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.

Marshall, T School

Governance	DISTRICT	Report Type	Elementarymiddle
Address	5120 N. 6Th St.	Enrollment	813
	Philadelphia, Pa 19120	Grade Range	'00-08'
Phone/Fax	215-456-0170 / 215-456-0187	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Tmarshall	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	**04.38%**	**$2,537,706**	**$57,957,168**
Building	04.15 %	$2,358,030	$56,765,029
Grounds	15.07 %	$179,675	$1,192,139

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	70.62 %	$1,158,765	$1,640,836
Exterior Walls (Shows condition of the structural condition of the exterior facade)	00.68 %	$28,483	$4,207,740
Windows (Shows functionality of exterior windows)	10.32 %	$211,954	$2,053,140
Exterior Doors (Shows condition of exterior doors)	05.78 %	$9,556	$165,300
Interior Doors (Classroom doors)	20.12 %	$80,493	$400,140
Interior Walls (Paint and Finishes)	00.00 %	$0	$1,805,760
Plumbing Fixtures	00.00 %	$0	$1,541,280
Boilers	00.00 %	$0	$2,128,380
Chillers/Cooling Towers	00.00 %	$0	$2,790,720
Radiators/Unit Ventilators/HVAC	00.00 %	$0	$4,900,860
Heating/Cooling Controls	17.38 %	$267,414	$1,539,000
Electrical Service and Distribution	00.00 %	$0	$1,105,800
Lighting	00.51 %	$20,132	$3,953,520
Communications and Security (Cameras, Pa System and Fire Alarm)	00.00 %	$0	$1,480,860

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

S550001;Marshall, T

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):	114,000
Year Built:	1997
Last Renovation:	
Replacement Value:	$57,957,168
Repair Cost:	$2,537,705.67
Total FCI:	4.38 %
Total RSLI:	85.18 %

Description:

Facility Condition Assessment
August 2015

School District of Philadelphia
Thurgood Marshall Elementary School
5120 N. 6th Street
Philadelphia, PA 19120

114,000sf; 715 students; LN 07

General

Thurgood Marshall Elementary School is located at 5120 North 6th Street. The building was constructed in 1997, has 114,000 square feet, and has sections that are 1, 2, 3, and 4 stories tall. There had been another building on this site that was completely demolished before the construction of this facility in 1997. Part of this new building was constructed over the foundation of the previous building. The main entrance to the school is through a gate into the playground facing North 6th Street; there is also pedestrian access into the playground from W. Duncannon Ave. to the

north. Faculty parking is accessed through gates from North 6th St. and Duncannon Ave. The building achieved LEED-EB (Existing Building) Certification and an Energy Star rating of "81" in 2011, meaning that systems and energy utilization is less than a similar typical building of the same size. Brian Dutton, the Building Engineer, accompanied the team during the building inspection.

The inspection team met with Principal Keith Arrington, Marla Wormley, and Kim Barth at the time of inspection. They indicated that there are a large number of leaks throughout the building, probably related to roof problems. The HVAC system is not working properly, causing some rooms to be cold in the winter. They also indicated that the carpet in the auditorium is worn and the carpet in Kindergarten Rooms 101, 102, 103 is moldy and in need of replacement. They expressed concerns about the view of the driveway access to 6th Street, blocked by the adjacent building; this could possibly be solved by the positioning of a convex mirror to eliminate the blind spot.

Architectural/Structural

Foundations are constructed of concrete block seen in the mechanical equipment room in the first floor. Wall surfaces are in good condition and appear to have been repainted recently. There were no cracks or water seepage areas observed.

Floor slabs in the mechanical basement and grade areas are in good condition with no major cracks or settlement seen, even though part of this building was constructed over the foundation of a previous building, demolished before the construction of this building. This building has a fireproofed structural steel column and beam system with upper floors constructed of precast concrete planks. Raised slabs appeared to be level and in good condition with no cracks or settlement observed in any of the slabs.

Roof system is constructed of steel beams and girders with metal deck or precast concrete planks on top. The largest and highest roof is accessed by a roof hatch. The next lower intermediate roof is accessed by a door from the 4th floor corridor. The next lower roof area is accessed from a mechanical room on the 3rd floor; the remaining lower flat roof areas are accessed by foot. There is one expansion joint across the highest roof. Metal roofs over main and secondary entrances are supported by painted steel beams, which are beginning to rust.

Exterior walls are constructed of buff colored brick with gray squares mixed into some of the walls on each side of the building and the 1 story front entrance. Miscellaneous mechanical room louvers located in walls are constructed of clear anodized aluminum. The masonry is in good physical condition with some minor cracks along beam lines below weep holes and minor joint failure in isolated locations. There is also some dirt staining the brickwork originating from louvers and scuppers, washed down the wall by rainwater. Many vertical and horizontal joints where flashing is set into the brick and caulked need recaulking as movement and weathering is causing joint and caulk failure in a number of locations; a caulk matching the brick mortar (off white) should be utilized to be less obtrusive. There are leaks in 3rd and 4th floor classroom ceilings that might be originating from the curtainwall/masonry joint above the rectangular window units or from the coping on the roof at the top of the brick wall, above. Some roofs utilize scuppers for the method of storm water removal. In 3 locations, scuppers are clogged or not draining properly causing large dirty streaks on the buff brick, requiring power washing to remove the dirt. (One scupper is clogged with dirt and has a plant growing out of it, visible from the roof, above.) There are small arched brick elements at roof levels and an arched metal panel element over the main entrance forming a background for the Thurgood Marshal building name. The metal panel element is the same color as the standing seam curved roof over the entrance area and is in good condition.

Exterior windows are factory red-painted aluminum tube-frame units with single pane plexiglass windows, red univent louvers, and red aluminum panels. On some of the north, east, and south elevations, 1 and 2 story rectangular panels consisting of subdivided windows, louvers, and flat panels are formed. Smaller punched square windows, consisting of 4 smaller subdivided plexiglass units, accessible to vandalism near the grade level have galvanized security screens for protection. Other walls have the same smaller punched square quad windows without security screens at higher levels. All windows, aluminum tube framing and univent louvers integral to this system are in good condition as viewed from the ground, however there could be leaks originating from the upper rectangular panel units in 3rd and 4th floor classrooms as mentioned in the paragraph above. Caulking around all aluminum framed units should be inspected and repaired where aging. Most plexiglass is getting cloudy and becoming less transparent; some units are heavily scratched. This type of glazing should be replaced with insulated glazing within the same window frames in the next 5 years to improve visibility and to decrease heat loss in winter.

Exterior doors are field painted hollow metal steel doors and frame units, some with narrow lite vision panels with security grating. The paint on most doors and frames is scratched, worn, and in poor condition with rust forming on some door frames and door panels. Doors and frames should be repainted to minimize further rusting and deterioration. Exit hardware and door closers are generally working but need adjustment to ensure good operation. Building entrance doors are tempered glass with clear anodized aluminum frames, in good condition.

Roof coverings consist of a fully adhered rolled asphalt sheet system, with fine, dark granules embedded in the surface. The roofing membrane covering all flat roofs is almost 20 years old, but is failing in a number of locations. Bubble, cracks, wrinkles and failing asphalt is visible everywhere; some bubbles and wrinkles block drainage to scuppers or roof drains. Leaks are visible inside the building as stained ceiling tiles in a number of locations under each roof. Even though a typical asphalt roof should last for 20 years, this system has already failed even though it has

been patched in many locations. The asphalt roof should be replaced as soon as possible. Flashing along the perimeter, on skylight curbs, and rooftop equipment curbs consists of the same asphalt membrane material terminated under a clear anodized aluminum fascia or counterflashing. A small parapet is formed approximately 18" in average height. The highest roof over the 4 story element utilizes through-wall scuppers, collection boxes, and vertical leaders to drain roof water to lower roofs where water is collected down internal flat roof drains. The lowest flat roof and the curved roofs utilize through-wall scuppers, collection boxes and horizontal gutters, and vertical leaders down to pipes which connect to the underground storm water system. Except for the 3 clogged scupper boxes at the upper flat roof level (filled with debris and live plants), this system is working as designed, notwithstanding the numerous leaks in the failed membrane. There is a large, multi-panel, curved glass skylight over the lobby. One of the panels in the skylight is cracked and in need of replacement.

There is a curved standing seam roof capping the 3 story rectangular element forming the south side of the front yard play area. This is complemented by a shed-style sloping standing seam roof with a small, curved element over the front doors. A third, smaller, curved standing seam element is used over the end of the southernmost 2 story building element. All paint and metal panels are less than 20 years old and in good condition.

Partitions in corridors, classrooms, offices, toilet rooms, gymnasium, auditorium, stairways, cafeteria, and kitchen are constructed of painted block (concrete masonry units), in good physical condition. The 4-story open atrium is separated from connecting corridors and spaces by a fire rated wall with labeled, fire rated doors. The gym has an alcove created for bleacher seating. The block wall above the alcove is supported by heavy steel lintels, bearing on a block pier, which has a horizontal crack in need of structural repair.

Interior doors in classrooms, offices, and other rooms are solid core oak veneer wood doors. Most have glass narrow vision panels with wired glass. Doors facing the atrium are fire rated with 1 ½ hour labels visible on the jamb as required by code; doors are held open by devices that will release when the fire alarm is activated. Most classroom, office, and storage room wood doors are in good condition. Stairway and corridor doors are also oak veneer units with narrow lite wired glass vision panels; stairway and corridor doors need to be refinished. All door frames are steel and are rusting near the floor; in most cases they can be properly repaired and repainted to improve the appearance. Stair and corridor doors have panic hardware sets. Other rooms have lever lock or latchsets. Classrooms and offices do not have security locking feature that allows for locking from inside the room. Most exit hardware and door closers in stairways is adequate and requires some adjustment to provide proper closing and latching.

Interior fittings/hardware include wall mounted blackboards, tackboards, and some whiteboards in classrooms. Classrooms have storage areas with plastic laminate cabinets and shelves. Toilet room partitions are gray plastic partitions and doors. Most toilet room partitions are in good condition with only minor adjustments required to some compartment doors. Toilet partitions in one toilet room, however have been severely damaged with graffiti, repainted and damaged again; these partitions need to be replaced. Toilet room accessories (toilet paper dispensers, soap, paper towel or dryers, grab bars, door latches) are located in all toilet rooms and appear to be in working order. Enlarged toilet compartments with toilets and the code-required grab bars are available in multiple locations on each floor. Toilet room accessories such as lever handle faucets, drain pipe protection, grab bars, and accessories are provided in most toilet rooms. Fixture and accessory mounting heights appear to be near to today's ADA requirements. The toilet and plumbing facilities in the Life Skills Classrooms are in full compliance with ADA accessibility guidelines.

Stair construction consists of concrete-filled treads with sealed finish, steel nosings, steel risers, steel stringers and painted steel tube handrails with extensions at stair run bottoms and tops; steel risers needs to be repainted. Guards are 42" high at stair platforms and stairways where open to below; balusters have 4" maximum spacing which meets today's building codes. Red paint on railings, guards, and balusters is worn and needs re-application. Stair landings and platforms are finished with VCT that is in need of cleaning and painting.

Wall finishes in the corridors, offices, gym, auditorium, toilet rooms, and classrooms consist of painted block. Although most walls have minimal or no areas of minor surface damages, some sections of corridor walls are scuffed and some upper sections of wall are water damaged in need of repainting. The entrance lobby has block painted in 2 colors, an open stairway with glazed block accents, and a large glass skylight at the top of the 4-story space. There are large painted murals decorating a second floor walls visible from the main floor of the lobby. These bright murals help give the building an inviting appearance and the appearance that the building is child-oriented. The overall physical condition and appearance of the walls is good.

Floor finishes consist vinyl composition tile (VCT) in the lobby, corridors, classrooms, cafeteria, and offices. The VCT in the Lobby and the Head Start Area is cupping around the edges. After removing the tile, before installing new VCT, the slab should be checked for moisture content and a vapor barrier applied if moisture is too great. The VCT in isolated other classrooms and around the expansion joint in the office area also needs replacement. Toilet rooms have ceramic mosaic tile. The auditorium has carpet in main circulation aisles and sealed concrete under the seating. The carpet is worn and frayed along the edges and needs to be replaced; the concrete is dirty and needs to be resealed. The auditorium stage has VCT which is worn and needs to be replaced. The IMC (Library) has carpet which is worn, stained and needs to be replaced. The Principal indicated that Kindergarten Rooms 101, 102, and 103 have carpet which has a mildew smell and needs to be replaced. The gym floor is a high-build coating system that has ground-in dirt, worn areas, and in need of replacement.

Ceiling finishes in classrooms, corridors, offices, kitchen, and cafeteria are 2'x4' suspended acoustical tile ceilings with either recessed or surface

mounted lighting fixtures. Except where damaged from roof or window leaks, the ceilings are in good condition. The gymnasium and auditorium have open ceilings exposed to the roof deck above. The lobby has gypsum board ceilings with 2'x4' acoustical tile ceilings in corridors in and around the lobby. There are various locations with gypsum board soffits/ceilings. Where damaged from roof leaks, they should be replaced.

Furnishings in the building include plastic laminate storage cubbies and cabinets in some classrooms with coat areas. Science rooms have the typical wood cabinetry with resin worksurface. Toilet rooms have plastic partitions in good condition except for one toilet room where partitions were ruined with graffiti. The auditorium has wood seating for approximately 320 people, and is in good condition. The cafeteria has portable folding tables and chairs. Food preparation kitchen has stainless steel institutional equipment and tables and stainless steel food service counters. The "Life Style" Classrooms have plastic laminate kitchen cabinets and countertops, simulating a home environment. The gymnasium has 3 rows of wood bleachers with metal walkways/tracks, in good working condition.

The front door and other side and rear doors into the building are ADA accessible. Handicap accessible parking spaces are marked and provided in the faculty parking area in the rear of the building.

There is a 3000 lb. hydraulic elevator in the building, accessible from the lobby, serving all 4 floors.

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. These fixtures were installed as part of the original construction in 2009 and should not need to be replaced for 15 years with a good preventative maintenance program. The bathrooms were equipped with floor drains as well.

Throughout the school there high/low ADA drinking fountains. These fixtures were installed as part of the original construction in 2009 and should not need to be replaced for 15 years with a good preventative maintenance program.

Floor set service sinks are original and are available throughout the building for use by the janitorial staff. These fixtures were installed as part of the original construction in 2009 and should not need to be replaced for 15 years with a good preventative maintenance program. The Cafeteria's food prep/kitchen is equipped with one, three compartment stainless steel sink with wheel handle operated faucets and its sanitary connection is served by a grease trap located in the adjacent mechanical equipment room. The kitchen is also equipped with a hand sink. The triple wash sink (with lever handles) and hand sink (with lever handles) show signs of normal usage. The grease interceptor showed no signs of corrosion. Chemicals are injected manually into the sanitizing basin.

Domestic Water Distribution – It appears that the 4" domestic water service piping is mostly soldered copper. Water service enters the building on the ground level, with double check backflow preventer (RPZA – reduced pressure zone assembly) and a 4" water meter on the main line upon entering the building. The backflow preventer and water meter appear to be new. The piping is copper with soldered joints. A separate RPZA backflow preventer serves the dedicated cold water make up line for the boiler system. The distribution piping was installed in 1997 and in the next 10 years should start to be inspected now as it draws to the end of its service life.

There are two copper fin type natural gas fired water heaters manufactured by Lochinvar, 250,000 btuh input. The water heaters were manufactured in 1996 and are near the end of their useful service life and should be replaced. The water heaters are located in the boiler mechanical equipment room. Each water heater is equipped with a circulation pump. The water heaters produce 140 degree supply for the kitchen zone which is also tempered via thermostatic mixing valves to 120 degrees for the restrooms and other fixtures. There is an expansion tank installed for the domestic water system. The domestic water system is equipped with a booster skid mounted system with a set of duplex pumps, Paco catalog number 10-20121-130001-1742, stock number 300293, 125GPM, 120 ft head.

Sanitary Waste - The sanitary waste piping system in the building is cast iron, no hub. It is recommended to inspect this piping and repair or replace sections as needed in 10 years as the piping will have reached the expected end of its service life. 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. Higher roof levels with gutter and downspouts feed to lower roof level roof drains or discharge to grade. There are no overflow scuppers for the building. Some downspouts are filled with debris and should be cleaned.

Energy Supply - Duplex fuel oil supply pumps provide the required fuel to the boilers when operating on fuel oil. The wall, fuel storage tank is located below ground which was installed in 1997 near the northwest corner of the building. The fuel pumps and controls were installed in 1997 and will not need to be replaced for 15 – 20 years. A 6" natural gas service enters the building on the ground level in the service room adjacent to the main boiler mechanical equipment room. The natural gas main is welded, black steel piping while the branches are threaded, black steel. The gas service is equipped with a booster system.

Heat Generating Systems – The two heating water boilers serve the heating needs for the building. Heating water is generated by two cast iron boilers, 3,112 MBH HB Smith, Model 28A-S/W-12, with dual fuel burners. Both boilers are equipped with Power Flame dual fuel burners, natural gas and number 2 fuel oil, model CR-GO-25. Burner controls provide full modulation with electronic ignition. The boilers were installed in 1997 and will not need to be replaced for 10 – 15 years. There is no draft control on either of the boiler flues. Combustion air louvers serve the boiler room to provide combustion air for the boiler operation. 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. The heating water pumping system consists of two vertical split case, Bell & Gossett model VCS, 370GPM, 80 ft head, 15HP. The heating water system is a constant volume pumping system.

Cooling Generating Systems – Within the boiler mechanical room a York chiller, model YCWJ66KH-46PA, reciprocating compressors serves the building cooling needs along with two Baltimore Aircoil Company Ice Chiller Thermal Storage Units, model TSU-761M. The chilled water system has ethylene glycol added for freeze prevention. The chiller has a nominal tonnage of 140 tons. Chilled water distribution is handled by primary and secondary pumping arrangement. The primary pumps are vertical split case type, Bell & Gossett model VCS, 650gpm, 80 ft head, 20HP and the scondary pumps are vertical split case, Bell & Gossett model VCS, 450gpm, 100 ft head, 20HP. Two condenser water pumps vertical split case type, Bell & Gossett model VCS, 400gpm, 80 ft head, 10HP serve the roof mounted Baltimore Aircoil forced draft counterflow centrifugal cooling tower, nominal tonnage 145, model VTO-145-MCS. A cooling only split system serves the LAN room. The condensing unit is located on the roof. The chilled water and condenser water systems are both constant volume pumping systems.

Distribution Systems – The building heating water, chilled water and condenser water distribution piping is black steel with welded fittings. Since the piping is approximately 18 years old there should be no immediate needs for inspection for pipe failures, however in the next 10 years, the District should hire a qualified contractor to examine the distribution piping and perform additional testing to locate and replace any damaged piping and to further quantify any potential failures.

The heating and chilled water piping and pumping distribution system is a four pipe system..

Fresh air is admitted into the building through the unit ventilators outside air intakes connected to air handling unit systems. Ventilation air is induced into the spaces through the outside air intake grilles located in the building exterior wall which are ducted to the unit ventilators.

The building uses unit ventilators with dedicated heating and cooling coils in the classrooms. Generally vertical unit ventilators are located at the building perimeter walls of the classrooms for the classroom with an exterior exposed wall. For the interior spaces horizontal unit ventilators (mounted above the acoustical ceiling) serves these areas, however outside air for ventilation purposes is introduced through outside air roof intakes which are then ducted to the return air ductwork of the unit ventilator.

The Gymnasium is served by a unit located in the main air handler mechanical room by a ducted supply with concentric round overhead distribution and high overhead ducted side mount return air registers. The air handling unit serving the Gym provides heating and ventilation. The ductwork and air handling system was installed in 1997 and should be replaced within the next 10 years provided that regular and preventative maintenance is being performed at the required intervals.

The Cafeteria is served by an air handling unit located in the main air handler mechanical room. The air handling unit serving the Gym provides heating, cooling and ventilation. The unit supplies the cafeteria via sidewall registers. In addition the cafeteria is equipped with convection heaters on the perimeter exterior wall. The ductwork and air handling system was installed in 1997 and should be replaced within the next 10 years provided that regular and preventative maintenance is being performed at the required intervals.

The Auditorium is served by an air handling unit located in the main air handler mechanical room. The air handling unit serving the Auditorium provides heating, cooling and ventilation. The unit supplies the space via overhead supply diffusers with ducted returns. The ductwork and air handling system was installed in 1997 and should be replaced within the next 10 years provided that regular and preventative maintenance is being performed at the required intervals.

The kitchen is served by a ducted supply and return heating and ventilating unit. The kitchen is equipped with a roof mounted hood exhaust system, Greenheck model CUBE-300-HP-50G for the space and is couple with a dedicated roof mounted make up air system, Greenehck model KSU-118-A-3-75. A dedicated make up air unit with tempering has been installed under the original construction in 1997. Proper air flow pressurization and balancing should be confirmed and verified for the seating area with respect to the kitchen to maintain the kitchen under negative pressurization.

The Library is served by an air handling unit located in the main air handler mechanical room. The air handling unit serving the Library provides heating, cooling and ventilation. The unit supplies the space via overhead supply diffusers with ducted returns. The ductwork and air handling system was installed in 1997 and should be replaced within the next 10 years provided that regular and preventative maintenance is being performed at the required intervals.

The air handling units in the main air handler mechanical equipment room do not have sufficient space for the heating or coil coils to be removed if they are damaged without disassembling the air handler itself, its piping and possible adjacent air handlers.

Terminal & Package Units - There are roof mounted exhaust fans which serve the restrooms, electrical closets and janitorial closets in various configurations. Restroom exhaust air is drawn through exhaust grilles in the wall to the ducted exhaust fan system. All fans are part of the construction project in 1997.

The atrium is served by rooftop mounted smoke evacuation fans which are connected on emergency power which activate upon the detection of smoke.

Controls & Instrumentation -The building automation system is a DDC system, Metasys, by Johnson Controls. Compressed air is not utilized for the building automation system. The building automation system controls the air handlers, fans, pumps chillers, boilers and unit ventilators

Sprinklers - The school building is NOT covered by an automatic sprinkler system with the exception of the Entry Atrium. Installing a sprinkler system with quick response type heads should reduce insurance costs by providing protection for the property investment. The building is served by a 100HP, 750GPM, single stage, electric driven fire pump located in the main boiler mechanical equipment room. The kitchen hood system has an Ansul fire suppression system installed.

Electrical

The campus Electrical Service comes from medium voltage overhead lines on wooden poles along 6th St. The main service switchgear, located in the Boiler Room, receives power via an underground raceway from an overhead power line. This switchgear consists of an incoming section with 600A medium voltage load interrupter, a section for current and future transformers, a section for a dry type transformer rated at 1000KVA, 13200V to 480/277V, 3PH, 4 wires, and a section for 1600A, 480/277 rated distribution switchboard. The distribution switchboard feeds all HVAC loads via two motor control center (MCC) assemblies, one located in the boiler room and the other in the pump room on the second floor. The distribution switchboard also feeds the fire pump, lighting, and power panels. Two capacitor banks rated 250KVA total are installed for the system power factor correction. The working clearance in front of the MCC in the pump room does not meet the NEC code requirements. A supply air duct is located in front of the MCC which is in violation of NEC code; the distance between the air duct and MCC should be a minimum of 36 inches, although it is 20 inches.

There are total of eight, 480/277V panel boards for providing power for normal and emergency lighting loads. There are six 208/120V panel boards for receptacles and other power loads throughout the building. 120/208V power is provided by two step down transformers, sized at 112.5KVA, for converting 480V normal power to 120/208V. Emergency power is dedicated from one 30KVA transformer converting 480V to 120/208V. Transformers are installed in the pump room and the boiler room.

There is a sufficient number of receptacles installed in classrooms, offices, corridors and other areas throughout the building. No major deficiencies were observed except in a limited number of classrooms where no-ground type receptacles are still in service. These receptacles are obsolete and should be replaced with ground type receptacles. In the Kitchen, a general use receptacle was used near one of the sinks; NEC requires GFCI receptacles to be used in kitchens and near sinks.

Interior building illumination in classrooms, corridors, and dining consists of new decorative 2x4 lay in grid fluorescent lighting fixtures with 4-T8 lamps. Boiler and pump rooms are illuminated by 1x4 surface/pendent mounted fluorescent fixtures with clear lenses. Exterior building lighting is provided by decorative cylindrical down-lighting fixtures. In general, interior and exterior lighting fixtures are in good condition and general building illumination is sufficient. However, there are broken lighting fixtures which need to be repaired to make the system fully operational.

The Fire Alarm System is adequate. 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 are 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.

Public address and music systems are not provided in this school. The telephone system is used for public announcements. This system is working adequately.

Intercom and paging systems are functioning adequately. The paging system consists of one way communication from office to classrooms. Two way communication is obtained through wall mounted phones in classrooms and other areas.

Clock and Program systems are working adequately. Classrooms are provided with 12 inch wall mounted, round clocks. The clocks are controlled by a central master control panel, which is also programmed for class changes. The controllers are located in the main IT room.

Television System is not provided in the school. Most classrooms are equipped with Smart boards.

Security Systems, access control, video surveillance and intrusion alarm systems are provided in the school and working properly. A sufficient number of cameras are installed at exit doors, corridors and other critical areas and controlled by a Closed Circuit Television system (CCTV).

Emergency Power System (backup power generator) is provided in the school. A 135KW, 480/277V, 3PH, 4W diesel generator manufactured by "Onsite Energy" is installed in the pump room for feeding the life safety functions such as lighting, exit signs and other critical emergency loads. There is also one step-down transformer sized at 30KVA, provided for converting generator output voltage from 480V to 120/208 volts. The generator is new and in very good condition.

UPS (Uninterruptable Power System) is provided for the Local Area Network system.

Emergency lighting which includes exit lights is provided in the building. There are a sufficient number of lighting fixtures in corridors, the library, and exit ways, fed by the emergency backup power system.

Lightning protection system is present in the school and appears to be adequate.

Grounding system is present and appears to be adequate in design and installation.

There is one 40HP hydraulic type elevator manufactured by Otis Electric Company. The elevator is working properly with no major deficiencies observed during the assessment.

Site Lighting is adequate. However some lighting fixtures need to be repaired to make the system fully operational.

Site Video Surveillance system is provided in the school. Areas around the building are covered by a sufficient number of cameras and adequately monitored by a school Closed Circuit TV system (CCTV).

Site paging system is provided and operating adequately.

Grounds

The site is paved in asphalt. Facing North 6th Street is a depressed asphalt playground and assembly area. Children can access the playground from the main entrance doors and other doors on the first floor level opening into the area. This area is completely separated from vehicular areas and safe for children to assemble and play. Weeds at the perimeter of the paved area along the building and in catch basins should be removed. Catch basins serving this area should be cleaned out and checked to ensure water is flowing through them as designed. A second play area is located to the south also facing North 6th Street, separated from the adjacent parking area by a fence.

The two parking areas – one to the left and the other behind the building are paved in asphalt and are in good condition with some minor cracks needing crack-fill compound. To preserve the asphalt, these surfaces should be sealed and restriped. Vegetation growing along the south side of the property needs to be controlled – heavy trimming is required as part of regular landscaping maintenance. Catch basins in the parking areas need to be cleaned out and checked for proper drainage flow as part of regular maintenance.

The brick retaining wall forming the play area facing North 6th Street and Duncannon Avenue is damaged, failing and in need of repair. It appears that it has taken serious abuse and physical damage from hard object impact. This wall needs to be replaced. The 3 stairs (11 risers, 9 risers, and 4 risers) that lead up and out of the play area to the surrounding sidewalk also need to be replaced; the handrails/guards on these stairs are in good condition and should be reused. The steel picket fence facing North 6th and Duncannon is in good condition, but needs to be repainted. Tall chain link fences surround the remaining two sides of the property. The south fence is covered by vegetation and its condition could not been assessed; the west fence borders the municipal playground and is a tall fence, not known to be part of the school property.

RECOMMENDATIONS

Architectural

Remove and replace built-up roof, including gravel stop, expansion joint and curbs; clean out scuppers (34,200sf)

Repaint rusted steel beams supporting metal roof canopies over main and secondary entrances (300sf)

Repair caulk joint where beam flashing terminates above first floor in buff brick walls; repair caulk joints where leaks occur at aluminum tube frame glazing units set into brick (600lf)

Power wash brick behind and around scuppers and vertical leaders; wash other stained areas around louvers and under coping. (10,000sf)

Repair cracked bricks at roof. (100sf)

Repaint all grade exit exterior doors and frames. (16 – 3'x7')

Repair structural pier supporting wall over alcove in gym. (50sf)

Refinish all corridor and stair and toilet room solid core wood interior doors. Refinish/repaint steel frames. (60) 3'x7' doors

Provide security hardware for classrooms and offices locking from inside of room (90 each)

Replace plastic toilet room stall partitions, damaged by vandalism (4 stalls)

Replace all faded single sheet plexiglass lites with insulated glass lites in modified-to-fit existing aluminum tube frame system (65 - 4'x4'; 70 - 4'x8' equivalent in 8 sections with one operable unit)

Repair broken glass in lobby skylight (10sf)

Repaint railings and balustrades in interior stairways (600 lf)

Reseal/paint concrete stair treads in building (1760sf treads)

Replace VCT cupping along edges (15,000sf)

Replace carpet in classrooms, IMC, auditorium aisles (8,000 sf)

Replace gym floor – high build coating system (9,300 sf)

Replace damaged or stained acoustical tile ceilings in all corridors and some classrooms with new suspended acoustical tile clg system (5,000sf)

Repaint water damaged gypsum board or popcorn finish soffits/ceilings (1000sf)

Provide new exterior stairs with re-used railings/guards each side connecting playground with sidewalk (11 riser stair, 4 ft wide; 9 riser and 4 riser stairs, 14 feet wide.)

Mechanical

Provide retro-commissioning for DDC system to ensure that systems are operating at the highest level of efficiency.

Provide training to the building operating personnel on use of the DDC system.

Electrical

Repair/replace damaged interior/exterior lighting fixture. Estimated 50 each.

Replace no ground type receptacles with ground type receptacles. Estimated 10 total.

Replace general receptacle with GFCI receptacles in Kitchen. Estimated 5 each.

Grounds

Crack fill Faculty parking in rear of building (200 lf)

Repaint steel picket fencing (400 ft long; 5 ft high)

Reconstruct brick retaining walls along N. 6th St. and Duncannon Ave. (5ft average ht., 130 ft. length; 3ft ht., 160 ft. length)

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 2 / Tm 2
Status:	Accepted by SDP	Team:	Tm 2
Site ID:	S550001		

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	82.00 %	0.00 %	$0.00
A20 - Basement Construction	82.00 %	0.10 %	$2,290.80
B10 - Superstructure	82.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	71.98 %	3.89 %	$249,993.20
B30 - Roofing	87.31 %	70.62 %	$1,158,764.77
C10 - Interior Construction	74.71 %	3.24 %	$90,758.57
C20 - Stairs	82.00 %	46.75 %	$75,143.79
C30 - Interior Finishes	41.96 %	7.96 %	$442,469.44
D10 - Conveying	48.57 %	0.00 %	$0.00
D20 - Plumbing	42.98 %	2.19 %	$51,062.99
D30 - HVAC	127.63 %	2.11 %	$267,414.19
D40 - Fire Protection	148.57 %	0.00 %	$0.00
D50 - Electrical	90.14 %	0.30 %	$20,132.44
E10 - Equipment	48.57 %	0.00 %	$0.00
E20 - Furnishings	55.00 %	0.00 %	$0.00
G20 - Site Improvements	42.81 %	21.05 %	$179,675.48
G40 - Site Electrical Utilities	40.00 %	0.00 %	$0.00
Totals:	**85.18 %**	**4.38 %**	**$2,537,705.67**

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)
B550001;Marshall, T	114,000	4.15	$1,250,034.77	$789,518.24	$51,062.99	$0.00	$267,414.19
G550001;Grounds	58,300	15.07	$0.00	$153,571.46	$26,104.02	$0.00	$0.00
Total:		**4.38**	**$1,250,034.77**	**$943,089.70**	**$77,167.01**	**$0.00**	**$267,414.19**

Deficiencies By Priority

Budget Estimate Total: $2,537,705.67

Executive Summary

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

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

Function:	Elementary School
Gross Area (SF):	114,000
Year Built:	1997
Last Renovation:	
Replacement Value:	$56,765,029
Repair Cost:	$2,358,030.19
Total FCI:	4.15 %
Total RSLI:	86.08 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B550001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S550001		

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	82.00 %	0.00 %	$0.00
A20 - Basement Construction	82.00 %	0.10 %	$2,290.80
B10 - Superstructure	82.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	71.98 %	3.89 %	$249,993.20
B30 - Roofing	87.31 %	70.62 %	$1,158,764.77
C10 - Interior Construction	74.71 %	3.24 %	$90,758.57
C20 - Stairs	82.00 %	46.75 %	$75,143.79
C30 - Interior Finishes	41.96 %	7.96 %	$442,469.44
D10 - Conveying	48.57 %	0.00 %	$0.00
D20 - Plumbing	42.98 %	2.19 %	$51,062.99
D30 - HVAC	127.63 %	2.11 %	$267,414.19
D40 - Fire Protection	148.57 %	0.00 %	$0.00
D50 - Electrical	90.14 %	0.30 %	$20,132.44
E10 - Equipment	48.57 %	0.00 %	$0.00
E20 - Furnishings	55.00 %	0.00 %	$0.00
Totals:	**86.08 %**	**4.15 %**	**$2,358,030.19**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
A1010	Standard Foundations	$18.40	S.F.	114,000	100	1997	2097		82.00 %	0.00 %	82			$2,097,600
A1030	Slab on Grade	$7.73	S.F.	114,000	100	1997	2097		82.00 %	0.00 %	82			$881,220
A2010	Basement Excavation	$6.55	S.F.	114,000	100	1997	2097		82.00 %	0.00 %	82			$746,700
A2020	Basement Walls	$12.70	S.F.	114,000	100	1997	2097		82.00 %	0.16 %	82		$2,290.80	$1,447,800
B1010	Floor Construction	$75.10	S.F.	114,000	100	1997	2097		82.00 %	0.00 %	82			$8,561,400
B1020	Roof Construction	$13.88	S.F.	114,000	100	1997	2097		82.00 %	0.00 %	82			$1,582,320
B2010	Exterior Walls	$36.91	S.F.	114,000	100	1997	2097		82.00 %	0.68 %	82		$28,483.22	$4,207,740
B2020	Exterior Windows	$18.01	S.F.	114,000	40	1997	2037		55.00 %	10.32 %	22		$211,953.89	$2,053,140
B2030	Exterior Doors	$1.45	S.F.	114,000	25	1997	2022		28.00 %	5.78 %	7		$9,556.09	$165,300
B3010105	Built-Up	$37.76	S.F.	34,200	20	1997	2017	2035	100.00 %	89.73 %	20		$1,158,764.77	$1,291,392
B3010120	Single Ply Membrane	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3010130	Preformed Metal Roofing	$54.22	S.F.	6,400	30	1997	2027		40.00 %	0.00 %	12			$347,008
B3010140	Shingle & Tile	$38.73	S.F.		25				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.06	S.F.	40,600	20	1997	2017	2035	100.00 %	0.00 %	20			$2,436
C1010	Partitions	$17.91	S.F.	114,000	100	1997	2097		82.00 %	0.00 %	82			$2,041,740
C1020	Interior Doors	$3.51	S.F.	114,000	40	1997	2037		55.00 %	20.12 %	22		$80,492.95	$400,140
C1030	Fittings	$3.12	S.F.	114,000	40	1997	2037		55.00 %	2.89 %	22		$10,265.62	$355,680
C2010	Stair Construction	$1.41	S.F.	114,000	100	1997	2097		82.00 %	46.75 %	82		$75,143.79	$160,740

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System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
C3010230	Paint & Covering	$13.21	S.F.	114,000	10	1997	2007	2020	50.00 %	0.00 %	5			$1,505,940
C3010231	Vinyl Wall Covering	$0.97	S.F.		15				0.00 %	0.00 %				$0
C3010232	Wall Tile	$2.63	S.F.	114,000	30	1997	2027		40.00 %	0.00 %	12			$299,820
C3020411	Carpet	$7.30	S.F.	8,000	10	1997	2007	2027	120.00 %	153.30 %	12		$89,526.08	$58,400
C3020412	Terrazzo & Tile	$75.52	S.F.	6,000	50	1997	2047		64.00 %	0.00 %	32			$453,120
C3020413	Vinyl Flooring	$9.68	S.F.	84,900	20	1997	2017	2025	50.00 %	21.93 %	10		$180,262.98	$821,832
C3020414	Wood Flooring	$22.27	S.F.		25				0.00 %	0.00 %				$0
C3020415	Concrete Floor Finishes	$2.11	S.F.	15,100	50	1997	2047		64.00 %	232.97 %	32		$74,227.75	$31,861
C3030	Ceiling Finishes	$20.97	S.F.	114,000	25	1997	2022		28.00 %	4.12 %	7		$98,452.63	$2,390,580
D1010	Elevators and Lifts	$1.53	S.F.	114,000	35	1997	2032		48.57 %	0.00 %	17			$174,420
D2010	Plumbing Fixtures	$13.52	S.F.	114,000	35	1997	2032		48.57 %	0.00 %	17			$1,541,280
D2020	Domestic Water Distribution	$1.68	S.F.	114,000	25	1997	2022		28.00 %	26.66 %	7		$51,062.99	$191,520
D2030	Sanitary Waste	$2.90	S.F.	114,000	25	1997	2022		28.00 %	0.00 %	7			$330,600
D2040	Rain Water Drainage	$2.32	S.F.	114,000	30	1997	2027		40.00 %	0.00 %	12			$264,480
D3020	Heat Generating Systems	$18.67	S.F.	114,000	35	1997	2032	2062	134.29 %	0.00 %	47			$2,128,380
D3030	Cooling Generating Systems	$24.48	S.F.	114,000	30	1997	2027	2057	140.00 %	0.00 %	42			$2,790,720
D3040	Distribution Systems	$42.99	S.F.	114,000	25	1997	2022	2047	128.00 %	0.00 %	32			$4,900,860
D3050	Terminal & Package Units	$11.60	S.F.	114,000	20	1997	2017	2037	110.00 %	0.00 %	22			$1,322,400
D3060	Controls & Instrumentation	$13.50	S.F.	114,000	20	1997	2017	2037	110.00 %	17.38 %	22		$267,414.19	$1,539,000
D4010	Sprinklers	$7.05	S.F.	114,000	35	1997	2032	2067	148.57 %	0.00 %	52			$803,700
D4020	Standpipes	$1.01	S.F.	114,000	35	1997	2032	2067	148.57 %	0.00 %	52			$115,140
D5010	Electrical Service/Distribution	$9.70	S.F.	114,000	30	1997	2027		40.00 %	0.00 %	12			$1,105,800
D5020	Lighting and Branch Wiring	$34.68	S.F.	114,000	20	1997	2017	2037	110.00 %	0.51 %	22		$20,132.44	$3,953,520
D5030	Communications and Security	$12.99	S.F.	114,000	15	1997	2012	2027	80.00 %	0.00 %	12			$1,480,860
D5090	Other Electrical Systems	$1.41	S.F.	114,000	30	1997	2027		40.00 %	0.00 %	12			$160,740
E1020	Institutional Equipment	$4.82	S.F.	114,000	35	1997	2032		48.57 %	0.00 %	17			$549,480
E1090	Other Equipment	$11.10	S.F.	114,000	35	1997	2032		48.57 %	0.00 %	17			$1,265,400
E2010	Fixed Furnishings	$2.13	S.F.	114,000	40	1997	2037		55.00 %	0.00 %	22			$242,820
								Total	**86.08 %**	**4.15 %**			**$2,358,030.19**	**$56,765,029**

System Notes

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

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

Note:
painted block 95%
glazed block 5%

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

Note:
Concrete – 5%
Painted gym floor (high build) 9%
VCT - 72%
Carpet 8%
Ceramic mosaic4%
Quarry tile2%

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

Note:
Acoustical tile 68%
Popcorn painted on conc 18%
Exposed (mech, storage, gym, auditorium) 10%
Gypsum board (toilets) 4%

Renewal Schedule

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

Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$2,358,030**	**$0**	**$0**	**$0**	**$0**	**$1,920,377**	**$0**	**$4,164,107**	**$0**	**$0**	**$1,214,921**	**$9,657,435**
*** 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	$2,291	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,291**
B - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B10 - Superstructure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1010 - Floor Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1020 - Roof Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B20 - Exterior Enclosure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2010 - Exterior Walls	$28,483	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$28,483**
B2020 - Exterior Windows	$211,954	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$211,954**
B2030 - Exterior Doors	$9,556	$0	$0	$0	$0	$0	$0	$223,628	$0	$0	$0	**$233,184**
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	$1,158,765	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,158,765**
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**

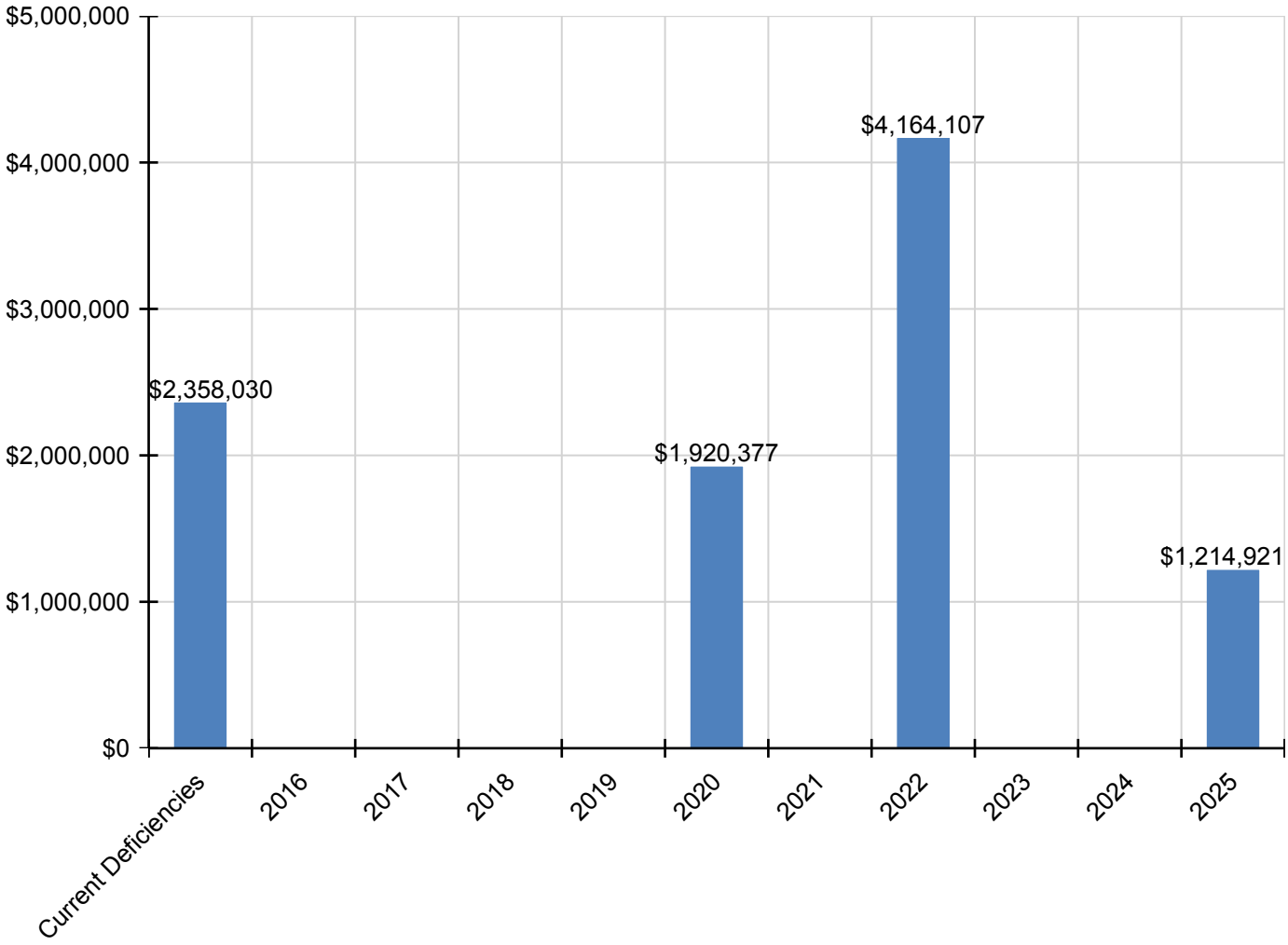
C1020 - Interior Doors	$80,493	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$80,493**
C1030 - Fittings	$10,266	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$10,266**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$75,144	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$75,144**
C30 - Interior Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010 - Wall Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010230 - Paint & Covering	$0	$0	$0	$0	$0	$1,920,377	$0	$0	$0	$0	$0	**$1,920,377**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010232 - Wall Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020 - Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020411 - Carpet	$89,526	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$89,526**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$180,263	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,214,921	**$1,395,184**
C3020414 - Wood Flooring	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020415 - Concrete Floor Finishes	$74,228	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$74,228**
C3030 - Ceiling Finishes	$98,453	$0	$0	$0	$0	$0	$0	$3,234,123	$0	$0	$0	**$3,332,576**
D - Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D10 - Conveying	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D1010 - Elevators and Lifts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2020 - Domestic Water Distribution	$51,063	$0	$0	$0	$0	$0	$0	$259,100	$0	$0	$0	**$310,163**
D2030 - Sanitary Waste	$0	$0	$0	$0	$0	$0	$0	$447,256	$0	$0	$0	**$447,256**
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	$267,414	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$267,414**
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	$20,132	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$20,132**
D5030 - Communications and Security	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5090 - Other Electrical Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E - Equipment & Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E10 - Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E1020 - Institutional Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E1090 - Other Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E20 - Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E2010 - Fixed Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

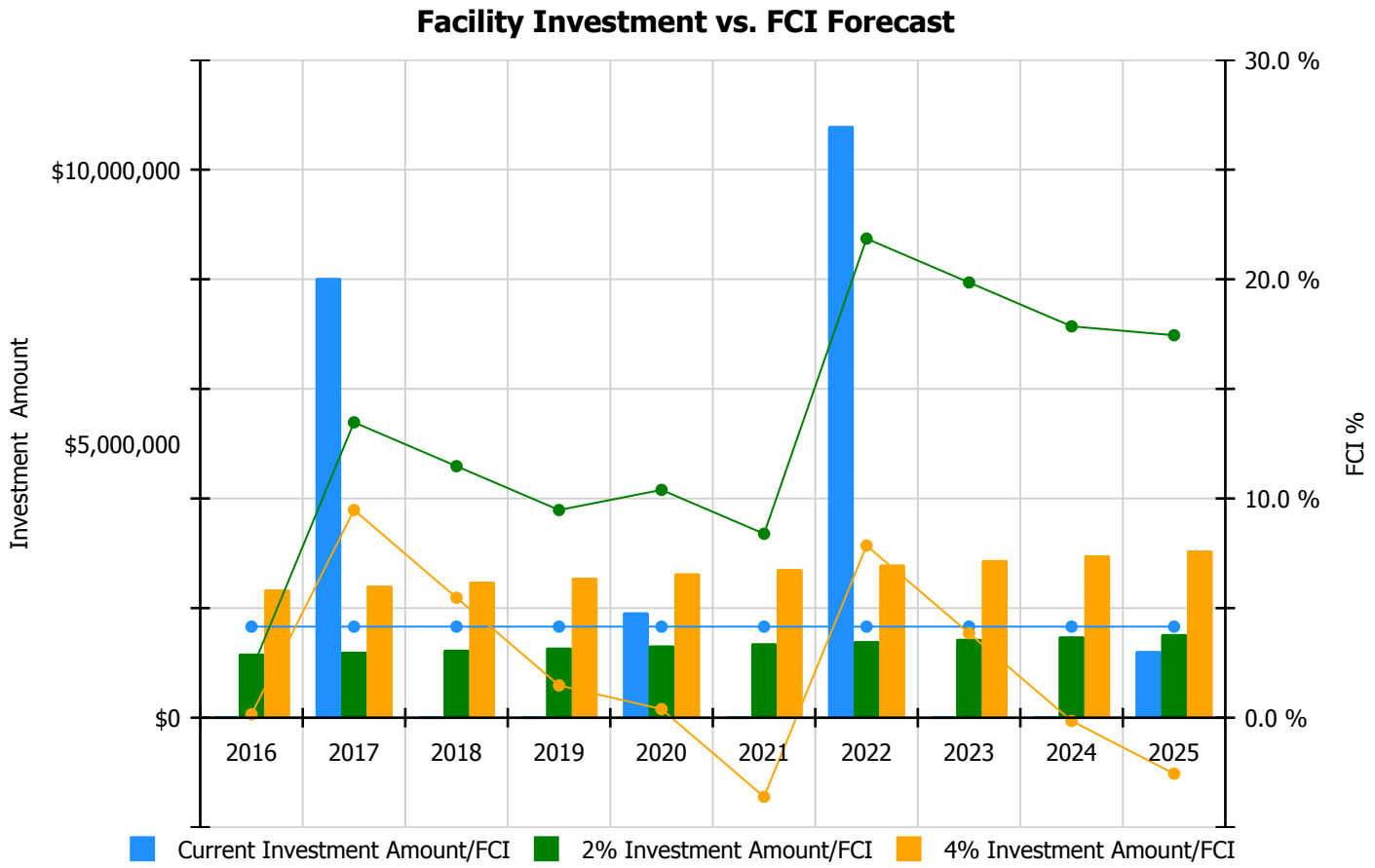
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



10 Year FCI Forecast by Investment Scenario

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

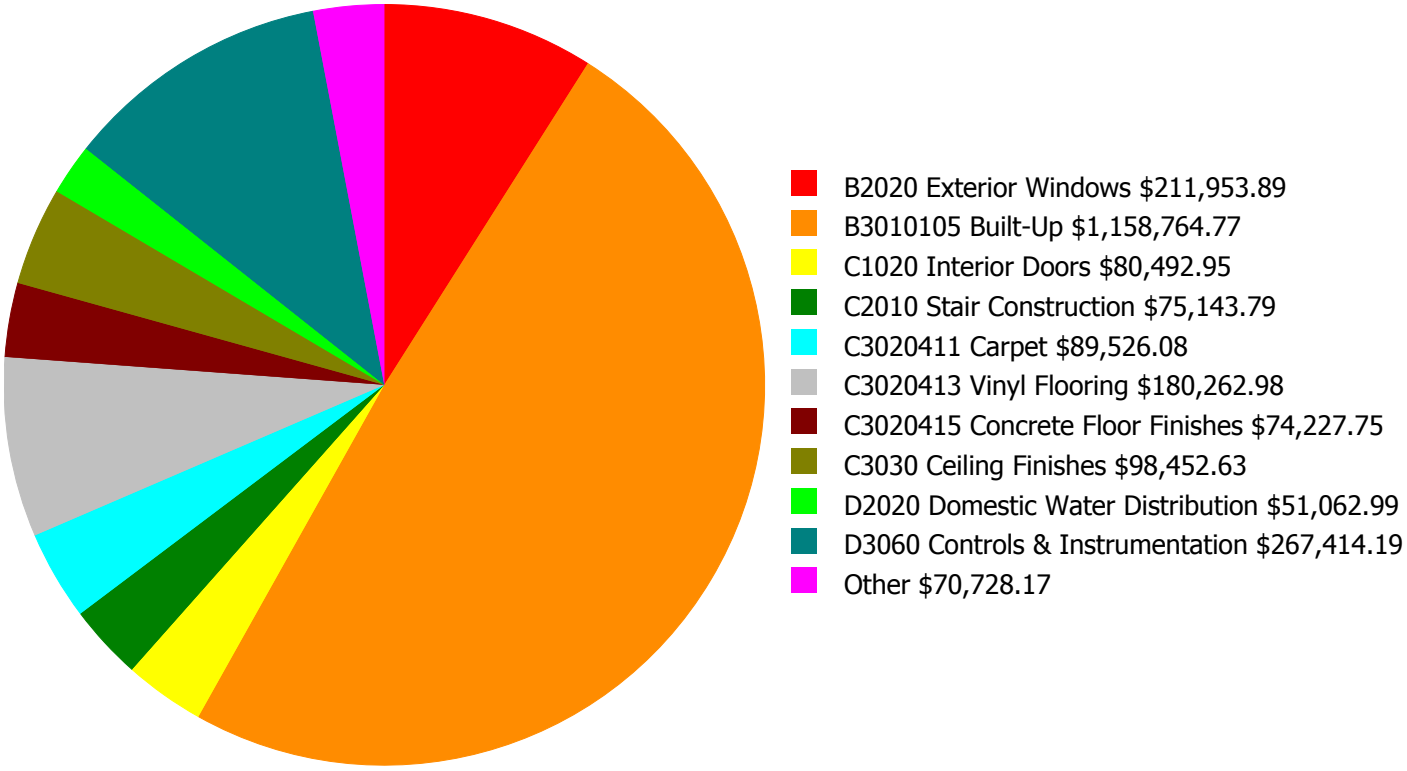
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 4.15%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$1,169,360.00	2.15 %	$2,338,719.00	0.15 %
2017	$8,021,096	$1,204,440.00	13.47 %	$2,408,881.00	9.47 %
2018	$0	$1,240,574.00	11.47 %	$2,481,147.00	5.47 %
2019	$0	$1,277,791.00	9.47 %	$2,555,582.00	1.47 %
2020	$1,920,377	$1,316,125.00	10.39 %	$2,632,249.00	0.39 %
2021	$0	$1,355,608.00	8.39 %	$2,711,217.00	-3.61 %
2022	$10,794,291	$1,396,277.00	21.85 %	$2,792,553.00	7.85 %
2023	$0	$1,438,165.00	19.85 %	$2,876,330.00	3.85 %
2024	$0	$1,481,310.00	17.85 %	$2,962,620.00	-0.15 %
2025	$1,214,921	$1,525,749.00	17.45 %	$3,051,498.00	-2.55 %
Total:	**$21,950,684**	**$13,405,399.00**		**$26,810,796.00**	

Deficiency Summary by System

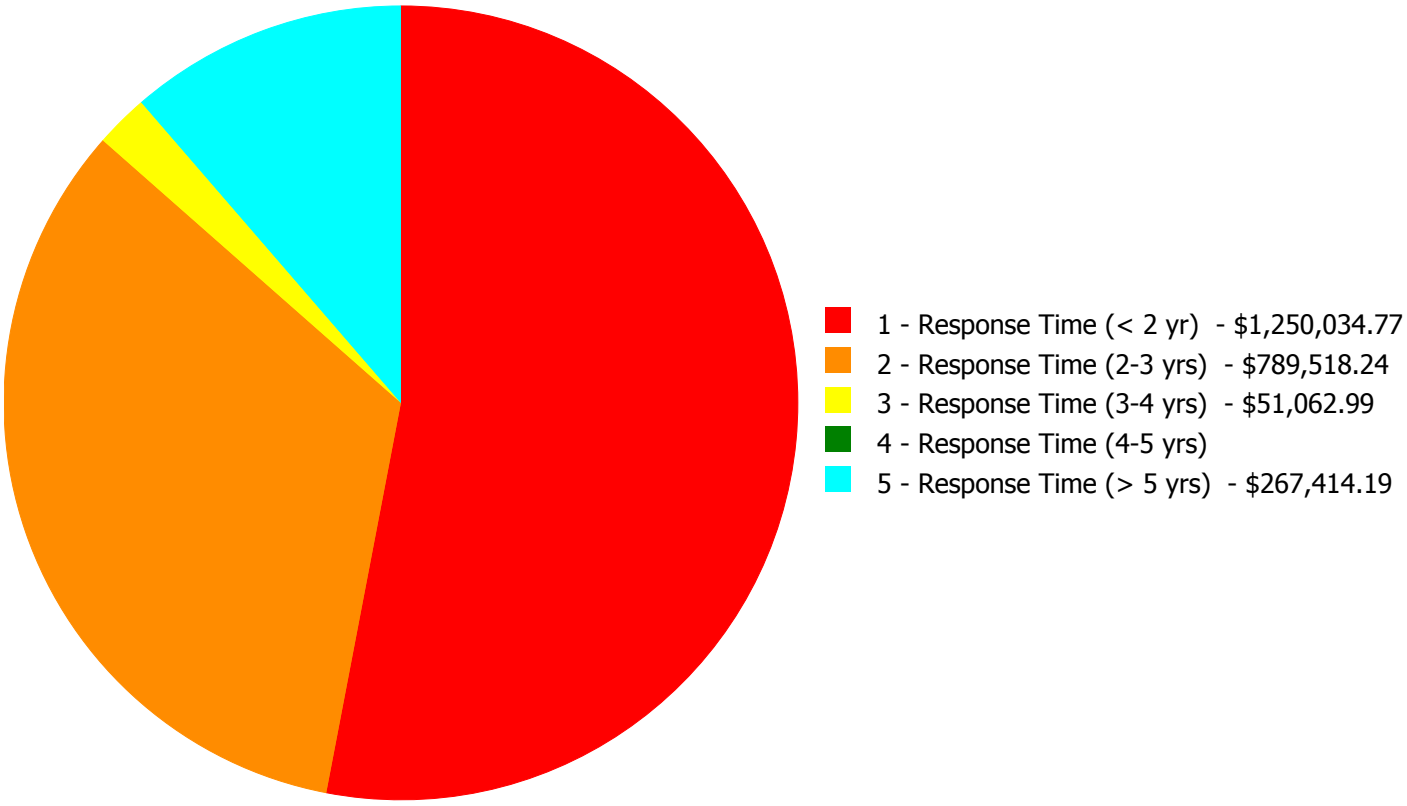
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $2,358,030.19

Deficiency Summary by Priority

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



Budget Estimate Total: $2,358,030.19

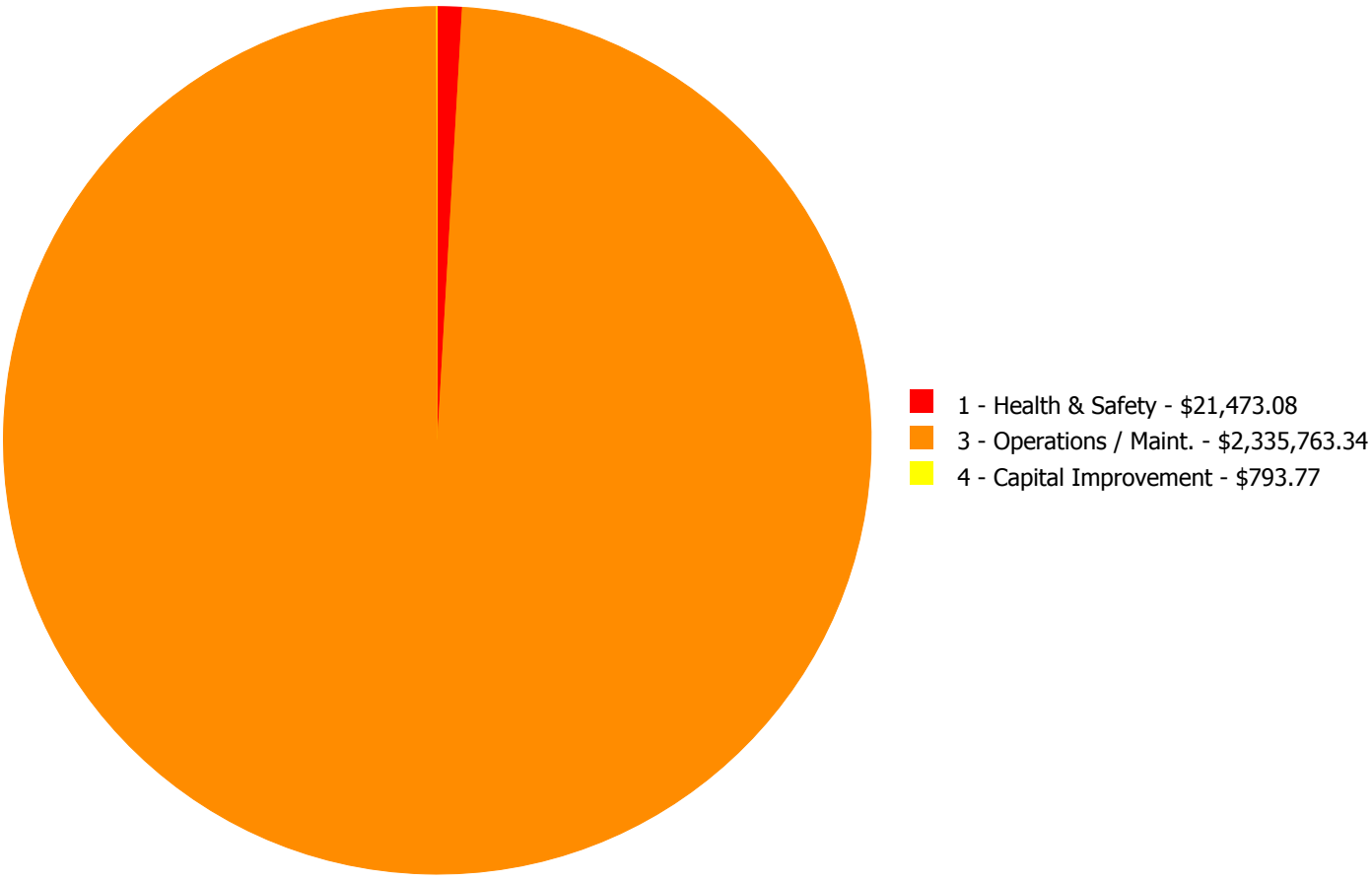
Deficiency By Priority Investment Table

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
A2020	Basement Walls	$0.00	$2,290.80	$0.00	$0.00	$0.00	$2,290.80
B2010	Exterior Walls	$12,039.61	$16,443.61	$0.00	$0.00	$0.00	$28,483.22
B2020	Exterior Windows	$0.00	$211,953.89	$0.00	$0.00	$0.00	$211,953.89
B2030	Exterior Doors	$0.00	$9,556.09	$0.00	$0.00	$0.00	$9,556.09
B3010105	Built-Up	$1,158,764.77	$0.00	$0.00	$0.00	$0.00	$1,158,764.77
C1020	Interior Doors	$0.00	$80,492.95	$0.00	$0.00	$0.00	$80,492.95
C1030	Fittings	$0.00	$10,265.62	$0.00	$0.00	$0.00	$10,265.62
C2010	Stair Construction	$59,097.95	$16,045.84	$0.00	$0.00	$0.00	$75,143.79
C3020411	Carpet	$0.00	$89,526.08	$0.00	$0.00	$0.00	$89,526.08
C3020413	Vinyl Flooring	$0.00	$180,262.98	$0.00	$0.00	$0.00	$180,262.98
C3020415	Concrete Floor Finishes	$0.00	$74,227.75	$0.00	$0.00	$0.00	$74,227.75
C3030	Ceiling Finishes	$0.00	$98,452.63	$0.00	$0.00	$0.00	$98,452.63
D2020	Domestic Water Distribution	$0.00	$0.00	$51,062.99	$0.00	$0.00	$51,062.99
D3060	Controls & Instrumentation	$0.00	$0.00	$0.00	$0.00	$267,414.19	$267,414.19
D5020	Lighting and Branch Wiring	$20,132.44	$0.00	$0.00	$0.00	$0.00	$20,132.44
	Total:	$1,250,034.77	$789,518.24	$51,062.99	$0.00	$267,414.19	$2,358,030.19

Deficiency Summary by Category

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



Budget Estimate Total: $2,358,030.19

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: B2010 - Exterior Walls

Location: exterior walls

Distress: Failing

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Re-caulk exterior control joints and other caulk joints

Qty: 600.00

Unit of Measure: L.F.

Estimate: $12,039.61

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repair caulk joint where beam flashing terminates above first floor in buff brick walls; repair caulk joints where leaks occur at aluminum tube frame glazing units set into brick (600lf)

System: B3010105 - Built-Up

Location: roof

Distress: Failing

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Remove and Replace Built Up Roof

Qty: 34,200.00

Unit of Measure: S.F.

Estimate: $1,158,764.77

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Remove and replace built-up roof, including gravel stop, expansion joint and curbs; clean out scuppers (34,200sf)

System: C2010 - Stair Construction

Location: exterior concrete stairs

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Repair exterior stairs

Qty: 144.00

Unit of Measure: Riser

Estimate: $59,097.95

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Provide new exterior stairs with re-used railings/guards each side connecting playground with sidewalk - 11 riser stair, 4 ft wide; 9 riser and 4 riser stairs, 14 feet wide, each (equivalent to (6) 3ft wide 24 riser stairs, for estimating purposes.

System: D5020 - Lighting and Branch Wiring

Location: Entire Building

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace lighting fixtures

Qty: 1.00

Unit of Measure: Ea.

Estimate: $18,514.88

Assessor Name: Craig Anding

Date Created: 09/17/2015

Notes: Repair/replace damaged interior/exterior lighting fixture. Estimated 50 each.

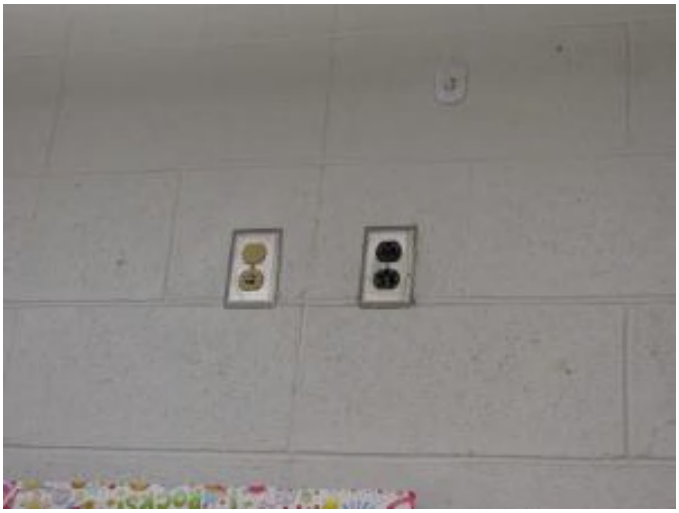
System: D5020 - Lighting and Branch Wiring

This deficiency has no image.

Location: Kitchen Area
Distress: Life Safety / NFPA / PFD
Category: 1 - Health & Safety
Priority: 1 - Response Time (< 2 yr)
Correction: Replace Wiring Device
Qty: 0.00
Unit of Measure: Ea.
Estimate: $823.79
Assessor Name: Craig Anding
Date Created: 11/12/2015

Notes: Replace general receptacle with GFCI receptacles where required (receptacle adjacent to the sink). Total 5

System: D5020 - Lighting and Branch Wiring



Location: Entire Building
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 1 - Response Time (< 2 yr)
Correction: Replace Wiring Device
Qty: 1.00
Unit of Measure: Ea.
Estimate: $793.77
Assessor Name: Craig Anding
Date Created: 11/12/2015

Notes: Replace no ground type receptacles with ground type receptacles. Estimated 10 total.

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

System: A2020 - Basement Walls

Location: gymnasium pier (soffit support)

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Repair concrete wall in poor condition including rebar dowelling - insert the SF of wall area

Qty: 10.00

Unit of Measure: S.F.

Estimate: $2,290.80

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repair structural pier supporting wall over alcove in gym. (50sf)

System: B2010 - Exterior Walls

Location: exterior walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Sooty and dirty walls - powerwash

Qty: 10,000.00

Unit of Measure: S.F.

Estimate: $10,937.35

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Power wash brick behind and around scuppers and vertical leaders; wash other stained areas around louvers and under coping. (10,000sf)

System: B2010 - Exterior Walls

Location: exterior walls

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 100.00

Unit of Measure: S.F.

Estimate: $3,228.94

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repair cracked bricks (100sf)

System: B2010 - Exterior Walls

Location: entrance canopies - steel beams

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Prepare and paint exterior steel beams or steel surfaces

Qty: 300.00

Unit of Measure: S.F.

Estimate: $2,277.32

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repaint rusted steel beams supporting metal roof canopies over main and secondary entrances (300sf)

System: B2020 - Exterior Windows

Location: exterior window system

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

Correction: Replace glazing - broken or plywood covered - pick the appropriate material

Qty: 65.00

Unit of Measure: S.F.

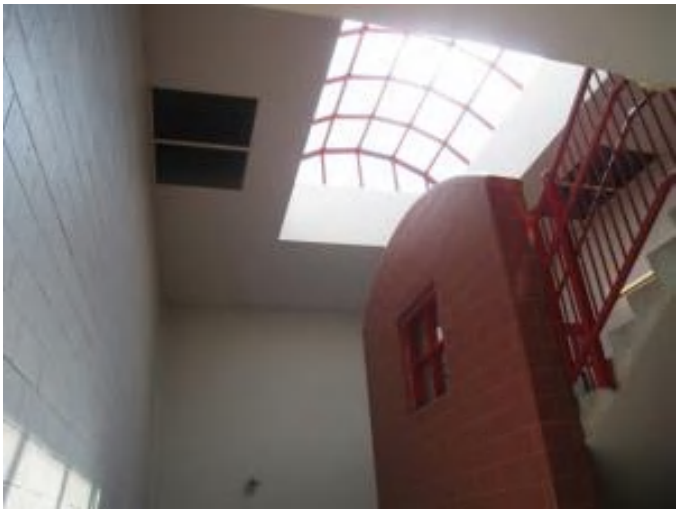
Estimate: $211,297.42

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Replace all faded single sheet plexiglass lites with insulated glass lites in modified-to-fit existing aluminum tube frame system (65 - 4'x4'; 70 - 4'x8' equivalent in 8 sections with one operable unit)

System: B2020 - Exterior Windows



Location: lobby skylight

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Replace glazing - broken or plywood covered - pick the appropriate material

Qty: 10.00

Unit of Measure: S.F.

Estimate: $656.47

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repair broken glass in lobby skylight (10sf)

System: B2030 - Exterior Doors

Location: exterior exit doors

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Refinish and repaint exterior doors - per leaf

Qty: 16.00

Unit of Measure: Ea.

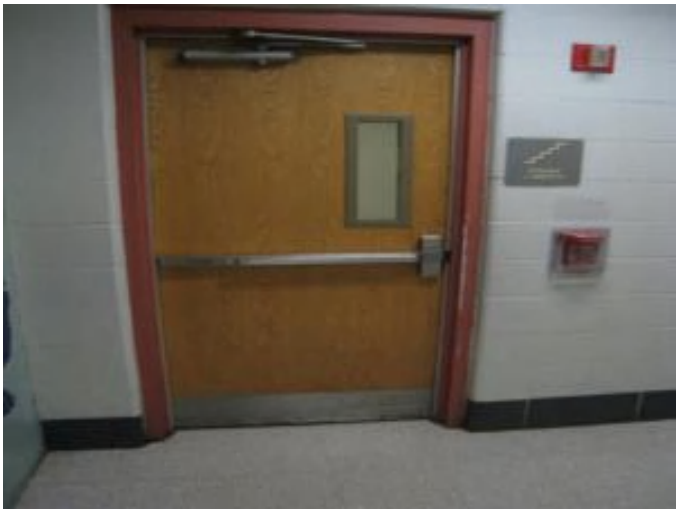
Estimate: $9,556.09

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repaint all grade exit exterior doors and frames. (16 – 3'x7')

System: C1020 - Interior Doors



Location: interior wood doors

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Refinish interior doors

Qty: 60.00

Unit of Measure: Ea.

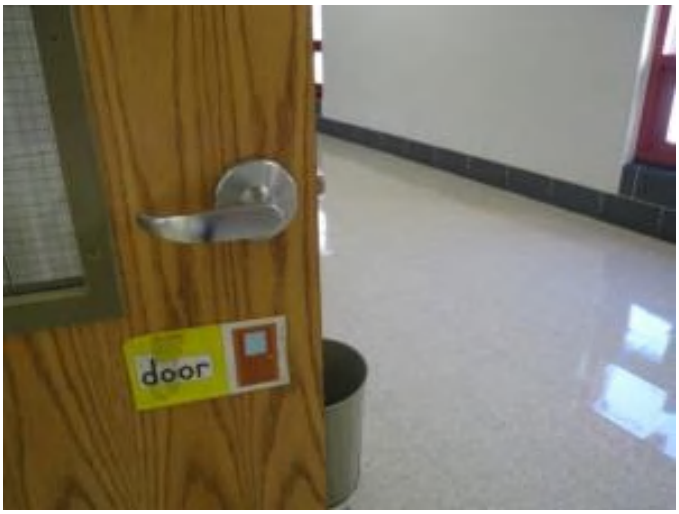
Estimate: $49,690.98

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Refinish all corridor and stair and toilet room solid core wood interior doors. Refinish/repaint steel frames. (60) 3'x7' doors

System: C1020 - Interior Doors



Location: classrooms, offices

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Provide security hardware for classroom and office doors

Qty: 90.00

Unit of Measure: Ea.

Estimate: $20,649.29

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Provide security hardware for classrooms and offices locking from inside of room (90 each)

System: C1020 - Interior Doors

Location: interior door frames

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Repair and repaint HM door frames - per frame

Qty: 60.00

Unit of Measure: Ea.

Estimate: $10,152.68

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Refinish/repaint steel frames (for wood doors). (60) 3’x7’ doors

System: C1030 - Fittings

Location: toilet room

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace toilet partitions

Qty: 4.00

Unit of Measure: Ea.

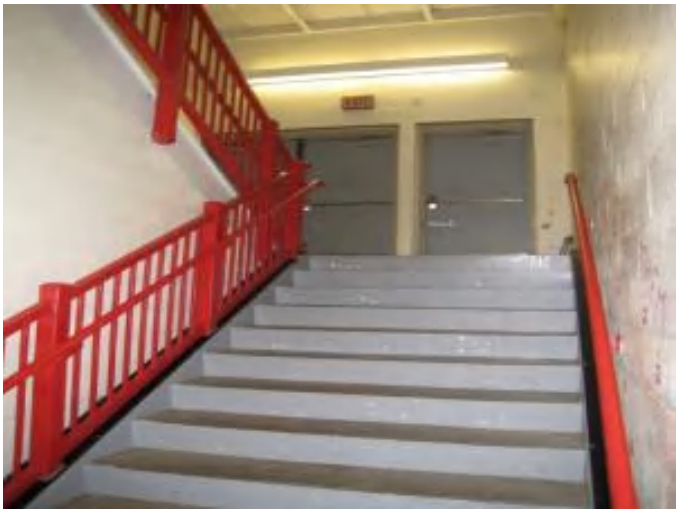
Estimate: $10,265.62

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Replace plastic toilet room stall partitions, damaged by vandalism (4 stalls)

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: 900.00

Unit of Measure: S.F.

Estimate: $12,757.66

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repaint railings and balustrades in interior stairways (900sf)

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: 600.00

Unit of Measure: L.F.

Estimate: $3,288.18

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repaint railings and balustrades in interior stairways (600 lf)

System: C3020411 - Carpet

Location: classrooms, IMC, auditorium aisles

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace carpet

Qty: 8,000.00

Unit of Measure: S.F.

Estimate: $89,526.08

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Replace carpet in classrooms, IMC, auditorium aisles (8,000 sf)

System: C3020413 - Vinyl Flooring

Location: cafeteria, lobby, corridors

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace VCT

Qty: 15,000.00

Unit of Measure: S.F.

Estimate: $180,262.98

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Replace VCT cupping along edges (15,000sf)

System: C3020415 - Concrete Floor Finishes

Location: gym floor

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Prepare and repaint concrete floor

Qty: 9,300.00

Unit of Measure: S.F.

Estimate: $53,931.10

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Replace gym floor – high build coating system (9,300 sf)

System: C3020415 - Concrete Floor Finishes

Location: stair treads

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Prepare and repaint concrete floor

Qty: 3,500.00

Unit of Measure: S.F.

Estimate: $20,296.65

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Reseal/paint concrete stair treads and risers in building (3500sf treads and risers)

System: C3030 - Ceiling Finishes

Location: ceilings

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 5,000.00

Unit of Measure: S.F.

Estimate: $75,412.15

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Replace damaged or stained acoustical tile ceilings in all corridors and some classrooms with new suspended acoustical tile ceiling system (5,000sf)

System: C3030 - Ceiling Finishes

Location:	ceilings
Distress:	Damaged
Category:	3 - Operations / Maint.
Priority:	2 - Response Time (2-3 yrs)
Correction:	Remove and replace gypsum board ceilings
Qty:	1,000.00
Unit of Measure:	S.F.
Estimate:	$23,040.48
Assessor Name:	Craig Anding
Date Created:	11/12/2015

Notes: Repaint water damaged gypsum board or popcorn finish soffits/ceilings (1000sf)

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

System: D2020 - Domestic Water Distribution

Location: Boiler mechanical equipment room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace vertical tank type gas-fired water heater (120 gal)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $51,062.99

Assessor Name: Craig Anding

Date Created: 12/23/2015

Notes: Replace domestic water heaters.

Priority 5 - Response Time (> 5 yrs):

System: D3060 - Controls & Instrumentation

Location: Throughout the building

Distress: Energy Efficiency

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Recommission DDC Building Management System

Qty: 90,000.00

Unit of Measure: S.F.

Estimate: $267,414.19

Assessor Name: Craig Anding

Date Created: 12/23/2015

Notes: Provide retro-commissioning for DDC system to ensure that systems are operating at the highest level of efficiency.

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
D2020 Domestic Water Distribution	Pump, pressure booster system, 10 HP pump, includes diaphragm tank, control and pressure switch	2.00	Ea.	Main boiler mechanical equipment room	Paco	10-20121-130001-1742			25	1997	2022	$12,768.00	$28,089.60
D2020 Domestic Water Distribution	Pump, pressure booster system, 10 HP pump, includes diaphragm tank, control and pressure switch	2.00	Ea.	Main boiler mechanical equipment room	Paco	10-20121-130001-1742			25	1997	2022	$12,768.00	$28,089.60
D3020 Heat Generating Systems	Boiler, gas fired, natural or propane, cast iron, hot water, gross output, 4488 MBH, includes standard controls and insulated jacket, packaged	1.00	Ea.	Boiler mechnaical equipment room	HB Smith	28A-S/W-12			35			$68,695.50	$75,565.05
D3020 Heat Generating Systems	Boiler, gas fired, natural or propane, cast iron, hot water, gross output, 4488 MBH, includes standard controls and insulated jacket, packaged	1.00	Ea.	Boiler mechanical equipment room	HB Smith	28A-S/W-12			35			$68,695.50	$75,565.05
D3030 Cooling Generating Systems	Chiller, centrifugal, water cooled, packaged hermetic, standard controls, 200 ton	1.00	Ea.	Main boiler mechanical equipment room	York	YCWJ66KH-46PA			30	1997	2057	$152,640.80	$167,904.88
D3030 Cooling Generating Systems	Cooling tower, galvanized steel, packaged unit, draw thru, 300 ton	1.00	Ea.	Roof	Baltimore Aircoil	VTO-145-MCS			30	1997	2027	$75,868.80	$83,455.68
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 10 H.P., to 600 GPM, 5" size	2.00	Ea.	Main boiler mechanical equiupment room	Bell Gossett	VCS			25	1997	2022	$19,608.00	$43,137.60
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 10 H.P., to 600 GPM, 5" size	2.00	Ea.	Main boiler mechanical equiupment room	Bell Gossett	VCS			25	1997	2022	$19,608.00	$43,137.60
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 15 H.P., to 1000 GPM, 5" size	2.00	Ea.	Main boiler mechanical equipment room	Bell Gossett	VCS			25	1997	2022	$21,432.00	$47,150.40
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 15 H.P., to 1000 GPM, 5" size	2.00	Ea.	Main boiler mechanical equipment room	Bell Gossett	VCS			25	1997	2022	$21,432.00	$47,150.40
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Main boiler mechanical equipment room	Bell Gossett	VCS			25	1997	2022	$23,598.00	$51,915.60
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Main boiler mechanical equipment room	Bell Gossett	VCS			25	1997	2022	$23,598.00	$51,915.60
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Main boiler mechanical equipment room	Bell Gossett	VCS			25	1997	2022	$23,598.00	$51,915.60
D3040 Distribution Systems	Pump, circulating, cast iron, base mounted, coupling guard, bronze impeller, flanged joints, 20 H.P., to 1350 GPM, 6" size	2.00	Ea.	Main boiler mechanical equipment room	Bell Gossett	VCS			25	1997	2022	$23,598.00	$51,915.60
D4010 Sprinklers	Fire pumps, electric, 750 GPM, 100 psi, 66 HP, 3,550 RPM, 4" pump, including controller, fittings and relief valve	1.00	Ea.	Main boiler mechanical equipment room					35	1997	2032	$27,321.80	$30,053.98

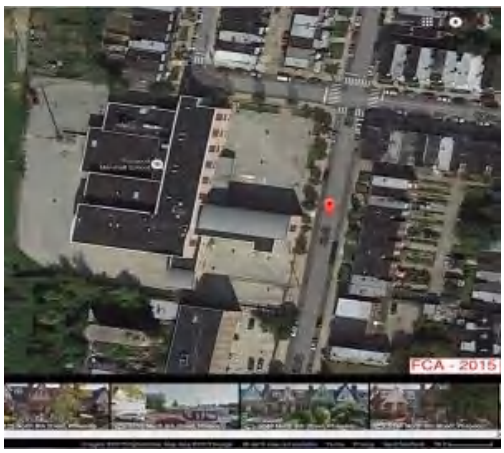
D5010 Electrical Service/Distribution	Load interrupter switch, 2 position, 300 kVA & below, 13.8 kV, 600 amp w/CLF fuses, NEMA 1	1.00	Ea.	Pump Room					30	1997	2027	$42,600.60	$46,860.66
D5010 Electrical Service/Distribution	Motor control center, starters, class 1, type B, combination MCP, FVNR, with control XFMR, size 1, 10 HP, 12" high, incl starters & structures	4.00	Ea.	Pump Room & Boiler room					30	1997	2027	$2,670.30	$11,749.32
D5010 Electrical Service/Distribution	Motor control center, starters, class 1, type B, combination MCP, FVNR, with control XFMR, size 2, 25 HP, 18" high, incl starters & structures	6.00	Ea.	Pump Room & Boiler Room					30	1997	2027	$3,073.95	$20,288.07
D5010 Electrical Service/Distribution	Motor control center, starters, class 1, type B, combination MCP, FVNR, with control XFMR, size 3, 50 HP, 24" high, incl starters & structures	8.00	Ea.	Pump Room & Boiler Room					30	1997	2027	$4,936.95	$43,445.16
D5010 Electrical Service/Distribution	Switchboards, pressure switch, 4 wire, with ground fault, 277/480 V, 1600 amp, incl CT compartment, excl CT's or PT's	1.00	Ea.	Pump Room					30	1997	2027	$35,024.40	$38,526.84
D5010 Electrical Service/Distribution	Transformer, liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 3 phase, 1000 kVA, pad mounted	1.00	Ea.	Pump Room					30	1997	2027	$50,425.20	$55,467.72
												Total:	**$1,093,300.01**

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):	58,300
Year Built:	1997
Last Renovation:	
Replacement Value:	$1,192,139
Repair Cost:	$179,675.48
Total FCI:	15.07 %
Total RSLI:	42.01 %



Description:

Attributes:

General Attributes:

Bldg ID:	S550001	Site ID:	S550001

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	42.81 %	21.05 %	$179,675.48
G40 - Site Electrical Utilities	40.00 %	0.00 %	$0.00
Totals:	**42.01 %**	**15.07 %**	**$179,675.48**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
G2010	Roadways	$11.52	S.F.		30	1997	2027		40.00 %	0.00 %	12			$0
G2020	Parking Lots	$8.50	S.F.	28,300	30	1997	2027		40.00 %	1.68 %	12		$4,040.16	$240,550
G2030	Pedestrian Paving	$12.30	S.F.	28,700	40	1997	2037		55.00 %	0.00 %	22			$353,010
G2040	Site Development	$4.36	S.F.	58,300	25	1997	2022		28.00 %	69.10 %	7		$175,635.32	$254,188
G2050	Landscaping & Irrigation	$4.36	S.F.	1,300	15	1997	2012	2025	66.67 %	0.00 %	10			$5,668
G4020	Site Lighting	$4.84	S.F.	58,300	30	1997	2027		40.00 %	0.00 %	12			$282,172
G4030	Site Communications & Security	$0.97	S.F.	58,300	30	1997	2027		40.00 %	0.00 %	12			$56,551
								Total	**42.01 %**	**15.07 %**			**$179,675.48**	**$1,192,139**

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.

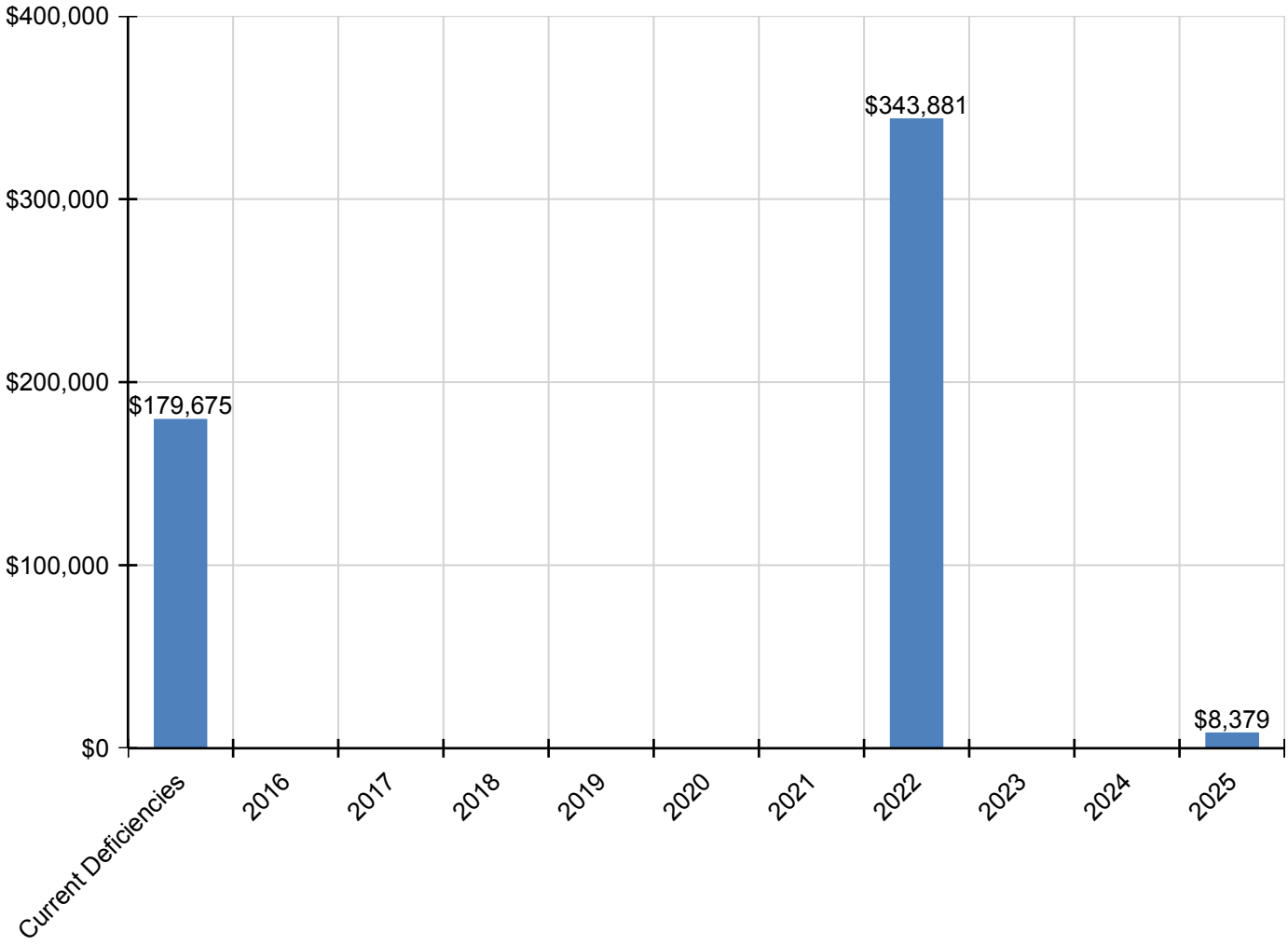
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$179,675**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$343,881**	**$0**	**$0**	**$8,379**	**$531,936**
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	$4,040	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$4,040**
G2030 - Pedestrian Paving	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2040 - Site Development	$175,635	$0	$0	$0	$0	$0	$0	$343,881	$0	$0	$0	**$519,517**
G2050 - Landscaping & Irrigation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,379	**$8,379**
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

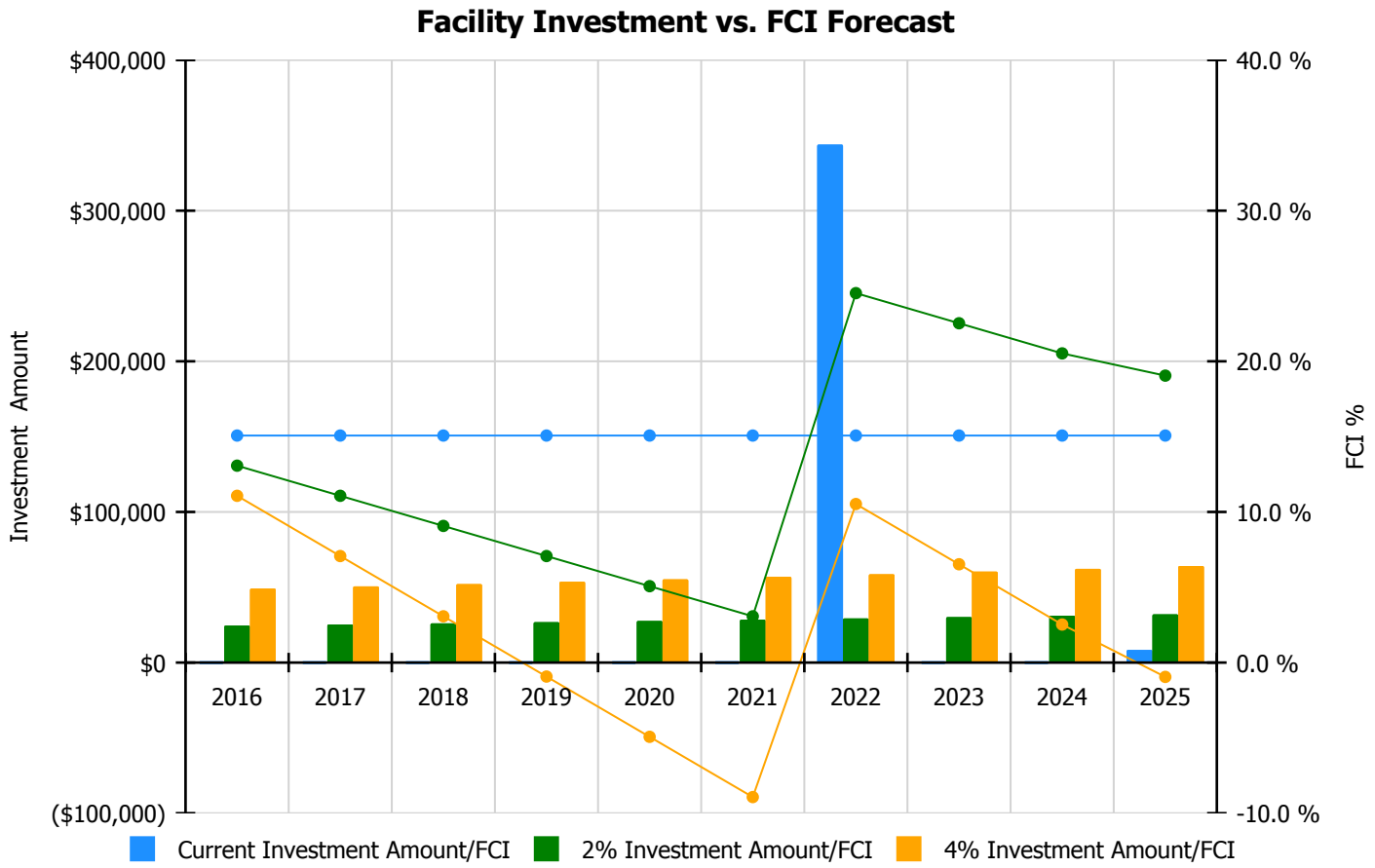
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

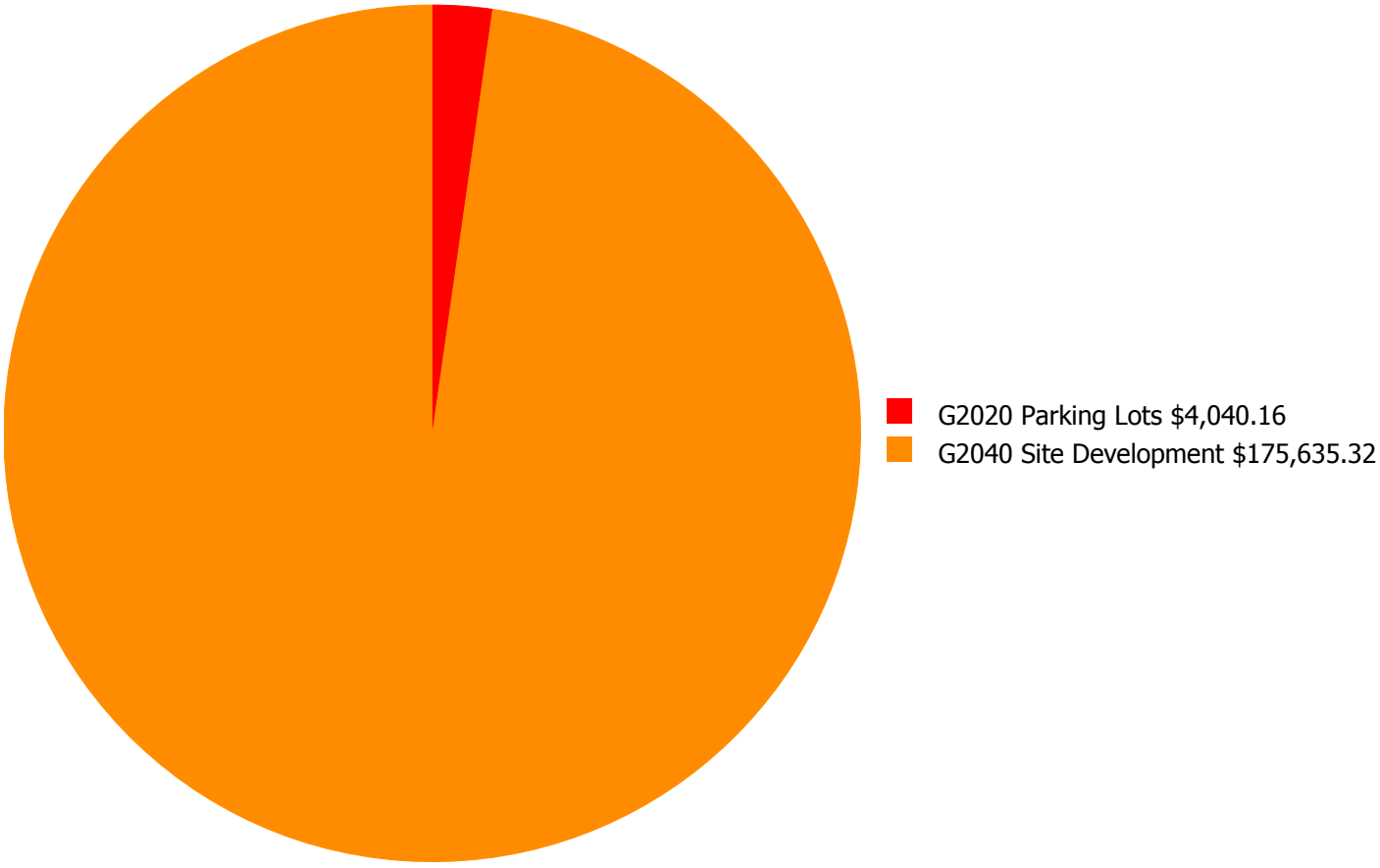
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 15.07%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$24,558.00	13.07 %	$49,116.00	11.07 %
2017	$0	$25,295.00	11.07 %	$50,590.00	7.07 %
2018	$0	$26,054.00	9.07 %	$52,107.00	3.07 %
2019	$0	$26,835.00	7.07 %	$53,671.00	-0.93 %
2020	$0	$27,640.00	5.07 %	$55,281.00	-4.93 %
2021	$0	$28,470.00	3.07 %	$56,939.00	-8.93 %
2022	$343,881	$29,324.00	24.53 %	$58,647.00	10.53 %
2023	$0	$30,203.00	22.53 %	$60,407.00	6.53 %
2024	$0	$31,109.00	20.53 %	$62,219.00	2.53 %
2025	$8,379	$32,043.00	19.05 %	$64,085.00	-0.95 %
Total:	**$352,261**	**$281,531.00**		**$563,062.00**	

Deficiency Summary by System

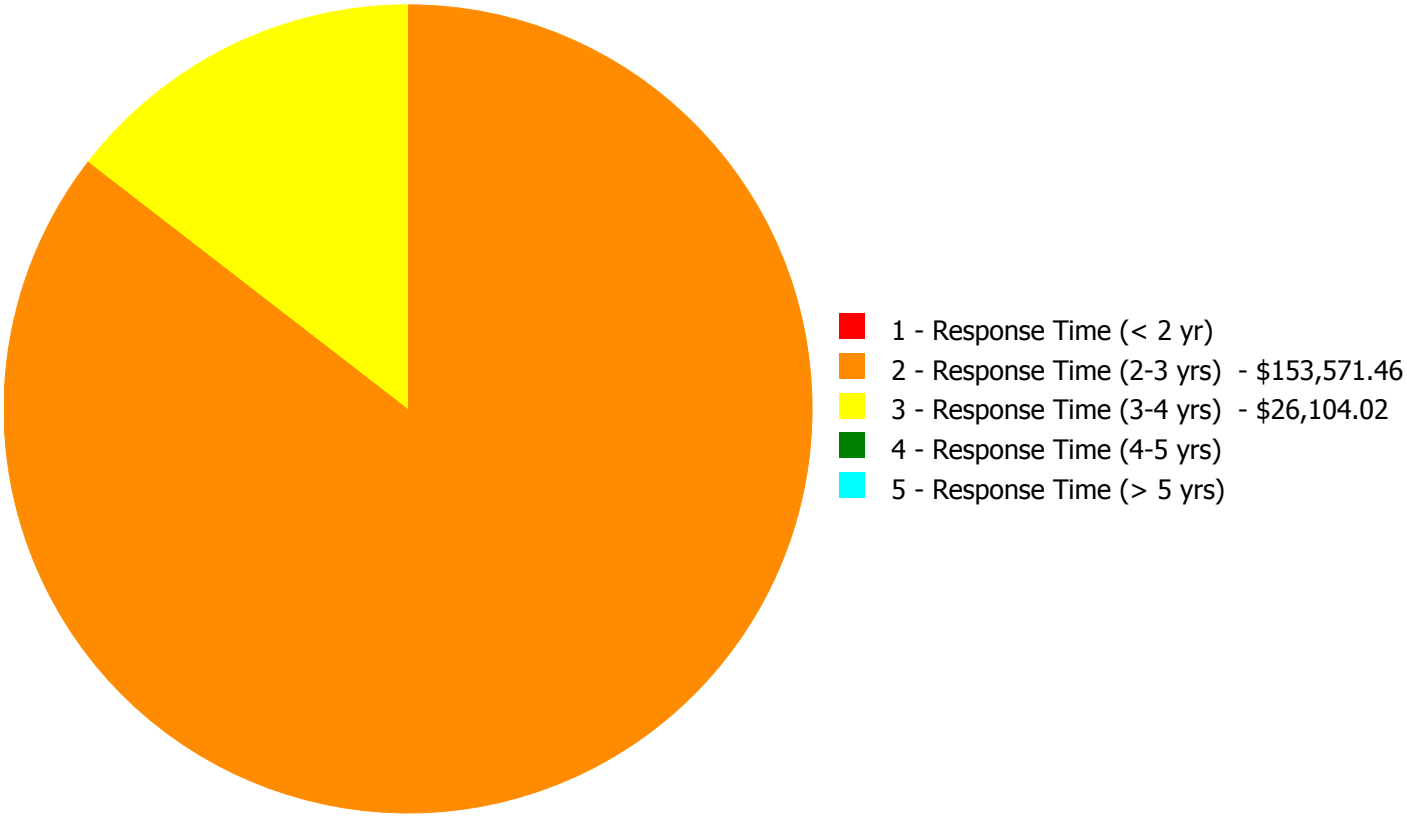
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $179,675.48

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: $179,675.48

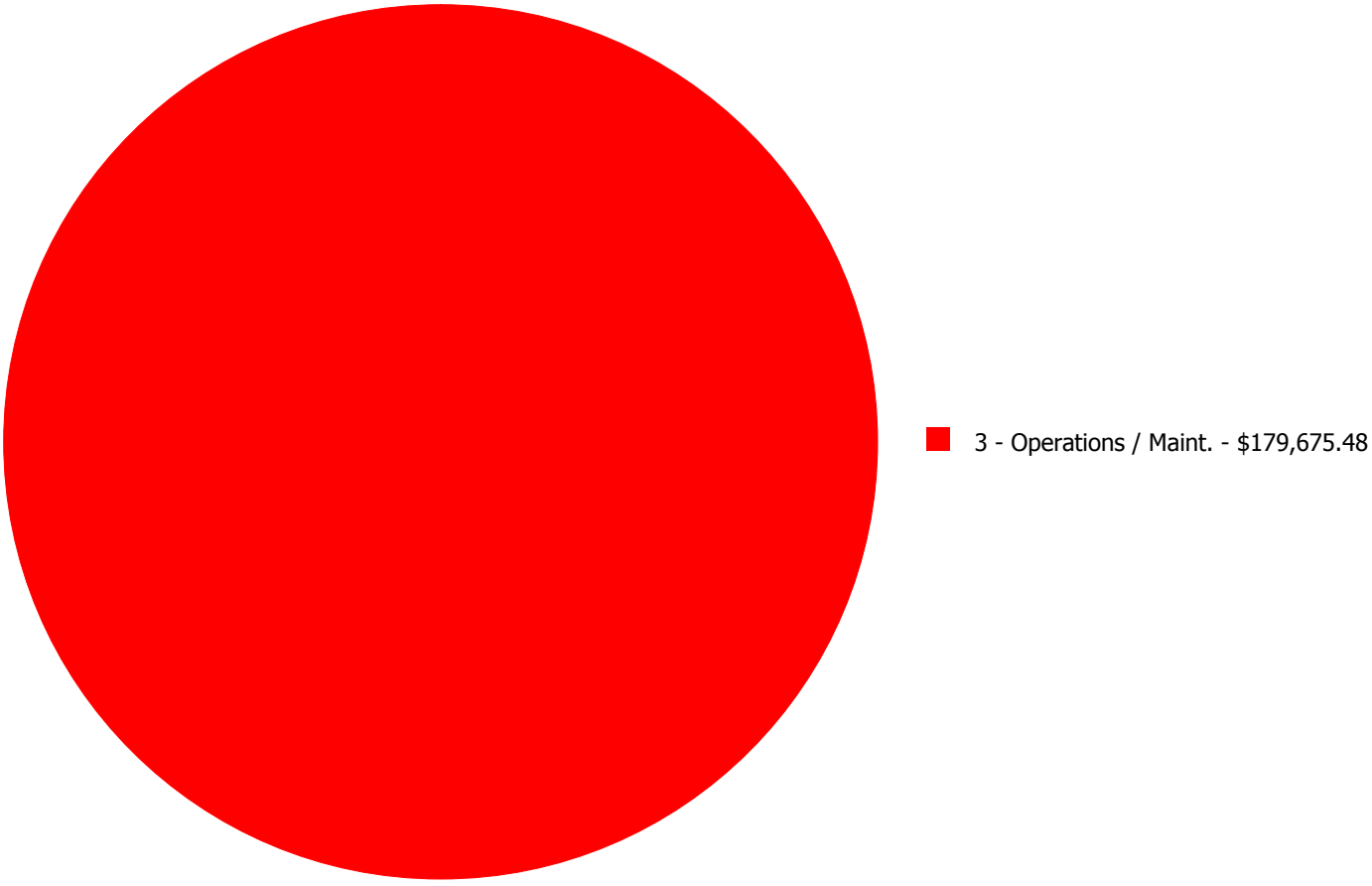
Deficiency By Priority Investment Table

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	$4,040.16	$0.00	$0.00	$0.00	$4,040.16
G2040	Site Development	$0.00	$149,531.30	$26,104.02	$0.00	$0.00	$175,635.32
	Total:	$0.00	$153,571.46	$26,104.02	$0.00	$0.00	$179,675.48

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: $179,675.48

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: faculty parking lot

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Fill cracks in AC paving - by the LF - average size and depth of crack

Qty: 400.00

Unit of Measure: L.F.

Estimate: $4,040.16

Assessor Name: Steven Litman

Date Created: 11/12/2015

Notes: Crack fill Faculty parking in rear of building (400 lf)

System: G2040 - Site Development

Location: site retaining wall

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Repair exterior brick retaining wall - per LF of wall - up to 4' tall

Qty: 290.00

Unit of Measure: L.F.

Estimate: $149,531.30

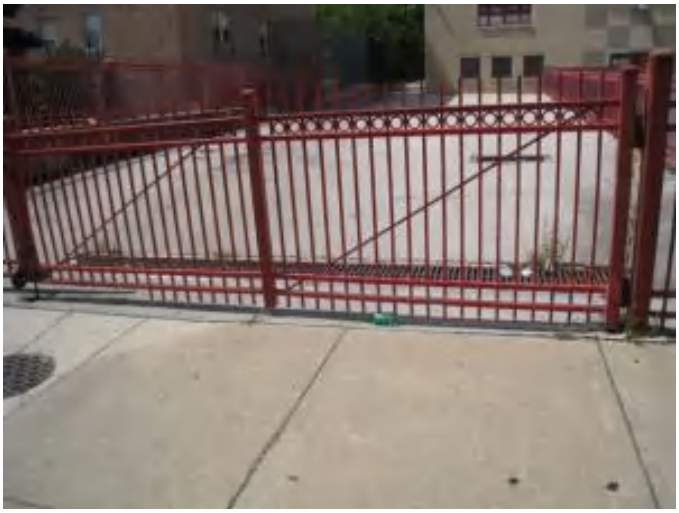
Assessor Name: Steven Litman

Date Created: 11/12/2015

Notes: Reconstruct brick retaining walls along N. 6th St. and Duncannon Ave. (5ft average ht., 130 ft. length; 3ft ht., 160 ft. length)

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

System: G2040 - Site Development



Location: site fence

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Paint steel picket fence - LF of fence 6' high

Qty: 400.00

Unit of Measure: L.F.

Estimate: $26,104.02

Assessor Name: Craig Anding

Date Created: 11/12/2015

Notes: Repaint steel picket fencing (400 ft long; 5 ft high

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