## 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.*

## Swenson High School

| | | | |
|---|---|---|---|
| Governance | DISTRICT | Report Type | High |
| Address | 2750 Red Lion Rd. | Enrollment | 664 |
| | Philadelphia, Pa 19114 | Grade Range | '09-12' |
| Phone/Fax | 215-961-2009 / 215-961-2081 | Admissions Category | Citywide |
| Website | Www.Philasd.Org/Schools/Swenson | 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** | **23.26%** | **$21,475,560** | **$92,321,892** |
| Building | 24.10 % | $20,887,621 | $86,676,820 |
| Grounds | 10.42 % | $587,939 | $5,645,072 |

## Major Building Systems

| Building System | System FCI | Repair Costs | Replacement Cost |
|---|---|---|---|
| **Roof** (Shows physical condition of roof) | 02.34 % | $109,238 | $4,665,777 |
| **Exterior Walls** (Shows condition of the structural condition of the exterior facade) | 00.05 % | $3,229 | $6,285,468 |
| **Windows** (Shows functionality of exterior windows) | 163.57 % | $3,832,852 | $2,343,297 |
| **Exterior Doors** (Shows condition of exterior doors) | 156.98 % | $450,716 | $287,110 |
| **Interior Doors** (Classroom doors) | 89.37 % | $577,729 | $646,427 |
| **Interior Walls** (Paint and Finishes) | 04.55 % | $103,327 | $2,271,090 |
| **Plumbing Fixtures** | 16.38 % | $889,475 | $5,429,297 |
| **Boilers** | 14.29 % | $458,527 | $3,209,784 |
| **Chillers/Cooling Towers** | 00.00 % | $0 | $4,208,651 |
| **Radiators/Unit Ventilators/HVAC** | 20.49 % | $1,514,373 | $7,390,927 |
| **Heating/Cooling Controls** | 22.01 % | $510,826 | $2,320,947 |
| **Electrical Service and Distribution** | 60.70 % | $1,313,906 | $2,164,498 |
| **Lighting** | 61.68 % | $3,677,794 | $5,962,255 |
| **Communications and Security** (Cameras, Pa System and Fire Alarm) | 43.53 % | $972,097 | $2,233,267 |

*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

# S809001;Swenson

Final

## Site Assessment Report

February 2, 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): | 171,922 |
| Year Built: | 1976 |
| Last Renovation: | |
| Replacement Value: | $92,321,892 |
| Repair Cost: | $21,475,560.45 |
| Total FCI: | 23.26 % |
| Total RSLI: | 55.66 % |

**Description:**

Facility Condition Assessment
October 2015

**School District of Philadelphia**
**Swenson Arts and Technology High School**
**2750 Red Lion Road**
**Philadelphia, PA 19114**

171,922 SF / 637 Students / LN 08

**General**

Swenson Arts and Technology High School is located at 2750 Red Lion Road. This building was constructed in 1976 as a skills center and purchased by the School District in 1990 to be used as a high school. The building has a total of 171,922 square feet in area. The 2-story east wing contains classrooms, kitchen, cafeteria, culinary arts classrooms and kitchens, library, junior ROTC, and life skills. The 1 story "high-bay" west wing has an automotive garage, paint shop, gymnasium, wood construction, masonry construction, storage, and engineering. There is no formal auditorium with a stage and fixed seating; portable seating or lunch tables and chairs are used as seating when the cafeteria is used as an auditorium. There are no basements or crawl spaces; all major

mechanical equipment, air handlers and boilers are located on the roof. The front entrance to the Main Building faces Red Lion Road. There is a faculty parking lot in the front and an extensive asphalt student parking lot to the right and behind the building. Neil McFadden, the Building Engineer accompanied the FCA team during the inspection.

The inspection Team met Principal Colette Langston at the time of the field inspection. In particular, she indicated that the heating and air conditioning system does not provide the same level of comfort in all spaces – some rooms are hot and some are cold. The team was also told that there are many window leaks and roof leaks throughout the building. A third issue of concern is the crumbling paving at the drop-off area in front of the building. This is a safety hazard, potential tripping hazard, and should be repaired to prevent accidents.

**Architectural/Structural**

Foundations were not seen. There is no basement, therefore no walls below grade could be seen. Footings at the bottom of the foundations were not seen and their construction type or condition could not be ascertained. There was no evidence of any major settlement.

First floor slabs have some cracking showing through VCT floor finishes at expansion/control joints and other corridor locations throughout the building; cracked VCT tiles should be replaced. Similarly, some hairline cracking was observed in terrazzo finishes in the bakery kitchen and in painted concrete finishes in the automotive garage. Since most of these cracks were not larger than 1/8 – 1/4", this may be the sign of normal settlement and movement over the life of the building; cracks should be sealed to prevent moisture penetration into the slab. One crack in the automotive garage and one location in the storage area near the engineer's office was approximately ½" in width and although on the larger size of "normal", by itself the crack does not create any causes for concerns. Cracks need to be routed out, filled and repaired. Upper floor slabs are constructed of cast-in-place concrete slabs which were generally in fair to poor condition. Most of the raised slab is lumpy and unsightly, but not yet causing destruction of the vinyl flooring at the time of inspection. Columns, beams and decking were not seen under the second floor since every room inspected had a full suspended acoustical ceiling. The support system of the high-bay automotive garage, was observed to be steel columns, supporting steel beams, bar joists and a metal roof deck. The steel columns are encased in concrete blocks for protection; concrete block column encasement was seen in other rooms in the two story section of the building, thus it could be assumed that the same structural system is utilized throughout the building.

Roof construction over the high bay areas where the underside of roof is exposed and was observed to be steel beams, bar joists and a metal roof deck. The roof deck above all parts of the building consists of a "flat" deck with minimum overall slope and pitch to roof drains. Painted aluminum coping caps off the top of the exterior wall above the roof deck. Roof access is via a door in a penthouse structure on one of the roofs over the west high bay wing. Since this building has no major mechanical rooms or basement boiler rooms, all major air handlers and boilers are located on the roof; there are 58 AHUs, 30 exhaust fans, and a boiler room constructed of corrugated metal panel walls and roof. The steel structures that support the roof top air handlers, chilled water and hot water piping, ductwork, and the boiler room are rusted and in need of de-rusting and repainting for protection against the weather. There is one stairway-bridge (known as a "stile") that traverses a lower roof valley between the one and two story sections and others cross over large HVAC piping runs; most rooftop stairways do not comply with building code requirements for stair riser heights, handrail designs, and guard heights. The roof has no parapets and has internal roof drains at low points with vertical leaders running down through the building in internal chases. There are no vertical leaders running down the outside of the exterior walls. None of the roofs have overflow scuppers or overflow roof drains, but the parapet is not high enough to retain significant amounts of water and as long as the roof deck was designed to carry the load of the water contained by the parapet if all roof drains were clogged, this is not a structural concern.

Exterior walls are constructed of dark reddish-brown brick. On the rear and the 1-story walls, the top of the brick forms the window sill under a continuous band of clear anodized continuous window units. The front and 2 story left side of the building has a similar window band but also has a triple grouping of punched windows in first floor rooms. Both the 1 story and 2 story sections have a light colored textured panel forming a fascia above the continuous window band along the top of the walls. There are joints in these panels which appeared to be in good condition; the material used to create this fascia could not be determined. The fascia panels are in good condition with few defects observed during the inspection. Brick walls are generally in good condition with some pointing required above the rollup doors into the automotive shop and near the construction loading dock area. The brick roof structures appeared to be in good condition. Some of the first floor lintels required pointing to replace lost grout. There was no graffiti seen on any of the brick exterior walls.

Exterior windows have clear anodized aluminum frames with single hung operable, single glazed plexiglass units. These windows provide almost no insulation value and do not meet today's energy code requirements making them a large source of heat loss. Additionally, the plexiglass (lexan) is scratched and worn to the point where many units are no longer transparent. They are said to leak, they are difficult to operate, and when closed do not provide a good weather seal. All windows should be replaced with new units that have insulated glazing and thermally broken frames. First floor windows have galvanized steel security screens on the

exterior, which are in good condition, but would not be reused as new units have less obtrusive, heavy duty, black insect/security screens.

Exterior doors at the front entrances and other student stairway or corridor exit doors are flush, painted, hollow metal steel doors & frames with narrow vertical vision panels with security screens. Mechanical area entrance/exit doors around the building are flush, painted hollow metal steel doors & frames without vision panels. Doors are generally in fair condition, with dents and faded paint, but no graffiti. All exteriors of doors and frames require a new coat of paint to improve their appearance and allow for continued use. Most hardware is original and beyond the end of normal useful life, damaged in appearance in not fully operational in many cases. Any newer more recently replaced hardware should be adjusted for proper operation and old hardware should be replaced. Weatherstripping should be replaced to prevent cold weather air infiltration on all doors as gaps can be seen in some doors where not closing tight. There is a handicap accessible curb cut at the drop off area at the front of the building facing Red Lion Road. The ramped surface requires tactile warning (textured concrete or an integral rubber pad) on the ramped surface. More complete Accessible Route signage is also required from handicap parking spaces leading to the accessible entrance. The automotive shop, construction shops, and engineering/storage areas have a total of 16 roll up doors. The inside door faces have exposed foam insulation which may have been sprayed on after door installation and would not comply with present day building codes for exposed insulation materials. The doors are old and damaged, insulation is worn away and is possibly a fire hazard. All doors should be replaced with insulated roll up doors.

Roof coverings consist of a fully adhered built-up rolled asphalt membrane system, with impregnated surface granules. It was thought that the roof was replaced in 1999. The deck is generally solid with a few areas of softness underfoot and bubbling areas over the 1 story high-bay roof. Coping over the low parapet is painted aluminum and has gaps between some of the panels, requiring caulking. Flashing is asphalt-backed, granule impregnated material fully adhered to rooftop ventilation ductwork, low parapets, and masonry walls under reglets. Some of the reglet joints in rooftop brick stairways have been sloppily resealed and might still be sources of water penetration. With all building HVAC mounted on the roof, there are many opportunities for water infiltration at the numerous equipment supports and pipe penetrations. It was indicated that there are many roof leaks. Small penetration flashing around plumbing vent pipes and equipment stub columns are not flashed properly but instead are caulked, which is a poor method of penetration closure and a possible cause for leaks; proper flashing terminations should be provided to prevent any water leakage at equipment and plumbing penetrations. Overlapping joints of asphalt membrane along the roof parapets have some gaps and exposed cracking areas, also possible leak sources. Some roof drains have dark stains surrounding the baskets indicating water ponding. The low roof area (area 6 on the roof plan) between 1-story and 2 story areas was flooded at the time of inspection; clogged roof drains need to be cleaned out to allow for proper drainage of the roof. Some roof drains on the main roof were blocked by roof surface granules accumulating around the strainers. Most other roof drains appear to be functioning, but more regular roof maintenance is required to allow roof drains to function properly. The roof over the boiler room (area 1 on the roof plan) is a metal panel roof and is leaking into the boiler room. Since the larger part of the roof surface appears to have some life remaining, repairs should be made to penetrations and flashing areas to preserve the roof life.

Partitions in almost all first floor rooms and corridors are constructed of painted block (concrete masonry units) throughout the entire floor. Corners are bull-nose block to soften the hard edges and provide a more durable surface. Wall bases are either painted block or glazed block. There were no joint cracks observed in the inspection. This highly durable wall system is in good condition. A limited number of first floor partitions in the Culinary Arts area had ceramic tile (over sinks) and gypsum or particle board partitions. Second floor partitions are almost all constructed of gypsum board and metal stud assemblies. The inspection team was told that these partitions were constructed years ago by students of the Construction Program as part of a school project. Partitions are constructed up to the bottoms of the suspended acoustical tile ceilings and also have openings at the tops under the ceiling for airflow between classrooms and corridors. Some corridor partitions are made of a metal panel system also built to the underside of the acoustical tile ceilings. Both of these wall systems do not meet today's building codes which require corridor walls to be constructed as 1 hour fire separation assemblies in a non-sprinklered building. Additionally, second floor partitions are damaged in many places. Therefore, all second floor corridor and stairway partitions should be demolished and replaced with code compliant full height fire rated gypsum board assemblies; this includes removal of all existing corridor and stairway doors and replacement with fire rated doors and vision panels with approved fire rated glass. Partitions between classrooms can remain in use if not damaged. During the inspection, it was noticed that Room 216 had been built at the end of the second floor corridor that had continued around the corner to the main second floor corridor. This new room creates a dead end corridor that exceeds the building code maximum allowance of 25ft in a non-sprinklered building. An egress pathway needs to be created to connect to the main corridor which leads to two stairways, to alleviate this situation.

Interior doors used for classrooms, offices, storage rooms, stairways, and bathrooms are solid wood oak veneer doors and steel frames. Many of these wood doors have narrow lite wired glass vision panels where vision is desirable; some have security screens. Most wood door surfaces are scratched, stained, chipped and need to be replaced. Some stairway, rest room, and cafeteria doors have with panic hardware that appears to be original in most cases; all doors opening into a corridor are required to have positive latching and closers, to comply with today's codes for fire rated doors. Unless doors or hardware were replaced recently, all doors and hardware should be replaced with code compliant equipment. Classroom, office, and special function room doors

throughout the building have old nob-style locksets and should have lever-handle locksets. Since none of the classroom or office doors can be locked from the inside of the classroom, as required today for lock-down security, this type of security hardware should be provided on all of those doors.

Interior fittings/hardware include black slate chalkboards or whiteboards with metal chalk or marker trays mounted on one wall in each classroom; tackboards are also located in most classrooms and in some of the corridors. The library space has free-standing plastic metal and plastic laminate bookcases, tables, and plastic & metal chairs all in good condition. Toilet room partitions are either plastic (phenolic resin) partitions and doors, or metal partitions and doors. The phenolic partitions are generally in good condition but the metal partitions are scratched or marked with graffiti and need to be replaced. Most toilet rooms have accessories in place and operational. Accessible toilet rooms are either of two types: minimally accessible toilet compartments that have a toilet and sink with enough maneuverability space for wheelchairs, but no grab bars or properly mounted accessories; minimally accessible toilet compartment with grab bars on both sides of the toilet. While providing some degree of accessibility, neither fully complies with ADA guidelines for size and accessories. Additionally, sinks do not fully meet accessibility requirements since they do not have wrist blade faucets, leg protection, and extended or properly mounted bowl heights; urinals also do not fully comply with all ADA guidelines; new ADA compliant accessories and fixtures should be strategically placed in existing toilet rooms to provide ADA access. The lobby has a bank of wall mounted, backlit display cases including a steel medieval statue decorating the entrance space. There is also a low brick wall creating a physical barrier from anyone getting too close to the displays.

Stair construction consists of concrete filled steel treads with steel nosings, steel risers, and steel stringers. Some replacement handrails are 36" high with guards 42" high bolted to stair stringers replacing older handrails and guards. However, the building code in effect today requires 42" high guards on open sides of stairways with balusters at 4" spacing, lacking on all stairs. The code also requires guards at 42" high at platforms and landings to have the same 4" spaced balusters, also missing on all stairways in the building. These elements should be provided to bring the stairs up to compliance with today's code. Stair treads, concrete platforms, and landings are finished with clear sealer, but the concrete has a mottled appearance and looks dirty. Stairways should be stripped and refinished to give them a cleaner appearance. The condition of the stairs also requires some attention. The underside of the steel treads and risers of some of the stairs is beginning to rust; this should be cleaned and repainted to prevent further damage.

Wall finishes throughout the first floor are full height painted concrete masonry units (block) in all areas of the building. There are few if any locations in first floor corridors, stairs, toilet rooms, and classrooms where the walls are damaged and in need of repainting. Wall paint and appearance in the automotive, carpentry, and masonry shops are in good condition, especially considering the potential for dirt and damage in these spaces. Second floor wall finishes are in poor condition; painted gypsum board and metal panel system walls are not as durable as painted block. All corridor walls need to be replaced to comply with today's building code requirements for fire-resistance ratings, therefore the condition of the walls is not a factor to consider. Second floor classroom (non-corridor) walls observed during the inspection were in good condition with no major repairs required.

Floor finishes in the classrooms, corridors, school office, cafeteria, and main lobby consist of vinyl composition tile (VCT). Generally, first floor tiles are in good condition, although there are some cracked areas that need to be removed and replaced with new tiles. Dirt has built up in many corners on both floors requiring a thorough cleaning before the next waxing. The VCT in the area of the automotive shop is cracked and damaged in many places requiring replacement. Finally, the VCT on the second floor corridors have a lumpy appearance caused by rough concrete on which the tiles were originally installed. These tiles should be removed and the concrete re-leveled with flash patch leveling compound. The main entrance lobby/vestibule has a terrazzo finish, which is dirty but in good condition. The gymnasium and automotive shops have an industrial-type high-build painted concrete finish which is scratched, dented, cracked, and damaged; floor surfaces need to be repaired then the coating needs to be re-applied throughout both spaces. Stairs have sealed concrete finishes which are in need of stripping, cleaning, and resealing. Toilet rooms have ceramic mosaic tile which needs to be cleaned to promote the appearance of cleanliness. The library, Room 125, and part of the culinary customer area have carpet, which needs to be cleaned or replaced. The baking kitchen and adjacent corridors have terrazzo, in good condition with some minor cracking that should be repaired; the cooking kitchen and adjacent corridors have quarry tile, in good condition.

Ceiling finishes in most spaces throughout both floors of the building including classrooms, corridors, cafeteria, and kitchens consist of an oversized suspended acoustical ceiling tile system; tiles are approximately 60" x 24". The grid has integral supply and return ventilation openings built into the grid, appearing as recesses between tiles. Lighting consists of 4 foot (nominal) length fixtures set into pyramid shaped tiles such that the bottom face of the fixture lenses is flush with the grid. Engineering complained that this system is difficult to maintain since replacing tiles involves purchasing special oversized tiles and cutting them to fit into the grid. Above ceiling access is difficult due to the lighting fixture and integral ventilation grid design. Many second floor classroom walls are built to the underside of the ceiling system, running across lighting fixtures without concern to the appearance, lighting effect, or maintenance of the lighting fixtures. Since second floor corridor walls need to be removed and reconstructed to provide a 1 hour fire rating required of corridors in non-sprinklered buildings, new standard 2x4 suspended acoustical ceilings can be installed between the new, full height corridor partitions. Toilet rooms have a more typical 2x4 suspended acoustical tile ceiling with surface mounted 1x4 lighting fixtures. The automotive and construction shops have open ceilings exposed to the roof decks above with industrial 8ft

fluorescent lighting fixtures.

Fixed furnishings include lab benches constructed of oak and chemical resistant countertops and lockers in second floor corridors; lockers appear to have been repainted at some time and are now peeling and damaged in need of repainting. The cafeteria has portable table/chair units that are used for breakfast and lunch and can be folded up and moved to allow the space to be used for other functions. The kitchen area has stainless steel service counters and food preparation fittings, furnishings, and equipment which was in good operating condition. The greenhouse is constructed onto the southeast wall of the building; the inspection team was told it is periodically utilized by students for horticulture studies; the interior of the greenhouse was not inspected. The automotive shop has a professional paint booth, hydraulic vehicle lifts, automotive tune-up and tire installation equipment, and a piped exhaust gas system. The construction and masonry shops have large wood and masonry equipment available for student instruction and use.

There is a 2500 lb. capacity, 2 stop hydraulic elevator in the building. With a ramp into the first floor this building has full accessibility to all spaces in both floors. However, elevator signage (height and utilization of braille) and chimes do not meet today's ADA guidelines and should be provided in a renovated elevator cab.

There is wheelchair accessibility into the main entrance of the building.

**Mechanical**

Plumbing Fixtures – The building is equipped with wall hung urinals (flush valve type), wall hung water closets (flush valve type), and wall hung lavatories with wheel handle faucets. Many of the original plumbing fixtures remain in service, however, these fixtures have reached the end of their service life and should be replaced. New fixtures will provide lower water consumption and provide savings on water heating costs. The bathrooms are also equipped with floor drains.

Electric water coolers are a combination of wall hung and floor mount styles. EWCs are located in the corridors and at the restrooms in general, but some are located in the shop areas as well. Most appear to be the original installed equipment. The replacement of all drinking fountains and electric water coolers is recommended as the equipment is approximately 40 years old and beyond its service life.

Wall hung service sinks are original and are available throughout the building for use by the janitorial staff. The sinks appear have exceeded their service life, and should be replaced. The Cafeteria's food prep/kitchen is equipped with one, three compartment stainless steel sink with wheel handle operated faucets and its sanitary connection is served by a floor mounted grease trap. The kitchen is also equipped with a hand sink. The triple wash sink (with wheel handles) and hand sink (with lever handles) show signs of normal usage. The grease interceptor is an in floor arrangement and is accessible for maintenance. Chemicals are injected manually into the sanitizing basin. Circular and half round gang hand sinks are located in the auto shop area, appear to be original as there are signs of corrosion, and should be replaced as they have exceeded their service life.

Domestic Water Distribution – It appears that the 6" domestic water service piping is mostly soldered copper. Water service enters the building through the auto shop area, with double check backflow preventer (RPZA – reduced pressure zone assembly) and a 6" water meter on the main line upon entering the building. The piping is copper with soldered joints. The distribution piping appears to be original and is at the end of its service life and is recommended to be inspected and repaired as needed.

The domestic water heater systems were not surveyed at this facility.

Sanitary Waste - The sanitary waste piping system in the original building is extra heavy cast iron with lead and oakum seals and appears to be the original piping installed in the building. It is therefore recommended to inspect this piping and repair or replace sections as needed. The sanitary system leaves the building by gravity flow. The auto shop wash bay is equipped with a grit basin which is removable for cleaning.

Rain Water Drainage - The rain water drains from the roof are routed through mechanical chases in the building and connect to the underground site drainage system. There are no overflow scuppers for the building.

The auto shop is equipped with compressed air which is supplied by two Kaeser compressors, model ASD-40 which were installed in 2003 – 2004 to provide shop air to pneumatic tools. The auto shop area is also equipped with emergency shower and eyewash stations with a floor drain in the location. The stations appear to be in good condition and should not need to be replaced at this time based on this visual inspection.

Energy Supply - Duplex fuel oil supply pumps provide the required fuel to the boilers when operating on fuel oil. The 20,000 gallon fuel storage tank is located underground at the rear of the school near the old solar photovoltaic system. The fuel pumps and controls

are original vintage, are beyond their serviceable life and therefore should be replaced. The 2”natural gas enters the building in the auto shop area. The natural gas main is welded, black steel piping while the branches are threaded, black steel.

Heat Generating Systems – The heating plant is housed within a custom manufactured packaged penthouse building made by Governair located on the roof. Heating water is generated by three 5,500 MBH Cleaver Brooks, flexible tube, model FLX, size 550hot water boilers with dual fuel burners. All boilers are equipped with Power Flame dual fuel burners, natural gas and number 2 fuel oil, model CR5-GO-30. The boilers appear to have been installed around 1999 to 2000 The boilers are roughly 16 years old and have a remaining service life of 15 to 20 years. The boilers should not be replaced based on their service life alone at this time. There is no draft control on the either boiler flue. Combustion air louvers serve the boiler room to provide combustion air for the boiler operation and are driven by electric actuators. Burner controls provide full modulation with electronic ignition, and digital flame sensing. Burner oil pumps are driven by independent motors. The gas train serving each boiler appears to have code required venting of the regulators and dual solenoid valves with venting of the chamber between. The oil supply to the burner is equipped with dual solenoid valves and strainer/disposable media filter. The heating water system is treated with ethylene glycol for freeze protection.

There are three inline boiler loop circulating pumps, one dedicated to each boiler, and two heating water secondary distribution pumps, end suction base mounted, centrifugal, manufactured by Aurora-10.0, 800 gpm, 185 feet head, 50 HP (estimated), 1800 RPM, 344A BF, 4x5x8A. The two heating water distribution pumps are duty and stand by service. Both pumps are nearing the end of their service life and should be replaced in the next 5 – 7 years. The duty pump is equipped with a variable speed drive, manufactured by ABB.

Colling Generating Systems – Two chillers, two chilled water pumps, two condenser water pumps and two cooling towers reside within the custom manufactured packaged penthouse building located on the roof. The chilled water system is treated with ethylene glycol for freeze protection. The chiller consists of an individual evaporator and condenser tube bundles which are set on a rack support system. Each evaporator tube bundle is equipped with two reciprocating compressors. There is a condenser water pump which serves each tower that serves a chiller. There are two chilled water distribution pumps, duty and stand by. The duty pump is equipped with a variable frequency drive. Pump and name plate data were unavailable. The approximate chiller and cooling tower sizes are estimated to be 200 tons each. The chiller and chiller water pumps have experienced weather in the prefabricated penthouse structure and appear to need replacement in the next 5 years.

Distribution Systems – Theheating water distribution piping is black steel with welded fittings. The piping in use is approaching the end of 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 - 7 years.

Fresh air is admitted into the building through the rooftop units via outside air intakes on the units. The rooftop units are equipped with heating and cooling coils. The units are custom units and are manufactured by Temtrol. There are 25 units which deliver conditioned air to various zones and spaces within the school. These spaces include the shop areas, classrooms, cafeteria and gymnasium. Two units are makeup air configuration which provides makeup supply air to the kitchen hood exhaust systems. The rooftop systems are constant volume. All of the rooftop units are set above the roof level on steel dunnage. Accessing the units can only be done via a portable ladder as there is no permanent means of access.

The classrooms and corridors are served by supply air and return air troffers at the light fixtures, although some classrooms have return air grilles in the lay in acoustical ceiling tile system. The gymnasium is serve by a heating and ventilating rooftop unit with expose supply air distribution duct and a centralized return air grill in the space at the ceiling level.

Terminal & Package Units – Some bathrooms and entrances are heated by electric wall convection heaters or electric cabinet heaters. Other areas such as stairwell are heated by hot water cabinet heaters. Some other areas such as the construction trades area; carpentry shop, plumbing and masonry are heated with vertical suspended hot water unit heaters. The auto shop is heated with vertical suspended hot water unit heaters as well. There are 18 roof mounted exhaust fans of which serve the restrooms and other areas requiring exhaust. Transfer grilles in the bathroom doors allow air flow from the corridor to the restrooms for make up air for the toilet exhaust systems. The auto shop area is equipped with a vehicle fume extractor exhaust fan system. The exhaust fans are of a roof ventilator type or up blast models. In general all of the roof mounted exhaust fans are showing signs of wear and weathering and should be replaced in the next 5 – 7 years. The paint booth system in the auto shop is comprised of a downdraft prep booth. The auto shop is also equipped with air curtains at the bay doors

Controls & Instrumentation - The building automation system (BAS), Niagra, is a DDC system by Honeywell. There are numerous issues reported by the building engineer with respect to setpoints, temperature sensor accuracy, system alarms and equipment sequencing. It is recommended to perform retrocommissioning on the controls system.

Sprinklers - The school building is partially covered by an automatic sprinkler system. The auto shop area and offices are protected with sprinklers as well as a valve and hose station. The 6" water service enters the building within the auto shop area. The piping is black steel. The sprinkler service does not have a backflow preventer installed. The two kitchen hoods have an Ansul fire suppression system.

**Electrical**

Site Electrical Service is delivered from medium voltage underground utility power lines along Red Lion Road. An underground medium voltage cable tapped to an underground utility power line feeds the main service switchgear in the main electrical room located in first floor of the building.

Main service switchgear consists of 600A medium voltage load interrupter, a metering transformer section, 3000KVA, 13200V to 480/277V transformer and a 4000A, 408/277V power distribution switchboard. One 200KVA, 480 volts capacitor bank is connected to the switchboard for power factor correction. Service switchgear is 39 years old and has far exceeded its useful service life and should be replaced.

The electrical distribution is accomplished with nine distribution panels and several other lighting/receptacle panels located throughout the building. Two 75KVA, 480V to 208/120V step down transformers are provided on first and second floors for feeding receptacles, kitchen equipment and other 120/208 volts loads. The distribution system was installed in 1976 and also requires replacement.

Classrooms are typically supplied with one or two duplex receptacles along the walls. Our recommendation is to have a minimum of two receptacles on each classroom wall. None of the receptacles on the roof near air handling units are in service. They are not connected to power sources. International Code Council (ICC) recommendation is to provide receptacle outlets at or near the equipment locations in accordance with NFPA 70.

Majority of lighting fixtures in the building are of 6x48 inches surface mounted fluorescent fixtures with outdated T-12 lamps. Lighting levels throughout the building, especially in corridors and most classrooms, are lower than the minimum recommended foot candle levels stipulated by the IES (Illuminating Engineering Society). There are no lighting fixtureson the roof although it is required by code where equipment is located; (note that there are 28 air handling units and 56 exhaust fans on the roof). It is also recommended by International Code Council (ICC) that luminaries with a switch be provided along the passageway from the roof opening.

The building is equipped with a 120V manual fire alarm system. The system does not meet current fire alarm codes and should be replaced with an automatic fire alarm system.

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

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

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

The existing master clock system is not functioning. The system is old and has exceeded its useful service life and should be replaced. The existing bell system is working adequately.

Television System is not provided in the school.

Security System, access control, and video surveillance with an intrusion alarm are provided in the school. There are nine cameras installed in the corridors. The system is working adequately.

Emergency Power System (backup power generator) is provided in the school. A 30KW, 208/120V, 3PH, 4W diesel generator including transfer switch, manufactured by Onan is located in Boiler Room. It feeds life safety and other critical emergency loads. The system is old and has exceeded its useful service life.

Uninterruptible Power System (UPS) is provided for the Local Area Network (LAN) in the main IT Room.

Emergency lighting system, including exit lights are provided in the buildings. A sufficient number of lighting fixtures in corridors, the library, and egress ways are fed by emergency back-up power. Exit signs are also fed by emergency power, however some exit signs are damaged and need to be replaced.

Lightning Protection System is not provided on the building. Mechanical equipment on the roof should be protected against lightning strikes.

A 20 horsepower rated hydraulic-type elevator, manufactured by ThyssenKrupp elevator is in operation at the school. The elevator appears to be working properly.

The school has no auditorium.

Site Lighting System is adequate. There are sufficient numbers of lights provided around the building.

Site Video Surveillance system is provided and monitored by Closed Circuit Television (CCTV) system. It appears to be operating adequately.

Site Paging System is adequate.

**Grounds**

Paving and parking is constructed of asphalt and is in poor condition. There are parking lots in the front and the right side of the building. There are two points of access from Red Lion Road. Students coming to school on buses, by parents' cars or faculty coming to school can enter the first driveway on Red Lion, go left and pull up to the front entrance, then drive through the front yard faculty parking lot and leave to Red Lion Road by a second access road. Students driving themselves to school or maintenance personnel can enter the same first entrance then go right and park in the large side parking lot or continue driving around the building to the engineering loading dock; the road continues past the south east corner of the building and reconnects to Red Lion Road for exiting. The front faculty parking lot (use for faculty and staff parking) and driveway access roads are in poor condition and have been patched. Erosion is still ongoing and cracks are forming; the front and left side roadways and front (faculty) parking should be resurfaced with new asphalt. The right side parking lot (used for student parking) and roadway encircling the building should be repaired and sealed to help maintain the pavement.

Because the first access driveway has a downward slope from Red Lion, water runs down towards the building and in the winter freezes creating a dangerous icy situation. Another catch basin should be provided to help remove incoming storm water. The other 3 catch basins in the front of the building seem to be settling; they should be reset to be more in line with the paving surface.

Curbing in the front of the building is in poor condition and should be replaced where damaged along the front sidewalk. Some of the sidewalk behind the curbing is spalling and cracking, in need of replacement.

Site fencing around this site is extensive, partially hidden from view and is composed of chain link fencing; the sections that could be seen are in fair condition with some bent and rusting sections around the site; not being highly visible, repairs and replacements are not recommended at this time. There is no fence and gate to close-off the entrance to the site. The District should determine if this is a requirement for this school and provide additional fencing and gates if deemed necessary.

## RECOMMENDATIONS

**Architectural**

- Strip and reseal concrete floors in stairways, masonry shop, carpentry, and general maintenance area (25,200sf)
- Remove existing paint and repaint automotive shop and gym concrete floor including 400 linear ft. deep cracks (refinish 35,800sf)
- Repaint steel equipment supports under rooftop equipment and ductwork (58 RTUs @100sf each = 5800sf; duct 200ft and supports (20sf) at 5' o.c. = 800sf; 6400sf total painted surface area.
- New rooftop-mounted stairs ("stiles") constructed of open galvanized grating with 2-rail industrial handrails and guards on roof to allow for passage from different roofs at different heights and over piping (1 stair @ 8 risers; 2 stairs @ 6 risers; 2 stairs @ 10 risers)
- Repair bubbles in roof membrane (50 major bubbles @ 10sf each area + small bubbles = 1000sf)

- Repair separating flashing along parapet over auto shop entrance doors (200sf)
- Repair separating coping (12 pieces 100ft)
- Reflash bases of equipment and pipe supports, believed to be the cause of roof leaks (100 supports)
- Replace all exterior windows with new insulated glazing systems (24)1'x6'; (45)3'x8' with 2'x4' panels above and below; (130) 3'x8' individual windows; (500)2'x4' continuous band.
- Replace exterior metal doors, hardware, and frames (40)3x7
- Replace rollup doors in automotive, masonry, and wood shops with insulated coiling roll up doors (16) 10'x15'.
- Repaint steel doors and metal frames in mechanical rooms, stairs, and basement (30) 3x7
- Refinish wood doors into closets and other interior room locations with minor damages (50) 3x7
- Replace severely damaged wood doors in corridors, bathrooms, cafeteria, auditorium and other locations with fire rated doors and hardware (100) 3x7
- Provide flash patch in lumpy areas of second floor slab to receive new VCT (20,000sf)
- Replace roughly half of VCT (all corridors and some classrooms) where worn, cracked, damaged, dirty, and previously repaired with mismatching tiles (80,000sf)
- Repair cracked terrazzo in culinary kitchen areas. (100sf)
- Replace carpet in offices and culinary arts area (3,500sf)
- Replace second floor gypsum board corridor partitions with full height 1 hour fire rated gypsum board partitions (40,000sf)
- Provide security hardware for classrooms and offices, locking from the inside of the room (150)
- Provide new fire rated gypsum board corridor to eliminate 65 ft. dead end corridor at Classroom 216 (1500sf)
- Replace all suspended acoustical tile ceilings in first and second floor with standard 2'x4' system (114,522sf)
- Replace transite toilet room partitions and phenolic resin plastic partitions with with graffiti (estimated 8 toilet compartments)
- Provide toilet room accessories where partitions are replaced, including new HC accessories and grab bars as required by code (approximately 4 groups)
- New code compliant handrails, 4" spaced balusters, and guards on stairways (6 stairways) x 25ft handrail+guard = 150ft;. 25ft handrail on walls = 150ft, and 8ft guard at top of each stairway = 50ft.
- Repaint lockers in hallways (estimated 1000)
- Upgrade elevator to include today's ADA signage, audio, and visual features.
- Brick pointing and repair over roll-up doors, windows and on brick at roof (100sf)

**Mechanical**

- Replace the original lavatories with low flow fixtures.
- Replace the original water closets with low flow fixtures.
- Replace the original urinals with low flow fixtures.
- Replace the wall hung drinking fountains and integral refrigerated coolers in the corridors and at the restrooms. These units are well beyond their service life and most are NOT accessible type.
- Replace the original service sinks in the janitor closets.
- 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 the 20,000 gallon underground storage tank (UST) installed before 2000 located underground.
- Inspect and replace, as needed, the original domestic water piping
- The District should hire a qualified contractor to examine the original heating distribution piping in service for nearly 40 years and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.The piping is approaching the end of its service life and will require more frequent attention from the maintenance staff to address pipe/valve failures as time passes.
- Replace duplex fuel oil pumps.
- Perform retrocommissioning on building automation system.

**Electrical**

- Upgrade the existing electrical service with a new service. Replace the existing substation with a new 4000A, 480/277V, and 3PH, 4 wire substation including 3000KVA transformer, 600A, and medium voltage fuse disconnect and 4 section low voltage switchboard.
- Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash labels on electrical equipment. Estimated 20 panel boards.
- Install minimum two receptacles in each classroom wall. It is recommend that surface mounted raceway with two compartments for data and power, be installed in the computer lab.
- Replace all T12 lighting fixtures with new T5 fluorescent lighting fixtures throughout the building. Estimated 90% of the fixtures.
- Replace existing fire alarm system with a new automatic Fire Alarm System including control panel, initiated devices in

corridors, air ducts, electrical and LAN rooms, library, and computer rooms. Provide notification devices in classrooms, offices, corridors, other area recommended by codes.
- Provide lighting protection system on the roof to protect building and mechanical equipment located on the roof.
- Replace existing generator with new 50KW generator.
- Replace damaged exit signs with new battery-pack type exit signs. Estimated 30 each.

**Grounds**

- Repave damaged faculty parking lot and access driveways with new asphalt; parking striping (50,000sf)
- Repave side roadway (40,000sf)
- Sealcoat right side (student) parking lot; 600ft crack fill; parking striping (80,000sf)
- Replace damaged concrete curbing (200lf)
- Provide new storm drain and piping in front drop-off area (1 drain and 200ft piping)
- Repave spalling concrete in front and left side of building (600sf)
- Repave dumpster apron with heavy duty concrete (400sf)

**Attributes:**

**General Attributes:**

| | | | |
|---|---|---|---|
| Active: | Open | Bldg Lot Tm: | Lot 3 / Tm 2 |
| Status: | Accepted by SDP | Team: | Tm 2 |
| Site ID: | S809001 | | |

## 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 | 61.00 % | 0.00 % | $0.00 |
| B10 - Superstructure | 61.00 % | 0.00 % | $0.00 |
| B20 - Exterior Enclosure | 74.08 % | 48.08 % | $4,286,796.80 |
| B30 - Roofing | 25.00 % | 2.34 % | $109,238.18 |
| C10 - Interior Construction | 44.25 % | 39.80 % | $1,560,862.31 |
| C20 - Stairs | 59.51 % | 27.00 % | $84,025.70 |
| C30 - Interior Finishes | 28.09 % | 42.28 % | $3,912,143.36 |
| D10 - Conveying | 14.29 % | 6.15 % | $16,183.02 |
| D20 - Plumbing | 48.02 % | 33.62 % | $2,350,653.66 |
| D30 - HVAC | 51.85 % | 12.99 % | $2,483,727.01 |
| D40 - Fire Protection | 57.14 % | 0.00 % | $0.00 |
| D50 - Electrical | 109.95 % | 57.38 % | $6,083,991.41 |
| E10 - Equipment | 27.38 % | 0.00 % | $0.00 |
| E20 - Furnishings | 12.50 % | 0.00 % | $0.00 |
| G20 - Site Improvements | 41.64 % | 14.52 % | $587,939.00 |
| G40 - Site Electrical Utilities | 40.00 % | 0.00 % | $0.00 |
| **Totals:** | **55.66 %** | **23.26 %** | **$21,475,560.45** |

### 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) |
|---|---|---|---|---|---|---|---|
| B809001;Swenson | 171,922 | 24.10 | $7,148,447.50 | $8,999,169.77 | $0.00 | $0.00 | $4,740,004.18 |
| G809001;Grounds | 367,100 | 10.42 | $0.00 | $245,078.22 | $342,860.78 | $0.00 | $0.00 |
| **Total:** | | **23.26** | **$7,148,447.50** | **$9,244,247.99** | **$342,860.78** | **$0.00** | **$4,740,004.18** |

### Deficiencies By Priority


**Budget Estimate Total: $21,475,560.45**

## Executive Summary

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

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

| | |
|---|---|
| Function: | High School |
| Gross Area (SF): | 171,922 |
| Year Built: | 1976 |
| Last Renovation: | |
| Replacement Value: | $86,676,820 |
| Repair Cost: | $20,887,621.45 |
| Total FCI: | 24.10 % |
| Total RSLI: | 56.60 % |


**Description:**

**Attributes:**

**General Attributes:**

| | | | |
|---|---|---|---|
| Active: | Open | Bldg ID: | B809001 |
| Sewage Ejector: | No | Status: | Accepted by SDP |
| Site ID: | S809001 | | |

## 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 | 61.00 % | 0.00 % | $0.00 |
| B10 - Superstructure | 61.00 % | 0.00 % | $0.00 |
| B20 - Exterior Enclosure | 74.08 % | 48.08 % | $4,286,796.80 |
| B30 - Roofing | 25.00 % | 2.34 % | $109,238.18 |
| C10 - Interior Construction | 44.25 % | 39.80 % | $1,560,862.31 |
| C20 - Stairs | 59.51 % | 27.00 % | $84,025.70 |
| C30 - Interior Finishes | 28.09 % | 42.28 % | $3,912,143.36 |
| D10 - Conveying | 14.29 % | 6.15 % | $16,183.02 |
| D20 - Plumbing | 48.02 % | 33.62 % | $2,350,653.66 |
| D30 - HVAC | 51.85 % | 12.99 % | $2,483,727.01 |
| D40 - Fire Protection | 57.14 % | 0.00 % | $0.00 |
| D50 - Electrical | 109.95 % | 57.38 % | $6,083,991.41 |
| E10 - Equipment | 27.38 % | 0.00 % | $0.00 |
| E20 - Furnishings | 12.50 % | 0.00 % | $0.00 |
| **Totals:** | **56.60 %** | **24.10 %** | **$20,887,621.45** |

## 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 | $26.24 | S.F. | 171,922 | 100 | 1976 | 2076 | | 61.00 % | 0.00 % | 61 | | | $4,511,233 |
| A1030 | Slab on Grade | $15.51 | S.F. | 171,922 | 100 | 1976 | 2076 | | 61.00 % | 0.00 % | 61 | | | $2,666,510 |
| B1020 | Roof Construction | $48.22 | S.F. | 171,922 | 100 | 1976 | 2076 | | 61.00 % | 0.00 % | 61 | | | $8,290,079 |
| B2010 | Exterior Walls | $36.56 | S.F. | 171,922 | 100 | 1976 | 2076 | | 61.00 % | 0.05 % | 61 | | $3,228.94 | $6,285,468 |
| B2020 | Exterior Windows | $13.63 | S.F. | 171,922 | 40 | 1976 | 2016 | 2057 | 105.00 % | 163.57 % | 42 | | $3,832,851.51 | $2,343,297 |
| B2030 | Exterior Doors | $1.67 | S.F. | 171,922 | 25 | 1976 | 2001 | 2042 | 108.00 % | 156.98 % | 27 | | $450,716.35 | $287,110 |
| B3010105 | Built-Up | $37.76 | S.F. | 123,564 | 20 | 1999 | 2019 | 2020 | 25.00 % | 2.34 % | 5 | | $109,238.18 | $4,665,777 |
| B3010120 | Single Ply Membrane | $38.73 | S.F. | | 20 | | | | 0.00 % | 0.00 % | | | | $0 |
| B3010130 | Preformed Metal Roofing | $54.22 | S.F. | | 30 | | | | 0.00 % | 0.00 % | | | | $0 |
| B3010140 | Shingle & Tile | $38.73 | S.F. | | 30 | | | | 0.00 % | 0.00 % | | | | $0 |
| C1010 | Partitions | $14.93 | S.F. | 171,922 | 100 | 1976 | 2076 | | 61.00 % | 37.32 % | 61 | | $957,947.82 | $2,566,795 |
| C1020 | Interior Doors | $3.76 | S.F. | 171,922 | 40 | 1976 | 2016 | 2020 | 12.50 % | 89.37 % | 5 | | $577,728.83 | $646,427 |
| C1030 | Fittings | $4.12 | S.F. | 171,922 | 40 | 1976 | 2016 | 2020 | 12.50 % | 3.56 % | 5 | | $25,185.66 | $708,319 |
| C2010 | Stair Construction | $1.36 | S.F. | 171,922 | 100 | 1976 | 2076 | | 61.00 % | 35.94 % | 61 | | $84,025.70 | $233,814 |
| C2020 | Stair Finishes | $0.45 | S.F. | 171,922 | 20 | 1976 | 1996 | 2026 | 55.00 % | 0.00 % | 11 | | | $77,365 |
| C3010230 | Paint & Covering | $13.21 | S.F. | 171,922 | 10 | 1976 | 1986 | 2020 | 50.00 % | 4.55 % | 5 | | $103,327.00 | $2,271,090 |
| C3010231 | Vinyl Wall Covering | $0.97 | S.F. | | 15 | | | | 0.00 % | 0.00 % | | | | $0 |
| C3010232 | Wall Tile | $2.63 | S.F. | | 30 | | | | 0.00 % | 0.00 % | | | | $0 |

# Site Assessment Report - B809001;Swenson

| 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 $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C3020411 | Carpet | $7.30 | S.F. | 3,500 | 10 | 1976 | 1986 | 2027 | 120.00 % | 153.30 % | 12 | | $39,167.67 | $25,550 |
| C3020412 | Terrazzo & Tile | $75.52 | S.F. | 18,600 | 30 | 1976 | 2006 | 2020 | 16.67 % | 0.16 % | 5 | | $2,178.56 | $1,404,672 |
| C3020413 | Vinyl Flooring | $9.68 | S.F. | 171,922 | 20 | 1976 | 1996 | 2020 | 25.00 % | 57.77 % | 5 | | $961,402.54 | $1,664,205 |
| C3020414 | Wood Flooring | $22.27 | S.F. | | 25 | | | | 0.00 % | 0.00 % | | | | $0 |
| C3020415 | Concrete Floor Finishes | $4.61 | S.F. | 61,000 | 50 | 1976 | 2026 | | 22.00 % | 383.63 % | 11 | | $1,078,797.51 | $281,210 |
| C3030 | Ceiling Finishes | $20.97 | S.F. | 171,922 | 25 | 1976 | 2001 | 2020 | 20.00 % | 47.91 % | 5 | | $1,727,270.08 | $3,605,204 |
| D1010 | Elevators and Lifts | $1.53 | S.F. | 171,922 | 35 | 1976 | 2011 | 2020 | 14.29 % | 6.15 % | 5 | | $16,183.02 | $263,041 |
| D2010 | Plumbing Fixtures | $31.58 | S.F. | 171,922 | 35 | 1976 | 2011 | 2028 | 37.14 % | 16.38 % | 13 | | $889,475.31 | $5,429,297 |
| D2020 | Domestic Water Distribution | $2.90 | S.F. | 171,922 | 25 | 1976 | 2001 | 2042 | 108.00 % | 143.42 % | 27 | | $715,041.24 | $498,574 |
| D2030 | Sanitary Waste | $2.90 | S.F. | 171,922 | 25 | 1976 | 2001 | 2042 | 108.00 % | 149.65 % | 27 | | $746,137.11 | $498,574 |
| D2040 | Rain Water Drainage | $3.29 | S.F. | 171,922 | 30 | 1976 | 2006 | 2029 | 46.67 % | 0.00 % | 14 | | | $565,623 |
| D3020 | Heat Generating Systems | $18.67 | S.F. | 171,922 | 35 | 2000 | 2035 | | 57.14 % | 14.29 % | 20 | | $458,527.12 | $3,209,784 |
| D3030 | Cooling Generating Systems | $24.48 | S.F. | 171,922 | 30 | 2000 | 2030 | | 50.00 % | 0.00 % | 15 | | | $4,208,651 |
| D3040 | Distribution Systems | $42.99 | S.F. | 171,922 | 25 | 2000 | 2025 | 2030 | 60.00 % | 20.49 % | 15 | | $1,514,373.44 | $7,390,927 |
| D3050 | Terminal & Package Units | $11.60 | S.F. | 171,922 | 20 | 2000 | 2020 | | 25.00 % | 0.00 % | 5 | | | $1,994,295 |
| D3060 | Controls & Instrumentation | $13.50 | S.F. | 171,922 | 20 | 2000 | 2020 | 2024 | 45.00 % | 22.01 % | 9 | | $510,826.45 | $2,320,947 |
| D4010 | Sprinklers | $8.71 | S.F. | 171,922 | 35 | 2000 | 2035 | | 57.14 % | 0.00 % | 20 | | | $1,497,441 |
| D4020 | Standpipes | $0.99 | S.F. | 171,922 | 35 | 2000 | 2035 | | 57.14 % | 0.00 % | 20 | | | $170,203 |
| D5010 | Electrical Service/Distribution | $12.59 | S.F. | 171,922 | 30 | 1976 | 2006 | 2047 | 106.67 % | 60.70 % | 32 | | $1,313,906.09 | $2,164,498 |
| D5020 | Lighting and Branch Wiring | $34.68 | S.F. | 171,922 | 20 | 1976 | 1996 | 2037 | 110.00 % | 61.68 % | 22 | | $3,677,793.56 | $5,962,255 |
| D5030 | Communications and Security | $12.99 | S.F. | 171,922 | 15 | 1976 | 1991 | 2032 | 113.33 % | 43.53 % | 17 | | $972,096.86 | $2,233,267 |
| D5090 | Other Electrical Systems | $1.41 | S.F. | 171,922 | 30 | 1976 | 2006 | 2047 | 106.67 % | 49.58 % | 32 | | $120,194.90 | $242,410 |
| E1020720 | Laboratory Equipment, S.F. | $2.90 | S.F. | 171,922 | 20 | 1976 | 1996 | 2020 | 25.00 % | 0.00 % | 5 | | | $498,574 |
| E1020810 | Medical Equipment, S.F. | $3.58 | S.F. | 171,922 | 15 | 1976 | 1991 | 2020 | 33.33 % | 0.00 % | 5 | | | $615,481 |
| E1030110 | Vehicular Service Equipment, S.F. | $3.78 | S.F. | 171,922 | 25 | 1976 | 2001 | 2020 | 20.00 % | 0.00 % | 5 | | | $649,865 |
| E1090360 | Food Service Equipment, S.F. | $6.78 | S.F. | 171,922 | 15 | 1976 | 1991 | 2020 | 33.33 % | 0.00 % | 5 | | | $1,165,631 |
| E1090620 | Mechanical & Manufacturing Equipment, S.F. | $6.49 | S.F. | 171,922 | 20 | 1976 | 1996 | 2020 | 25.00 % | 0.00 % | 5 | | | $1,115,774 |
| E1090620 | School Equipment, S.F. | $4.84 | S.F. | 171,922 | 20 | 1976 | 1996 | 2020 | 25.00 % | 0.00 % | 5 | | | $832,102 |
| E2010 | Fixed Furnishings | $3.58 | S.F. | 171,922 | 40 | 1976 | 2016 | 2020 | 12.50 % | 0.00 % | 5 | | | $615,481 |
| | | | | | | | | **Total** | **56.60 %** | **24.10 %** | | | **$20,887,621.45** | **$86,676,820** |

## System Notes

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

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

**Note:**
painted block or painted gypsum board 80%
unpainted block 5%
metal wall partitions 15%

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

**Note:**
Concrete – 61,000 35%
Wood - 0
VCT - 171,922 53%
Carpet- 3,500 2%
CT/terrazzo - 18,600 10%

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

**Note:**
Acoustical tile ceilings - 67%
Exposed steel structure (painted) 33%

## 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:** | **$20,887,621** | **$0** | **$0** | **$0** | **$0** | **$28,967,397** | **$0** | **$0** | **$0** | **$3,331,141** | **$0** | **$53,186,159** |
| *** 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** |
| **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** |
| **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** | $3,229 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$3,229** |
| **B2020 - Exterior Windows** | $3,832,852 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$3,832,852** |
| **B2030 - Exterior Doors** | $450,716 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$450,716** |
| **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** | $109,238 | $0 | $0 | $0 | $0 | $5,949,805 | $0 | $0 | $0 | $0 | $0 | **$6,059,043** |
| **B3010120 - Single Ply Membrane** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **B3010130 - Preformed Metal Roofing** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **B3010140 - Shingle & Tile** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **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** | $957,948 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$957,948** |
| **C1020 - Interior Doors** | $577,729 | $0 | $0 | $0 | $0 | $824,324 | $0 | $0 | $0 | $0 | $0 | **$1,402,053** |
| **C1030 - Fittings** | $25,186 | $0 | $0 | $0 | $0 | $903,250 | $0 | $0 | $0 | $0 | $0 | **$928,435** |
| **C20 - Stairs** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **C2010 - Stair Construction** | $84,026 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$84,026** |
| **C2020 - Stair Finishes** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |

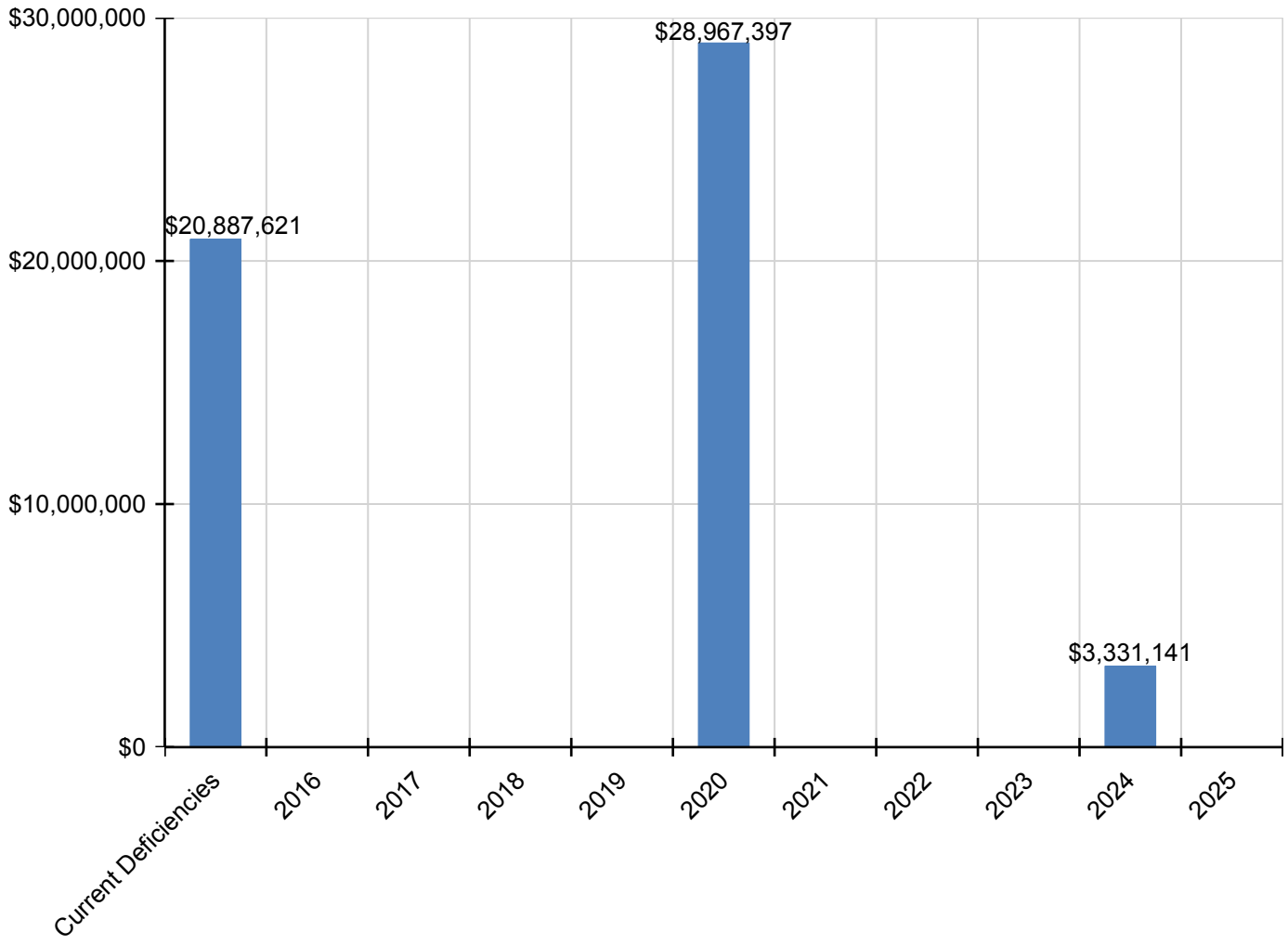
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C30 - Interior Finishes** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **C3010 - Wall Finishes** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **C3010230 - Paint & Covering** | $103,327 | $0 | $0 | $0 | $0 | $2,896,097 | $0 | $0 | $0 | $0 | $0 | **$2,999,424** |
| **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** | $39,168 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$39,168** |
| **C3020412 - Terrazzo & Tile** | $2,179 | $0 | $0 | $0 | $0 | $1,791,240 | $0 | $0 | $0 | $0 | $0 | **$1,793,418** |
| **C3020413 - Vinyl Flooring** | $961,403 | $0 | $0 | $0 | $0 | $2,122,196 | $0 | $0 | $0 | $0 | $0 | **$3,083,599** |
| **C3020414 - Wood Flooring** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **C3020415 - Concrete Floor Finishes** | $1,078,798 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$1,078,798** |
| **C3030 - Ceiling Finishes** | $1,727,270 | $0 | $0 | $0 | $0 | $4,597,362 | $0 | $0 | $0 | $0 | $0 | **$6,324,632** |
| **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** | $16,183 | $0 | $0 | $0 | $0 | $335,430 | $0 | $0 | $0 | $0 | $0 | **$351,613** |
| **D20 - Plumbing** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D2010 - Plumbing Fixtures** | $889,475 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$889,475** |
| **D2020 - Domestic Water Distribution** | $715,041 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$715,041** |
| **D2030 - Sanitary Waste** | $746,137 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$746,137** |
| **D2040 - Rain Water Drainage** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D30 - HVAC** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D3020 - Heat Generating Systems** | $458,527 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$458,527** |
| **D3030 - Cooling Generating Systems** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D3040 - Distribution Systems** | $1,514,373 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$1,514,373** |
| **D3050 - Terminal & Package Units** | $0 | $0 | $0 | $0 | $0 | $2,543,129 | $0 | $0 | $0 | $0 | $0 | **$2,543,129** |
| **D3060 - Controls & Instrumentation** | $510,826 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $3,331,141 | $0 | **$3,841,967** |
| **D40 - Fire Protection** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D4010 - Sprinklers** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D4020 - Standpipes** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D50 - Electrical** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **D5010 - Electrical Service/Distribution** | $1,313,906 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$1,313,906** |
| **D5020 - Lighting and Branch Wiring** | $3,677,794 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$3,677,794** |
| **D5030 - Communications and Security** | $972,097 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$972,097** |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **D5090 - Other Electrical Systems** | $120,195 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$120,195** |
| **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** |
| **E1020720 - Laboratory Equipment, S.F.** | $0 | $0 | $0 | $0 | $0 | $635,782 | $0 | $0 | $0 | $0 | $0 | **$635,782** |
| **E1020810 - Medical Equipment, S.F.** | $0 | $0 | $0 | $0 | $0 | $784,862 | $0 | $0 | $0 | $0 | $0 | **$784,862** |
| **E1030 - Vehicular Equipment** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **E1030110 - Vehicular Service Equipment, S.F.** | $0 | $0 | $0 | $0 | $0 | $828,709 | $0 | $0 | $0 | $0 | $0 | **$828,709** |
| **E1090 - Other Equipment** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **E1090360 - Food Service Equipment, S.F.** | $0 | $0 | $0 | $0 | $0 | $1,486,414 | $0 | $0 | $0 | $0 | $0 | **$1,486,414** |
| **E1090620 - Mechanical & Manufacturing Equipment, S.F.** | $0 | $0 | $0 | $0 | $0 | $1,422,836 | $0 | $0 | $0 | $0 | $0 | **$1,422,836** |
| **E1090620 - School Equipment, S.F.** | $0 | $0 | $0 | $0 | $0 | $1,061,099 | $0 | $0 | $0 | $0 | $0 | **$1,061,099** |
| **E20 - Furnishings** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **E2010 - Fixed Furnishings** | $0 | $0 | $0 | $0 | $0 | $784,862 | $0 | $0 | $0 | $0 | $0 | **$784,862** |

** Indicates non-renewable system*

## Forecasted Sustainment Requirement

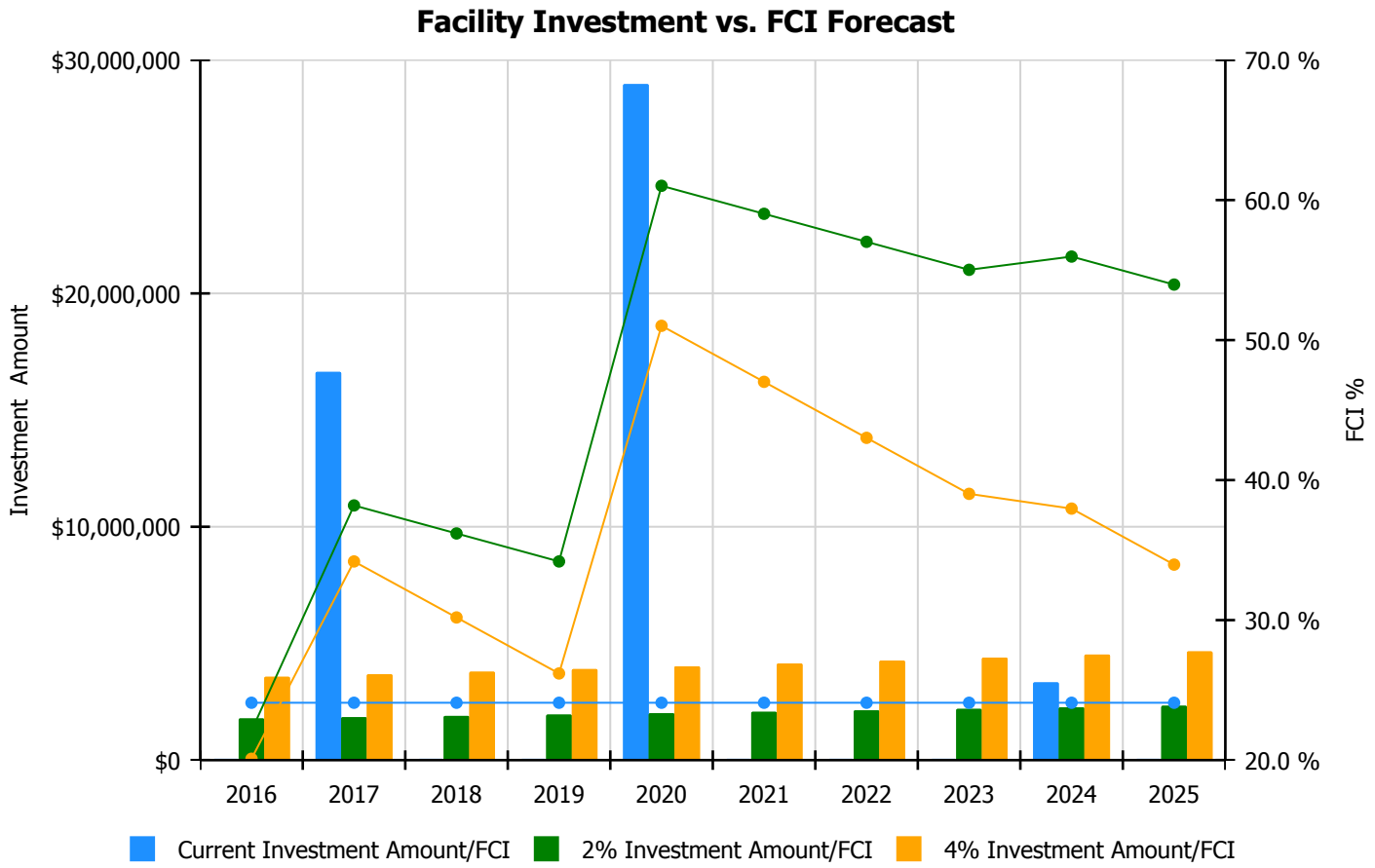
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



## 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:

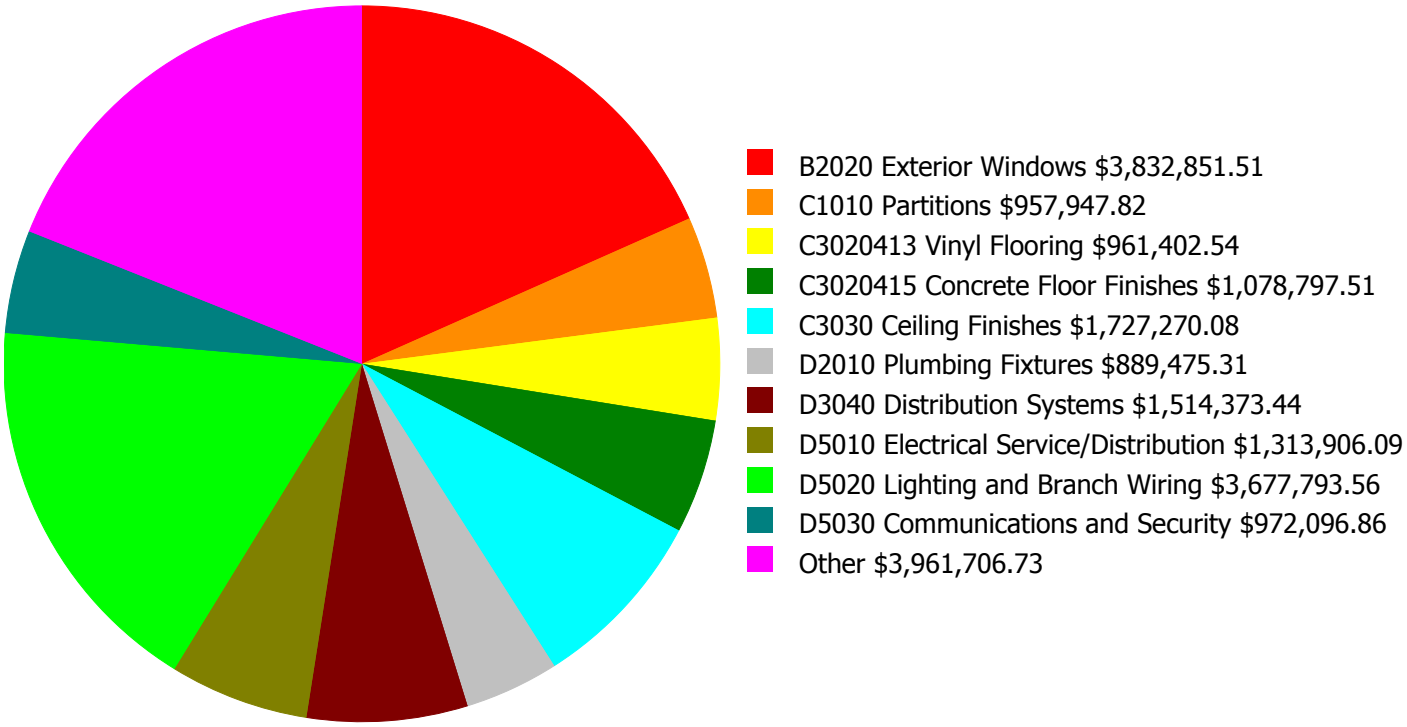
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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




| Year | Investment Amount Current FCI - 24.1% | 2% Investment | | 4% Investment | |
|---|---|---|---|---|---|
| | | Amount | FCI | Amount | FCI |
| 2016 | $0 | $1,785,542.00 | 22.10 % | $3,571,085.00 | 20.10 % |
| 2017 | $16,636,065 | $1,839,109.00 | 38.19 % | $3,678,218.00 | 34.19 % |
| 2018 | $0 | $1,894,282.00 | 36.19 % | $3,788,564.00 | 30.19 % |
| 2019 | $0 | $1,951,110.00 | 34.19 % | $3,902,221.00 | 26.19 % |
| 2020 | $28,967,397 | $2,009,644.00 | 61.02 % | $4,019,288.00 | 51.02 % |
| 2021 | $0 | $2,069,933.00 | 59.02 % | $4,139,866.00 | 47.02 % |
| 2022 | $0 | $2,132,031.00 | 57.02 % | $4,264,062.00 | 43.02 % |
| 2023 | $0 | $2,195,992.00 | 55.02 % | $4,391,984.00 | 39.02 % |
| 2024 | $3,331,141 | $2,261,872.00 | 55.96 % | $4,523,744.00 | 37.96 % |
| 2025 | $0 | $2,329,728.00 | 53.96 % | $4,659,456.00 | 33.96 % |
| **Total:** | **$48,934,603** | **$20,469,243.00** | | **$40,938,488.00** | |

## Deficiency Summary by System

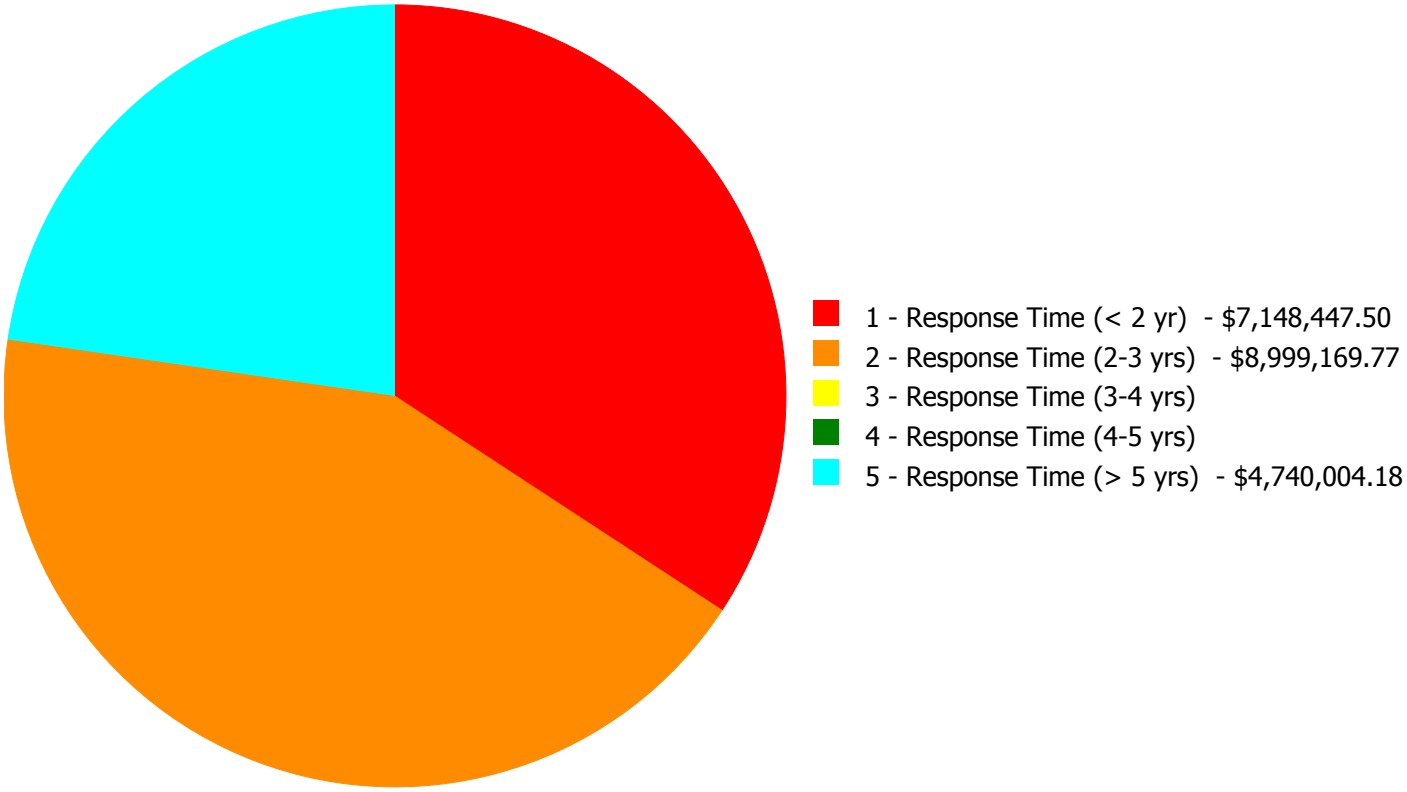
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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




**Budget Estimate Total: $20,887,621.45**

## 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: $20,887,621.45**

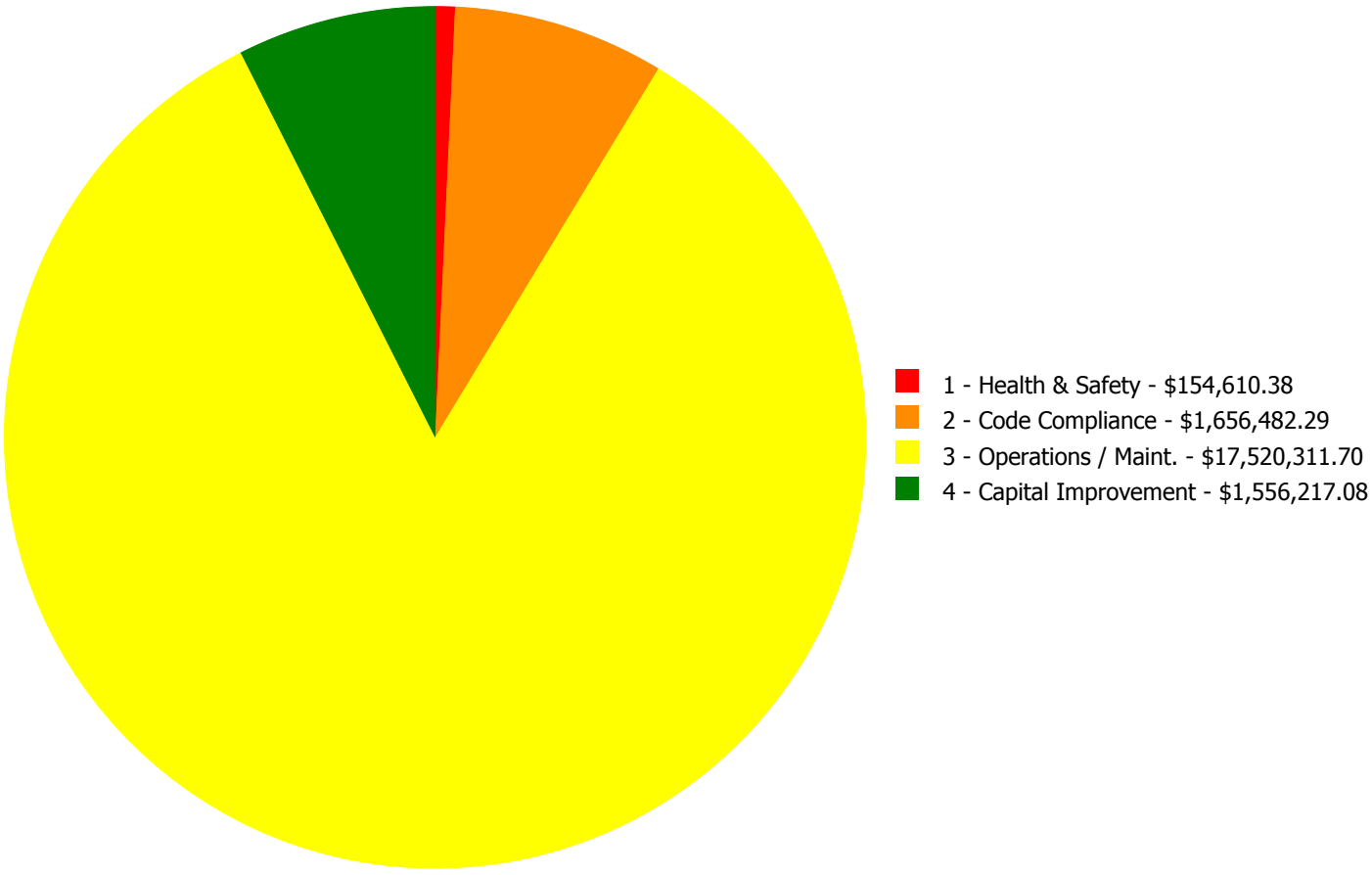
## Deficiency By Priority Investment Table

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

| System Code | System Description | 1 - Response Time (< 2 yr) | 2 - Response Time (2-3 yrs) | 3 - Response Time (3-4 yrs) | 4 - Response Time (4-5 yrs) | 5 - Response Time (> 5 yrs) | Total |
|---|---|---|---|---|---|---|---|
| B2010 | Exterior Walls | $0.00 | $3,228.94 | $0.00 | $0.00 | $0.00 | $3,228.94 |
| B2020 | Exterior Windows | $0.00 | $3,832,851.51 | $0.00 | $0.00 | $0.00 | $3,832,851.51 |
| B2030 | Exterior Doors | $0.00 | $450,716.35 | $0.00 | $0.00 | $0.00 | $450,716.35 |
| B3010105 | Built-Up | $22,482.57 | $86,755.61 | $0.00 | $0.00 | $0.00 | $109,238.18 |
| C1010 | Partitions | $957,947.82 | $0.00 | $0.00 | $0.00 | $0.00 | $957,947.82 |
| C1020 | Interior Doors | $0.00 | $577,728.83 | $0.00 | $0.00 | $0.00 | $577,728.83 |
| C1030 | Fittings | $0.00 | $25,185.66 | $0.00 | $0.00 | $0.00 | $25,185.66 |
| C2010 | Stair Construction | $84,025.70 | $0.00 | $0.00 | $0.00 | $0.00 | $84,025.70 |
| C3010230 | Paint & Covering | $0.00 | $103,327.00 | $0.00 | $0.00 | $0.00 | $103,327.00 |
| C3020411 | Carpet | $0.00 | $39,167.67 | $0.00 | $0.00 | $0.00 | $39,167.67 |
| C3020412 | Terrazzo & Tile | $0.00 | $2,178.56 | $0.00 | $0.00 | $0.00 | $2,178.56 |
| C3020413 | Vinyl Flooring | $0.00 | $961,402.54 | $0.00 | $0.00 | $0.00 | $961,402.54 |
| C3020415 | Concrete Floor Finishes | $0.00 | $1,078,797.51 | $0.00 | $0.00 | $0.00 | $1,078,797.51 |
| C3030 | Ceiling Finishes | $0.00 | $1,727,270.08 | $0.00 | $0.00 | $0.00 | $1,727,270.08 |
| D1010 | Elevators and Lifts | $0.00 | $16,183.02 | $0.00 | $0.00 | $0.00 | $16,183.02 |
| D2010 | Plumbing Fixtures | $0.00 | $94,376.49 | $0.00 | $0.00 | $795,098.82 | $889,475.31 |
| D2020 | Domestic Water Distribution | $0.00 | $0.00 | $0.00 | $0.00 | $715,041.24 | $715,041.24 |
| D2030 | Sanitary Waste | $0.00 | $0.00 | $0.00 | $0.00 | $746,137.11 | $746,137.11 |
| D3020 | Heat Generating Systems | $0.00 | $0.00 | $0.00 | $0.00 | $458,527.12 | $458,527.12 |
| D3040 | Distribution Systems | $0.00 | $0.00 | $0.00 | $0.00 | $1,514,373.44 | $1,514,373.44 |
| D3060 | Controls & Instrumentation | $0.00 | $0.00 | $0.00 | $0.00 | $510,826.45 | $510,826.45 |
| D5010 | Electrical Service/Distribution | $1,313,906.09 | $0.00 | $0.00 | $0.00 | $0.00 | $1,313,906.09 |
| D5020 | Lighting and Branch Wiring | $3,677,793.56 | $0.00 | $0.00 | $0.00 | $0.00 | $3,677,793.56 |
| D5030 | Communications and Security | $972,096.86 | $0.00 | $0.00 | $0.00 | $0.00 | $972,096.86 |
| D5090 | Other Electrical Systems | $120,194.90 | $0.00 | $0.00 | $0.00 | $0.00 | $120,194.90 |
| | **Total:** | $7,148,447.50 | $8,999,169.77 | $0.00 | $0.00 | $4,740,004.18 | $20,887,621.45 |

## 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: $20,887,621.45**

## Deficiency Details by Priority

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

### Priority 1 - Response Time (< 2 yr):

**System: B3010105 - Built-Up**

**Location:** roof
**Distress:** Damaged
**Category:** 3 - Operations / Maint.
**Priority:** 1 - Response Time (< 2 yr)
**Correction:** Blister or membrane repair - partial areas
**Qty:** 1,000.00
**Unit of Measure:** S.F.
**Estimate:** $20,345.84
**Assessor Name:** Craig Anding
**Date Created:** 12/14/2015

**Notes:** Repair bubbles in roof membrane (50 major bubbles @ 10sf each area + small bubbles = 1000sf)

**System: B3010105 - Built-Up**

**Location:** roof
**Distress:** Failing
**Category:** 3 - Operations / Maint.
**Priority:** 1 - Response Time (< 2 yr)
**Correction:** Replace stripping (gravel stop) at the edge of roof
**Qty:** 100.00
**Unit of Measure:** L.F.
**Estimate:** $2,136.73
**Assessor Name:** Craig Anding
**Date Created:** 12/14/2015

**Notes:** Repair separating coping (12 pieces 100ft)

**System: C1010 - Partitions**

**Location:** 2nd floor

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

**Priority:** 1 - Response Time (< 2 yr)

**Correction:** Install fire rated walls and door where required - insert number of doors

**Qty:** 40,000.00

**Unit of Measure:** S.F.

**Estimate:** $923,323.20

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace second floor gypsum board corridor partitions with full height 1 hour fire rated gypsum board partitions (40,000sf)

**System: C1010 - Partitions**

**Location:** 2nd floor corridor at Rm 216

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

**Priority:** 1 - Response Time (< 2 yr)

**Correction:** Install fire rated walls and door where required - insert number of doors

**Qty:** 1,500.00

**Unit of Measure:** S.F.

**Estimate:** $34,624.62

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Provide new fire rated gypsum board corridor to eliminate 65 ft dead end corridor at Classroom 216 (1500sf)

**System: C2010 - Stair Construction**

**Location:** stairs

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

**Priority:** 1 - Response Time (< 2 yr)

**Correction:** Replace inadequate or install proper stair railing - select appropriate material

**Qty:** 150.00

**Unit of Measure:** L.F.

**Estimate:** $71,058.90

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** New code compliant handrails, 4" spaced balusters, and guards on stairways (6 stairways) x 25ft handrail+guard = 150ft;. 25ft handrail on walls = 150ft, and 8ft guard at top of each stairway = 50ft.

**System: C2010 - Stair Construction**

**Location:** roof

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

**Priority:** 1 - Response Time (< 2 yr)

**Correction:** Replace inadequate or install proper stair railing - select appropriate material

**Qty:** 72.00

**Unit of Measure:** L.F.

**Estimate:** $12,966.80

**Assessor Name:** Craig Anding

**Date Created:** 12/14/2015

**Notes:** New rooftop-mounted stairs ("stiles") constructed of open galvanized grating with 2-rail industrial handrails and guards on roof to allow for passage from different roofs at different heights and over piping (1 stair @ 8 risers; 2 stairs @ 6 risers; 2 stairs @ 10 risers)

**System: D5010 - Electrical Service/Distribution**

**Location:** Entire Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 1 - Response Time (< 2 yr)

**Correction:** Replace Electrical Distribution System (U)

**Qty:** 1.00

**Unit of Measure:** Ea.

**Estimate:** $777,892.24

**Assessor Name:** Craig Anding

**Date Created:** 11/10/2015

**Notes:** Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash label on the electrical equipment. Estimated 20 panel boards.

---

**System: D5010 - Electrical Service/Distribution**

**Location:** Main Electrical Room

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 1 - Response Time (< 2 yr)

**Correction:** Replace Substation

**Qty:** 0.00

**Unit of Measure:** Ea.

**Estimate:** $536,013.85

**Assessor Name:** Craig Anding

**Date Created:** 11/10/2015

**Notes:** Upgrade the existing electrical service with a new service. Replace the existing substation with a new 4000A, 480/277V, 3PH, 4 wire substation including 3000KVA transformer, 600A, medium voltage fuse disconnect, and 4 section low voltage switchboard.

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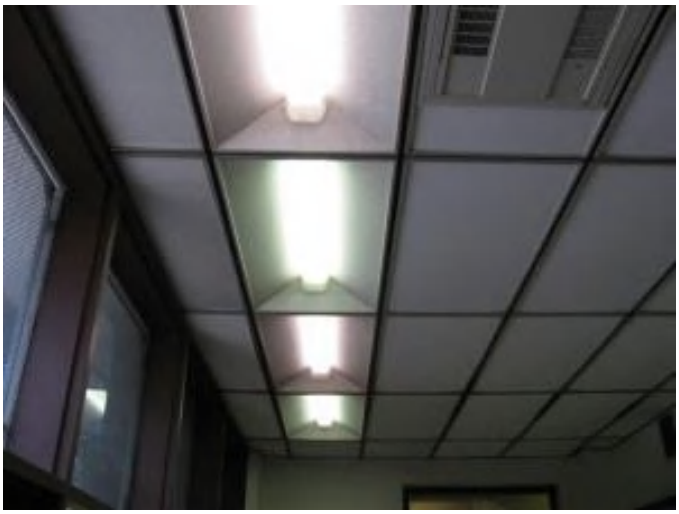
**System: D5020 - Lighting and Branch Wiring**



**Location:** Entire Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 1 - Response Time (< 2 yr)

**Correction:** Replace Lighting Fixtures (SF)

**Qty:** 1.00

**Unit of Measure:** S.F.

**Estimate:** $2,602,098.25

**Assessor Name:** Craig Anding

**Date Created:** 11/10/2015

**Notes:** Replace all the lighting fixtures with T12 lamps with new fluorescent lighting fixtures with T-5 lamp throughout all buildings. Estimated 90% of the fixtures.

**System: D5020 - Lighting and Branch Wiring**

**Location:** Entire Building

**Distress:** Inadequate

**Category:** 4 - Capital Improvement

**Priority:** 1 - Response Time (< 2 yr)

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

**Qty:** 1.00

**Unit of Measure:** S.F.

**Estimate:** $1,045,390.63

**Assessor Name:** Craig Anding

**Date Created:** 11/10/2015

**Notes:** Install minimum two receptacles in each wall of class rooms. It is recommend that surface mounted raceway with tow-compartment, for data and power, be installed in the computer lab room.

**System: D5020 - Lighting and Branch Wiring**


**Location:** Entire Building
**Distress:** Damaged
**Category:** 3 - Operations / Maint.
**Priority:** 1 - Response Time (< 2 yr)
**Correction:** Replace lighting fixtures
**Qty:** 1.00
**Unit of Measure:** Ea.
**Estimate:** $30,304.68
**Assessor Name:** Craig Anding
**Date Created:** 11/10/2015

**Notes:** Replace damaged exit signs with new battery pack type exit signs. Estimated 30 each.

**System: D5030 - Communications and Security**

**Location:** Entire Building
**Distress:** Beyond Service Life
**Category:** 3 - Operations / Maint.
**Priority:** 1 - Response Time (< 2 yr)
**Correction:** Replace fire alarm system
**Qty:** 1.00
**Unit of Measure:** S.F.
**Estimate:** $972,096.86
**Assessor Name:** Craig Anding
**Date Created:** 11/10/2015

**Notes:** Replace existing fire alarm system with a new automatic Fire Alarm System including control panel, initiated devices in corridors, air ducts, electrical and LAN rooms, library, and computer rooms. Provide notification devices in class rooms, offices, auditorium, corridors, other area recommended by codes.

**System: D5090 - Other Electrical Systems**

| | |
|---|---|
| **Location:** | Basement |
| **Distress:** | Life Safety / NFPA / PFD |
| **Category:** | 1 - Health & Safety |
| **Priority:** | 1 - Response Time (< 2 yr) |
| **Correction:** | Replace standby generator system |
| **Qty:** | 1.00 |
| **Unit of Measure:** | Ea. |
| **Estimate:** | $120,194.90 |
| **Assessor Name:** | Craig Anding |
| **Date Created:** | 11/10/2015 |

**Notes:** Replace existing generator with new 50KW generator

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

**System: B2010 - Exterior Walls**

**Location:** exterior

**Distress:** Failing

**Category:** 3 - Operations / Maint.

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

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

**Qty:** 100.00

**Unit of Measure:** S.F.

**Estimate:** $3,228.94

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Brick pointing and repair over roll-up doors, windows and on brick at roof (100sf)

**System: B2020 - Exterior Windows**

**Location:** exeterior walls

**Distress:** Failing

**Category:** 3 - Operations / Maint.

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

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

**Qty:** 700.00

**Unit of Measure:** Ea.

**Estimate:** $3,832,851.51

**Assessor Name:** Craig Anding

**Date Created:** 12/14/2015

**Notes:** Replace all exterior windows with new insulated glazing systems (24)1'x6'; (45)3'x8' with 2'x4' panels above and below; (130) 3'x8' individual windows; (500)2'x4' continuous band.

**System: B2030 - Exterior Doors**

**Location:** exterior walls

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

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

**Correction:** Remove and replace exterior doors - per leaf

**Qty:** 40.00

**Unit of Measure:** Ea.

**Estimate:** $309,435.66

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace exterior metal doors, hardware, and frames (40)3x7

**System: B2030 - Exterior Doors**

**Location:** automobile, carpentry, masonry shop exter walls

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

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

**Qty:** 16.00

**Unit of Measure:** Ea.

**Estimate:** $141,280.69

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace rollup doors in automotive, masonry, and wood shops with insulated coiling roll up doors (16) 10’x15’ (average size)

**System: B3010105 - Built-Up**

**Location:** roof

**Distress:** Failing

**Category:** 3 - Operations / Maint.

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

**Correction:** Repair pourable pockets for rooftop mounted items

**Qty:** 100.00

**Unit of Measure:** Ea.

**Estimate:** $69,637.51

**Assessor Name:** Craig Anding

**Date Created:** 12/14/2015

**Notes:** Re-flash bases of equipment and pipe supports, believed to be the cause of roof leaks (100 supports)

**System: B3010105 - Built-Up**

**Location:** roof

**Distress:** Failing

**Category:** 3 - Operations / Maint.

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

**Correction:** Remove and replace or replace parapet caps - BUR

**Qty:** 200.00

**Unit of Measure:** L.F.

**Estimate:** $17,118.10

**Assessor Name:** Craig Anding

**Date Created:** 12/14/2015

**Notes:** Repair separating flashing along parapet over auto shop entrance doors (200sf)

**System: C1020 - Interior Doors**

**Location:** corridors

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

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

**Correction:** Remove and replace interior doors - wood doors with hollow metal frames - per leaf

**Qty:** 100.00

**Unit of Measure:** Ea.

**Estimate:** $477,058.71

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace severely damaged wood doors in corridors, bathrooms, cafeteria, auditorium and other locations with fire rated doors and hardware (100) 3x7

**System: C1020 - Interior Doors**

**Location:** interior room doors

**Distress:** Appearance

**Category:** 3 - Operations / Maint.

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

**Correction:** Refinish interior doors

**Qty:** 50.00

**Unit of Measure:** Ea.

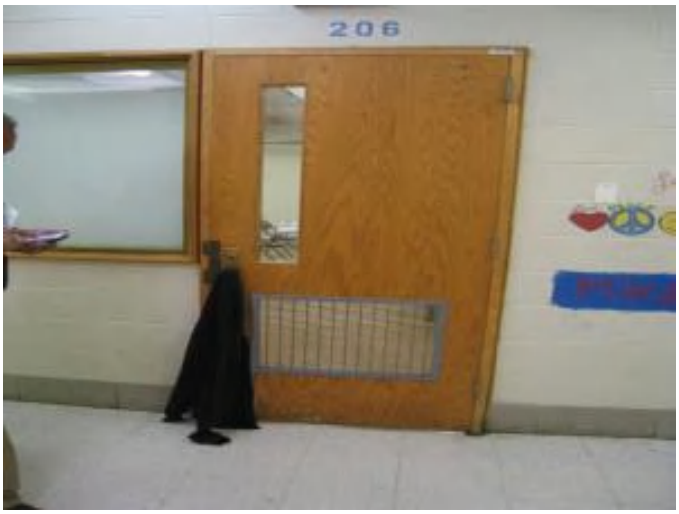
**Estimate:** $41,409.15

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Refinish wood doors into closets and other interior room locations with minor damages (50) 3x7

**System: C1020 - Interior Doors**




**Location:** corridor classroom and public spaces

**Distress:** Security Issue

**Category:** 1 - Health & Safety

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

**Correction:** Provide security hardware for classroom and office doors

**Qty:** 150.00

**Unit of Measure:** Ea.

**Estimate:** $34,415.48

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Provide security hardware for classrooms and offices, locking from the inside of the room (150)

**System: C1020 - Interior Doors**

**Location:** mech room, stair doors

**Distress:** Appearance

**Category:** 3 - Operations / Maint.

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

**Correction:** Refinish interior doors

**Qty:** 30.00

**Unit of Measure:** Ea.

**Estimate:** $24,845.49

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Repaint steel doors and metal frames in mechanical rooms, stairs, and basement (30) 3x7

**System: C1030 - Fittings**

**Location:** toilet rooms

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

**Correction:** Remove and replace toilet partitions

**Qty:** 8.00

**Unit of Measure:** Ea.

**Estimate:** $20,531.24

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace transite toilet room partitions and graffiti'ed plastic partitions with new plastic (phenolic resin) partitions (estimated 8 toilet compartments)

**System: C1030 - Fittings**

**Location:** toilet rooms

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

**Correction:** Replace toilet accessories - select accessories and quantity

**Qty:** 4.00

**Unit of Measure:** Ea.

**Estimate:** $4,654.42

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Provide toilet room accessories where partitions are replaced, including new HC accessories and grab bars as required by code (approximately 4 groups)

**System: C3010230 - Paint & Covering**

**Location:** roof top equipment (supports)

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

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

**Qty:** 6,400.00

**Unit of Measure:** S.F.

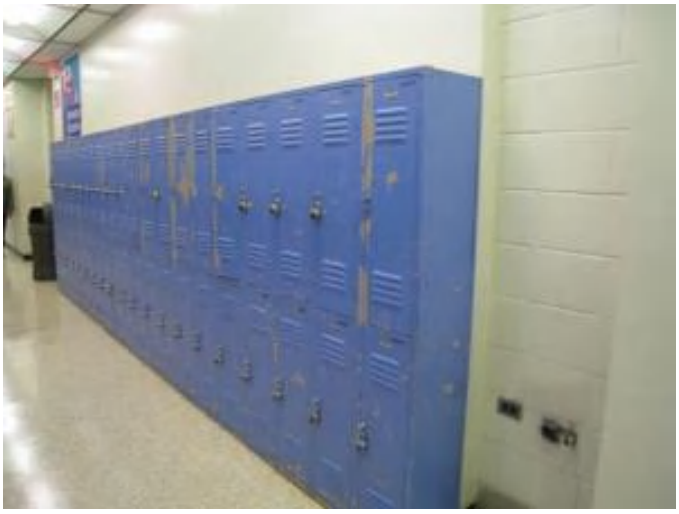
**Estimate:** $54,829.29

**Assessor Name:** Craig Anding

**Date Created:** 12/14/2015

**Notes:** Repaint steel equipment supports under rooftop equipment and ductwork (58 RTUs @100sf each = 5800sf; duct 200ft and supports (20sf) at 5' oc = 800sf; 6400sf total painted steel beam support surface area.

**System: C3010230 - Paint & Covering**



**Location:** corridors

**Distress:** Appearance

**Category:** 3 - Operations / Maint.

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

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

**Qty:** 6,000.00

**Unit of Measure:** S.F.

**Estimate:** $48,497.71

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

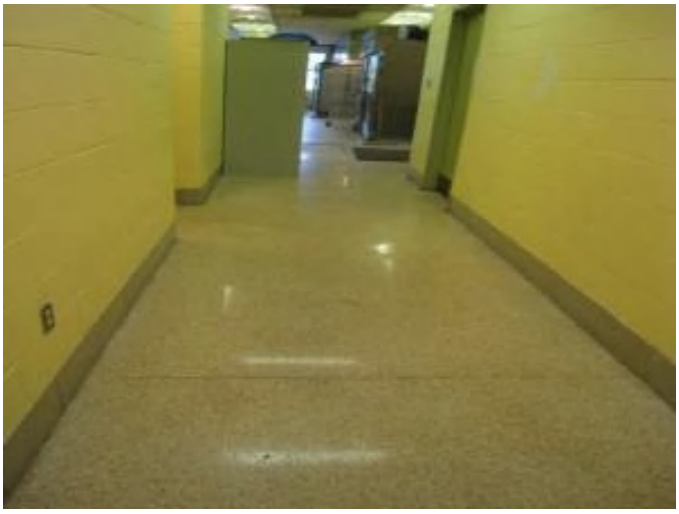
**Notes:** Repaint lockers in hallways (estimated 1000)

**System: C3020411 - Carpet**

**Location:** cullinary arts and offices
**Distress:** Beyond Service Life
**Category:** 3 - Operations / Maint.
**Priority:** 2 - Response Time (2-3 yrs)
**Correction:** Remove and replace carpet
**Qty:** 3,500.00
**Unit of Measure:** S.F.
**Estimate:** $39,167.67
**Assessor Name:** Craig Anding
**Date Created:** 12/15/2015

**Notes:** Replace carpet in offices and culinary arts area (3,500sf)

**System: C3020412 - Terrazzo & Tile**



**Location:** culinary kitchen areas
**Distress:** Damaged
**Category:** 3 - Operations / Maint.
**Priority:** 2 - Response Time (2-3 yrs)
**Correction:** Refinish terrazzo or tile flooring
**Qty:** 100.00
**Unit of Measure:** S.F.
**Estimate:** $2,178.56
**Assessor Name:** Craig Anding
**Date Created:** 12/15/2015

**Notes:** Repair cracked terrazzo in culinary kitchen areas. (100sf)

**System: C3020413 - Vinyl Flooring**

**Location:** interiors

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

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

**Correction:** Remove and replace VCT

**Qty:** 80,000.00

**Unit of Measure:** S.F.

**Estimate:** $961,402.54

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace roughly half of VCT (all corridors and some classrooms) where worn, cracked, damaged, dirty, and previously repaired with mismatching tiles (80,000sf)

**System: C3020415 - Concrete Floor Finishes**

**Location:** upper (2nd) floor

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

**Correction:** Repair spalled concrete floor surface

**Qty:** 20,000.00

**Unit of Measure:** S.F.

**Estimate:** $774,309.53

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Provide flash-patch in lumpy areas of second floor slab to receive new VCT (20,000sf)

**System: C3020415 - Concrete Floor Finishes**

**Location:** automotive shop and gym

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

**Correction:** Prepare and repaint concrete floor

**Qty:** 35,800.00

**Unit of Measure:** S.F.

**Estimate:** $207,605.74

**Assessor Name:** Craig Anding

**Date Created:** 12/14/2015

**Notes:** Repair cracks in slabs on grade in automotive shop (400 lf)

**System: C3020415 - Concrete Floor Finishes**

**Location:** stairways, masonry shop, carpentry, and general maintenance area

**Distress:** Appearance

**Category:** 3 - Operations / Maint.

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

**Correction:** Clean and reseal concrete floors

**Qty:** 25,200.00

**Unit of Measure:** S.F.

**Estimate:** $96,882.24

**Assessor Name:** Craig Anding

**Date Created:** 12/14/2015

**Notes:** Strip and reseal concrete floors in stairways, masonry shop, carpentry, and general maintenance area (25,200sf)

**System: C3030 - Ceiling Finishes**

**Location:** 1st and 2nd floor ceilings

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

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

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

**Qty:** 114,522.00

**Unit of Measure:** S.F.

**Estimate:** $1,727,270.08

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace all suspended acoustical tile ceilings in first and second floor with standard 2'x4' system (114,522sf)

**System: D1010 - Elevators and Lifts**

**Location:** elevator

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

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

**Correction:** Modernize or upgrade the elevator cab or to comply with ADA - exact scope of work estimate not available - total cost is sufficient

**Qty:** 1.00

**Unit of Measure:** Ea.

**Estimate:** $16,183.02

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Upgrade elevator to include today's ADA signage, audio, and visual features.

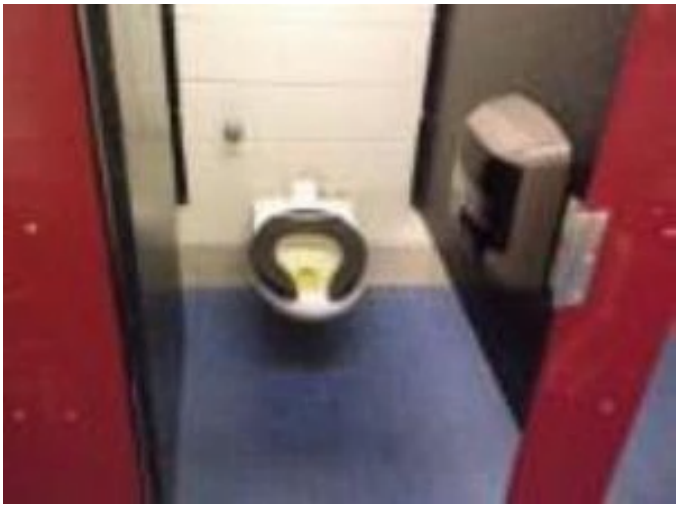
**System: D2010 - Plumbing Fixtures**

| | |
|---|---|
| **Location:** | Throughout Building |
| **Distress:** | Beyond Service Life |
| **Category:** | 3 - Operations / Maint. |
| **Priority:** | 2 - Response Time (2-3 yrs) |
| **Correction:** | Remove and replace wall janitor or mop sink - insert the quantity |
| **Qty:** | 12.00 |
| **Unit of Measure:** | Ea. |
| **Estimate:** | $94,376.49 |
| **Assessor Name:** | Craig Anding |
| **Date Created:** | 02/03/2016 |

**Notes:** Replace the original service sinks in the janitor closets.

## Priority 5 - Response Time (> 5 yrs):

**System: D2010 - Plumbing Fixtures**



**Location:** Throughout Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 5 - Response Time (> 5 yrs)

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

**Qty:** 48.00

**Unit of Measure:** Ea.

**Estimate:** $358,183.10

**Assessor Name:** Craig Anding

**Date Created:** 02/03/2016

**Notes:** Replace the original water closets with low flow fixtures.

---

**System: D2010 - Plumbing Fixtures**

**Location:** Throughout Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 5 - Response Time (> 5 yrs)

**Correction:** Remove and replace or replace lavatory - quantify accessible if required

**Qty:** 50.00

**Unit of Measure:** Ea.

**Estimate:** $190,550.63

**Assessor Name:** Craig Anding

**Date Created:** 02/03/2016

**Notes:** Replace the original lavatories with low flow fixtures.

---

**System: D2010 - Plumbing Fixtures**

**Location:** Throughout Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 5 - Response Time (> 5 yrs)

**Correction:** Remove and replace or replace stall or floor type urinal

**Qty:** 24.00

**Unit of Measure:** Ea.

**Estimate:** $125,098.05

**Assessor Name:** Craig Anding

**Date Created:** 02/03/2016

**Notes:** Replace the original urinals with low flow fixtures.

**System: D2010 - Plumbing Fixtures**

**Location:** Throughout Building

**Distress:** Accessibility

**Category:** 2 - Code Compliance

**Priority:** 5 - Response Time (> 5 yrs)

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

**Qty:** 16.00

**Unit of Measure:** Ea.

**Estimate:** $121,267.04

**Assessor Name:** Craig Anding

**Date Created:** 02/03/2016

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

**System: D2020 - Domestic Water Distribution**

**Location:** Throughout Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 5 - Response Time (> 5 yrs)

**Correction:** Replace domestic water piping (250 KSF)

**Qty:** 171,922.00

**Unit of Measure:** S.F.

**Estimate:** $715,041.24

**Assessor Name:** Craig Anding

**Date Created:** 02/07/2016

**Notes:** Inspect and replace, as needed, the original the domestic water piping in service for more than 40 years.

**System: D2030 - Sanitary Waste**

**Location:** Throughout Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 5 - Response Time (> 5 yrs)

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

**Qty:** 171,922.00

**Unit of Measure:** S.F.

**Estimate:** $746,137.11

**Assessor Name:** Craig Anding

**Date Created:** 02/03/2016

**Notes:** Hire a qualified contractor to perform a detailed examination of the galvanized steel 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: D3020 - Heat Generating Systems**

**Location:** Site
**Distress:** Beyond Service Life
**Category:** 3 - Operations / Maint.
**Priority:** 5 - Response Time (> 5 yrs)
**Correction:** Replace fuel oil tank, underground (20,000 gal)
**Qty:** 20,000.00
**Unit of Measure:** Gal.
**Estimate:** $405,170.97
**Assessor Name:** Craig Anding
**Date Created:** 02/07/2016

**Notes:** Replace the 20,000 gallon underground storage tank (UST) installed before 2000 located underground.

**System: D3020 - Heat Generating Systems**

**Location:** Penthouse
**Distress:** Beyond Service Life
**Category:** 3 - Operations / Maint.
**Priority:** 5 - Response Time (> 5 yrs)
**Correction:** Replace fuel oil pumps
**Qty:** 2.00
**Unit of Measure:** Ea.
**Estimate:** $53,356.15
**Assessor Name:** Craig Anding
**Date Created:** 02/03/2016

**Notes:** Replace the original duplex fuel oil pumps.

**System: D3040 - Distribution Systems**


**Location:** Throughout Building

**Distress:** Beyond Service Life

**Category:** 3 - Operations / Maint.

**Priority:** 5 - Response Time (> 5 yrs)

**Correction:** Replace hydronic heating piping (150KSF)

**Qty:** 171,922.00

**Unit of Measure:** S.F.

**Estimate:** $1,514,373.44

**Assessor Name:** Craig Anding

**Date Created:** 02/07/2016

**Notes:** The District should hire a qualified contractor to examine the original heating distribution piping in service for nearly 40 years and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures.The piping is approaching the end of its service life and will require more frequent attention from the maintenance staff to address pipe/valve failures as time passes.

**System: D3060 - Controls & Instrumentation**


**Location:** Throughout Building

**Distress:** Energy Efficiency

**Category:** 4 - Capital Improvement

**Priority:** 5 - Response Time (> 5 yrs)

**Correction:** Recommission DDC Building Management System

**Qty:** 171,922.00

**Unit of Measure:** S.F.

**Estimate:** $510,826.45

**Assessor Name:** Craig Anding

**Date Created:** 02/07/2016

**Notes:** Perform retro-commissioning on building automation system.

## 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, cast iron, gas & oil, hot water, 6000 MBH | 3.00 | Ea. | PH | Cleaver Brooks | FLX 550 | BT7396 | | 35 | 2000 | 2035 | $212,590.70 | $701,549.31 |
| D3020 Heat Generating Systems | Boiler, cast iron, gas & oil, hot water, 6000 MBH | 3.00 | Ea. | PH | Cleaver Brooks | FLX 550 | BT7395 | | 35 | 2000 | 2035 | $212,590.70 | $701,549.31 |
| D3020 Heat Generating Systems | Boiler, cast iron, gas & oil, hot water, 6000 MBH | 3.00 | Ea. | PH | Cleaver Brooks | FLX 550 | BT7394 | | 35 | 2000 | 2035 | $212,590.70 | $701,549.31 |
| D3020 Heat Generating Systems | Pump, base mounted with motor, double suction, 6" size, 50 HP, to 1200 GPM | 2.00 | Ea. | secondary HHW pump | Aurora | 344A BF 4x5x8A | | | 35 | 2000 | 2035 | $43,918.10 | $96,619.82 |
| D3020 Heat Generating Systems | Pump, base mounted with motor, double suction, 6" size, 50 HP, to 1200 GPM | 2.00 | Ea. | secondary HHW pump | Aurora | 344A BF 4x5x8A | | | 35 | 2000 | 2035 | $43,918.10 | $96,619.82 |
| D3030 Cooling Generating Systems | Chiller, reciprocating, water cooled, standard controls, 200 ton | 2.00 | Ea. | Penthouse | | | | | 30 | 2000 | 2030 | $166,414.60 | $366,112.12 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-6 | Temtrol | WF-RD31 | 78731 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-9 | Temtrol | WF-RD24 | 78734 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-8 | Temtrol | WF-RD24 | 78733 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-7 | Temtrol | WF-RD20 | 78732 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-5 | Temtrol | WF-RD31 | 78730 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-4 | Temtrol | WF-RD31 | 78729 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-3 | Temtrol | WF-RD31 | 78728 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-2 | Temtrol | WF-RD31 | 78727 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 15,000 CFM | 9.00 | Ea. | RTU-1 | Temtrol | WF-RD31 | 78726 | | 25 | 2000 | 2025 | $139,092.80 | $1,377,018.72 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 5,000 CFM | 3.00 | Ea. | RTU-15 | Temtrol | WF-RD3 | 78724 | | 25 | 2000 | 2025 | $53,712.18 | $177,250.19 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 5,000 CFM | 3.00 | Ea. | RTU-14 | Temtrol | WF-RD6 | 78723 | | 25 | 2000 | 2025 | $53,712.18 | $177,250.19 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, constant volume, filters, 5,000 CFM | 3.00 | Ea. | RTU-13 | Temtrol | WF-RD6 | 78722 | | 25 | 2000 | 2025 | $53,712.18 | $177,250.19 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-8 | Temtrol | WF-RBZR19 | 78717 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-11 | Temtrol | WF-RBZR19 | 78720 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-12 | Temtrol | WF-RBZR20 | 78721 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-10 | Temtrol | WF-RBZR20 | 78719 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-7 | Temtrol | WF-RBZR24 | 78716 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-4 | Temtrol | WF-RBZR19 | 78713 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-5 | Temtrol | WF-RBZR24 | 78714 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-6 | Temtrol | WF-RBZR24 | 78715 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-3 | Temtrol | WF-RBZR24 | 78712 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-2 | Temtrol | WF-RBZR24 | 78711 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 15,000 CFM | 11.00 | Ea. | RTU-1 | Temtrol | WF-RBZR24 | 78710 | | 25 | 2000 | 2025 | $159,527.70 | $1,930,285.17 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 5,000 CFM | 2.00 | Ea. | RTU-16 | Temtrol | WF-RBZ7 | 78725A | | 25 | 2000 | 2025 | $57,240.30 | $125,928.66 |
| D3040 Distribution Systems | AHU, rooftop, cool/heat coils, VAV, filters, 5,000 CFM | 2.00 | Ea. | RTU-9 | Temtrol | WF-RBZR11 | 78718 | | 25 | 2000 | 2025 | $57,240.30 | $125,928.66 |
| D3040 Distribution Systems | Commercial kitchen exhaust/make-up air system, rooftop, gas,12,000 CFM | 2.00 | Ea. | MAU-2 | Temtrol | WF-RD20 | 78736 | | 25 | 2000 | 2025 | $116,738.60 | $256,824.92 |
| D3040 Distribution Systems | Commercial kitchen exhaust/make-up air system, rooftop, gas,12,000 CFM | 2.00 | Ea. | MAU-1 | Temtrol | WF-RD25 | 78735 | | 25 | 2000 | 2025 | $116,738.60 | $256,824.92 |
| D5010 Electrical Service/Distribution | Load interrupter switch, 2 position, 300 kVA & below, 13.8 kV, 600 amp w/CLF fuses, NEMA 1 | 1.00 | Ea. | Main Electrical Room | | | | | 30 | 1976 | 2017 | $42,600.60 | $46,860.66 |
| D5010 Electrical Service/Distribution | Switchboards, distribution section, aluminum bus bars, 4 W, 120/208 or 277/480 V, 4000 amp, excl breakers | 4.00 | Ea. | | | | | | 30 | 1976 | 2017 | $14,655.60 | $64,484.64 |
| D5010 Electrical Service/Distribution | Transformer, oil-filled, 15 kV with taps, 480 V secondary 3 phase, 3000 kVA, pad mounted | 1.00 | Ea. | Main Electrical Room | | | | | 30 | 1976 | 2017 | $96,876.00 | $106,563.60 |
| | | | | | | | | | | | | **Total:** | **$37,805,471.67** |

## Executive Summary

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

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

| | |
|---|---|
| Function: | |
| Gross Area (SF): | 367,100 |
| Year Built: | 1976 |
| Last Renovation: | |
| Replacement Value: | $5,645,072 |
| Repair Cost: | $587,939.00 |
| Total FCI: | 10.42 % |
| Total RSLI: | 41.18 % |


**Description:**

**Attributes:**

**General Attributes:**

| | | | |
|---|---|---|---|
| Bldg ID: | S809001 | Site ID: | S809001 |

## 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 | 41.64 % | 14.52 % | $587,939.00 |
| G40 - Site Electrical Utilities | 40.00 % | 0.00 % | $0.00 |
| **Totals:** | **41.18 %** | **10.42 %** | **$587,939.00** |

## 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. | 57,000 | 30 | 1976 | 2006 | 2027 | 40.00 % | 0.00 % | 12 | | | $656,640 |
| G2020 | Parking Lots | $7.65 | S.F. | 112,300 | 30 | 1976 | 2006 | 2027 | 40.00 % | 61.39 % | 12 | | $527,383.95 | $859,095 |
| G2030 | Pedestrian Paving | $11.52 | S.F. | 23,800 | 40 | 1976 | 2016 | 2021 | 15.00 % | 6.98 % | 6 | | $19,139.12 | $274,176 |
| G2040 | Site Development | $4.36 | S.F. | 367,100 | 25 | 1976 | 2001 | 2023 | 32.00 % | 2.59 % | 8 | | $41,415.93 | $1,600,556 |
| G2050 | Landscaping & Irrigation | $3.78 | S.F. | 174,000 | 15 | 1976 | 1991 | 2027 | 80.00 % | 0.00 % | 12 | | | $657,720 |
| G4020 | Site Lighting | $3.58 | S.F. | 367,100 | 30 | 1976 | 2006 | 2027 | 40.00 % | 0.00 % | 12 | | | $1,314,218 |
| G4030 | Site Communications & Security | $0.77 | S.F. | 367,100 | 30 | 1976 | 2006 | 2027 | 40.00 % | 0.00 % | 12 | | | $282,667 |
| | | | | | | | | **Total** | **41.18 %** | **10.42 %** | | | **$587,939.00** | **$5,645,072** |

## 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.

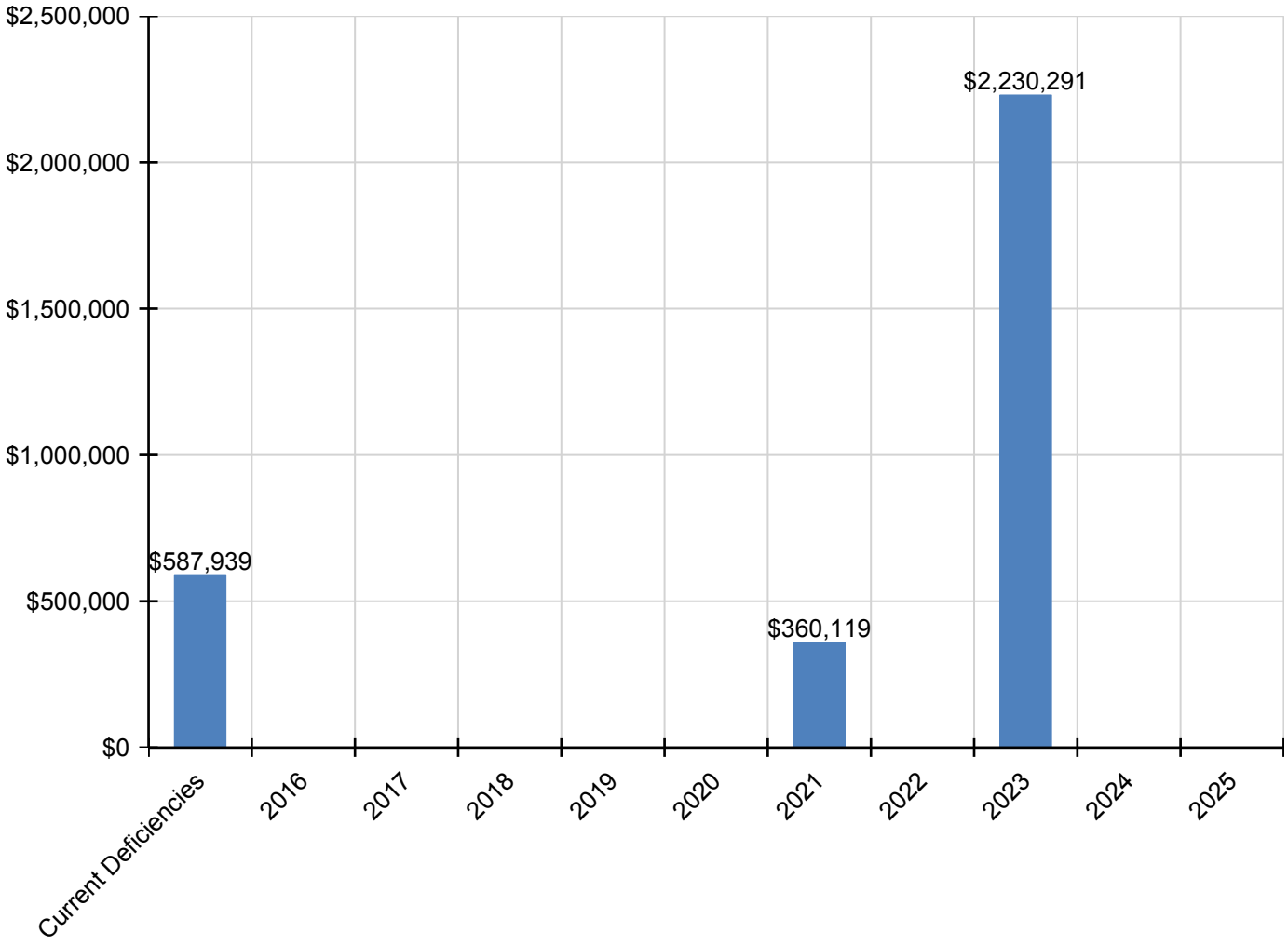
*Inflation Rate: 3%*

| System | Current Deficiencies | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total:** | **$587,939** | **$0** | **$0** | **$0** | **$0** | **$0** | **$360,119** | **$0** | **$2,230,291** | **$0** | **$0** | **$3,178,349** |
| **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** | $527,384 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$527,384** |
| **G2030 - Pedestrian Paving** | $19,139 | $0 | $0 | $0 | $0 | $0 | $360,119 | $0 | $0 | $0 | $0 | **$379,258** |
| **G2040 - Site Development** | $41,416 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $2,230,291 | $0 | $0 | **$2,271,707** |
| **G2050 - Landscaping & Irrigation** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **G40 - Site Electrical Utilities** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **G4020 - Site Lighting** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |
| **G4030 - Site Communications & Security** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** |

** Indicates non-renewable system*

## Forecasted Sustainment Requirement

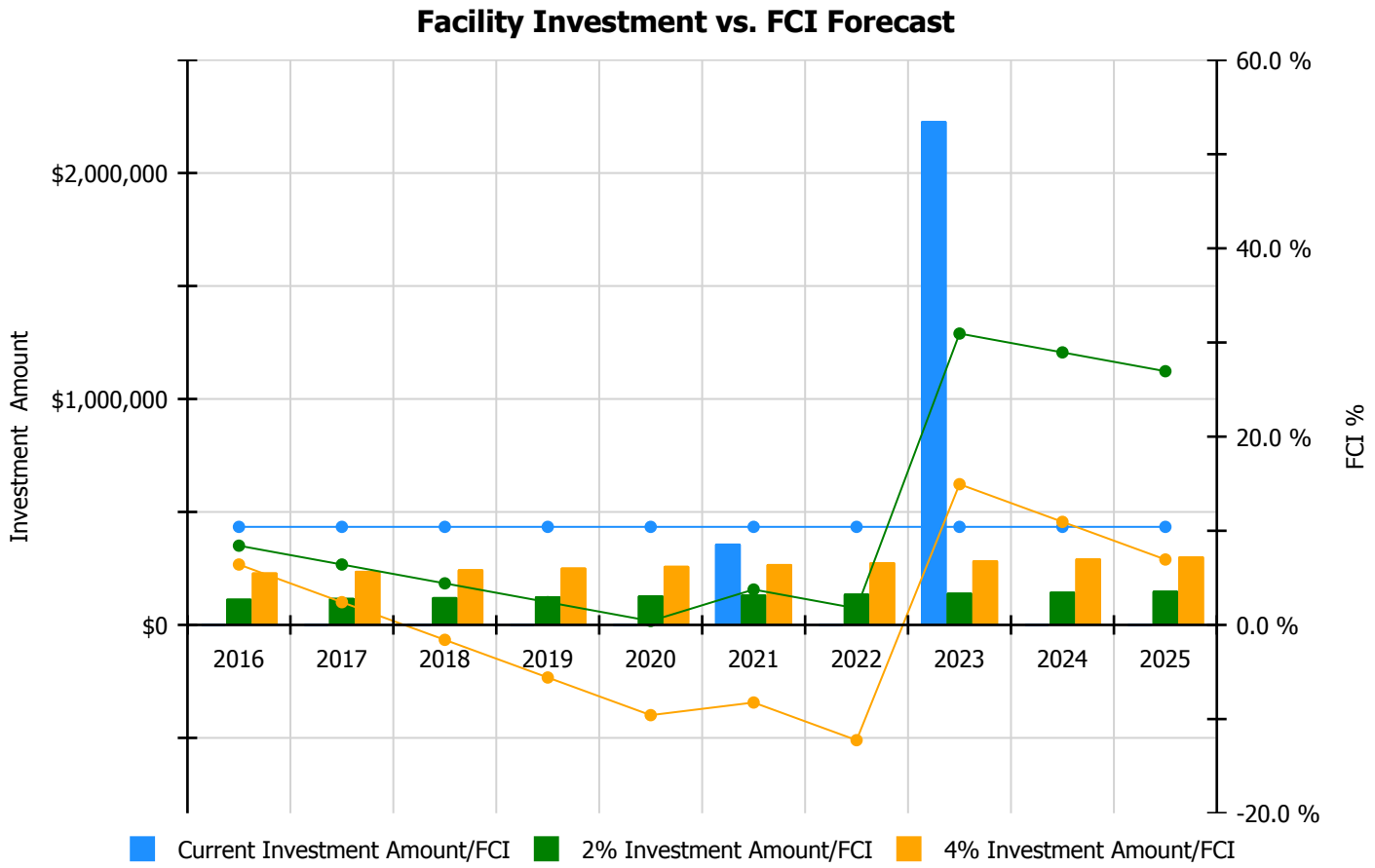
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



## 10 Year FCI Forecast by Investment Scenario

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

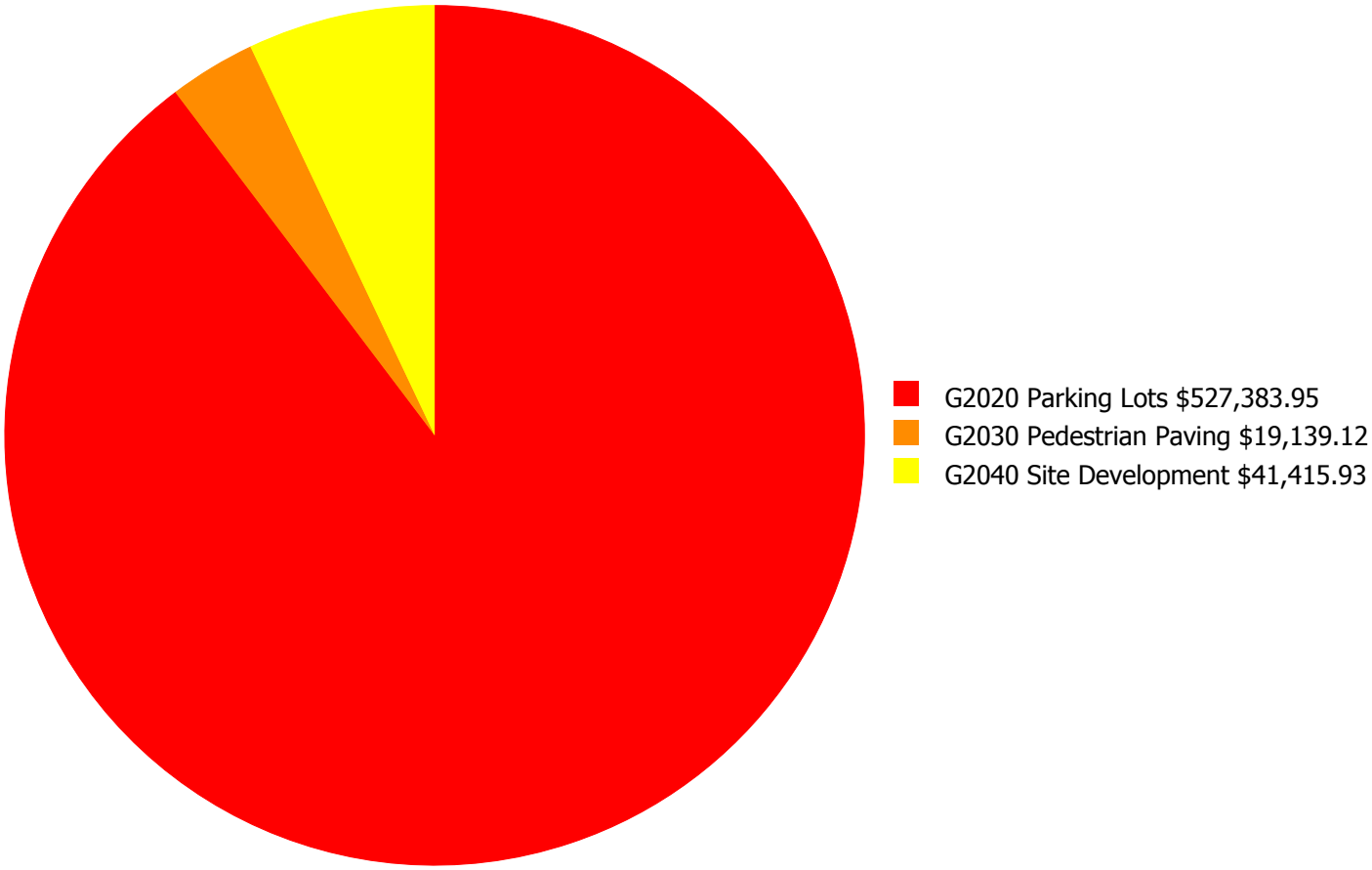
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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




| Year | Investment Amount Current FCI - 10.42% | 2% Investment | | 4% Investment | |
|---|---|---|---|---|---|
| | | Amount | FCI | Amount | FCI |
| 2016 | $0 | $116,288.00 | 8.42 % | $232,577.00 | 6.42 % |
| 2017 | $0 | $119,777.00 | 6.42 % | $239,554.00 | 2.42 % |
| 2018 | $0 | $123,370.00 | 4.42 % | $246,741.00 | -1.58 % |
| 2019 | $0 | $127,072.00 | 2.42 % | $254,143.00 | -5.58 % |
| 2020 | $0 | $130,884.00 | 0.42 % | $261,767.00 | -9.58 % |
| 2021 | $360,119 | $134,810.00 | 3.76 % | $269,620.00 | -8.24 % |
| 2022 | $0 | $138,855.00 | 1.76 % | $277,709.00 | -12.24 % |
| 2023 | $2,230,291 | $143,020.00 | 30.95 % | $286,040.00 | 14.95 % |
| 2024 | $0 | $147,311.00 | 28.95 % | $294,622.00 | 10.95 % |
| 2025 | $0 | $151,730.00 | 26.95 % | $303,460.00 | 6.95 % |
| **Total:** | **$2,590,410** | **$1,333,117.00** | | **$2,666,233.00** | |

## Deficiency Summary by System

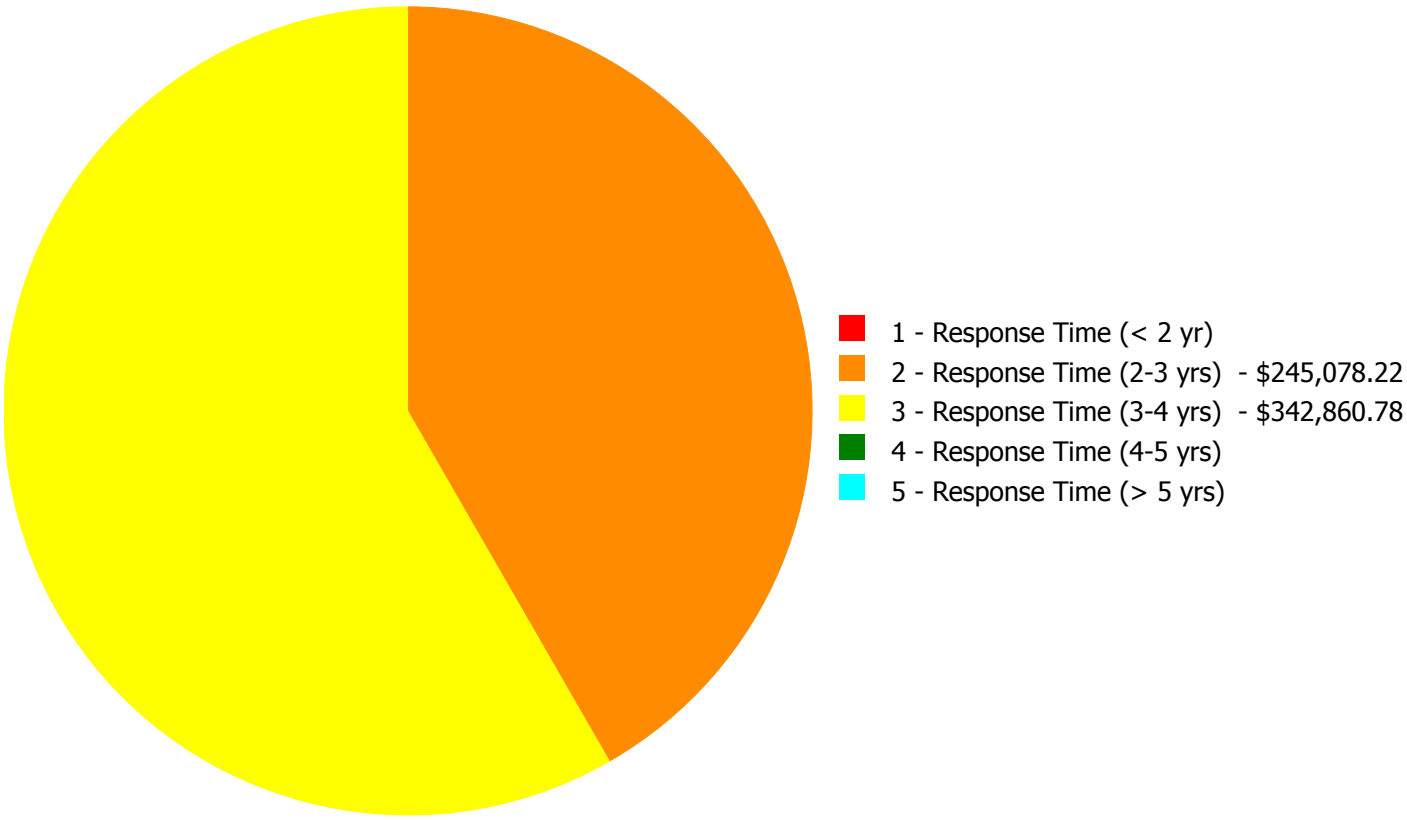
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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




**Budget Estimate Total: $587,939.00**

## 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: $587,939.00**

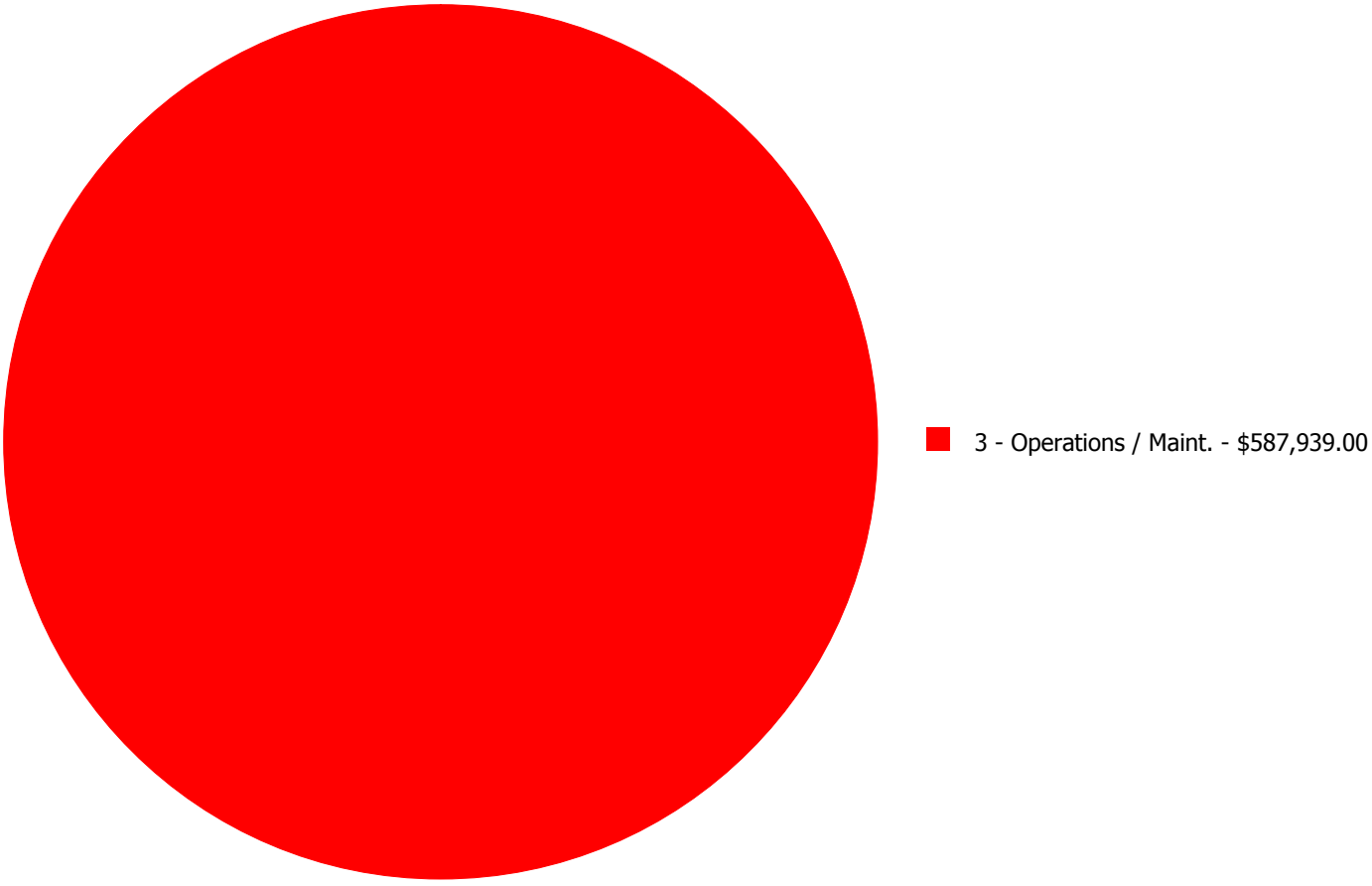
## Deficiency By Priority Investment Table

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

| System Code | System Description | 1 - Response Time (< 2 yr) | 2 - Response Time (2-3 yrs) | 3 - Response Time (3-4 yrs) | 4 - Response Time (4-5 yrs) | 5 - Response Time (> 5 yrs) | Total |
|---|---|---|---|---|---|---|---|
| G2020 | Parking Lots | $0.00 | $184,523.17 | $342,860.78 | $0.00 | $0.00 | $527,383.95 |
| G2030 | Pedestrian Paving | $0.00 | $19,139.12 | $0.00 | $0.00 | $0.00 | $19,139.12 |
| G2040 | Site Development | $0.00 | $41,415.93 | $0.00 | $0.00 | $0.00 | $41,415.93 |
| | **Total:** | $0.00 | $245,078.22 | $342,860.78 | $0.00 | $0.00 | $587,939.00 |

## 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: $587,939.00**

## Deficiency Details by Priority

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

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

**System: G2020 - Parking Lots**

**Location:** rear parking lot

**Distress:** Failing

**Category:** 3 - Operations / Maint.

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

**Correction:** Fill pavement cracks and reseal parking lot - including striping - change the LF of crack repair if it is severe

**Qty:** 80,000.00

**Unit of Measure:** S.F.

**Estimate:** $160,952.58

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Sealcoat right side (student) parking lot; 600ft crack fill; parking striping (80,000sf)

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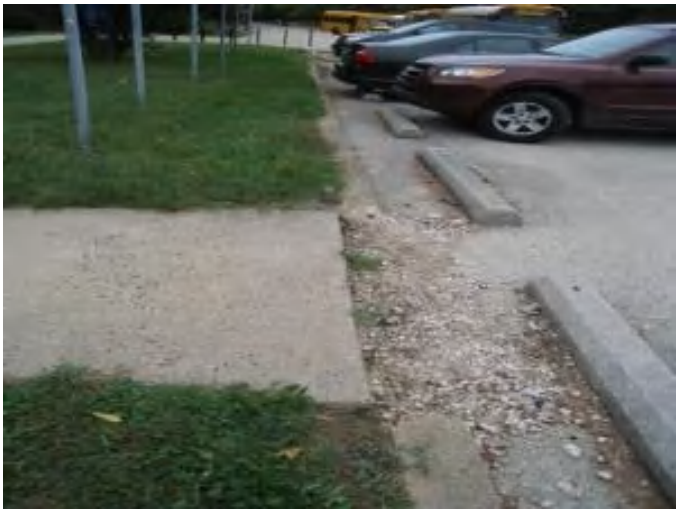
**System: G2020 - Parking Lots**



**Location:** curbs at front entrance and side roadways

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

**Correction:** Remove and replace curbing

**Qty:** 300.00

**Unit of Measure:** L.F.

**Estimate:** $23,570.59

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Replace damaged concrete curbing (200lf)

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**System: G2030 - Pedestrian Paving**

**Location:** dumpster pad

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

**Correction:** Remove and replace concrete paving - pedestrian or parking - 8" concrete thickness

**Qty:** 400.00

**Unit of Measure:** S.F.

**Estimate:** $10,509.42

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Repave dumpster apron with heavy duty concrete ( 400sf)

**System: G2030 - Pedestrian Paving**

**Location:** front sidewalk

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

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

**Qty:** 600.00

**Unit of Measure:** S.F.

**Estimate:** $8,629.70

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Repave spalling concrete in front and left side of building (600sf)

**System: G2040 - Site Development**


**Location:** front drop off area

**Distress:** Damaged

**Category:** 3 - Operations / Maint.

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

**Correction:** Remove and replace failed or collapsed storm or sanitary drain line - minimum of 30 LF - per LF

**Qty:** 100.00

**Unit of Measure:** L.F.

**Estimate:** $41,415.93

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Provide new storm drain and piping in front drop-off area (1 drain and 200ft piping)

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

**System: G2020 - Parking Lots**

**Location:** front parking lot

**Distress:** Failing

**Category:** 3 - Operations / Maint.

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

**Correction:** Resurface parking lot - grind and resurface including striping

**Qty:** 50,000.00

**Unit of Measure:** S.F.

**Estimate:** $190,478.21

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Repave damaged faculty parking lot and access driveways with new asphalt; parking striping (50,000sf)

**System: G2020 - Parking Lots**

**Location:** left side roadway

**Distress:** Failing

**Category:** 3 - Operations / Maint.

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

**Correction:** Resurface parking lot - grind and resurface including striping

**Qty:** 40,000.00

**Unit of Measure:** S.F.

**Estimate:** $152,382.57

**Assessor Name:** Craig Anding

**Date Created:** 12/15/2015

**Notes:** Repave side roadway (40,000sf)

## 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 |