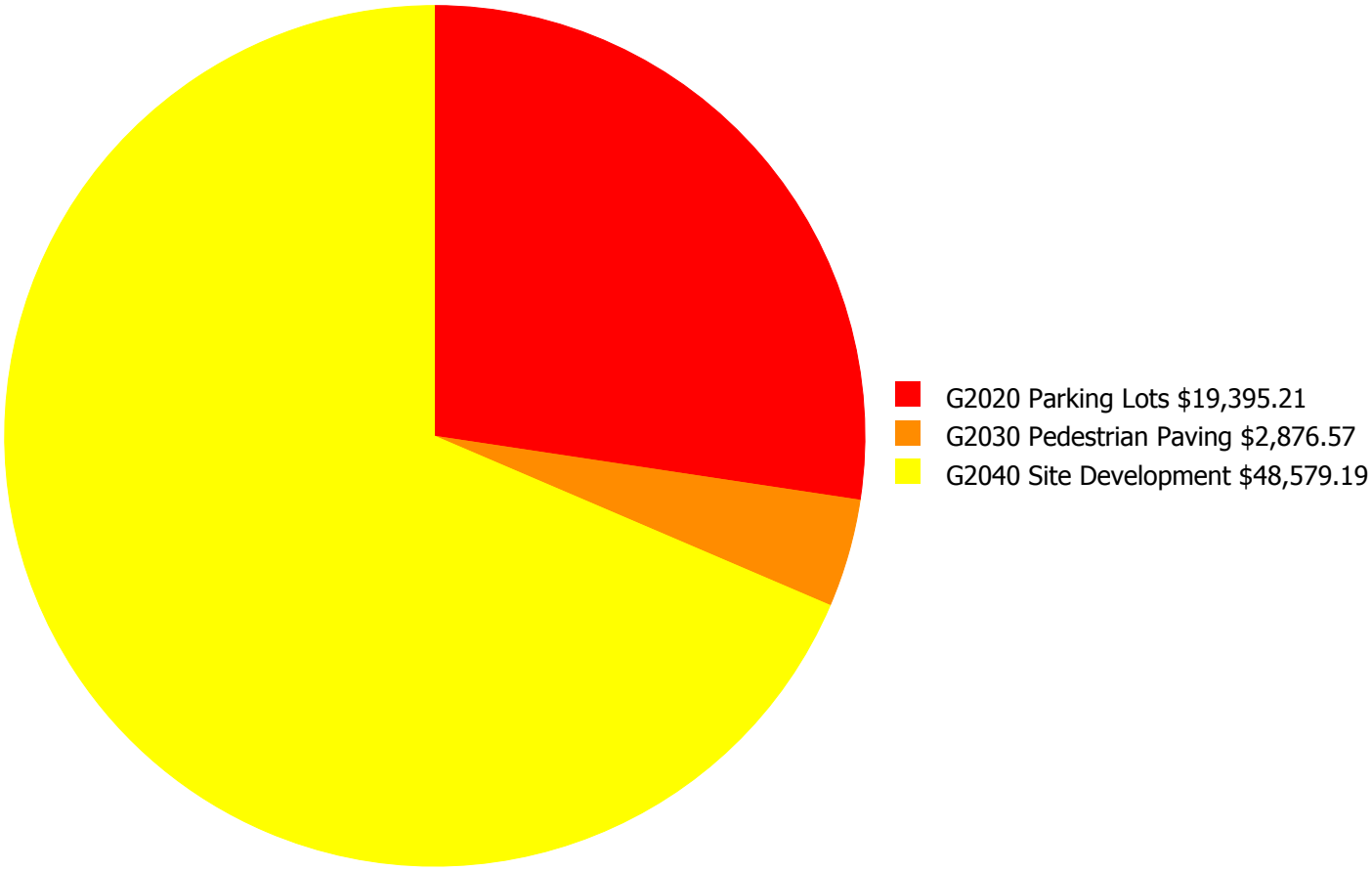
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 0.64%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$229,066.00	-1.36 %	$458,132.00	-3.36 %
2017	$0	$235,938.00	-3.36 %	$471,876.00	-7.36 %
2018	$0	$243,016.00	-5.36 %	$486,032.00	-11.36 %
2019	$0	$250,306.00	-7.36 %	$500,613.00	-15.36 %
2020	$0	$257,816.00	-9.36 %	$515,631.00	-19.36 %
2021	$0	$265,550.00	-11.36 %	$531,100.00	-23.36 %
2022	$0	$273,517.00	-13.36 %	$547,033.00	-27.36 %
2023	$0	$281,722.00	-15.36 %	$563,444.00	-31.36 %
2024	$3,313,199	$290,174.00	5.47 %	$580,348.00	-12.53 %
2025	$0	$298,879.00	3.47 %	$597,758.00	-16.53 %
Total:	**$3,313,199**	**$2,625,984.00**		**$5,251,967.00**	

Deficiency Summary by System

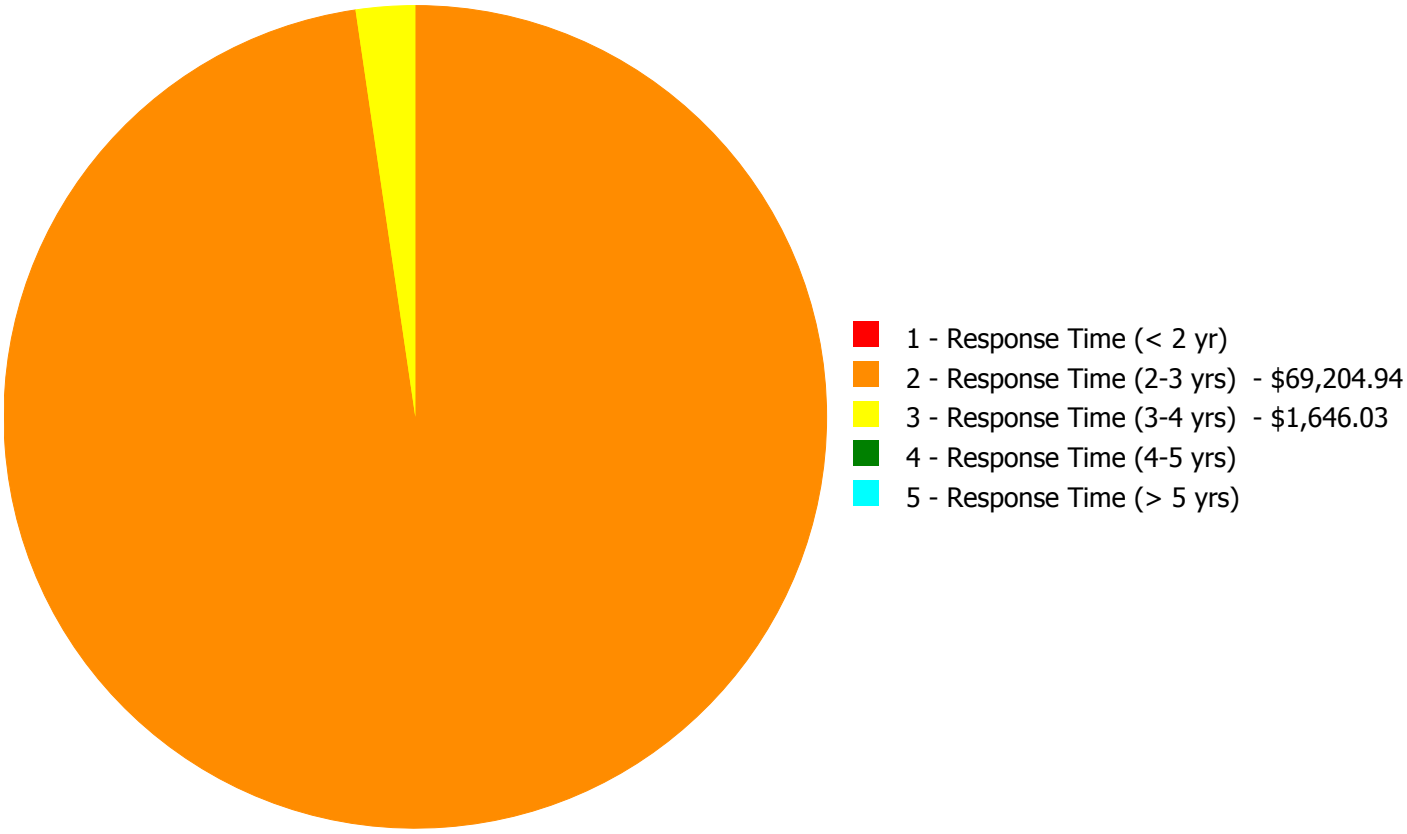
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $70,850.97

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: $70,850.97

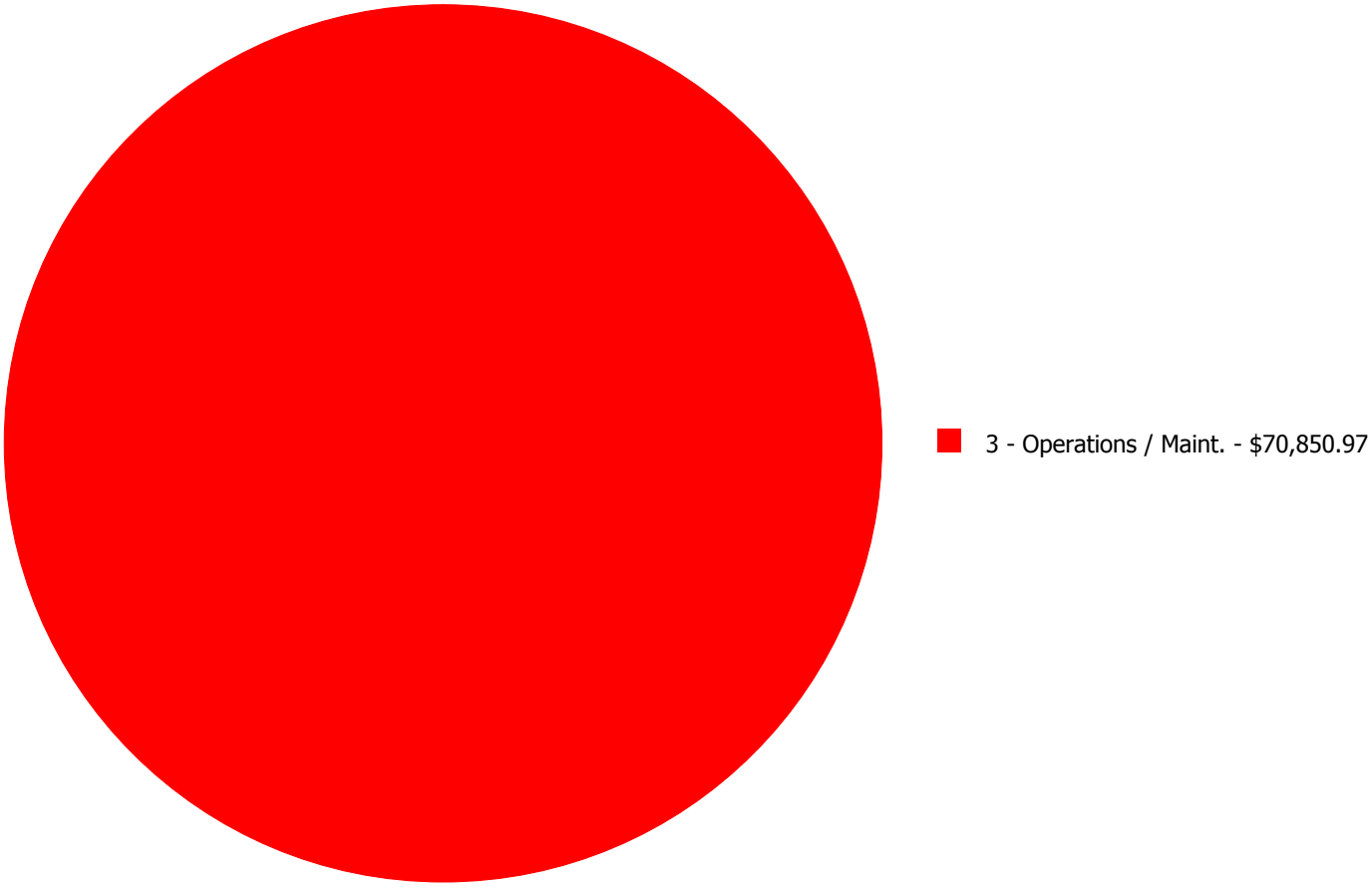
Deficiency By Priority Investment Table

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	$17,749.18	$1,646.03	$0.00	$0.00	$19,395.21
G2030	Pedestrian Paving	$0.00	$2,876.57	$0.00	$0.00	$0.00	$2,876.57
G2040	Site Development	$0.00	$48,579.19	$0.00	$0.00	$0.00	$48,579.19
	Total:	$0.00	$69,204.94	$1,646.03	$0.00	$0.00	$70,850.97

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: $70,850.97

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: G2020 - Parking Lots

Location: parking lot
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Fill cracks in AC paving - by the LF - select appropriate width and depth
Qty: 1,500.00
Unit of Measure: L.F.
Estimate: $16,934.69
Assessor Name: Ben Nixon
Date Created: 09/11/2015

Notes: Fill cracks in asphalt parking lot (1500ft)

System: G2020 - Parking Lots

Location: parking lot
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Replace broken parking wheel stops
Qty: 5.00
Unit of Measure: Ea.
Estimate: $814.49
Assessor Name: Ben Nixon
Date Created: 09/11/2015

Notes: Repair broken curbing (50ft)

System: G2030 - Pedestrian Paving

Location: concrete walks

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 200.00

Unit of Measure: S.F.

Estimate: $2,876.57

Assessor Name: Ben Nixon

Date Created: 09/11/2015

Notes: Repave damaged sections of concrete walkway

System: G2040 - Site Development

Location: northeast side of school

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace metal picket fence - input number of gates

Qty: 150.00

Unit of Measure: L.F.

Estimate: $25,256.80

Assessor Name: Ben Nixon

Date Created: 09/11/2015

Notes: Replace damaged, leaning fencing (160lf x 10ft tall)

System: G2040 - Site Development

Location: Langdon Street side of building

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Repair and regrout stone retaining wall - LF of wall - up to 4' tall

Qty: 50.00

Unit of Measure: L.F.

Estimate: $23,322.39

Assessor Name: Ben Nixon

Date Created: 09/11/2015

Notes: Repair seating and masonry wall on Langdon Street side

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

System: G2020 - Parking Lots

Location: parking lots

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Resurface parking lot - grind and resurface including striping

Qty: 100.00

Unit of Measure: S.F.

Estimate: $1,646.03

Assessor Name: Ben Nixon

Date Created: 09/11/2015

Notes: Only Restripe parking lots (100 spaces)

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