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.

Franklin High School

Governance	DISTRICT	Report Type	High
Address	550 N. Broad St.	Enrollment	541
	Philadelphia, Pa 19130	Grade Range	'09-12'
Phone/Fax	215-299-4662 / 215-299-7285	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Benfranklin	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	**34.84%**	**$51,452,949**	**$147,679,380**
Building	34.63 %	$50,933,326	$147,084,952
Grounds	87.42 %	$519,623	$594,428

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	62.19 %	$2,311,503	$3,716,836
Exterior Walls (Shows condition of the structural condition of the exterior facade)	02.42 %	$290,605	$12,008,041
Windows (Shows functionality of exterior windows)	191.11 %	$14,614,001	$7,646,767
Exterior Doors (Shows condition of exterior doors)	70.38 %	$228,502	$324,673
Interior Doors (Classroom doors)	07.57 %	$80,703	$1,066,089
Interior Walls (Paint and Finishes)	00.00 %	$0	$4,768,326
Plumbing Fixtures	04.92 %	$181,901	$3,697,391
Boilers	10.27 %	$524,194	$5,105,114
Chillers/Cooling Towers	53.86 %	$3,605,372	$6,694,556
Radiators/Unit Ventilators/HVAC	143.41 %	$16,862,983	$11,758,479
Heating/Cooling Controls	120.55 %	$4,451,381	$3,692,545
Electrical Service and Distribution	18.76 %	$547,703	$2,919,631
Lighting	12.46 %	$1,300,619	$10,435,560
Communications and Security (Cameras, Pa System and Fire Alarm)	07.20 %	$281,401	$3,908,186

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

S201001;Franklin HS

Final

Site Assessment Report

January 31, 2017

PARSONS

Table of Contents

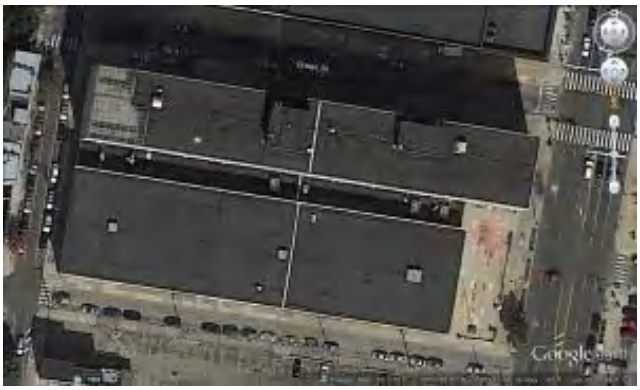
Site Executive Summary

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):	242,293
Year Built:	1958
Last Renovation:	2015
Replacement Value:	$147,679,380
Repair Cost:	$51,452,948.76
Total FCI:	34.84 %
Total RSLI:	69.84 %



Description:

Facility Assessment, August 2015

School District of Philadelphia

Franklin High School

550 N. Broad St.

Philadelphia, PA 19130

242,293 SF / 1,556 Students / LN 03

The Franklin High School building is located at 550 N. Broad St. in Philadelphia, PA. The 6 story with full basement, approximately 242,293 square foot building was originally constructed in 1958. A 1 story addition with basement, containing auditorium, gym and supporting spaces was added in 1971. Portions of the basement are in the process of a complete renovation to accommodate vocational training classrooms.

Mr. Tom Sharer, Facility Area Coordinator provided input to the Parsons assessment team on current problems and planned renovation projects. Mr. Patrick Riley, building engineer, accompanied us on our tour of the school and provided limited information on the building systems and recent maintenance history.

STRUCTURAL/ EXTERIOR CLOSURE:

The original building typically rests on concrete foundations and concrete bearing walls that are not showing signs of settlement or cracking. There are no signs of moisture penetration through basement walls

The main structure consists typically of combination of cast-in-place concrete columns, beams and concrete slabs in the basement; and structural steel framing, columns and bar joists supporting concrete floor and roof slabs in the original building. The roof structure of the addition consists of steel trusses and purlins supporting precast roof deck panels. The superstructure is in good condition with the exception of fifth floor open play area columns and girders which show some concrete spalling and exposed rusting reinforcement.

The building envelope of the original building is typically aluminum framed curtain wall with double hung window inserts and granite spandrel panels at floor level. Some of the first floor window inserts have security screens in fair condition. End walls are stone clad masonry. Addition walls are typically face brick clad with CMU backup. In general, masonry is in fair to good condition with some missing mortar. The original curtain wall framing is corroded with deteriorated and missing sealant at insert panels' perimeter. Acrylic, single glazing is old and not energy efficient. Water penetration through walls has not been reported.

The main entrance and auditorium lobby wall is storefront type; stainless steel framed with aluminum framed window inserts and stainless steel glazed doors, in good condition.

The exterior service and egress doors are typically hollow metal doors and frames, painted. The doors are generally in poor condition with rusting leafs and frames in poor condition. Some doors have vision glazing with security screens. The loading dock has 2 overhead roll-up and 2 overhead sectional doors in very poor condition. Both sectional and one roll-up doors are not operational.

Roofing system is a built-up system approximately 20 years old; all roofing and flashing is typically in poor condition with deterioration of the built-up system; leaks have been reported.

INTERIORS:

The building partition wall types include painted CMU and glazed CMU; partitions between main office and hallway are hollow metal framed, storefront type, glazed with wire glass. Partitions are generally in good condition.

Interior doors are generally solid core wood doors, some glazed, with hollow metal frames, some doors are missing closers. Most doors do not have accessible handles. The doors leading to exit stairways and some toilets are hollow metal doors and frames in good condition.

Fittings include toilet accessories and toilet partitions, generally in poor condition, installed approximately in 1990, no accessible compartments; chalkboards in good condition. Handrails and ornamental metals are generally in good condition. Built-in cabinets and lockers are steel in fair condition. Interior identifying signage is typically directly painted on wall or door surfaces generally in poor condition with some signage missing.

The interior wall finishes are generally painted CMU. The auditorium lobby walls are clad with wood panels in good condition. Generally, paint is in good condition throughout the building.

Generally, most ceilings are exposed, painted. About 15% of ceilings in the building are 2x4 suspended acoustical panels and 1x1 tiles glued directly to underside of floor slab. The suspension system and tile are old and approaching the end of their useful life.

Flooring in typically is VAT (approximately 80% of floor area), generally in poor condition with tiles missing and separating from the substrate. The VAT tile flooring will need to be replaced as soon as practical. Library and principal's office and Culinary Arts suite has carpet in poor condition. Main lobby, portions of some corridors, and some toilets has terrazzo flooring in good condition. Gym has hardwood flooring in good condition.

Stair construction is generally concrete with cast iron, non-slip treads in good condition.

Institutional and Commercial equipment includes: stage equipment, generally in good condition; A/V equipment in very good condition; gym equipment – basketball backstops, scoreboards, bleachers, etc.; generally in good condition. Other equipment includes

kitchen equipment, generally in good condition.

Furnishings include fixed casework in classrooms, corridors and library, generally in fair to good condition; window shades/blinds, generally in fair condition; fixed auditorium seating is original, generally in fair condition.

CONVEYING SYSTEMS:

The building has two original, 14,600 lb traction elevators serving all floors; generally in fair condition; however, elevator cabins show signs of distress. The controls are functioning properly.

PLUMBING:

Plumbing Fixtures - Many of the original plumbing fixtures have been replaced. Fixtures in the restrooms on each floor consist of floor mounted flush valve water closets, wall hung urinals and lavatories with wheel handle faucets. A few of the fixtures are not in service. With repairs these fixtures should provide reliable service for the next 5-10 years.

Drinking fountains in the corridors and at the restrooms are a mixture of stainless steel and porcelain wall hung units. The units are beyond their service life and should be replaced; most are accessible type.

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

The Kitchen has three sinks: a two compartment stainless steel prep sink with lever operated faucets and two three-compartment, stainless steel sinks with lever operated faucets, and integral grease traps. Chemicals are injected manually into the sanitizing basins.

Domestic Water Distribution - Two 4” city water services enter the building from N. Fifteenth Street near the intersection with Green Street. The 4” meters and valves are located in the sub-basement; reduced pressure backflow preventers are installed. The two services connect to a common supply main so that either service can supply the building. Three, no defunct, 30HP centrifugal pumps boost the pressure of the incoming water to supply the six story building. The pumps charge two large, horizontal open receiver tanks equipped with an air compressor to provide pneumatic charge. The Building Engineer reports that the original domestic booster system is no longer functional and pressure supplied by the city has increased to 65 psi. However, water to the building is still forced through the inactive pumps. The receiver tanks, pumps and air compressor should be removed and replaced by a modern domestic booster pump set equipped with variable speed drives. The original galvanize steel domestic hot and cold water distribution piping was replaced in the mid 1990’s with copper piping and sweat fittings.

Three (3) Paloma instant hot water heaters, installed in 2006, are connected to two 3,000-4,000 gallon horizontal hot water storage tanks with two (2) 10HP circulating pumps to supply hot water for domestic use. The storage tanks have integral steam tube bundles and were the original source of domestic hot water, but the steam tubes are no longer in use. The units are located in the sub-basement, near the stairs from the basement level. One of the Paloma units appears inoperable and the other two are approaching the end of their service life. These tanks and the instantaneous water heaters should be removed and replaced with a single 400 gallon vertical storage tank supplied by two gas-fired hot water heaters within the next 1-3 years.

Sanitary Waste - The original storm and sanitary sewer piping is heavy weight cast iron with hub and spigot fittings. The 20" main sanitary sewer exits the building to the north from the sub-basement boiler room.

A sewage ejector pit located in sub-basement receives water from the sub-basement area. It has two 3HP self priming pumps. Significant amounts of rust can be seen on the pump system and it should be replaced to prevent flooding of the sub-basement. The pit is not sealed tightly, but should be.

The maintenance staff reported mostly minor problems with the sanitary waste piping systems. However, the sewer piping has been in service for nearly 60 years and will require more frequent attention from the maintenance staff as time passes. The District should hire a qualified contractor to examine the sanitary waste piping using video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.

Rain Water Drainage - The rain water drains from the roof are routed through mechanical chases in the building, connect to the storm sewer system in the sub-basement, and appear to be original. Some of the original galvanized piping has been repaired with HDPE piping and no-hub fittings. The drain piping should be inspected and repaired as necessary.

MECHANICAL:

Energy Supply - An 8" city gas service enters the building from Green Street. The meter is 6" and located the sub-basement. A gas pressure booster pump ensures adequate gas supply for the building.

The reserve oil supply is stored in a 2,500 gallon storage tank in the sub-basement. Duplex pumps located in the basement circulate oil through the system. Oil is used as a backup fuel and the District receives credit from the gas utility as an interruptible service. The current supply has been in storage for some time and should be tested for quality on a regular schedule. The actual condition of the fuel side is unknown.

Heat Generating Systems - Low pressure steam is generated at a maximum of 15 lbs/sq. in., typically 5-7 lbs/sq. in., by two 150 HP Weil McLain cast iron sectional boilers installed in 1997. Each boiler is equipped with a Power Flame burner designed to operate on natural gas or fuel oil. Combustion air makeup is supplied by louvers equipped with motorized dampers. Burner controls provide full modulation with electronic ignition and pressure atomization on oil. Burner oil pumps are loose and not driven by the fan motor. The gas train serving the boilers does have code required venting of the regulators and dual solenoid valves with venting of the chamber between. The Building Engineer reports the system loses a significant amount of condensate due to failed traps, which is made up with city water treated by a Neptune chemical treatment system. Cast iron sectional boilers have an anticipated service life of 35 years or more; these units have been in service approximately 18 years. The District should provide reliable service for the next 15 to 20 years.

The condensate receiver, along with a condensate return pump, is installed in a pit in the sub-basement. Another condensate return pump is located near the boilers. The main condensate receiver and pumps are badly corroded and should be replaced.

A steam trap survey for this building has not been conducted recently and traps are not serviced on a regular schedule. The District should conduct a steam trap survey to identify and replace failed traps passing live steam into the condensate piping system.

Distribution Systems - Steam piping is black steel with welded fittings. The condensate piping is black steel with threaded fittings. Steam and condensate piping mains from the sub-basement level run up through the building to the penthouse. The steam distribution piping has been in use well beyond its service life and will require more frequent attention from the maintenance staff to address pipe/valve failures as time passes. The District should hire a qualified contractor to examine the steam and condensate piping and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures. The District should budget for replacing this piping over the next 10 years.

Two steam to water shell and tube heat exchangers provide hydronic heating for the building. Four base-mounted pumps are located below the exchangers. Pumps P1 & P2 supply the North and South hydronic zones, respectively. The motor of pump P3 and the associated 3-way mixing valve have been removed; P4 is a backup unit. The pumps and control valves are failing and should be replaced. The tube bundles of the heat exchangers should be removed, inspected for damage and replaced if necessary, as they are beyond their anticipated service life. The heat exchangers are the original units installed in 1958 and have been in service more than 35 years. Shell-and-tube heat exchangers have an anticipated service life of 20 years. The heat exchanger tube bundles should be removed and inspected. If deficiencies are found, the tube bundles should be replaced.

Building water distribution piping is black steel with threaded fittings. The distribution piping is in poor condition. The piping has been in use beyond its service life and will require more frequent attention from the maintenance staff to address pipe/valve failures as time passes. 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 the extent of potential failures. The District should budget for replacing this piping over the next 5 years.

Unit ventilators and fin tube radiators provide heating for the majority of classrooms, offices, and hallways. These units are well beyond their service life and original to the building. A new heating system should be installed to meet ventilation requirements and achieve more efficient operation. The new units should be designed for quiet operation and equipped with hot water coils, chilled water coils, and integral heat exchangers, where applicable, to introduce outdoor air to the building.

Air handling units provide conditioned air to specific spaces within the building. Air handling units AHU-1 thru AHU-8 were installed in 1999. Units AHU-1 and AHU-4 through AHU-8 are vertical units that serve the shops and labs on the basement level. That area was remodeled in 2015 for use as a Center for Advanced Manufacturing. These central station units are equipped with heating coils (HW/Steam), direct expansion (DX) cooling coils, and centrifugal supply fans. They are designed to supply a constant volume of conditioned air to the occupied spaces. Motorized OA/RA dampers in the ductwork provide economizer operation. AHU-1 and AHU-4 through AHU-8 have duct-mounted reheat coils that control space temperature. AHU-1 serves the rooms along the south corridor and the labs at the end of the center section. The HW heating coil of this unit is equipped with a circulating pump that provides freeze protection. AHU-4 is a similar unit that serves the rooms on the west corridor. AHU-6 serves the remaining rooms on this floor and has a steam heating coil. AHU-2 and AHU-3 are York units located in the mezzanine mechanical space above the lobby and serve the Auditorium; these units have steam coils for heating. The associated condensing units for these AHUs are located on the

low roof in the middle of the building; each unit is manufactured by Trane. Central station air handling units have an anticipated service life of 30 years, depending on the quality of their construction and proper maintenance. These units are within their anticipated service life and should provide reliable service for the 5-10 years.

An AHU, original to the building, in the penthouse supplies conditioned makeup air to the kitchen and Cafeteria on the 6th Floor. The heating coil of this unit has frozen at least once over the years and there are gaps in the pattern of fins where repairs were made. This unit should be replaced with a constant volume air handling unit with distribution ductwork and registers.

The Administration offices are served by unit ventilators, which provide heating and outdoor air only. Conditioned air should be provided the Administration offices by installing a fan coil air handling unit hung from the structure with outdoor air ducted to the unit from louvers in window openings.

Heating and ventilating units HV-1 through HV-13 are original Nesbitt units, in service for nearly 60 years. HV-1 (15 HP) & HV-2 (5 HP) located in the sub-basement boiler room are abandoned; these units originally served portions of the basement level. HV-4 located in the mezzanine mechanical room serves the lobby. HV-5 serves the boiler room on the sub-basement level in association with return/exhaust fan RE-13. HV-7 and HV-10 are large units located in the mezzanine mechanical room near the auditorium that serve the east gym and locker rooms, respectively. HV-8 and HV-9 are similar units located in the opposite mezzanine mechanical room that serves the west gym and locker rooms, respectively. HV-11 serves the mezzanine mechanical room above the lobby. HV-12 serves the NE electrical room on the basement level. HV-13 is a large unit that serves the high voltage electrical vault adjacent to the boiler room.

An original utility set fan installed in the penthouse exhausts air from the kitchen hood. Three original utility set fans located in the sub-basement mechanical room exhaust air from the restrooms and utility rooms. These fans have been in service for nearly 60 years. They are beyond their anticipated service life and should be replaced in the next 5-10 years.

A kitchen hood with integral fire suppression system operated by a Range Guard control system is installed above the gas fired cooking equipment. The system does not have a makeup air unit serving the hood. An automatic gas shutoff valve was installed with kitchen hood equipment.

Terminal & Package Units - Several of the classrooms in the school building have window air conditioning units that have an anticipated service life of only 10 years. Installing three 215 ton air-cooled chillers with pumps located in a mechanical room and chilled water distribution piping could supply more reliable air conditioning for the building with a much longer service life.

A Hyundai split system air conditioning system provided cooling to the LAN room. The installation date of this unit is unknown, but the unit is in poor condition. The anticipated service life of a split system air conditioner is 15 years. The district should budget to replace this unit within the next 3-5 years.

Controls & Instrumentation - The original pneumatic systems still provide basic control functions. Pneumatic room thermostats are intended to control the steam radiator and unit ventilator control valves. In reality the radiator and ventilator control valves are wide open and heating control is achieved via the boilers. Pneumatic control air is supplied from a duplex Quincy compressor and Hankison air dryer located in the boiler room. The pneumatic systems are beyond their service life and require too much attention from the maintenance staff. The original control valves and pneumatic actuators are beyond their service life and should be rebuilt or replaced. These controls should be converted to DDC.

A new building automation system (BAS) with modern DDC modules and communications network should be installed to serve the HVAC systems in this building to improve reliability and energy efficiency. An interface should be provided with the preferred system in use throughout the District.

Sprinklers - The majority of the school building is not covered by an automatic sprinkler system. A sprinkler system serving the basement and sub-basement levels only was installed in 2015. A 6” fire water line enters the building in the boiler room. Installing a sprinkler system with quick response type heads should reduce insurance costs by providing protection for the property investment. A fire pump may be required depending on the available city water pressure. The building does have standpipe in the stairwells.

Hose cabinets and stand pipe are located throughout the building. A 10 HP pump and horizontal receiver tank with compressed air pneumatic charge system, similar to the domestic water system, located in the sub-basement boiler room supplies the hose cabinets in the various functional areas, corridors and stairwells. This existing system was installed with the original construction. This system should be removed and replaced with sprinklers throughout the building.

ELECTRICAL:

Site Electrical Service- Electrical service to Benjamin Franklin High School is supplied by PECO Electric with two (2) 13.2 kV overhead lines. The first overhead service line is from poles on Green Street, and the second overhead line service is from 13.2KV pole line on Brandywine Street. The electrical service has recently been replaced (in 2015). A complete remodeling project for the Basement Floor is currently underway to convert the basement into a Career Technical Education center. The remodeling includes all new light fixtures and wiring devices for the space and replacement of panel-boards. The two electrical services feed a double-ended 1500 KVA, 13.2 kV -208V/120V, 3 phase, 4 wire substation. The Main Service Switchboard has air interrupter switches and 5000AT/5000AF main-tie-main circuit breakers. The new substation feeds existing panel-boards and equipment throughout the building.

Distribution System - Panel-boards PP-10 and PP-11 are located in the Boiler Room and are knife blade panel-boards with cartridge type fuses and exposed bus, and need to be replaced for safety considerations. All other panel-boards were observed to be circuit breaker type, most which are flush mounted in the corridors on each floor. These panel-boards have exceeded the end of their useful life, as recommended by Building Owners and Managers (BOMA) International, and should be replaced with panel-boards having more circuit breakers to accommodate additional branch circuits.

Receptacles- Many of the original receptacles in classrooms are 2-prong, ungrounded type and need to be replaced with 3-prong grounding type 15A or 20A, 120 volt duplex receptacles. Most of the classrooms have either two or three duplex receptacles. In some classrooms, additional 3-prong, grounding type duplex receptacles have been added using surface raceway. In many rooms, multiple outlet power strips have been added to power equipment where there were an insufficient number of outlets. Four (4) 20A, 120 volt duplex receptacles should be provided in each classroom and similar educational spaces.

Lighting - A majority of the lighting fixtures in corridors, classrooms and offices are surface or stem mounted, 4-foot, modular or wraparound fluorescent fixtures. Lay-in grid type, 2x4 foot troffers with acrylic lenses are provided in rooms with acoustical tile ceilings, such as the Main Office and Seminar Rooms on the Sixth Floor. Most classrooms have continuous rows of fixtures with two light switches. Corridors have wraparound fluorescent fixtures with 2 or 4 T8 lamps that are regularly spaced within the corridor. In other than corridors, most of the fixtures observed have T12 fluorescent lamps and are in poor condition, many with discolored or cracked lenses. There are only some rooms and areas where lighting fixtures have been have retrofitted with T8 energy saving lamps. Lighting fixtures need to be replaced in all classrooms on Floors 2 through 6 and in the cafeteria. Lighting fixtures in the gymnasium are stem mounted metal halide industrial fixtures with wire guards (total of 60 fixtures). Lighting fixtures in the main lobby on the First Floor are recessed metal halide downlights. A Hub Electric Company lighting control board is located on the Stage that provides dimming control of the recessed quartz downlights in the Auditorium and for the Stage lighting fixtures. There are also 4-foot fluorescent wraparound fixtures on the Stage for work-lights. Lighting fixtures in the Boiler Room and Sub-Basement Mechanical Rooms have a combination of stem mounted reflector dome incandescent fixtures and 4-foot, 2-lamp fluorescent industrial fixtures. Lamps in some of the incandescent fixtures have been replaced with compact fluorescent lamps. Lights on the exterior of the building are high pressure sodium floodlighting fixtures, all are in poor condition and should be replaced with LED floodlighting fixtures.

Fire Alarm - The fire alarm system consists of manual pull stations at egress doors, smoke detectors in the elevator lobby on all floors and audio/visual (strobe) annunciation appliances in most areas. The main fire alarm control panel (FACP) is a Simplex 4020 microprocessor-based, addressable panel, and is located in Main Office 126. There are three (3) Simplex 4009 N.A.C. Power Extender Panels that power the notification appliances in the building.

Telephone/LAN - Classrooms are typically provided with a telephone, clock/paging speaker assembly and wireless access panel for Wi -Fi service. Some classrooms have damaged or missing clock/paging speaker assemblies. Some classrooms are also provided with smart boards and ceiling mounted projectors. Speakers in corridors and most other spaces are wall mounted. Horn type speakers are used in the gymnasium and in mechanical rooms. The Simplex time control center for the clock and program system is located in Main Office 126. Staff reports that only one of the program schedules for this system still functions. The master time control center should be replaced.

Public Address/Sound System- There is no independent PA system. Overall the announcements are made using the phone system. There is no audio/visual intercom system at the main and secondary entrances or loading dock. An intercom system should be provided at these three locations for improved security and convenience. A separate sound system is provided in Auditorium 135. The sound system cabinet houses Crown Macro-Tech 1200 amplifiers, a Shure LX wireless microphone system and other sound system components. Speakers are ceiling mounted at the front of the stage and in the auditorium.

Security System - Video surveillance is provided by ceiling mounted cameras that are monitored at a central location. Cameras are located mainly in corridors, elevator lobbies, stairwells, cafeteria, auditorium, and main and secondary entrances.

TV System - There is no television system in the school.

Emergency Power System- An Onan 45 kW, 208/120 volt, 3 phase, 4 wire generator set and Onan automatic transfer switch (ATS) provides standby power for emergency lighting only. The generator set, ATS and standby power panelboard is located in Room 108.

The engine only has 585 hours of run time, and should have several hours of run time remaining before replacement.

Emergency lighting/Exit signs - Emergency lighting is provided by selected lighting fixtures throughout the building. Since school was in session, the assessor was not able to verify if the emergency lighting level met the code requirement of 1 foot-candle minimum in the path of egress. Exit signs were incandescent type. Many of the exit signs throughout the building were damaged, missing, or not illuminated. The exit signs need to be replaced with LED exit signs.

Lightning protection system – There is no lightning protection system on this building.

GROUNDS (SITE):

There is neither parking nor playground at the site. A small plaza at the building's main entrance is in poor condition, paving is cracked and deteriorated. The plaza covers a portion of the basement. Granite clad retaining walls are in very poor condition; stone panels are separating from the substrate, and stone coping is severely deteriorated. Cast alloy benches are damaged. There is no landscaping.

ACCESSIBILITY:

Generally, the building has an accessible route per ADA requirements. However, toilets are not equipped with accessible fixtures, and accessories, such as grab bars, and accessible partitions. Most of the doors in the building do not have ADA required door handles.

RECOMMENDATIONS:

- Repair cracks in masonry, replace missing mortar, tuck-point – all masonry walls including panels covering columns and girders
- Epoxy patch spalled concrete columns and girders (5^{th} floor play court)
- Install all new roofing system including insulation within next 5 to 10 years; tear-down existing roofing; install flashing, and counter flashing
- Replace all exterior service and egress doors including frames
- Replace all overhead doors
- Replace curtain walls install new window inserts and spandrels within next 4 to 5 years
- Replace interior doors hardware for ADA accessibility
- Install new toilet partitions and accessories to comply with ADA requirements
- Replace signage throughout the building
- Replace all VAT flooring including cove base within 5 years
- Replace existing carpet
- Replace all acoustical ceilings
- Refurbish elevator cabins
- Replace waterproofing membrane under exterior plaza paving
- Resurface entry plaza paving.
- Repair retaining walls, re-set stone cladding and replace stone coping
- Replace the wall hung drinking fountains in the corridors and at the restrooms. These units are beyond their service life and most are accessible type.
- Remove the existing domestic booster tanks and pumps and install a modern domestic water booster pump system.
- Remove and replace the hot two water storage tanks and the three instantaneous water heaters should with a single 400 gallon vertical storage tank supplied by two gas-fired hot water heaters within the next 1-3 years.
- Hire a qualified contractor to perform a detailed examination of the sanitary waste piping using visual inspection and video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.
- Replace existing sewage ejector system and piping in the basement as it appears beyond its useful service life.
- Hire a qualified contractor to perform a detailed examination of the rain water drainage piping using visual inspection and video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.
- Conduct a steam trap survey to identify and replace failed traps passing live steam into the condensate piping system.
- Replace the condensate receiver and pumps in the sub-basement level.
- Hire a qualified contractor to examine the steam and condensate piping in the boiler room, in service for nearly 70 years, and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.
- Replace the two (2) steam to water shell and tube heat exchangers serving the building heating water system.
- Install four new hot water distribution pumps and associated valves in the sub-basement.
- Hire a qualified contractor to examine the distribution piping, in service for almost 60 years and damaged, and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.
- Remove the existing unit ventilators and fin tube radiators and install units with hot and chilled water coils and integral heat

exchangers to introduce outdoor air to the building.
- Provide ventilation for the Cafeteria by installing a constant volume air handling unit with distribution ductwork and registers.
- Provide ventilation for the administration offices by installing a fan coil air handling unit hung from the structure with outdoor air ducted to the unit from louvers in window openings.
- Replace four (4) existing exhaust fans in the penthouse and sub-basement serving the bathrooms and kitchen. Utilize the existing ductwork.
- Remove the window air conditioning units and install three (3) 215 ton air-cooled chillers with chilled water distribution piping and pumps located in a mechanical room to supply more reliable air conditioning for the building with a much longer service life.
- Replace the pneumatic controls for the HVAC systems with modern DDC modules, valves and actuators to improve reliability and energy efficiency. Provide a new building automation system (BAS) with communication interface to the preferred system in use throughout the District.
- Replace the original wet stand pipe installation with a fire protection sprinkler system with quick response type heads to reduce insurance costs by providing protection for the property. A fire pump may be required depending on the available city water pressure.
- Replace 600A Panelboard PP-10 and 400A Panelboard PP-11, both rated at 208/120 volt, 3 phas3, 4 wire located in the Boiler Room and in the Sub-Basement. Also, replace all flush-mounted panelboards in corridors and the gymnasium that have exceeded the end of their useful life, as recommended by Building Owners and Managers (BOMA) International (about 25 panelboards).
- Replace all 2-prong, ungrounded type duplex receptacles in classrooms and offices with 3-prong, grounding type duplex receptacles (about 110 duplex receptacles). Also, provide four (4) 20A, 120 volt duplex receptacles in each classroom and similar educational space so that there are an adequate number of outlets in these rooms (about 64 rooms).
- Replace lighting fixtures in all classrooms and similar spaces on Floors 2 through 6 and in the cafeteria (about 1088 fixtures). Also, replace lighting fixtures in the Boiler Room and Sub-Basement Mechanical Rooms with 4-foor industrial fluorescent fixtures with T8 lamps (Allowance for 24 fixtures). Replace thee (3) twin arm metal halide floodlighting fixtures outside the main entrance with LED floodlighting fixtures.
- Replace the master time control center in the Main Office and provide an allowance for 20 clock/paging speaker assemblies.
- Provide an audio/visual intercom system at the main and secondary entrances and loading dock entrance.
- Replace all exit signs in the building (except in Basement) with LED type exit signs. Estimate 48 single-face, 30 double-face.

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 2 / Tm 4
Status:	Accepted by SDP	Team:	Tm 4
Site ID:	S201001		

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.

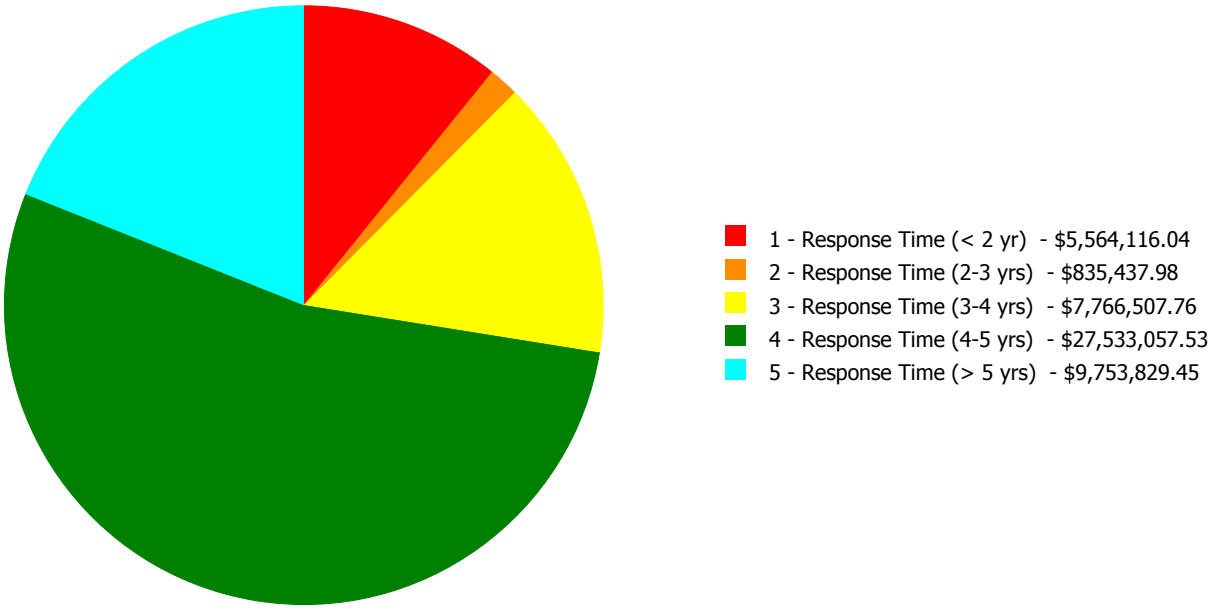
Current Investment Requirement and Condition by Uniformat Classification

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	43.00 %	0.00 %	$0.00
A20 - Basement Construction	43.00 %	0.00 %	$0.00
B10 - Superstructure	43.00 %	0.59 %	$162,170.72
B20 - Exterior Enclosure	67.66 %	75.74 %	$15,133,108.25
B30 - Roofing	64.56 %	62.19 %	$2,311,503.21
C10 - Interior Construction	41.68 %	5.44 %	$427,455.21
C20 - Stairs	45.23 %	0.00 %	$0.00
C30 - Interior Finishes	73.17 %	2.98 %	$452,472.91
D10 - Conveying	105.71 %	21.21 %	$68,878.73
D20 - Plumbing	59.22 %	31.60 %	$1,678,444.64
D30 - HVAC	94.23 %	83.64 %	$25,443,930.30
D40 - Fire Protection	105.71 %	331.35 %	$2,888,414.11
D50 - Electrical	95.38 %	13.38 %	$2,366,947.87
E10 - Equipment	105.71 %	0.00 %	$0.00
E20 - Furnishings	65.00 %	0.00 %	$0.00
G20 - Site Improvements	105.64 %	92.75 %	$329,726.83
G40 - Site Electrical Utilities	106.67 %	79.48 %	$189,895.98
Totals:	**69.84 %**	**34.84 %**	**$51,452,948.76**

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)
B201001;Franklin HS	242,293	34.63	$5,564,116.04	$835,437.98	$7,368,717.83	$27,411,224.65	$9,753,829.45
G201001;Grounds	17,300	87.42	$0.00	$0.00	$397,789.93	$121,832.88	$0.00
Total:		**34.84**	**$5,564,116.04**	**$835,437.98**	**$7,766,507.76**	**$27,533,057.53**	**$9,753,829.45**

Deficiencies By Priority



Budget Estimate Total: $51,452,948.76

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):	242,293
Year Built:	1958
Last Renovation:	
Replacement Value:	$147,084,952
Repair Cost:	$50,933,325.95
Total FCI:	34.63 %
Total RSLI:	69.70 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B201001
Sewage Ejector:	Yes	Status:	Accepted by SDP
Site ID:	S201001		

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	43.00 %	0.00 %	$0.00
A20 - Basement Construction	43.00 %	0.00 %	$0.00
B10 - Superstructure	43.00 %	0.59 %	$162,170.72
B20 - Exterior Enclosure	67.66 %	75.74 %	$15,133,108.25
B30 - Roofing	64.56 %	62.19 %	$2,311,503.21
C10 - Interior Construction	41.68 %	5.44 %	$427,455.21
C20 - Stairs	45.23 %	0.00 %	$0.00
C30 - Interior Finishes	73.17 %	2.98 %	$452,472.91
D10 - Conveying	105.71 %	21.21 %	$68,878.73
D20 - Plumbing	59.22 %	31.60 %	$1,678,444.64
D30 - HVAC	94.23 %	83.64 %	$25,443,930.30
D40 - Fire Protection	105.71 %	331.35 %	$2,888,414.11
D50 - Electrical	95.38 %	13.38 %	$2,366,947.87
E10 - Equipment	105.71 %	0.00 %	$0.00
E20 - Furnishings	65.00 %	0.00 %	$0.00
Totals:	**69.70 %**	**34.63 %**	**$50,933,325.95**

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	$31.89	S.F.	242,293	100	1958	2058		43.00 %	0.00 %	43			$7,726,724
A1030	Slab on Grade	$6.04	S.F.	242,293	100	1958	2058		43.00 %	0.00 %	43			$1,463,450
A2010	Basement Excavation	$5.09	S.F.	242,293	100	1958	2058		43.00 %	0.00 %	43			$1,233,271
A2020	Basement Walls	$11.58	S.F.	242,293	100	1958	2058		43.00 %	0.00 %	43			$2,805,753
B1010	Floor Construction	$97.37	S.F.	242,293	100	1958	2058		43.00 %	0.69 %	43		$162,170.72	$23,592,069
B1020	Roof Construction	$16.42	S.F.	242,293	100	1958	2058		43.00 %	0.00 %	43			$3,978,451
B2010	Exterior Walls	$49.56	S.F.	242,293	100	1958	2058		43.00 %	2.42 %	43		$290,605.25	$12,008,041
B2020	Exterior Windows	$31.56	S.F.	242,293	40	1958	1998	2057	105.00 %	191.11 %	42		$14,614,001.43	$7,646,767
B2030	Exterior Doors	$1.34	S.F.	242,293	25	1958	1983	2040	100.00 %	70.38 %	25		$228,501.57	$324,673
B3010105	Built-Up	$43.61	S.F.	79,545	20	1997	2017	2028	65.00 %	62.02 %	13		$2,151,507.72	$3,468,957
B3010120	Single Ply Membrane	$44.73	S.F.	5,000	20	1971	1991	2027	60.00 %	71.54 %	12		$159,995.49	$223,650
B3010130	Preformed Metal Roofing	$62.63	S.F.	0	30				0.00 %	0.00 %				$0
B3010140	Shingle & Tile	$44.73	S.F.	0	30				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.10	S.F.	242,293	30	1997	2027	2028	43.33 %	0.00 %	13			$24,229
C1010	Partitions	$24.63	S.F.	242,293	100	1958	2058		43.00 %	0.00 %	43			$5,967,677
C1020	Interior Doors	$4.40	S.F.	242,293	40	1990	2030		37.50 %	7.57 %	15		$80,702.57	$1,066,089
C1030	Fittings	$3.41	S.F.	242,293	40	1990	2030		37.50 %	41.97 %	15		$346,752.64	$826,219
C2010	Stair Construction	$1.37	S.F.	242,293	100	1958	2058		43.00 %	0.00 %	43			$331,941

Site Assessment Report - B201001;Franklin HS

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 $
C2020	Stair Finishes	$0.45	S.F.	242,293	25	1958	1983	2028	52.00 %	0.00 %	13			$109,032
C3010230	Paint & Covering	$17.70	S.F.	242,293	10	2005	2015	2027	120.00 %	0.00 %	12			$4,288,586
C3010231	Vinyl Wall Covering	$0.00	S.F.	242,293	15	1958	1973	2027	80.00 %	0.00 %	12			$0
C3010232	Wall Tile	$1.98	S.F.	242,293	30	1958	1988	2035	66.67 %	0.00 %	20			$479,740
C3020411	Carpet	$8.54	S.F.	6,200	10	1958	1968	2020	50.00 %	0.00 %	5			$52,948
C3020412	Terrazzo & Tile	$88.36	S.F.	28,700	30	1958	1988	2030	50.00 %	0.00 %	15			$2,535,932
C3020413	Vinyl Flooring	$11.33	S.F.	135,400	20	1958	1978	2028	65.00 %	0.00 %	13			$1,534,082
C3020414	Wood Flooring	$26.07	S.F.	13,500	25	1958	1983	2028	52.00 %	0.00 %	13			$351,945
C3020415	Concrete Floor Finishes	$1.14	S.F.	10,000	50	1958	2008	2058	86.00 %	0.00 %	43			$11,400
C3030	Ceiling Finishes	$24.54	S.F.	242,293	30	1971	2001	2031	53.33 %	7.61 %	16		$452,472.91	$5,945,870
D1010	Elevators and Lifts	$1.34	S.F.	242,293	35	1958	1993	2052	105.71 %	21.21 %	37		$68,878.73	$324,673
D2010	Plumbing Fixtures	$15.26	S.F.	242,293	35	1995	2030	2035	57.14 %	4.92 %	20		$181,900.56	$3,697,391
D2020	Domestic Water Distribution	$1.90	S.F.	242,293	25	1995	2020	2025	40.00 %	45.24 %	10		$208,248.75	$460,357
D2030	Sanitary Waste	$2.61	S.F.	242,293	30	1958	1988	2047	106.67 %	183.40 %	32		$1,159,772.85	$632,385
D2040	Rain Water Drainage	$2.15	S.F.	242,293	30	1958	1988	2025	33.33 %	24.67 %	10		$128,522.48	$520,930
D3020	Heat Generating Systems	$21.07	S.F.	242,293	35	1997	2032		48.57 %	10.27 %	17		$524,194.21	$5,105,114
D3030	Cooling Generating Systems	$27.63	S.F.	242,293	20	1999	2019	2037	110.00 %	53.86 %	22		$3,605,372.21	$6,694,556
D3040	Distribution Systems	$48.53	S.F.	242,293	25	1958	1983	2042	108.00 %	143.41 %	27		$16,862,983.19	$11,758,479
D3050	Terminal & Package Units	$13.09	S.F.	242,293	20	2005	2025	2028	65.00 %	0.00 %	13			$3,171,615
D3060	Controls & Instrumentation	$15.24	S.F.	242,293	20	1958	1978	2037	110.00 %	120.55 %	22		$4,451,380.69	$3,692,545
D4010	Sprinklers	$7.94	S.F.	75,000	35			2052	105.71 %	485.04 %	37		$2,888,414.11	$595,500
D4020	Standpipes	$1.14	S.F.	242,293	35			2052	105.71 %	0.00 %	37			$276,214
D5010	Electrical Service/Distribution	$12.05	S.F.	242,293	30	2001	2031	2047	106.67 %	18.76 %	32		$547,703.10	$2,919,631
D5020	Lighting and Branch Wiring	$43.07	S.F.	242,293	20	1958	1978	2037	110.00 %	12.46 %	22		$1,300,619.09	$10,435,560
D5030	Communications and Security	$16.13	S.F.	242,293	15	1958	1973	2022	46.67 %	7.20 %	7		$281,400.56	$3,908,186
D5090	Other Electrical Systems	$1.76	S.F.	242,293	30	1958	1988	2047	106.67 %	55.63 %	32		$237,225.12	$426,436
E1020	Institutional Equipment	$4.92	S.F.	242,293	35	1990	2025	2052	105.71 %	0.00 %	37			$1,192,082
E1090	Other Equipment	$11.35	S.F.	242,293	35	1990	2025	2052	105.71 %	0.00 %	37			$2,750,026
E2010	Fixed Furnishings	$2.17	S.F.	242,293	20	1958	1978	2028	65.00 %	0.00 %	13			$525,776
								Total	**69.70 %**	**34.63 %**			**$50,933,325.95**	**$147,084,952**

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:

Paint 90%
Wood paneling 10%

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

Note:

VAT/ VCT 70%
Tile/ terrazzo 15%
Carpet 3%
Hardwood 7%
Concrete 5%

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:	**$50,933,326**	**$0**	**$0**	**$0**	**$0**	**$67,520**	**$0**	**$5,287,234**	**$0**	**$0**	**$1,450,643**	**$57,738,723**
*** A - Substructure**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A10 - Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1010 - Standard Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1030 - Slab on Grade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A20 - Basement Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2010 - Basement Excavation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2020 - Basement Walls	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B10 - Superstructure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1010 - Floor Construction	$162,171	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$162,171**
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	$290,605	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$290,605**
B2020 - Exterior Windows	$14,614,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$14,614,001**
B2030 - Exterior Doors	$228,502	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$228,502**
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	$2,151,508	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,151,508**
B3010120 - Single Ply Membrane	$159,995	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$159,995**
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**

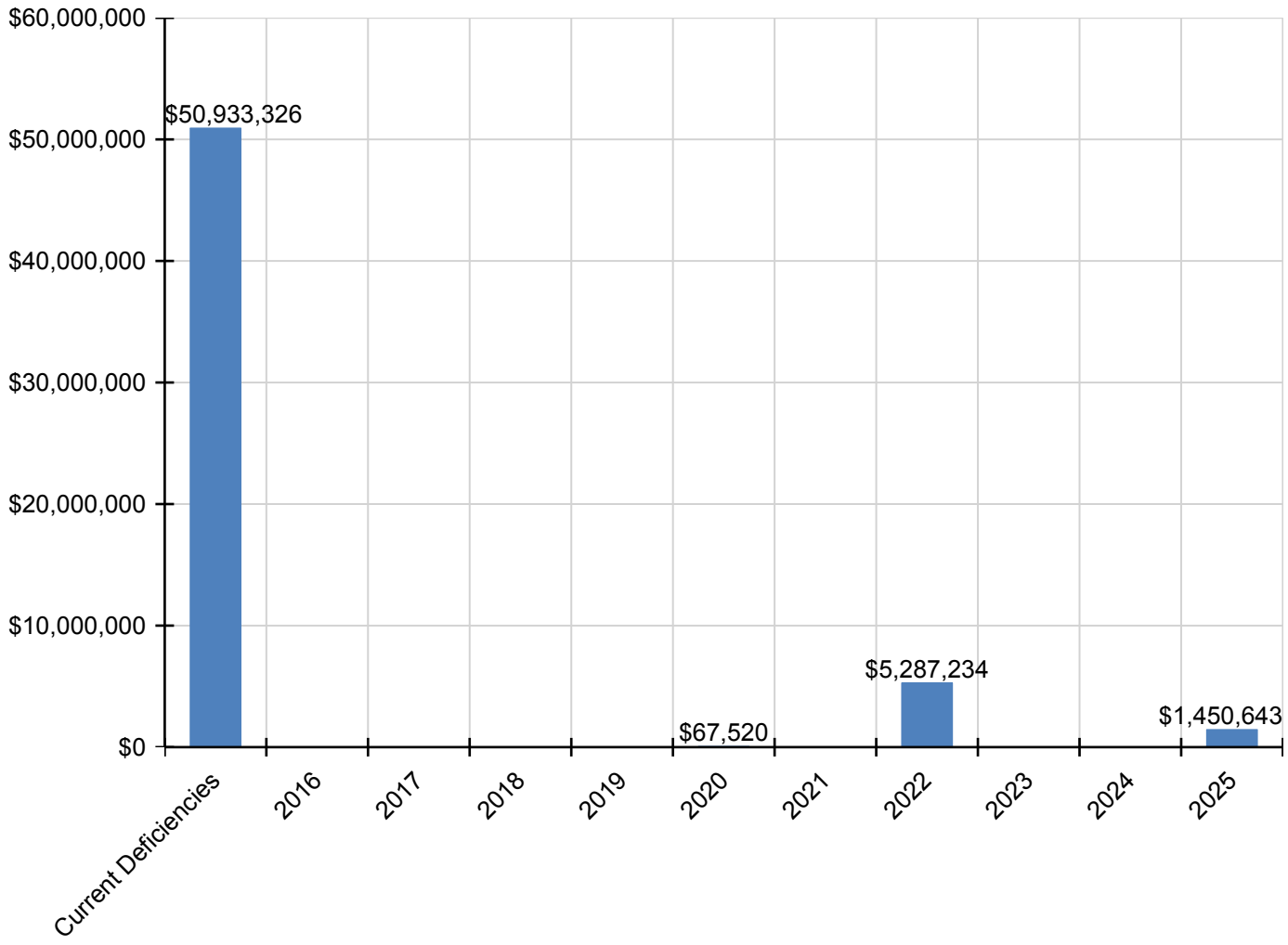
C1020 - Interior Doors	$80,703	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$80,703**
C1030 - Fittings	$346,753	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$346,753**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2020 - Stair Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C30 - Interior Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010 - Wall Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010230 - Paint & Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010232 - Wall Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020 - Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020411 - Carpet	$0	$0	$0	$0	$0	$67,520	$0	$0	$0	$0	$0	**$67,520**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020414 - Wood Flooring	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020415 - Concrete Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3030 - Ceiling Finishes	$452,473	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$452,473**
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	$68,879	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$68,879**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$181,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$181,901**
D2020 - Domestic Water Distribution	$208,249	$0	$0	$0	$0	$0	$0	$0	$0	$0	$680,549	**$888,797**
D2030 - Sanitary Waste	$1,159,773	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,159,773**
D2040 - Rain Water Drainage	$128,522	$0	$0	$0	$0	$0	$0	$0	$0	$0	$770,095	**$898,617**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$524,194	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$524,194**
D3030 - Cooling Generating Systems	$3,605,372	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$3,605,372**
D3040 - Distribution Systems	$16,862,983	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$16,862,983**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$4,451,381	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$4,451,381**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$2,888,414	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,888,414**

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	$547,703	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$547,703**
D5020 - Lighting and Branch Wiring	$1,300,619	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,300,619**
D5030 - Communications and Security	$281,401	$0	$0	$0	$0	$0	$0	$5,287,234	$0	$0	$0	**$5,568,634**
D5090 - Other Electrical Systems	$237,225	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$237,225**
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

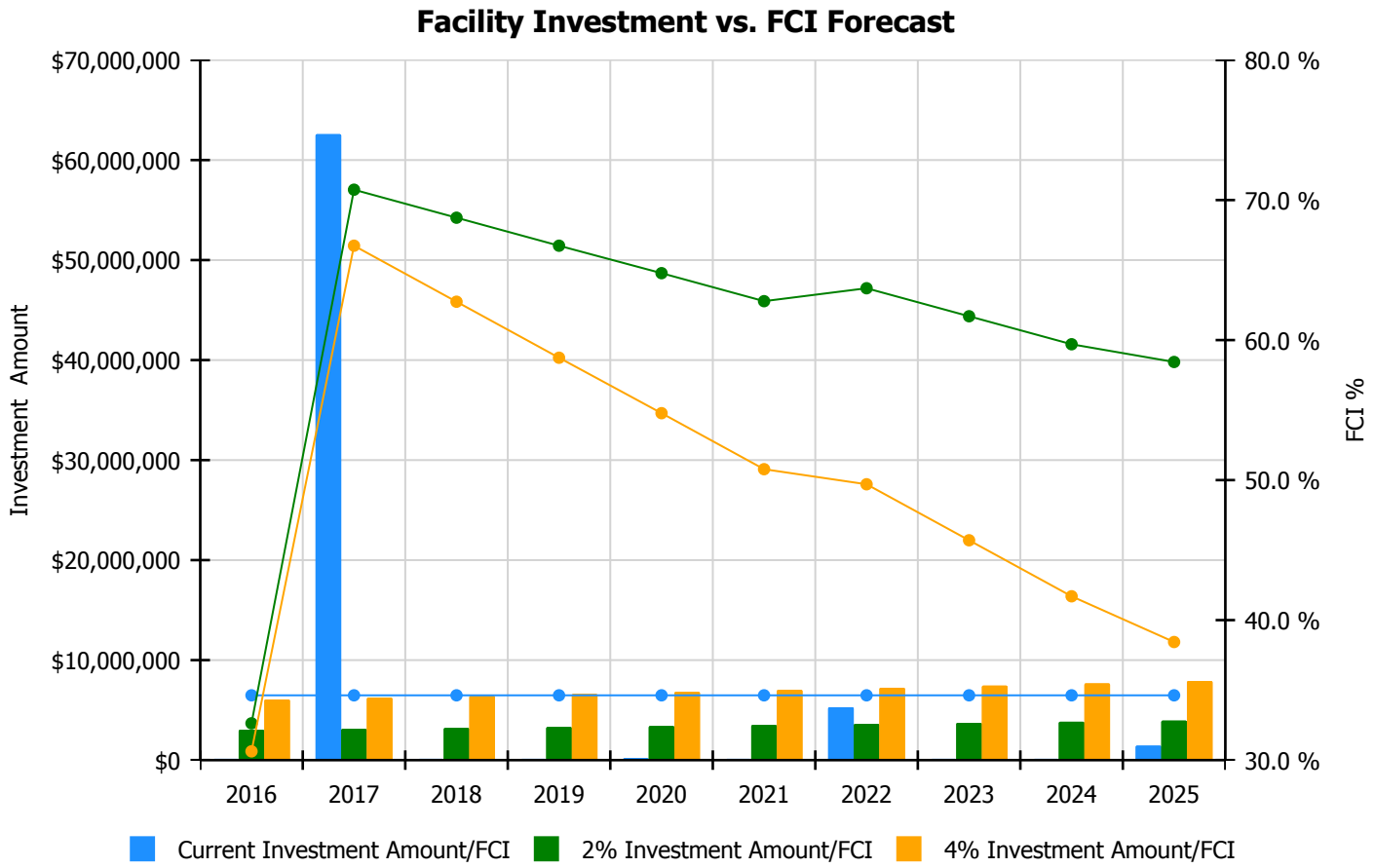
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

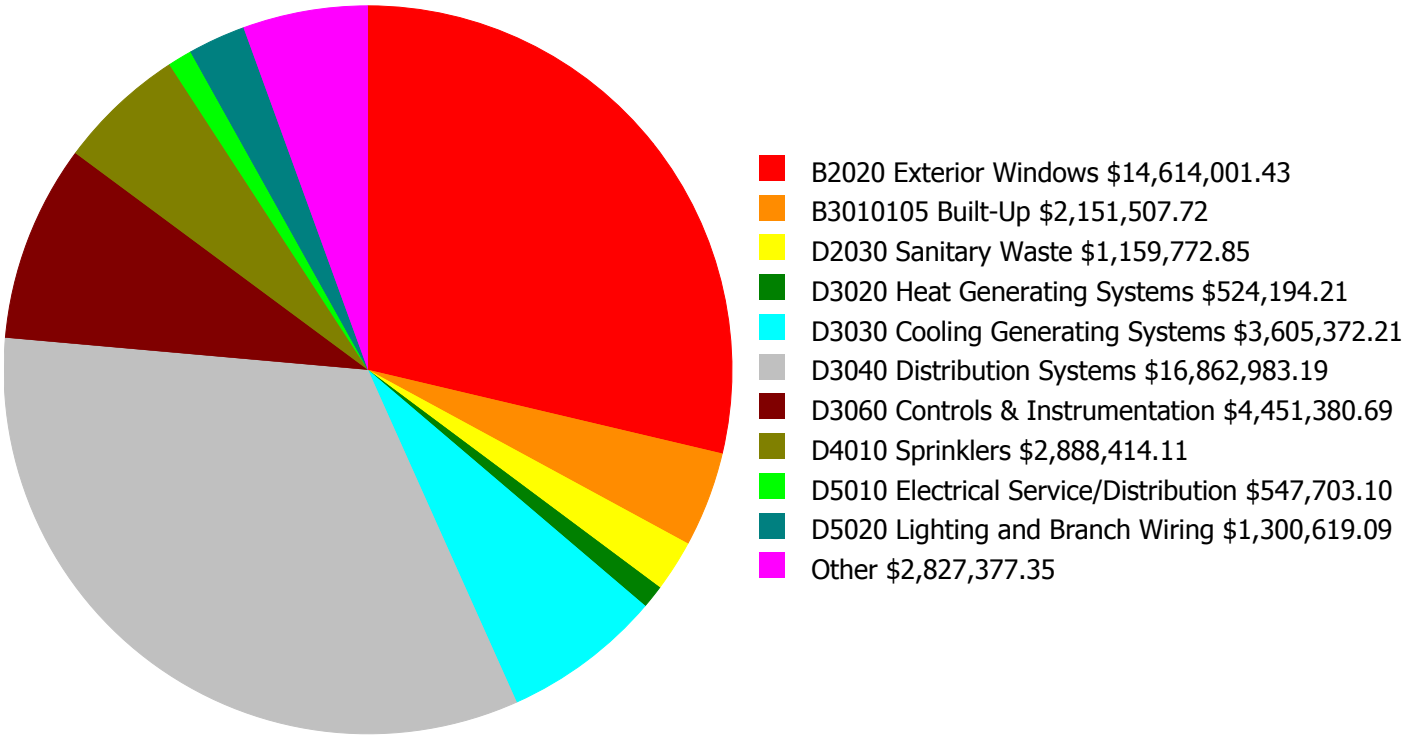
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 34.63%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$3,029,950.00	32.63 %	$6,059,900.00	30.63 %
2017	$62,589,685	$3,120,849.00	70.74 %	$6,241,697.00	66.74 %
2018	$0	$3,214,474.00	68.74 %	$6,428,948.00	62.74 %
2019	$0	$3,310,908.00	66.74 %	$6,621,816.00	58.74 %
2020	$67,520	$3,410,235.00	64.78 %	$6,820,471.00	54.78 %
2021	$0	$3,512,542.00	62.78 %	$7,025,085.00	50.78 %
2022	$5,287,234	$3,617,919.00	63.70 %	$7,235,838.00	49.70 %
2023	$0	$3,726,456.00	61.70 %	$7,452,913.00	45.70 %
2024	$0	$3,838,250.00	59.70 %	$7,676,500.00	41.70 %
2025	$1,450,643	$3,953,398.00	58.44 %	$7,906,795.00	38.44 %
Total:	**$69,395,082**	**$34,734,981.00**		**$69,469,963.00**	

Deficiency Summary by System

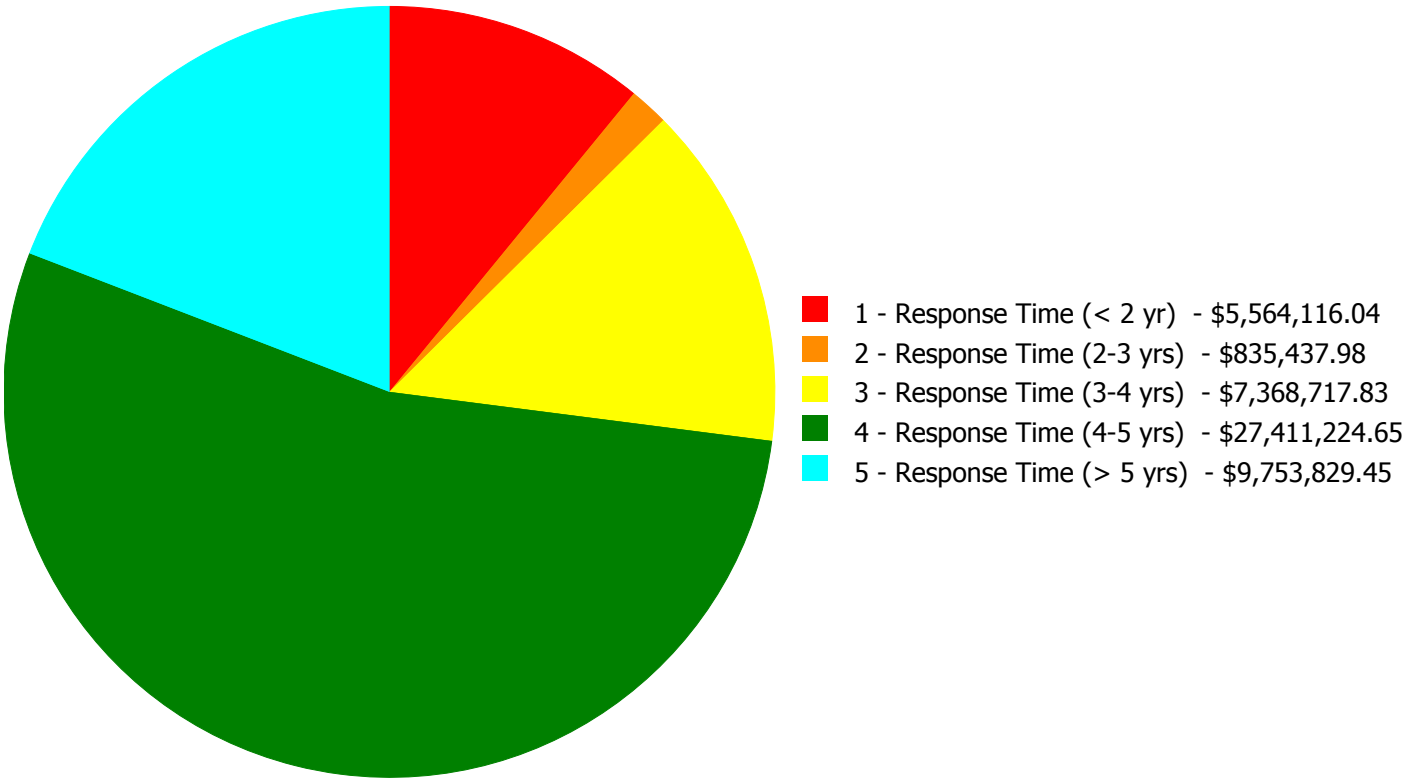
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $50,933,325.95

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: $50,933,325.95

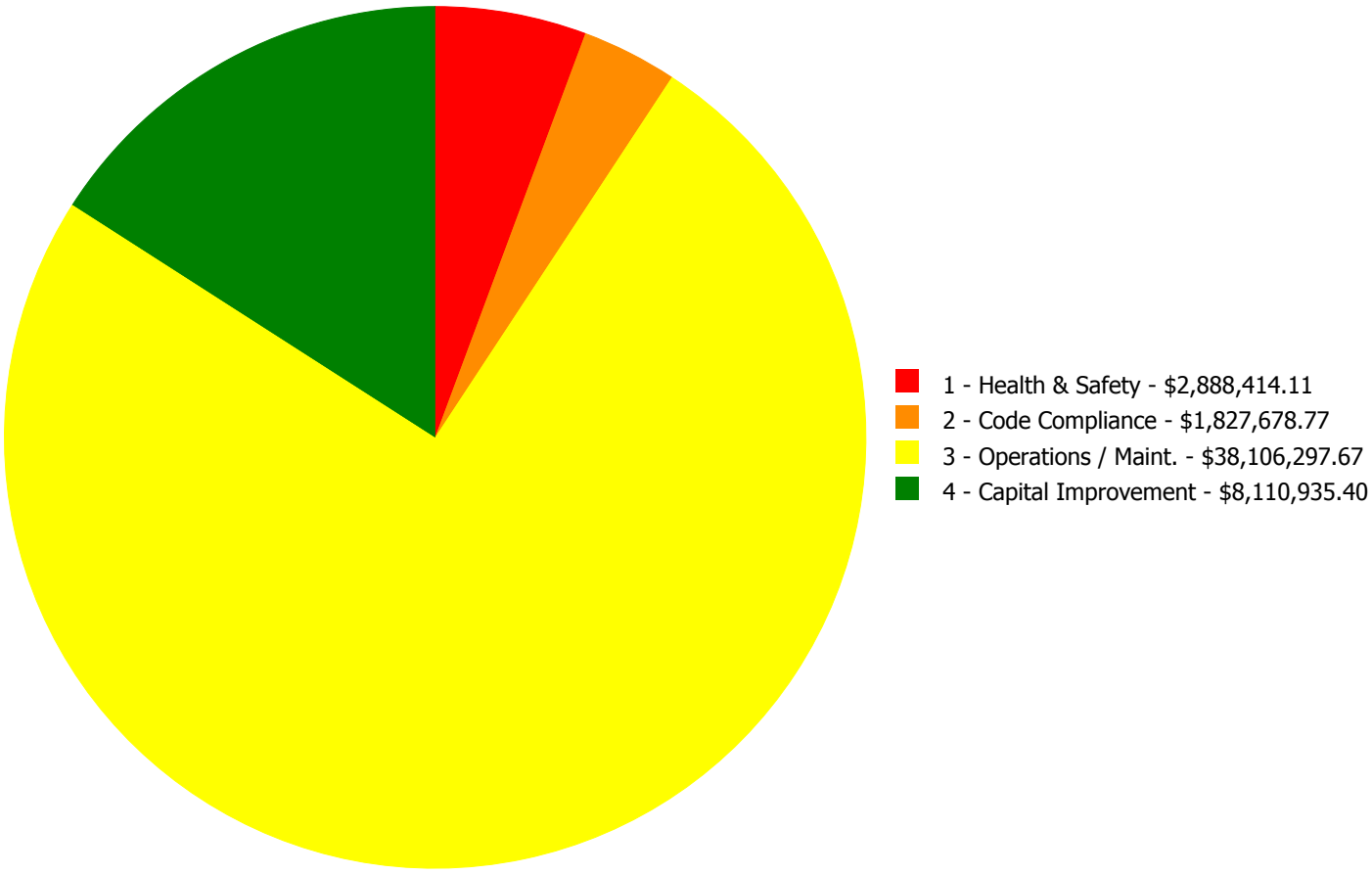
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
B1010	Floor Construction	$0.00	$0.00	$162,170.72	$0.00	$0.00	$162,170.72
B2010	Exterior Walls	$0.00	$0.00	$0.00	$290,605.25	$0.00	$290,605.25
B2020	Exterior Windows	$0.00	$0.00	$0.00	$14,614,001.43	$0.00	$14,614,001.43
B2030	Exterior Doors	$0.00	$0.00	$64,569.80	$163,931.77	$0.00	$228,501.57
B3010105	Built-Up	$2,151,507.72	$0.00	$0.00	$0.00	$0.00	$2,151,507.72
B3010120	Single Ply Membrane	$0.00	$0.00	$159,995.49	$0.00	$0.00	$159,995.49
C1020	Interior Doors	$0.00	$0.00	$0.00	$80,702.57	$0.00	$80,702.57
C1030	Fittings	$0.00	$0.00	$0.00	$292,570.14	$54,182.50	$346,752.64
C3030	Ceiling Finishes	$0.00	$0.00	$0.00	$0.00	$452,472.91	$452,472.91
D1010	Elevators and Lifts	$0.00	$0.00	$68,878.73	$0.00	$0.00	$68,878.73
D2010	Plumbing Fixtures	$0.00	$0.00	$181,900.56	$0.00	$0.00	$181,900.56
D2020	Domestic Water Distribution	$0.00	$88,711.24	$0.00	$0.00	$119,537.51	$208,248.75
D2030	Sanitary Waste	$0.00	$108,227.46	$1,051,545.39	$0.00	$0.00	$1,159,772.85
D2040	Rain Water Drainage	$0.00	$0.00	$128,522.48	$0.00	$0.00	$128,522.48
D3020	Heat Generating Systems	$524,194.21	$0.00	$0.00	$0.00	$0.00	$524,194.21
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$3,605,372.21	$3,605,372.21
D3040	Distribution Systems	$0.00	$638,499.28	$3,465,587.35	$11,688,012.93	$1,070,883.63	$16,862,983.19
D3060	Controls & Instrumentation	$0.00	$0.00	$0.00	$0.00	$4,451,380.69	$4,451,380.69
D4010	Sprinklers	$2,888,414.11	$0.00	$0.00	$0.00	$0.00	$2,888,414.11
D5010	Electrical Service/Distribution	$0.00	$0.00	$547,703.10	$0.00	$0.00	$547,703.10
D5020	Lighting and Branch Wiring	$0.00	$0.00	$1,300,619.09	$0.00	$0.00	$1,300,619.09
D5030	Communications and Security	$0.00	$0.00	$0.00	$281,400.56	$0.00	$281,400.56
D5090	Other Electrical Systems	$0.00	$0.00	$237,225.12	$0.00	$0.00	$237,225.12
	Total:	$5,564,116.04	$835,437.98	$7,368,717.83	$27,411,224.65	$9,753,829.45	$50,933,325.95

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:



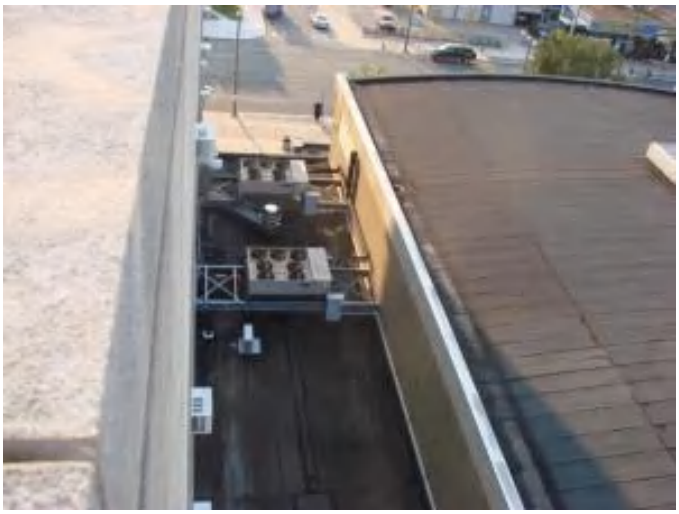
Budget Estimate Total: $50,933,325.95

Deficiency Details by Priority

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

Priority 1 - Response Time (< 2 yr):

System: B3010105 - Built-Up



Location: Exterior
Distress: Building Envelope Integrity
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Remove and Replace Built Up Roof
Qty: 63,500.00
Unit of Measure: S.F.
Estimate: $2,151,507.72
Assessor Name: System
Date Created: 10/14/2015

Notes: Install all new roofing system including insulation within next 5 to 10 years; tear-down existing roofing; install flashing, and counter flashing

System: D3020 - Heat Generating Systems

Location: Sub-basement
Distress: Failing
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Replace pump, base-mounted, end suction HHW (5" size, 15 HP, to 1000 GPM)
Qty: 4.00
Unit of Measure: Ea.
Estimate: $524,194.21
Assessor Name: System
Date Created: 09/21/2015

Notes: Replace four (4) existing hot water distribution pumps and associated valves in the sub-basement.

System: D4010 - Sprinklers

Location: Throughout building

Distress: Life Safety / NFPA / PFD

Category: 1 - Health & Safety

Priority: 1 - Response Time (< 2 yr)

Correction: Install a fire protection sprinkler system

Qty: 201,910.00

Unit of Measure: S.F.

Estimate: $2,888,414.11

Assessor Name: System

Date Created: 09/22/2015

Notes: Replace the original wet stand pipe installation with a fire protection sprinkler system with quick response type heads to reduce insurance costs by providing protection for the property. A fire pump may be required depending on the available city water pressure.

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

System: D2020 - Domestic Water Distribution

Location: Boiler room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace instantaneous water heater

Qty: 1.00

Unit of Measure: Ea.

Estimate: $88,711.24

Assessor Name: System

Date Created: 09/21/2015

Notes: Remove and replace the hot two water storage tanks and the three instantaneous water heaters should with a single 400 gallon vertical storage tank supplied by two gas-fired hot water heaters within the next 1-3 years.

System: D2030 - Sanitary Waste

Location: Boiler room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace sanitary sewage ejector pit and pumps. (60" dia.)

Qty: 2.00

Unit of Measure: Ea.

Estimate: $108,227.46

Assessor Name: System

Date Created: 09/21/2015

Notes: Replace existing sewage ejector system and piping in the basement as it appears beyond its useful service life.

System: D3040 - Distribution Systems

Location: Sub-basement

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace shell and tube hydronic heat exchanger (240 gpm)

Qty: 2.00

Unit of Measure: Ea.

Estimate: $401,511.82

Assessor Name: System

Date Created: 09/22/2015

Notes: Replace the two (2) steam to water shell and tube heat exchangers serving the building heating water system.

System: D3040 - Distribution Systems

Location: Penthouse and Sub-basement

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace utility set exhaust fan (5 HP)

Qty: 4.00

Unit of Measure: Ea.

Estimate: $189,196.36

Assessor Name: System

Date Created: 09/22/2015

Notes: Replace four (4) existing exhaust fans in the penthouse and sub-basement serving the bathrooms and kitchen. Utilize the existing ductwork.

System: D3040 - Distribution Systems

Location: Sub-basement

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Replace Condensate Receiver Pump Set

Qty: 1.00

Unit of Measure: Ea.

Estimate: $47,791.10

Assessor Name: System

Date Created: 09/21/2015

Notes: Replace the condensate receiver and pumps in the sub-basement level.

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

System: B1010 - Floor Construction

Location: Exterior

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Repair rebar and epoxy grout exposed rebar on the underside of floors and floor beams

Qty: 2,000.00

Unit of Measure: S.F.

Estimate: $162,170.72

Assessor Name: System

Date Created: 10/14/2015

Notes: Epoxy patch spalled concrete columns and girders (5th floor play court)

System: B2030 - Exterior Doors

Location: Exterior

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove and replace overhead door - pick the closest type and size and add for the operator if required

Qty: 4.00

Unit of Measure: Ea.

Estimate: $64,569.80

Assessor Name: System

Date Created: 10/14/2015

Notes: Replace all overhead doors

System: B3010120 - Single Ply Membrane

Location: Exterior/ ground level

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace concrete deck topping including remove and replace waterproofing membrane - add for epoxy coating if required by inserting the SF in the estimate

Qty: 5,000.00

Unit of Measure: S.F.

Estimate: $159,995.49

Assessor Name: System

Date Created: 06/23/2015

Notes: Replace waterproofing membrane under exterior plaza paving
NOTE: paving replacement deficiency covered under G201001;Grounds

System: D1010 - Elevators and Lifts

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Upgrade passenger elevator cab and controls

Qty: 1.00

Unit of Measure: Ea.

Estimate: $68,878.73

Assessor Name: System

Date Created: 10/15/2015

Notes: Refurbish elevator cabins

System: D2010 - Plumbing Fixtures

Location: Corridors

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 24.00

Unit of Measure: Ea.

Estimate: $181,900.56

Assessor Name: System

Date Created: 09/21/2015

Notes: Replace the wall hung drinking fountains in the corridors and at the restrooms. These units are beyond their service life and most are accessible type.

System: D2030 - Sanitary Waste

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Inspect sanitary waste piping and replace damaged sections. (+200KSF)

Qty: 242,293.00

Unit of Measure: S.F.

Estimate: $1,051,545.39

Assessor Name: System

Date Created: 09/21/2015

Notes: Hire a qualified contractor to perform a detailed examination of the sanitary waste piping using visual inspection and video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.

System: D2040 - Rain Water Drainage

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace roof drains - per drain including piping

Qty: 5.00

Unit of Measure: Ea.

Estimate: $128,522.48

Assessor Name: System

Date Created: 09/22/2015

Notes: Hire a qualified contractor to perform a detailed examination of the rain water drainage piping using visual inspection and video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.

System: D3040 - Distribution Systems

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 242,293.00

Unit of Measure: S.F.

Estimate: $2,292,182.14

Assessor Name: System

Date Created: 09/21/2015

Notes: Hire a qualified contractor to examine the distribution piping, in service for almost 60 years and damaged, and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.

System: D3040 - Distribution Systems

Location: Throughout building

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 242,293.00

Unit of Measure: S.F.

Estimate: $794,990.22

Assessor Name: System

Date Created: 09/21/2015

Notes: Conduct a steam trap survey to identify and replace failed traps passing live steam into the condensate piping system.

System: D3040 - Distribution Systems

Location: Throughout building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 40,000.00

Unit of Measure: S.F.

Estimate: $378,414.99

Assessor Name: System

Date Created: 09/21/2015

Notes: Hire a qualified contractor to examine the steam and condensate piping in the boiler room, in service for nearly 70 years, and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.

System: D5010 - Electrical Service/Distribution

Location: Corridors and Gymnasium

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Add Panelboard

Qty: 1.00

Unit of Measure: Ea.

Estimate: $436,950.60

Assessor Name: System

Date Created: 06/20/2015

Notes: Replace all flush-mounted panelboards in corridors and the gymnasium that have exceeded the end of their useful life, as recommended by Building Owners and Managers (BOMA) International. Also, replace panelboard feeder conductors. Estimate 25 panelboards

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System: D5010 - Electrical Service/Distribution

Location: Boiler Room and Sub-Basement

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Add Panelboard

Qty: 1.00

Unit of Measure: Ea.

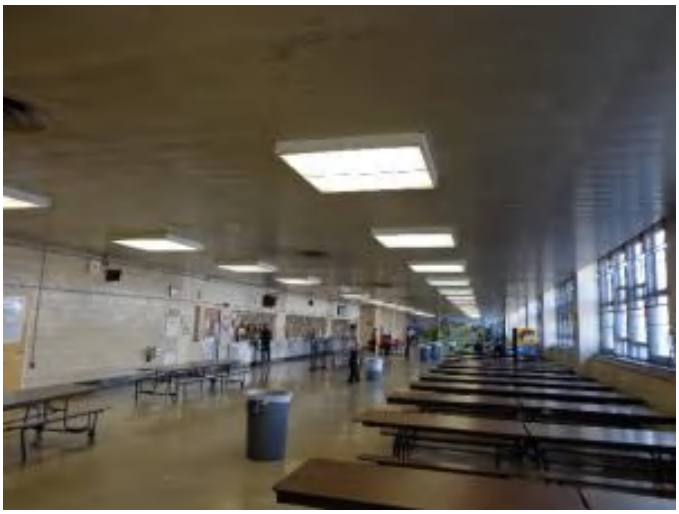
Estimate: $110,752.50

Assessor Name: System

Date Created: 06/17/2015

Notes: Replace 600A Panelboard PP-10 and 400A Panelboard PP-11, both rated at 208/120 volt, 3 phas3, 4 wire located in the Boiler Room and in the Sub-Basement.

System: D5020 - Lighting and Branch Wiring



Location: Classrooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace lighting fixtures

Qty: 1,088.00

Unit of Measure: Ea.

Estimate: $917,096.66

Assessor Name: System

Date Created: 06/20/2015

Notes: Replace lighting fixtures in all classrooms and similar spaces on Floors 2 through 6 and in the cafeteria. Estimate 1088 fixtures.

System: D5020 - Lighting and Branch Wiring

Location: Classrooms

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Replace Wiring Devices (SF) - surface mounted conduit and boxes

Qty: 110.00

Unit of Measure: S.F.

Estimate: $206,043.60

Assessor Name: System

Date Created: 06/20/2015

Notes: Replace all 2-prong, ungrounded type duplex receptacles in classrooms and offices with 3-prong, grounding type duplex receptacles. Estimate 110 duplex receptacles need to be replaced.

System: D5020 - Lighting and Branch Wiring

Location: Classrooms

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Add wiring device

Qty: 256.00

Unit of Measure: Ea.

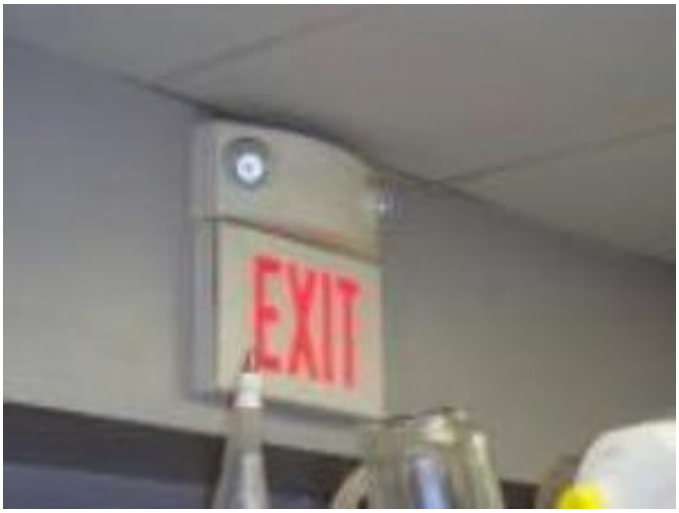
Estimate: $177,478.83

Assessor Name: System

Date Created: 06/20/2015

Notes: Provide an additional four (4) 20A, 120 volt duplex receptacles in each classroom and similar educational space so that there are an adequate number of outlets in these rooms. Estimate 64 rooms,

System: D5090 - Other Electrical Systems



Location: throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Add Emergency/Exit Lighting

Qty: 1.00

Unit of Measure: Ea.

Estimate: $237,225.12

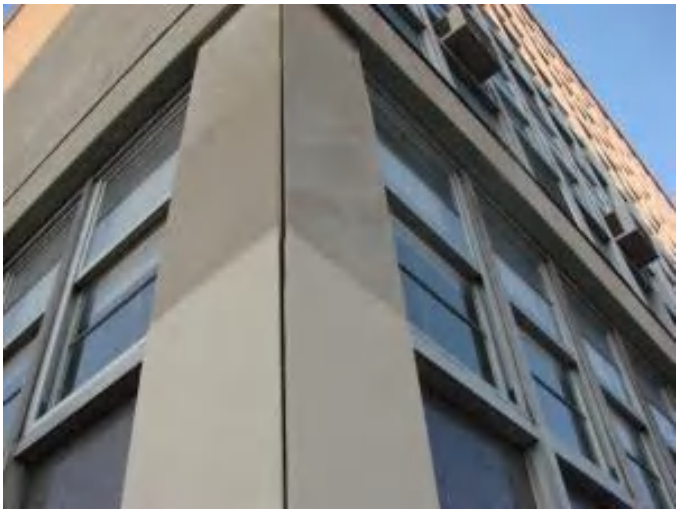
Assessor Name: System

Date Created: 10/15/2015

Notes: Install new Exit lights and emergency lights

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

System: B2010 - Exterior Walls



Location: Exterior

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

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

Qty: 9,000.00

Unit of Measure: S.F.

Estimate: $290,605.25

Assessor Name: System

Date Created: 10/14/2015

Notes: Repair cracks in masonry, replace missing mortar, tuck-point – all masonry walls including panels covering columns and girders

System: B2020 - Exterior Windows

Location: Exterior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace curtain wall systems - SF of curtain wall area

Qty: 89,200.00

Unit of Measure: S.F.

Estimate: $14,614,001.43

Assessor Name: System

Date Created: 10/14/2015

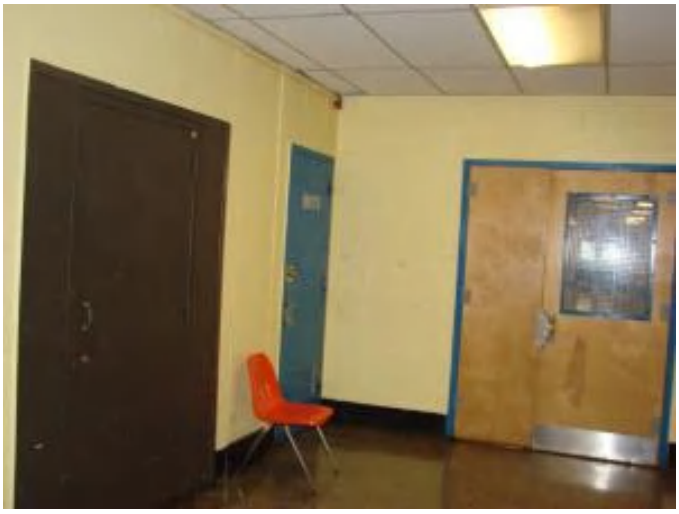
Notes: Replace curtain walls install new window inserts and spandrels within next 4 to 5 years

System: B2030 - Exterior Doors

Location: Exterior
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 4 - Response Time (4-5 yrs)
Correction: Remove and replace exterior doors - per leaf
Qty: 18.00
Unit of Measure: Ea.
Estimate: $163,931.77
Assessor Name: System
Date Created: 10/14/2015

Notes: Replace all exterior service and egress doors including frames

System: C1020 - Interior Doors



Location: interior
Distress: Accessibility
Category: 2 - Code Compliance
Priority: 4 - Response Time (4-5 yrs)
Correction: Replace door knobs with compliant lever type
Qty: 145.00
Unit of Measure: Ea.
Estimate: $80,702.57
Assessor Name: System
Date Created: 10/14/2015

Notes: Replace interior doors hardware for ADA accessibility

System: C1030 - Fittings

Location: Interior

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Remove and replace toilet partitions

Qty: 114.00

Unit of Measure: Ea.

Estimate: $292,570.14

Assessor Name: System

Date Created: 10/15/2015

Notes: Install new toilet partitions and accessories to comply with ADA requirements

System: D3040 - Distribution Systems

Location: Classrooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 242,293.00

Unit of Measure: S.F.

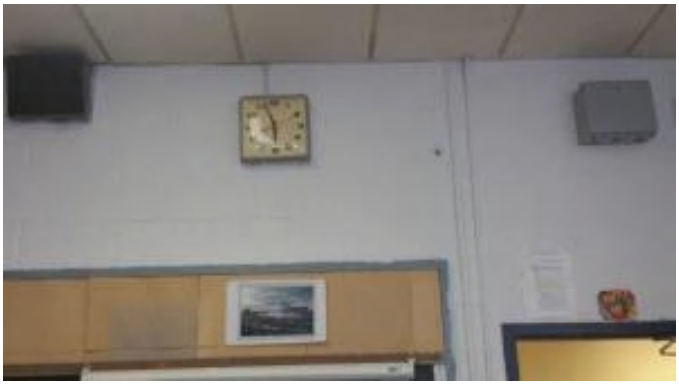
Estimate: $11,688,012.93

Assessor Name: System

Date Created: 09/21/2015

Notes: Remove the existing unit ventilators and fin tube radiators and install units with hot and chilled water coils and integral heat exchangers to introduce outdoor air to the building.

System: D5030 - Communications and Security



Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Add/Replace Clock System or Components

Qty: 0.00

Unit of Measure: Ea.

Estimate: $281,400.56

Assessor Name: System

Date Created: 10/15/2015

Notes: Install new clock system

Priority 5 - Response Time (> 5 yrs):

System: C1030 - Fittings

Location: Interior

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 200.00

Unit of Measure: Ea.

Estimate: $54,182.50

Assessor Name: System

Date Created: 10/15/2015

Notes: Replace signage throughout the building

System: C3030 - Ceiling Finishes

Location: Interior

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 30,000.00

Unit of Measure: S.F.

Estimate: $452,472.91

Assessor Name: System

Date Created: 10/15/2015

Notes: Replace all acoustical ceilings

System: D2020 - Domestic Water Distribution

Location: Sub-basement

Distress: Obsolete

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace duplex domestic booster pump set (5 HP)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $119,537.51

Assessor Name: System

Date Created: 09/22/2015

Notes: Remove the existing domestic booster tanks and pumps and install a modern domestic water booster pump system.

System: D3030 - Cooling Generating Systems

Location: Throughout building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

Correction: Install chilled water system with distribution piping and pumps. (+250KSF)

Qty: 242,293.00

Unit of Measure: S.F.

Estimate: $3,605,372.21

Assessor Name: System

Date Created: 09/21/2015

Notes: Remove the window air conditioning units and install three (3) 215 ton air-cooled chillers with chilled water distribution piping and pumps located in a mechanical room to supply more reliable air conditioning for the building with a much longer service life.

System: D3040 - Distribution Systems

Location: Administration

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

Correction: Install HVAC unit for Administration (2000 students).

Qty: 1,556.00

Unit of Measure: Pr.

Estimate: $673,473.57

Assessor Name: System

Date Created: 09/22/2015

Notes: Provide ventilation for the administration offices by installing a fan coil air handling unit hung from the structure with outdoor air ducted to the unit from louvers in window openings.

System: D3040 - Distribution Systems

Location: Cafeteria

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 850.00

Unit of Measure: Pr.

Estimate: $397,410.06

Assessor Name: System

Date Created: 09/22/2015

Notes: Provide ventilation for the Cafeteria by installing a constant volume air handling unit with distribution ductwork and registers.

System: D3060 - Controls & Instrumentation

Location: Throughout building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace pneumatic controls with DDC (250KSF)

Qty: 242,293.00

Unit of Measure: S.F.

Estimate: $4,451,380.69

Assessor Name: System

Date Created: 09/22/2015

Notes: Replace the pneumatic controls for the HVAC systems with modern DDC modules, valves and actuators to improve reliability and energy efficiency. Provide a new building automation system (BAS) with communication interface to the preferred system in use throughout the District.

Equipment Inventory

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

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 5810 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Room	Weil McLain	2194	B259087-97		35	1997	2032	$136,832.50	$301,031.50
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 5810 MBH, includes burners, controls and insulated jacket, packaged	2.00	Ea.	Boiler Room	Weil McLain	2194	B259086-97		35	1997	2032	$136,832.50	$301,031.50
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.	Boiler Room	Chicago Pump				25	1995	2020	$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.	Boiler Room	Chicago Pump				25	1995	2020	$19,608.00	$43,137.60
D4020 Standpipes	Pump, circulating, cast iron, close coupled, end suction, bronze impeller, flanged joints, 10 H.P., to 350 GPM, 3" size	1.00	Ea.	Boiler Room	Chicago Pump				25	1958	1983	$7,210.50	$7,931.55
												Total:	**$696,269.75**

Executive Summary

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

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

Function:	
Gross Area (SF):	17,300
Year Built:	1958
Last Renovation:	
Replacement Value:	$594,428
Repair Cost:	$519,622.81
Total FCI:	87.42 %
Total RSLI:	106.05 %

Description:

Attributes:

General Attributes:

Bldg ID:	S201001	Site ID:	S201001

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	105.64 %	92.75 %	$329,726.83
G40 - Site Electrical Utilities	106.67 %	79.48 %	$189,895.98
Totals:	**106.05 %**	**87.42 %**	**$519,622.81**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
G2010	Roadways	$11.52	S.F.		30				0.00 %	0.00 %				$0
G2020	Parking Lots	$8.50	S.F.		30				0.00 %	0.00 %				$0
G2030	Pedestrian Paving	$16.19	S.F.	17,300	40	1971	2011	2057	105.00 %	25.68 %	42		$71,914.25	$280,087
G2040	Site Development	$4.36	S.F.	17,300	25	1971	1996	2042	108.00 %	341.80 %	27		$257,812.58	$75,428
G2050	Landscaping & Irrigation	$4.36	S.F.		15				0.00 %	0.00 %				$0
G4020	Site Lighting	$10.69	S.F.	17,300	30	1958	1988	2047	106.67 %	75.69 %	32		$139,977.35	$184,937
G4030	Site Communications & Security	$3.12	S.F.	17,300	30	1958	1988	2047	106.67 %	92.48 %	32		$49,918.63	$53,976
								Total	**106.05 %**	**87.42 %**			**$519,622.81**	**$594,428**

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.

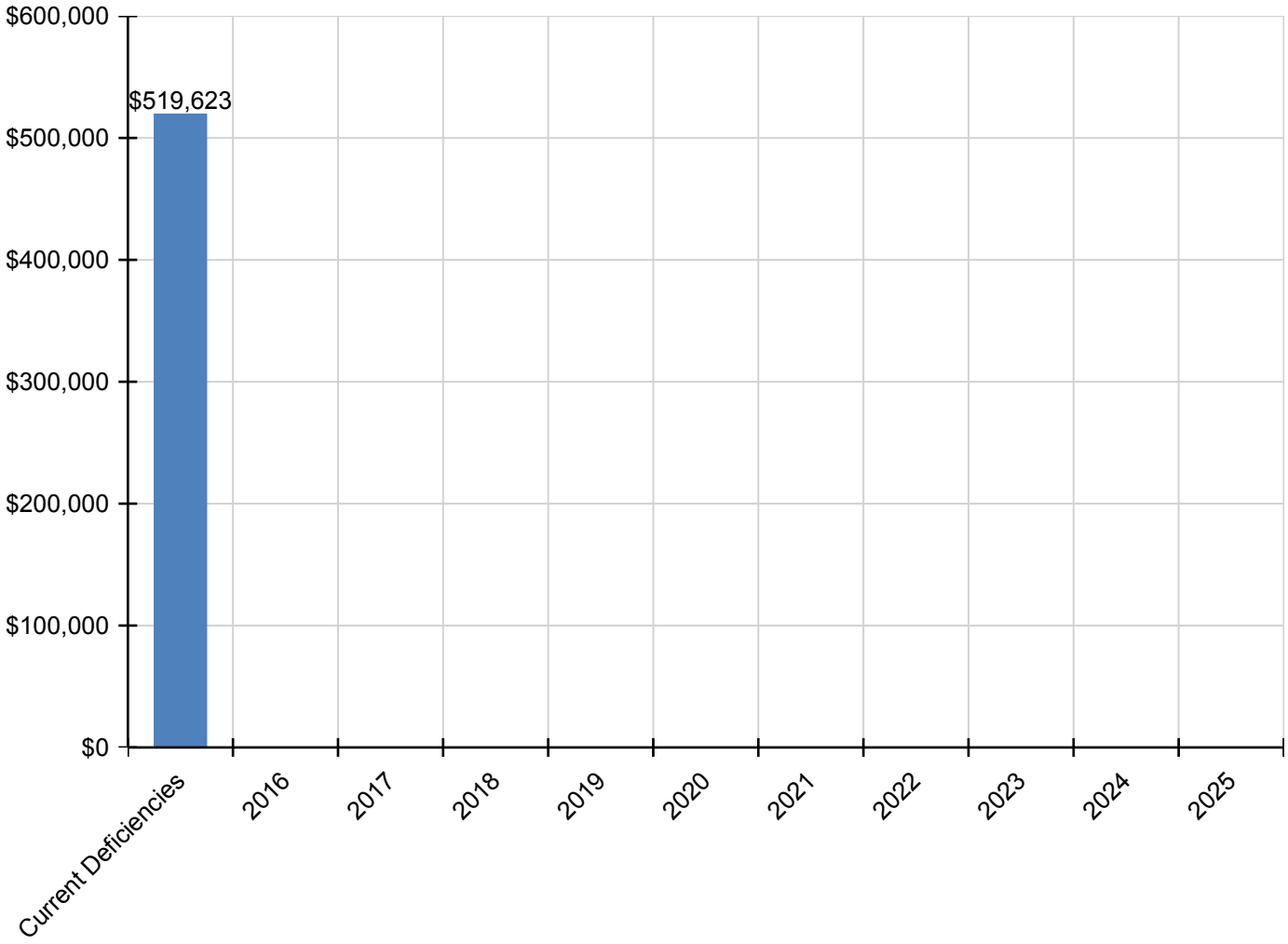
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$519,623**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$519,623**
G - Building Sitework	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G20 - Site Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2010 - Roadways	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2020 - Parking Lots	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G2030 - Pedestrian Paving	$71,914	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$71,914**
G2040 - Site Development	$257,813	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$257,813**
G2050 - Landscaping & Irrigation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G40 - Site Electrical Utilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
G4020 - Site Lighting	$139,977	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$139,977**
G4030 - Site Communications & Security	$49,919	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$49,919**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

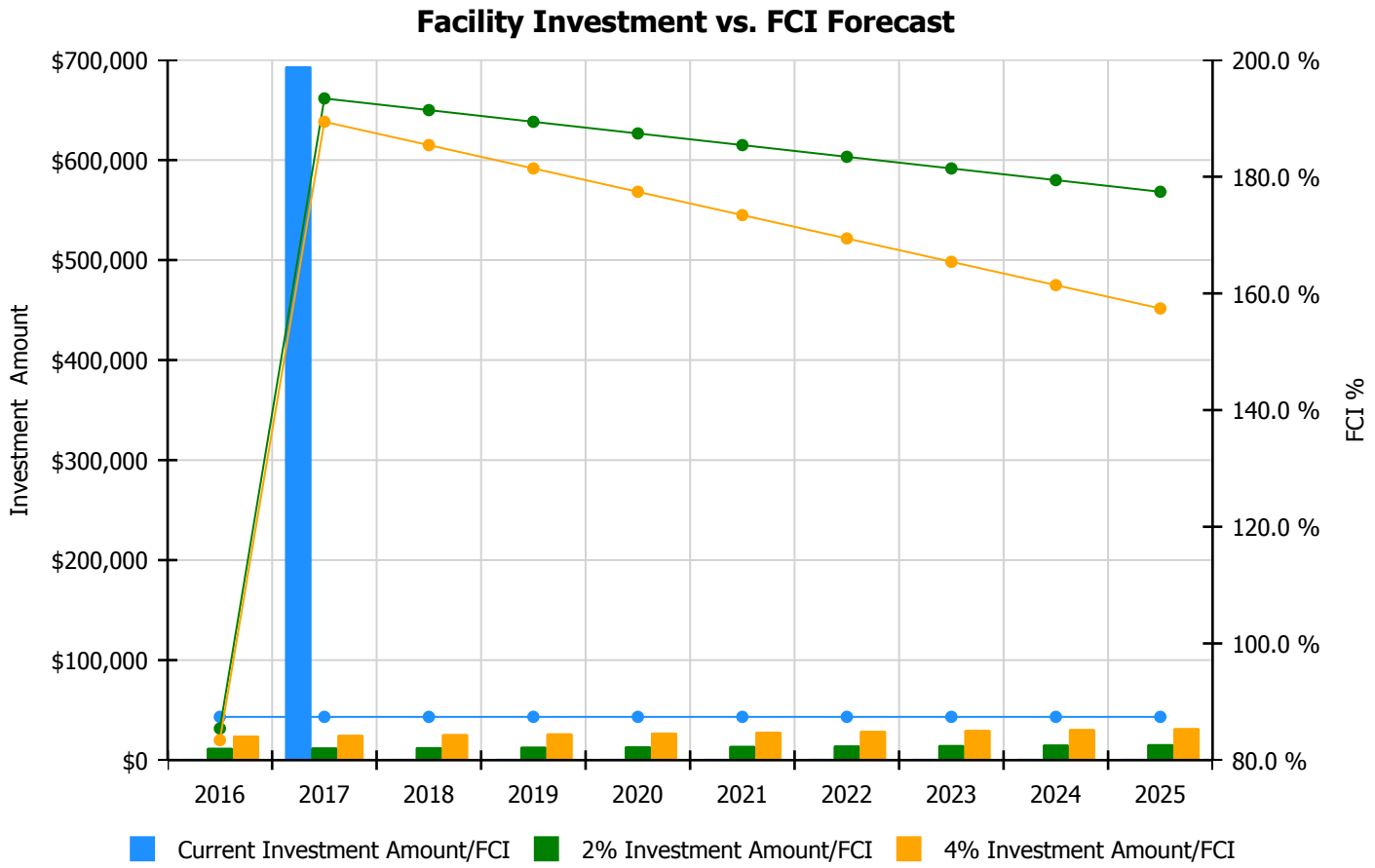
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

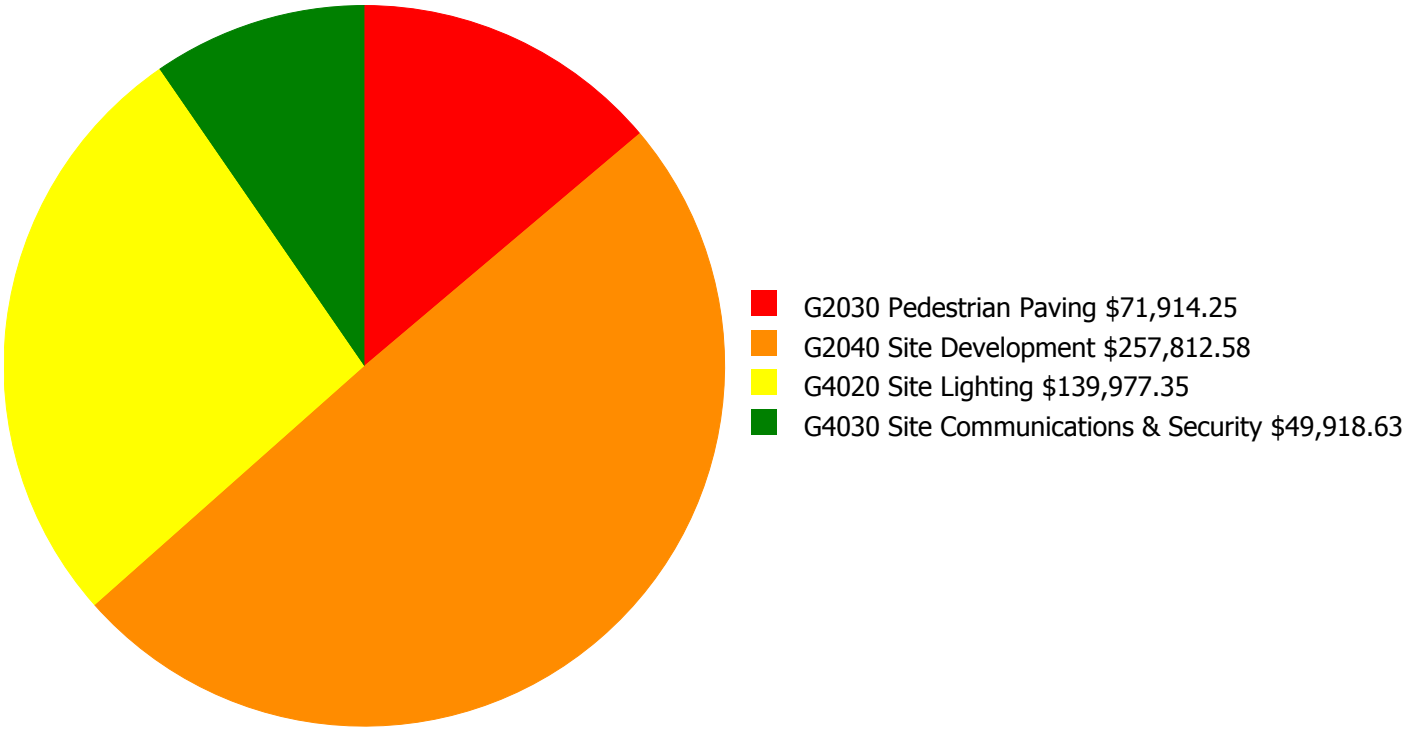
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 87.42%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$12,245.00	85.42 %	$24,490.00	83.42 %
2017	$693,693	$12,613.00	193.42 %	$25,225.00	189.42 %
2018	$0	$12,991.00	191.42 %	$25,982.00	185.42 %
2019	$0	$13,381.00	189.42 %	$26,761.00	181.42 %
2020	$0	$13,782.00	187.42 %	$27,564.00	177.42 %
2021	$0	$14,196.00	185.42 %	$28,391.00	173.42 %
2022	$0	$14,621.00	183.42 %	$29,243.00	169.42 %
2023	$0	$15,060.00	181.42 %	$30,120.00	165.42 %
2024	$0	$15,512.00	179.42 %	$31,024.00	161.42 %
2025	$0	$15,977.00	177.42 %	$31,954.00	157.42 %
Total:	**$693,693**	**$140,378.00**		**$280,754.00**	

Deficiency Summary by System

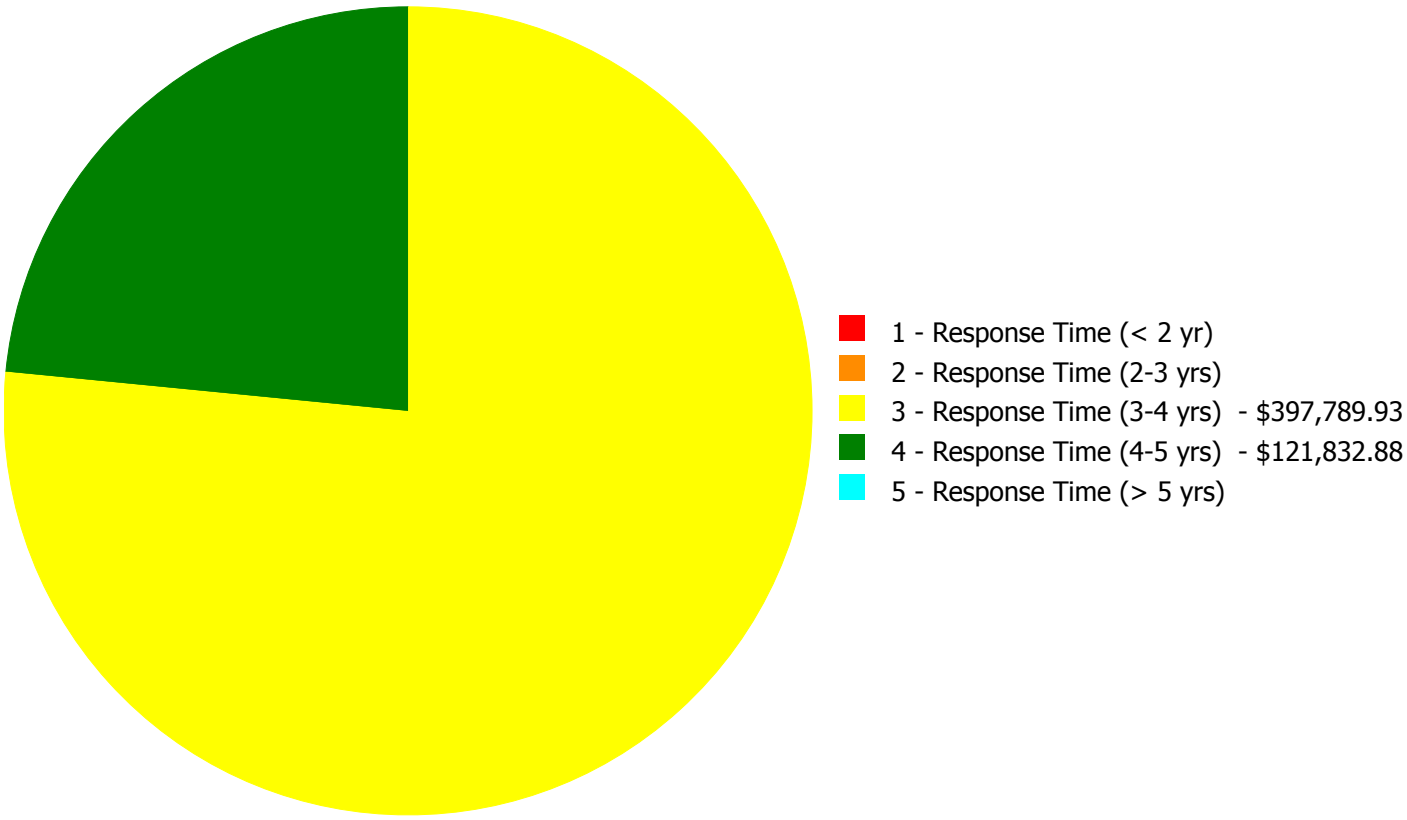
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $519,622.81

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: $519,622.81

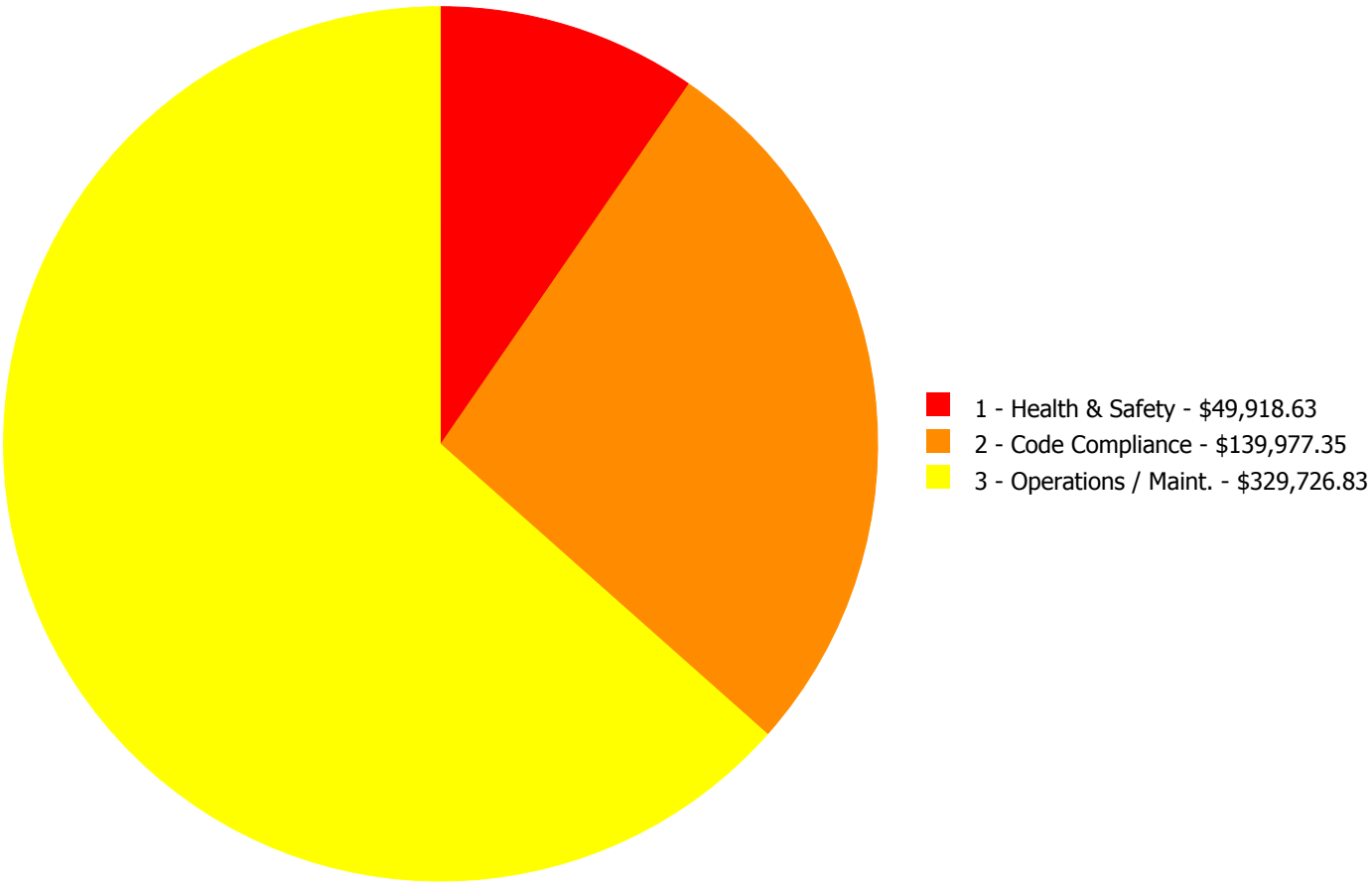
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
G2030	Pedestrian Paving	$0.00	$0.00	$0.00	$71,914.25	$0.00	$71,914.25
G2040	Site Development	$0.00	$0.00	$257,812.58	$0.00	$0.00	$257,812.58
G4020	Site Lighting	$0.00	$0.00	$139,977.35	$0.00	$0.00	$139,977.35
G4030	Site Communications & Security	$0.00	$0.00	$0.00	$49,918.63	$0.00	$49,918.63
	Total:	$0.00	$0.00	$397,789.93	$121,832.88	$0.00	$519,622.81

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: $519,622.81

Deficiency Details by Priority

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

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

System: G2040 - Site Development

Location: Grounds/ site

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 500.00

Unit of Measure: L.F.

Estimate: $257,812.58

Assessor Name: Craig Anding

Date Created: 10/15/2015

Notes: Repair retaining walls, re-set stone cladding and replace stone coping

System: G4020 - Site Lighting

Location: Grounds

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

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

Qty: 1.00

Unit of Measure: Ea.

Estimate: $139,977.35

Assessor Name: Craig Anding

Date Created: 10/15/2015

Notes: Install additional outdoor lighting

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

System: G2030 - Pedestrian Paving

Location: Grounds/ site

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 5,000.00

Unit of Measure: S.F.

Estimate: $71,914.25

Assessor Name: Craig Anding

Date Created: 10/15/2015

Notes: Resurface entry plaza paving

System: G4030 - Site Communications & Security

Location: grounds

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Add Site Paging System

Qty: 0.00

Unit of Measure: Ea.

Estimate: $49,918.63

Assessor Name: Craig Anding

Date Created: 10/15/2015

Notes: Install additional Speakers outdoor for paging.

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