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.

Rhawnhurst School

Governance	DISTRICT	Report Type	Elementary
Address	7809 Castor Ave.	Enrollment	598
	Philadelphia, Pa 19152	Grade Range	'00-05'
Phone/Fax	215-728-5013 / 215-728-5931	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Rhawnhurst	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	**45.31%**	**$14,241,292**	**$31,429,189**
Building	52.18 %	$13,962,987	$26,761,288
Grounds	05.96 %	$278,306	$4,667,901

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	86.31 %	$1,331,783	$1,543,104
Exterior Walls (Shows condition of the structural condition of the exterior facade)	08.97 %	$128,834	$1,436,120
Windows (Shows functionality of exterior windows)	159.68 %	$1,001,146	$626,980
Exterior Doors (Shows condition of exterior doors)	136.43 %	$104,809	$76,820
Interior Doors (Classroom doors)	308.14 %	$532,958	$172,960
Interior Walls (Paint and Finishes)	03.36 %	$20,415	$607,660
Plumbing Fixtures	31.96 %	$464,332	$1,452,680
Boilers	120.97 %	$1,038,883	$858,820
Chillers/Cooling Towers	65.60 %	$738,718	$1,126,080
Radiators/Unit Ventilators/HVAC	208.52 %	$4,123,645	$1,977,540
Heating/Cooling Controls	158.90 %	$986,794	$621,000
Electrical Service and Distribution	157.91 %	$704,615	$446,200
Lighting	08.04 %	$128,311	$1,595,280
Communications and Security (Cameras, Pa System and Fire Alarm)	83.35 %	$498,043	$597,540

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

S836001;Rhawnhurst

Final

Site Assessment Report

January 31, 2017

PARSONS

Table of Contents

Site Executive Summary

The organization of this report, as displayed in the Table of Contents, follows the structure of the associated eCOMET database. The overall node for each school campus begins with the letter "S", which indicates the "Site" label. Each Site is comprised of separate "Building" and "Grounds" nodes; their asset names begin with the letters "B" and "G" respectively. Information rolls up to the Site node from the Building and Grounds nodes. This Site report combines facility information with subsections for the Buildings And Grounds nodes.

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

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

Gross Area (SF):	46,000
Year Built:	1949
Last Renovation:	
Replacement Value:	$31,429,189
Repair Cost:	$14,241,292.19
Total FCI:	45.31 %
Total RSLI:	69.29 %

Description:

Facility Condition Assessment
October, 2015

School District of Philadelphia
Rhawnhurst Elementary School
7809 Castor Avenue
Philadelphia, PA 19152

46,000 SF / 650 Students / LN 08

Rhawnhurst Elementary School is located at 7809 Castor Avenue. The main building (also known as Element 1) was constructed in 1949, has 46,000 square feet and is 2 stories tall; it has a partial basement with crawl spaces. The front entrance of the school faces Castor Avenue. An Annex (also known as Element 2), was constructed around 1957 and is connected to the main building in the rear. There is an extensive asphalt playground behind the building separated by a chain link fence from the faculty parking area. Bill Ledward, the Building Engineer, accompanied the FCA team during the inspection.

The inspection Team met Principal Karen Howell-Toomer who expressed concern over some issues. In particular, she indicated that the building heating controls do not work well – half of the building is hot and half is cold. There is a persistent roof leak over the

auditorium that has been difficult to repair. Although the main building has adequate electrical power for computers, the Annex has inadequate power. There are no plumbing fixtures in the Annex; children have to use the toilet rooms in the gym near the door from the Annex. There is not enough faculty parking. There are no security cameras outside to aid in providing security.

ARCHITECTURAL/STRUCTURAL SYSTEMS

Foundations in the Main Building are constructed of brick and concrete. Basement brick and masonry joints are in good condition with no major settlement cracks observed. Footings were not seen and their construction type or condition could not be ascertained. There are extensive crawl spaces utilized for utility runs in this building assessed by doors in the basement; these spaces were not inspected due to limited access and lighting, but from the outside appeared to be in good condition. Foundations in the Annex could not be seen, since there is no basement.

Floor slabs in the basement are in good condition although covered with dirt and in need of stripping, cleaning and repainting. Upper floor slabs in the main building are constructed of cast-in-place concrete with cast-in-place concrete beams. The Annex has a concrete slab on grade. No major cracking was observed on any floor slab inspected.

Roof construction over the main building consists of reinforced concrete beams and deck, bearing on concrete columns. The gymnasium has exposed, tapered concrete beams supporting the roof deck. The auditorium was recently renovated and a cloud ceiling was installed making it difficult to see the roof structure; although not observed, it is suspected that a concrete beam system extends over the auditorium. The roof deck above all parts of the building consists of a "flat" deck with minimum overall slope and pitch to roof drains. Roof access is via a penthouse structure opening onto the roof. The roof has areas with no parapets and areas with low parapets. There is one brick masonry roof structure enclosing the roof stair and two smaller brick structures with louvers for ventilation, located near the stair structure on the main roof. Other lower roofs intersect brick walls. Not all sections of roof were accessible without ladders. All main building roofs have internal roof drains at low points created by "dished areas" (areas with slight slope created by sloped insulation); vertical leaders run through the building in internal chases. There are no vertical leaders running down the outside of the exterior walls on the main building. None of the roofs have overflow scuppers or overflow roof drains, but 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. Limestone (or possibly concrete) coping is used as the cap for parapet walls, except for one lower roof where aluminum coping is used; this material is in poor condition and needs to be replaced. Joints between limestone block have been caulked as mortar has failed, but the coping units are mostly in good condition. The Annex roofs consist of 2 pitched standing seam roofs with a slightly pitched asphalt membrane roof between the two roofs. There are no gutters on the standing seam roofs; water runs off the edges and falls on the asphalt playground surface. There is one gutter and vertical leader at the end of the flat roof between the standing seam roofs, terminating at a connection to the underground stormwater system.

Exterior walls on main building are constructed of brick and are not in good condition, showing signs of new cracks and deteriorating areas. There are many areas that have been repaired by caulking and pointing; caulking is an unsightly and inappropriate repair to failing brick joints. Exterior walls need to be inspected and repointed to create a water tight barrier around the building. The brick roof structure and the brick inside of the parapets have a number of locations where joints are failing. Caulking along the counterflashing has also been re-applied recently but appears to be continuing to crack. Cracking has occurred in brickwork over windows and univent lintels. There is a small area graffiti above the gymnasium entrance to the building; there is graffiti on the penthouse door onto the roof and some of the mechanical gravity vent structures. Exterior walls of the Annex are constructed of metal panels. They are damaged and dented but were recently repainted to improve their appearance and give them a few more years of useable life. The end walls need to be repainted to better hide patched areas not matching adjacent areas.

Exterior windows in the main building and Annex are clear anodized aluminum frame units with plexiglass single hung operating units. Single glazed units provide almost no insulation value and do not meet today's energy code requirements making them a large source of heat loss. Windows are not easy to operate and have dirty corroded frames, however there were no leaks reported. A few classrooms have window-mounted air conditioners. First floor and basement windows have galvanized steel security screens on the exterior, which are in good condition. Solid panels have been installed in the top parts of window units, probably to decrease the amount of solar heat gain in warm months, however these opaque panels also decrease the amount of natural light that enters the rooms, which is a disadvantage.

Exterior doors at the front entrances and two other student entrances are flush, painted, hollow metal steel doors & frames with narrow vertical vision panels with security screens. Exit doors or 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, scratches but no graffiti at grade levels. Exterior doors need a new coat of paint. Most hardware is operational with some doors needing adjustment. Weatherstripping should be replaced on all doors as gaps can be seen in some doors, to prevent cold weather air infiltration. There is a wheelchair accessible ramp and entrance to the Annex vestibule connector to the main building and there is an accessible ramp and entrance to the door leading into the cafeteria. Better, more complete Accessible Route signage is required to direct people to the accessible entrances.

Roof coverings consist of a fully adhered built-up rolled asphalt membrane system, with impregnated surface granules. Granules are wearing away and some sections of membrane have graffiti; roof structures and walls also have graffiti. Flashing is asphalt-backed adhered metal-faced flashing secured to rooftop ventilation ductwork, plumbing vents, and masonry parapets into reglets. Roof structures include masonry walls comprising the chimney, stair enclosure, and ventilation structures; there are also plumbing vents, ventilation ductwork, and roof drains. There are many opportunities for water intrusion along brick structures where counterflashing is set into brick. This continuous joint has been recently recaulked with black caulking over the existing copper or aluminum flashing. The continuous joint is a potential source of leaks and requires constant maintenance. Overlapping joints of asphalt membrane have some exposed cracking asphalt. This becomes a particular concern in the many areas of the roof where there is poor drainage and standing water. Aluminum coping along the edge of the lower roof is damaged and has been marked with graffiti; it should be replaced with the roof membrane. The roof is more than 20 years old. The inspection team was told there are many problem areas where leaks are reported but have not yet been successfully repaired. This entire roofing system should be removed and replaced.

Partitions in the main building are constructed of painted block (concrete masonry units) throughout the entire school. 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. Partitions in the Annex are constructed of metal stud with Masonite panel finish in classrooms. Corridors are finished with the same metal panel system used on the exterior walls. All Annex interior walls are painted and need a new coat of paint.

Interior corridor doors in the main building used at classrooms, offices, storage rooms, and bathrooms are solid wood oak veneer doors with steel frames. Many of these wood doors have large, divided lite wired glass vision panels. Even though vision panels comply with code maximum sizes for wired glass, the old wood door panel in which the vision panels are installed do not have UL approval labels in compliance with today's code regulations. Mullions securing the wired glass are weak and some panels are loose. The doors also lack closers, lever locksets and security hardware which can be locked from the inside of the classroom, required today for lock-down security. All classroom doors need to be replaced. Stairway doors are hollow metal with narrow lite wired glass vision panels which comply with the 1 hour fire rating vision panel size requirement. Doors must be self-closing and positively latched; most panic hardware is damaged and does not latch properly. Cafeteria doors are hollow metal and gymnasium doors are wood doors with small wired glass vision panels and steel door frames, with panic hardware in fair condition. Wood doors are worn and many are damaged, requiring repairs and re-staining. Auditorium wood doors were recently refinished with a renovation project in that room and are in good condition. Interior basement doors in the mechanical room are hollow metal steel doors with steel frames. All steel doors and door frames throughout the building need to be repainted. All doors should have lever-handle locksets. Closet doors in classrooms in the main building consist of 5 individual door panels connected together to either swing or slide together; they are very heavy and do not move well, some teachers indicated that they would like them replaced with something that is easier to operate. Doors into classrooms in the Annex are wood veneer oak doors with narrow vision panels, typical for fire rated doors today. They are also wearing and should be replaced

Interior fittings/hardware in the old building include black slate chalkboards and tackboards with metal or wood chalk trays mounted on one wall in each classroom. Some of the classrooms have smartboards over blackboards. The library space is located on the second floor and has free-standing wood bookcases, wood tables, and wood chairs that are all relatively new and in good condition. In order to remain on the 2nd floor, accessibility to wheelchair people (children) needs to be provided or the library needs to move downstairs. Most toilet room partitions are HDPE plastic partitions and doors, generally in good condition. A toilet room located in the Kindergarten has the original marble partitions with oak doors, in fair condition. Most toilet rooms have accessories in place and operational. There are no ADA accessible toilet rooms with grab bars and properly mounted accessories. Also lacking are sinks with wrist blade faucets, leg protection, and extended or properly mounted bowl heights. Some of the existing toilet facilities should be converted to accessible toilet rooms with as many features and space requirements as practical to comply with ADA guidelines.

Stair construction consists of concrete treads with concrete risers, and concrete stringers with steel handrails (30" high) and guards (36" high) at tops of landings. The two stairways have walls that protect the open sides of stairways. Stairway handrail and guard heights do not meet today's code requirements. Concrete platforms and landings are finished with clear sealer, but the concrete has a mottled appearance and looks dirty. Stairs should be stripped and refinished to give them a cleaner appearance and handrail systems should be replaced with code compliant systems.

Wall finishes in the basement, first, and second, floors are full height painted concrete masonry units (block) throughout the main building. There some locations in corridors, bathrooms, stairways, cafeteria and classrooms with damages, that need to be repainted. The auditorium was recently renovated and has a refinished wood panel wainscot installed around the sides and rear area, adding warmth to the space.

Floor finishes in the classrooms, corridors, and offices in the main building and the Annex are VAT (vinyl asbestos tile) finish. The rooms with vinyl asbestos tile floors should be tested for asbestos and if they are asbestos containing, although many tiles are not

damaged, they should be properly removed and replaced at some point in the near future. The library, auditorium, cafeteria, and a few classrooms have vinyl composition tile (VCT) in place of the VAT. Basements, stairs, and toilet rooms have sealed concrete finishes which are in need of stripping, cleaning, and resealing; toilet rooms in particular should have a clean finish to promote the appearance of cleanliness. The gymnasium and stage have wood floors that need to be stripped and refinished. The main school lobby and entrance area has terrazzo, which is in excellent condition.

Ceiling finishes in most spaces classrooms and offices throughout the main building consist of exposed precast concrete deck painted white, with suspended 1x4 fluorescent lighting fixtures. Corridors have surface mounted 2x4 fluorescent lighting fixtures on 12x12 concealed grid ceiling tiles. These painted ceiling surfaces are well maintained. The gym has a precast concrete planks over an exposed steel truss structure, all painted white and in good condition. The entrance lobby has a plaster ceiling with surface mounted fluorescent lighting. The auditorium, recently renovated has curved cloud ceilings constructed of acoustical tiles. The cafeteria has a 2x4 suspended acoustical tile ceiling with suspended fluorescent lighting fixtures. The 12x12 ceiling tile system glued to the floor deck above in corridors and classrooms are damaged, poorly patched and need to be replaced. Most other ceiling systems are in good condition.

Fixed furnishings include wood seating in the auditorium which is in good condition. Although probably refinished with the auditorium renovation project, some chairs still need adjustment and refinishing. The cafeteria has folding tables for serving students. The kitchen area has stainless steel service counters and food preparation fittings. The Kindergarten has built in oak bookcases, a fireplace and wood cubbies, all in need of refinishing to revitalize their appearances.

There is no elevator in the building. There are two ramps into the first floor from outside. The Library and some classrooms are located on the second floor and at this time have no accessibility to wheelchair children. A small, 2 story lift needs to be added to provide accessibility.

MECHANICAL SYSTEMS

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. The Annex classroom building is not equipped with any plumbing fixtures or drinking fountains.

There is an electric water cooler located on the first floor and the second floor of the school. A floor standing EWC is located in the teacher's lounge. Drinking fountains are located in the boys and girls toilet rooms that serve the gymnasium. There are drinking fountains located in each of the kindergarten classrooms in the toilet rooms that serve each class. Most appear to be the original installed equipment. The replacement of all drinking fountains is recommended as the equipment is approximately 67 years old and beyond its service life.

Wall hung service sinks are original and are available on the first and second floor 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 shows no signs of rust or corrosion and is accessible for maintenance. Chemicals are injected manually into the sanitizing basin.

Domestic Water Distribution – It appears that the 3" domestic water service piping is mostly soldered copper. Water service enters the building in the basement, with double check backflow preventer (RPZA – reduced pressure zone assembly) 2" bypass with RPZA and a 3" water meter on the main line upon entering the building. The water meter appears to be new. A dedicated make up water line with a BFP RPZA serves the boiler make up water system. 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 previous domestic water generation system has been decommissioned with some components remaining which have been abandoned in place. There are two instantaneous natural gas fired tankless water heaters, Paloma Model PH24-M-DN, at this facility which are located in the boiler mechanical room. Each heater is rated for a maximum gas input of 178,500 btuh, minimum 37,700 btuh. The hot water system is equipped with a recirculation pump as well. The water heaters serve a storage tank. There are recirculation pumps but there is no expansion tank. All water heaters appear to be in satisfactory condition at this time, they were installed in 2007, however they should be replace in the next 3 – 5 years. A water softener was not located for treating the boiler make up water system. .

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.

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.

Energy Supply - Duplex fuel oil supply pumps provide the required fuel to the boilers when operating on fuel oil. The 12,000 gallon fuel storage tank is located underground at the southwest corner of the school near the boiler room location in the building. The fuel pumps and controls appear to have experienced heavy use , are beyond their serviceable life and therefore should be replaced. A 4" natural gas enters the building in the basement into the main boiler mechanical equipment room. The gas is equipped with a pressure boosting system. The natural gas main is welded, black steel piping while the branches are threaded, black steel.

Heat Generating Systems – Low pressure steam is generated at 15 lbs/sq. in. or less by two 4,043 MBH Weil McLain 94 series steam boilers, model H-1794-WS, with dual fuel burners. All boilers are equipped with Power Flame dual fuel burners, natural gas and number 2 fuel oil, model CR4-GO-30. The boilers were installed in 1991 are 25 years old , however the boilers still have approximately 10 years of remaining service life and do not need to be replaced at this time based on the age of the equipment.. At the time of our survey one boiler had nipples leaks and cannot be run due to this. There is draft control on both boiler flues. Combustion air louvers serve the boiler room to provide combustion air for the boiler operation. Burner controls provide full modulation with electronic ignition, digital flame sensing and pressure atomization on oil. Burner oil pumps are driven by independent motors. The gas train serving each boiler appears to have code required venting of the regulators and dual solenoid valves with venting of the chamber between. The oil supply to the burner is equipped with dual solenoid valves and strainer/disposable media filter.

Distribution Systems – The building steam distribution piping is black steel with welded fittings. .The condensate piping is Schedule 80 black steel with threaded fittings. The piping has been in use beyond its service life and will require more frequent attention from the maintenance staff to address pipe/valve failures as time passes. The District should hire a qualified contractor to examine the distribution piping and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures. The District should budget for replacing this piping over the next 5 years.

The boiler feed water is collected by a boiler feedwater pad mounted system and is treated with a combination of chemicals by a water treatment controller. There are condensate receiver systems in the Annex classroom wing which return condensate back to the boiler feed water tank, typical of six classrooms. The condensate return systems have surpassed their service life and should be replaced. Other building areas return the condensate directly to the boiler feedwater tank and then pumped back to the boiler. The condensate return piping is black steel with threaded joints. The boiler feedwater assembly is equipped with three pumps and a pump control panel. The boiler feedwater system should be replaced as there are signs of rust and corrosion. The steam traps are failing throughout the building as per the building engineer. It is recommended that the District conduct a steam trap survey to determine the quantity and condition of all steam taps. The boiler feed tank, pumps and associated components are nearing the end of their service life and should be replaced.

Fresh air is admitted into the building through the unit ventilators and by opening windows. Ventilation air is induced into the spaces through the outside air intake grilles located in the building exterior wall which are ducted to the unit ventilators. Unit ventilators and steam convection heat are used for heating in the Annex classrooms as well and are served by the main building's boilers.

The building uses unit ventilators with steam coils in the classrooms and recessed steam convectors in the hallways, at entry ways/exits and stair landings. Sloped top wall mount convector heaters are utilized in the bathrooms. During our survey most steam convection heaters were recessed models, if however there any steam radiators in service without guards or enclosures, these units should be replaced with finned tube convectors to protect students from exposure to the hot surfaces.

The gymnasium is served by recessed unit ventilators without steam coils but with supply and return grilles which are flush with the wall surface. There are also vertical recessed steam convectors which provide heating which are located on the wall opposite of the unit ventilators. Operable windows provide a means of natural ventilation as well. It is recommended to replace these systems with a roof top mounted unit with an overhead supply air distribution system and return air ductwork and low return intake grilles which would be protected from damage.

The cafeteria is served by unit ventilators with steam coils as well as sloped top steam convection heaters. The unit ventilators and convection heaters are part of the original building equipment, have exceeded their life expectancy and should be replaced. Operable windows provide a means of natural ventilation as well. A roof top mounted unit could be provided with heating and cooling coils as well as ventilation to meet the outside air ventilation requirements for the cafeteria seating area. The kitchen is provided withood exhaust system for the space. This system should be coupled with a make up air heating and ventilating supply air system. A kitchen make up air unit should be added as well as a unit to provide heating and ventilation to the kitchen. Proper air flow pressurization and

balancing should be performed for the seating area with respect to the kitchen to maintain the kitchen under negative pressurization.

The auditorium is served by an air handler with steam coils, overhead supply air distribution and returns at the rear of the space. Recessed steam convection heaters along the walls provide heat as well. The air handler and convection heaters are part of the original building equipment, have exceeded their life expectancy and should be replaced. Operable windows provide a means of natural ventilation as well. A roof top mounted unit could be provided with heating and cooling coils as well as ventilation to meet the outside air ventilation requirements.

Terminal & Package Units - There are a few which have window air conditioning units but predominantly the building does not have cooling systems. There are roof mounted exhaust fans serve the restrooms.

Controls & Instrumentation - The original pneumatic systems still provide basic control functions. Pneumatic room thermostats drive the unit ventilators, the damper actuators and control valves. Wall mounted pneumatic thermostats on the corridor walls control the steam radiators. There is one air compressor which generates control air for the temperature control system which is located in the boiler room. There is no refrigerated air dryer which serves the compressor. The maintenance staff reports temperature control is generally lacking throughout the facility. Potential problems with oil, moisture or dirt in the pneumatic copper tubing can be one source of problems. The small rubber gaskets and tubing connections at control devices can become brittle over time and fail to compound control problems. The pneumatic systems are beyond their service life and require too much attention from the maintenance staff. The original control valves, dampers and pneumatic actuators are over 67 years old and should be replaced. These controls should be converted to DDC.

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

Sprinklers - The school building is NOT covered by an automatic sprinkler system. Installing a sprinkler system with quick response type heads should reduce insurance costs by providing protection for the property investment. A fire pump may be required depending on the available city water pressure.

ELECTRICAL SYSTEMS

Site Electrical Service is from 13.800KV overhead lines on wooden poles along Chandler St. Three 50KVA single phase transformers, additive polarity, connected DELTA-WYE are provided for supplying 208/120VAC at total available power of 150KVA to facility.

The service entrance to the facility consist of a 600A disconnect switch, utility meter and 600A, distribution panel is located in the Boiler Room. Service entrance and main distribution panel are very old and far exceeds their useful life and should be replaced.

Power distribution is accomplished with ten lighting/power panels located in corridors, gymnasium, auditorium, kitchen, boiler room and the Annex building. All the panel boards along with the associated wiring have exceeded the end of their useful life and should also be replaced.

Classrooms, corridors, offices, and other areas of the building typically provided with an adequate number of duplex receptacles except the classrooms in Annex building. In general there is not enough receptacles are installed in the classrooms in Annex building. Recommendation is to have a minimum of two receptacles on classroom walls but the current installations fall short of this recommendation.

Interior building spaces are illuminated by various types of lighting fixtures. Surface 1x4 fluorescent fixtures with T8 lamps are used in classrooms, offices, corridors, cafeteria and kitchen. Auditorium is provided by decorative pendent mount lighting fixtures with halogen lamps. In general the lighting fixtures in those areas are in good condition and no need for replacement. However some lighting fixtures need to be repaired to make the system fully operational. Lighting in electrical and mechanical rooms is provided by fluorescent fixtures with outdated T12 lamps. These lighting fixtures required to be upgraded or replaced. Gymnasium illuminated with pendent mounted metal halide fixtures which have high energy consumption and are difficult to re-lamp and should also be replaced.

Building is equipped with 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 whit 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) located in main IT room servicing the communication system of the building. School also

equipped with wifi system.

Separate PA system does not exist. School uses the telephone systems for public announcement. This system is working adequately.

Each classroom is provided by intercom telephone service. The system is permit paging and intercom communication between main office phone to classroom phones, and classroom to main office, classroom to classroom, and to office. Outside line access from a classroom 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 program/clock controller.

The present master clock system is consisting of a simplex master controller and the electric clocks in classroom, offices and other public areas. System is not functioning properly. Further investigation required for troubleshooting but since the system is old and spare part may not be found in the market, we recommend replacing the existing clock system with a wireless clock system. The present bell system is working adequately.

Television System is not provided in the school.

Video surveillance system is not provided in the school. School provided only with access control system such a door contacts on IMC, and main entrance doors and motion security sensors in corridors. The school desires a complete video surveillance system with cameras located in critical areas, such as exit doors, corridors, and building exterior areas. The cameras should be controlled by a Closed Circuit Television (CCTV) system.

Emergency Power System (backup power generator) is provided in the school. A 15KVA, 240/120V, single phase, 3W is installed in Boiler room for emergency lighting. The system is old and exceeds its useful service life and required to be replaced.

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

Emergency lighting system, including exit lights are provided in the buildings. Numbers of lighting fixtures in corridors, and egress ways and all exit signs are fed by emergency pack up generator. However some exit signs are damage and need to be replaced.

Lightning Protection System is accomplished with a few air terminals mounted on the chimney on the roof and connected to the ground system. Further study is needed to verify that the air terminals provide the proper coverage.

No elevator is provided in the school.

Existing theater lighting and dimming system is accomplished with two rows of spot lights that are turned on and off by branch circuit breakers in a lighting panel located in stage area and not by dimmer. Theater lighting and controller are old and not meet the modern theatrical lighting system. In modern school auditorium, Stage requires front, upstage, high side, backlighting, scenery lighting and controllers by automatic dimmer bank controller. In addition to the stage lights, supplemental fluorescent lighting is also requires to be provided in stage area for lectures and testing. These supplemental lighting could be also turned off automatically by dimmer bank controls during performance.

Sound System is not provided in Auditorium. School is using a simple portable sound system for the performances. A permanent modern auditorium sound system recommended by ECE40020 (standard for reinforcement system design) is required to be provided in school auditorium.

There are sufficient numbers of lights are provided around the building. However some lighting fixtures need to be repaired or re-lamped to make the system fully operational.

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

Site Lighting System is adequate. There are sufficient numbers of flood lights are provided around the building as well as wall mounted lighting fixtures at exit doors. However some lighting fixtures need to be repaired to make the system fully operational.

Site Video Surveillance system is not provided in the school.

Site Paging system is provided in the school and working adequately. Existing speakers are providing proper coverage in the playground.

GROUNDS SYSTEMS

Faculty parking is constructed of asphalt and is in poor condition. There are many cracked and broken areas throughout the parking lot and it should be repaved. The children's playground area is paved in asphalt and is in poor condition with many cracks; most of this area needs to be repaved. The trash area pavement is failing from the weight of garbage trucks and needs to be repaved with vehicle-grade asphalt.

Site fencing is composed of tall chain link fencing along residential property lines which is in fair condition with some bent and rusting sections around the site. Fencing surrounding the faculty parking lot and across the back of the school property is a black painted steel post fence, in good condition. There is no fencing across the front of the school and therefore the site cannot be secured by a fence and gates. The rear of the building could be secured with some additional fencing originating from side yards connected to the sides building.

RECOMMENDATIONS

- Strip and reseal concrete floors in stairways, toilet rooms and part of basement, (7,000sf)
- Repoint cracked and failing brick masonry walls around building (1,000sf)
- Remove graffiti from building, roof areas (500sf)
- Reapply anti-graffiti coating to first floor of building exterior walls (10,000sf)
- Replace weatherstripping and hardware on exterior metal doors; repaint doors and frames (30 3x7)
- Replace roof (37,547sf)
- Replace flashing (2,000lf)
- Repair gravel stop on low roof (150lf)
- Replace concrete coping on top of chimney (16sf)
- Replace all windows (180 3.5'x7' main bldg; 44 3.5'x7' annex)
- Repaint steel doors and metal frames in mechanical rooms in basement (8 3x7)
- Replace 1 hour rated steel stairway doors (14 doors)
- Replace 7 classroom closet doors - 5-door coordinated sets with 5 individual doors (35 doors)
- Replace wood doors in classrooms, toilet rooms, offices, auditorium (60 3x7)
- Provide security hardware for classrooms and offices, locking from the inside of the room (36)
- Repair and repaint interior block walls where damaged in corridors, cafeteria, classrooms and stairways (Rooms 101, 102, 109, etc.; 2,000sf)
- Provide toilet room accessories where broken; create handicap toilet rooms (6 toilet rooms)
- Remove 9"x9" VAT floors in classrooms, corridors, and cafeteria with and replace with VCT (28,100sf)
- Replace damaged 12x12 corridor ceilings (7,000sf)
- Refinish wood built-ins in Kindergartens (1,000sf)
- Refinish wood floors in gymnasium and auditorium stage (4,700sf)
- Refinish auditorium seats (40)
- Replace interior stair handrails (250ft)
- Replace exterior handrails along handicap entrance ramps, complying with 2015 building codes (60ft total length)
- Repaint front and rear handrails at stairs (30ft)
- Add wheelchair elevator, 2 floor travel

MECHANICAL

- Replace all lavatories in the building with lower flow fixtures, as the fixtures are original.
- Replace all water closets in the building with lower flow fixtures, as the fixtures are original.
- Replace all urinals in the building with lower flow fixtures, as the fixtures are original.
- 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 service sinks (janitor sinks) in the building.
- 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 10,000 gallon underground storage tank (UST) installed before 2000 located underground adjacent to the entry drive in the grassy area from Willits Road.
- Add automatic sanitizing chemicals to the stainless steel sink in the cafeteria.
- Replace two instantaneous natural gas fired tankless water heaters.
- Inspect and replace the original as needed the domestic water piping in the building
- 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.

- Conduct a steam trap survey to identify and replace failed traps passing live steam into the condensate piping system.
- Hire a qualified contractor to examine the steam and condensate piping in service for 65 years and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures. The District should budget for replacing this piping over the next 10 years.
- Replace duplex fuel oil pumps.
- Replace the two 3,385 MBH Weil McLain 94 series steam boilers estimated to have been in service since the 1970s.
- Replace the steam convection units and any of the original radiant heating (manifold) terminals fashioned from welded piping still present in the building with finned tube elements to protect students from exposure to the hot surfaces.
- Replace the existing unit ventilators throughout the building with new units designed to provide adequate ventilation per ASHRAE Std 62. The new units shall be equipped with hot water / chilled water coils and integral heat exchanger.
- Remove the window air conditioning units and install a 250 ton air-cooled chiller on the roof with chilled water distribution piping and pumps located in a mechanical room on the basement level to supply more reliable air conditioning for the building with a much longer service life.
- Provide ventilation, heating and cooling for the gymnasium by installing a packaged roof top unit.
- Provide ventilation for the corridors at six basement and first floor entryways (9 locations total) by installing fan coil air handling units hung from the structure with outdoor air ducted to the unit from louvers in the window openings
- Provide ventilation, heating and cooling for the Cafeteria by removing the existing unit ventilators and installing a package rooftop constant volume air handling unit with distribution ductwork and registers.
- Replace the pneumatic controls for the HVAC systems with modern DDC modules, valves and actuators to improve reliability and energy efficiency.
- Provide a new building automation system (BAS) with communication interface to the preferred system in use throughout the District.
- Install a fire protection sprinkler system with quick response type heads to reduce insurance costs by providing protection for the property. A fire pump may be required depending on the available city water pressure.
- Install a new sprinkler system throughout the building
- Remove existing steam boilers and steam distribution system. Install hot water boilers and hot water distribution system.

ELECTRICAL

- Upgrade existing service entrance for adding a new 1600A, 208/120V, 3PH, 4 wire substation.
- Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash label on the electrical equipments. Estimated 12 panel boards.
- Install minimum two receptacles in each wall of class rooms in Annex area. Total 50 receptacles.
- Replace all the lighting fixtures in electrical/mechanical rooms with new industrial fluorescent lighting fixtures with T8. Estimated 25each. Repair/replace existing damaged lighting fixtures with new fluorescent fixtures. Estimated 50 total. Replace gymnasium illuminates with LED high bay. Estimated 20 total.
- Replace existing fire alarm system with an automatic fire alarm system including smoke detectors in corridors and other recommended areas per NEC. Install horn/strobes in class rooms, corridors, offices, toilets, library and other recommended areas per codes.
- Replace existing master clock system with new wireless clock system.
- Provide an adequate video surveillance system including camera and Closed Circuit Television (CCTV) system. Cameras should install in the corridors, school entrance doors and on the walls around the building.
- Replace existing outdated/damaged exit sign with battery pack exit signs. Total 30 exit sign.
- Replace existing generator with new 30KW generator
- Provide lightning protection studies to ascertain adequacy of existing systems.
- Provide new modern stage lighting with automatic dimmer bank controller in the Auditorium.
- Provide new sound system per ECE-40020 (standard for reinforcement system design) including a freestanding 19” rack backstage with mixer per amplifiers, digital media recording with playback capability, AM-FM radio, graphic or parametric equalizer, and receivers for wireless microphone.
- Replace/repair existing exterior lighting fixtures. Estimate 5 lighting fixtures.

GROUNDS

- Repave damaged asphalt parking lot and play area with new asphalt (60,000sf)
- Repave broken sections of concrete paving (500sf)
- Repair broken concrete stairs (100sf)
- Add security fencing and 2 gates starting from side property line fencing connecting to the building to close-off and secure the rear of the building (200ft)

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 4 / Tm 2
Status:	Accepted by SDP	Team:	Tm 2
Site ID:	S836001		

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	34.00 %	0.00 %	$0.00
A20 - Basement Construction	34.00 %	0.00 %	$0.00
B10 - Superstructure	34.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	57.46 %	57.70 %	$1,234,789.10
B30 - Roofing	90.32 %	86.31 %	$1,331,783.22
C10 - Interior Construction	45.43 %	51.35 %	$538,825.21
C20 - Stairs	34.00 %	86.16 %	$50,732.82
C30 - Interior Finishes	85.17 %	29.45 %	$611,465.94
D10 - Conveying	105.00 %	121.59 %	$139,831.95
D20 - Plumbing	115.29 %	51.96 %	$972,041.77
D30 - HVAC	119.44 %	134.61 %	$6,888,040.59
D40 - Fire Protection	105.71 %	158.77 %	$658,051.96
D50 - Electrical	109.31 %	52.66 %	$1,423,978.27
E10 - Equipment	37.14 %	12.58 %	$92,124.15
E20 - Furnishings	32.50 %	21.76 %	$21,321.64
G20 - Site Improvements	53.31 %	8.26 %	$278,305.57
G40 - Site Electrical Utilities	0.00 %	0.00 %	$0.00
Totals:	**69.29 %**	**45.31 %**	**$14,241,292.19**

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)
B836001;Rhawnhurst	46,000	52.18	$5,274,533.62	$3,970,052.23	$1,673,047.08	$70,268.73	$2,975,084.96
G836001;Grounds	298,500	5.96	$0.00	$49,731.72	$228,573.85	$0.00	$0.00
Total:		**45.31**	**$5,274,533.62**	**$4,019,783.95**	**$1,901,620.93**	**$70,268.73**	**$2,975,084.96**

Deficiencies By Priority

- 1 - Response Time (< 2 yr) - $5,274,533.62
- 2 - Response Time (2-3 yrs) - $4,019,783.95
- 3 - Response Time (3-4 yrs) - $1,901,620.93
- 4 - Response Time (4-5 yrs) - $70,268.73
- 5 - Response Time (> 5 yrs) - $2,975,084.96

Budget Estimate Total: $14,241,292.19

Executive Summary

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

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

Function:	Elementary School
Gross Area (SF):	46,000
Year Built:	1949
Last Renovation:	
Replacement Value:	$26,761,288
Repair Cost:	$13,962,986.62
Total FCI:	52.18 %
Total RSLI:	74.67 %

Description:

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B836001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S836001		

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	34.00 %	0.00 %	$0.00
A20 - Basement Construction	34.00 %	0.00 %	$0.00
B10 - Superstructure	34.00 %	0.00 %	$0.00
B20 - Exterior Enclosure	57.46 %	57.70 %	$1,234,789.10
B30 - Roofing	90.32 %	86.31 %	$1,331,783.22
C10 - Interior Construction	45.43 %	51.35 %	$538,825.21
C20 - Stairs	34.00 %	86.16 %	$50,732.82
C30 - Interior Finishes	85.17 %	29.45 %	$611,465.94
D10 - Conveying	105.00 %	121.59 %	$139,831.95
D20 - Plumbing	115.29 %	51.96 %	$972,041.77
D30 - HVAC	119.44 %	134.61 %	$6,888,040.59
D40 - Fire Protection	105.71 %	158.77 %	$658,051.96
D50 - Electrical	109.31 %	52.66 %	$1,423,978.27
E10 - Equipment	37.14 %	12.58 %	$92,124.15
E20 - Furnishings	32.50 %	21.76 %	$21,321.64
Totals:	**74.67 %**	**52.18 %**	**$13,962,986.62**

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	$24.32	S.F.	46,000	100	1949	2049		34.00 %	0.00 %	34			$1,118,720
A1030	Slab on Grade	$15.51	S.F.	46,000	100	1949	2049		34.00 %	0.00 %	34			$713,460
A2010	Basement Excavation	$13.07	S.F.	46,000	100	1949	2049		34.00 %	0.00 %	34			$601,220
A2020	Basement Walls	$23.02	S.F.	46,000	100	1949	2049		34.00 %	0.00 %	34			$1,058,920
B1010	Floor Construction	$92.20	S.F.	46,000	100	1949	2049		34.00 %	0.00 %	34			$4,241,200
B1020	Roof Construction	$24.11	S.F.	46,000	100	1949	2049		34.00 %	0.00 %	34			$1,109,060
B2010	Exterior Walls	$31.22	S.F.	46,000	100	1949	2049		34.00 %	8.97 %	34		$128,833.58	$1,436,120
B2020	Exterior Windows	$13.63	S.F.	46,000	40	1949	1989	2057	105.00 %	159.68 %	42		$1,001,146.33	$626,980
B2030	Exterior Doors	$1.67	S.F.	46,000	25	1949	1974	2042	108.00 %	136.43 %	27		$104,809.19	$76,820
B3010105	Built-Up	$37.76	S.F.	31,574	20	1949	1969	2037	110.00 %	111.70 %	22		$1,331,783.22	$1,192,234
B3010120	Single Ply Membrane	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3010130	Preformed Metal Roofing	$54.22	S.F.	6,000	30	1949	1979	2020	16.67 %	0.00 %	5			$325,320
B3010140	Shingle & Tile	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3020	Roof Openings	$0.68	S.F.	37,574	20	1949	1969	2037	110.00 %	0.00 %	22			$25,550
C1010	Partitions	$14.93	S.F.	46,000	100	1949	2049		34.00 %	0.00 %	34			$686,780
C1020	Interior Doors	$3.76	S.F.	46,000	40	1949	1989	2057	105.00 %	308.14 %	42		$532,958.08	$172,960
C1030	Fittings	$4.12	S.F.	46,000	40	1949	1989	2028	32.50 %	3.10 %	13		$5,867.13	$189,520
C2010	Stair Construction	$1.28	S.F.	46,000	100	1949	2049		34.00 %	86.16 %	34		$50,732.82	$58,880

Site Assessment Report - B836001;Rhawnhurst

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
C3010230	Paint & Covering	$13.21	S.F.	46,000	10	1949	1959	2020	50.00 %	3.36 %	5		$20,414.58	$607,660
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
C3020411	Carpet	$7.30	S.F.		10				0.00 %	0.00 %				$0
C3020412	Terrazzo & Tile	$75.52	S.F.	920	50	1949	1999	2020	10.00 %	0.00 %	5			$69,478
C3020413	Vinyl Flooring	$9.68	S.F.	33,580	20	1949	1969	2037	110.00 %	131.11 %	22		$426,183.37	$325,054
C3020414	Wood Flooring	$22.27	S.F.	4,600	25	1949	1974	2028	52.00 %	49.40 %	13		$50,604.62	$102,442
C3020415	Concrete Floor Finishes	$0.97	S.F.	7,000	50	1949	1999	2050	70.00 %	396.34 %	35		$26,911.73	$6,790
C3030	Ceiling Finishes	$20.97	S.F.	46,000	25	1949	1974	2042	108.00 %	9.06 %	27		$87,351.64	$964,620
D1010	Elevators and Lifts	$2.50	S.F.	46,000	40	1949	1989	2057	105.00 %	121.59 %	42		$139,831.95	$115,000
D2010	Plumbing Fixtures	$31.58	S.F.	46,000	35	1949	1984	2055	114.29 %	31.96 %	40		$464,331.92	$1,452,680
D2020	Domestic Water Distribution	$2.90	S.F.	46,000	25	1949	1974	2045	120.00 %	211.43 %	30		$282,045.26	$133,400
D2030	Sanitary Waste	$2.90	S.F.	46,000	25	1949	1974	2045	120.00 %	169.16 %	30		$225,664.59	$133,400
D2040	Rain Water Drainage	$3.29	S.F.	46,000	30	1949	1979	2050	116.67 %	0.00 %	35			$151,340
D3020	Heat Generating Systems	$18.67	S.F.	46,000	35	1949	1984	2055	114.29 %	120.97 %	40		$1,038,883.34	$858,820
D3030	Cooling Generating Systems	$24.48	S.F.	46,000	30	1949	1979	2050	116.67 %	65.60 %	35		$738,718.36	$1,126,080
D3040	Distribution Systems	$42.99	S.F.	46,000	25	1949	1974	2045	120.00 %	208.52 %	30		$4,123,645.16	$1,977,540
D3050	Terminal & Package Units	$11.60	S.F.	46,000	20	1949	1969	2040	125.00 %	0.00 %	25			$533,600
D3060	Controls & Instrumentation	$13.50	S.F.	46,000	20	1949	1969	2040	125.00 %	158.90 %	25		$986,793.73	$621,000
D4010	Sprinklers	$8.02	S.F.	46,000	35			2052	105.71 %	178.37 %	37		$658,051.96	$368,920
D4020	Standpipes	$0.99	S.F.	46,000	35			2052	105.71 %	0.00 %	37			$45,540
D5010	Electrical Service/Distribution	$9.70	S.F.	46,000	30	1949	1979	2047	106.67 %	157.91 %	32		$704,615.02	$446,200
D5020	Lighting and Branch Wiring	$34.68	S.F.	46,000	20	1949	1969	2037	110.00 %	8.04 %	22		$128,310.94	$1,595,280
D5030	Communications and Security	$12.99	S.F.	46,000	15	1949	1964	2032	113.33 %	83.35 %	17		$498,043.26	$597,540
D5090	Other Electrical Systems	$1.41	S.F.	46,000	30	1949	1979	2037	73.33 %	143.40 %	22		$93,009.05	$64,860
E1020	Institutional Equipment	$4.82	S.F.	46,000	35	1949	1984	2028	37.14 %	41.55 %	13		$92,124.15	$221,720
E1090	Other Equipment	$11.10	S.F.	46,000	35	1949	1984	2028	37.14 %	0.00 %	13			$510,600
E2010	Fixed Furnishings	$2.13	S.F.	46,000	40	1949	1989	2028	32.50 %	21.76 %	13		$21,321.64	$97,980
								Total	**74.67 %**	**52.18 %**			**$13,962,986.62**	**$26,761,288**

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, metal, or Masonite 99%
wood wainscot 1%

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

Note: Concrete – 7,000sf 15%
Wood - 4,700sf 10%
VCT - 5,200sf 11%
Terrazzo / CT 1,000sf 2%
VAT - 28,100sf 62 %

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

Note: Suspended Acoustical Ceilings 2x4 or glued to deck 1x1 ACT= 40%
Painted Concrete or metal ceiling = 60%

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:	**$13,962,987**	**$0**	**$0**	**$0**	**$0**	**$1,278,336**	**$0**	**$0**	**$0**	**$0**	**$0**	**$15,241,323**
*** A - Substructure**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
*** A10 - Foundations**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1010 - Standard Foundations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A1030 - Slab on Grade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
*** A20 - Basement Construction**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2010 - Basement Excavation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
A2020 - Basement Walls	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B10 - Superstructure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1010 - Floor Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B1020 - Roof Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B20 - Exterior Enclosure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2010 - Exterior Walls	$128,834	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$128,834**
B2020 - Exterior Windows	$1,001,146	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,001,146**
B2030 - Exterior Doors	$104,809	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$104,809**
B30 - Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010 - Roof Coverings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010105 - Built-Up	$1,331,783	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,331,783**
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	$414,849	$0	$0	$0	$0	$0	**$414,849**
B3010140 - Shingle & Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3020 - Roof Openings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C - Interiors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C10 - Interior Construction	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C1010 - Partitions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

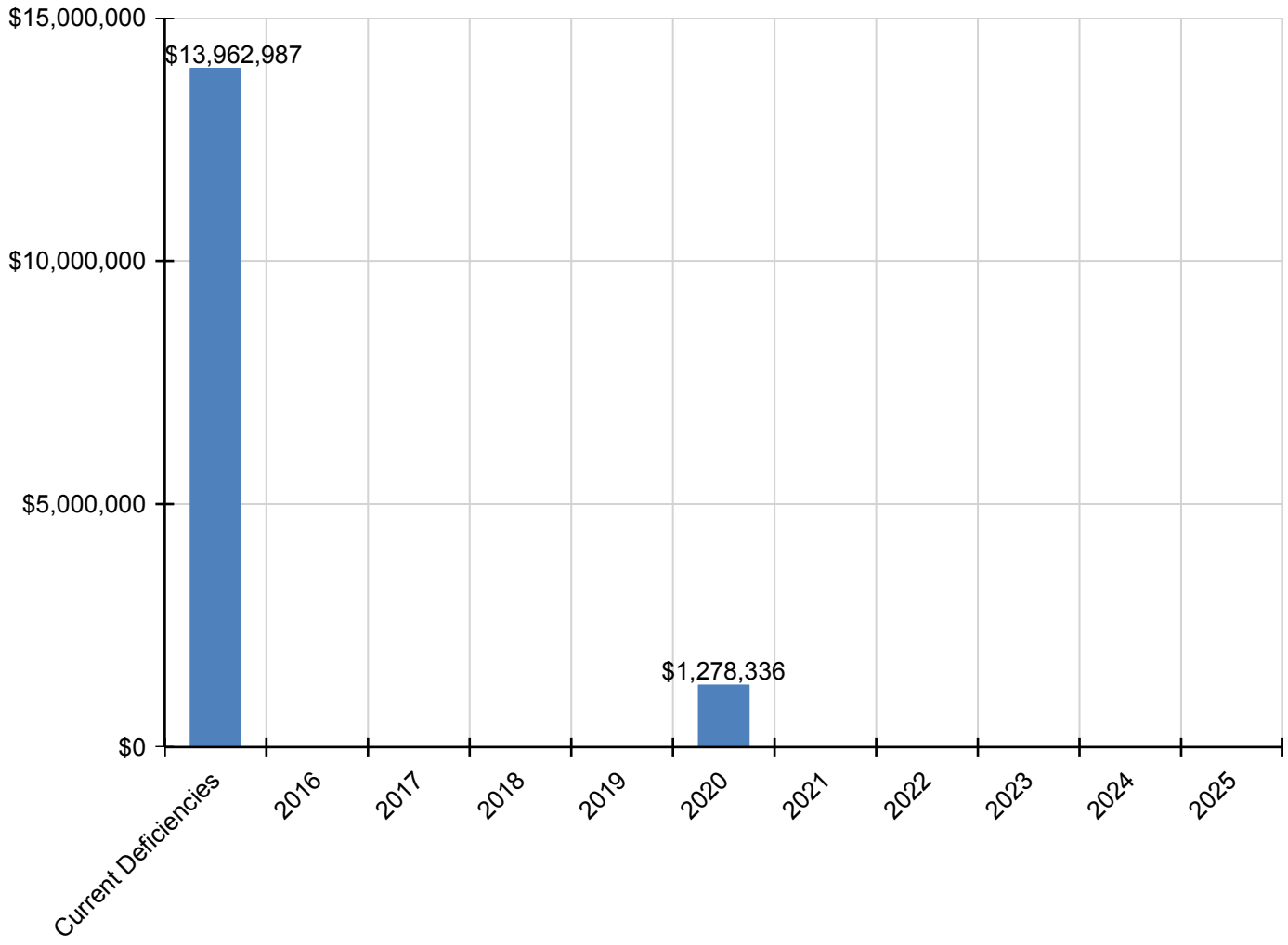
C1020 - Interior Doors	$532,958	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$532,958**
C1030 - Fittings	$5,867	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$5,867**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$50,733	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$50,733**
C30 - Interior Finishes	$0	$0	$0	$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	$20,415	$0	$0	$0	$0	$774,889	$0	$0	$0	$0	$0	**$795,304**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010232 - Wall Tile	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020 - Floor Finishes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020411 - Carpet	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3020412 - Terrazzo & Tile	$0	$0	$0	$0	$0	$88,599	$0	$0	$0	$0	$0	**$88,599**
C3020413 - Vinyl Flooring	$426,183	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$426,183**
C3020414 - Wood Flooring	$50,605	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$50,605**
C3020415 - Concrete Floor Finishes	$26,912	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$26,912**
C3030 - Ceiling Finishes	$87,352	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$87,352**
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	$139,832	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$139,832**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$464,332	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$464,332**
D2020 - Domestic Water Distribution	$282,045	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$282,045**
D2030 - Sanitary Waste	$225,665	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$225,665**
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	$1,038,883	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,038,883**
D3030 - Cooling Generating Systems	$738,718	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$738,718**
D3040 - Distribution Systems	$4,123,645	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$4,123,645**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$986,794	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$986,794**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$658,052	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$658,052**
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	$704,615	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$704,615**
D5020 - Lighting and Branch Wiring	$128,311	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$128,311**
D5030 - Communications and Security	$498,043	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$498,043**
D5090 - Other Electrical Systems	$93,009	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$93,009**
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	$92,124	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$92,124**
E1090 - Other Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E20 - Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E2010 - Fixed Furnishings	$21,322	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$21,322**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

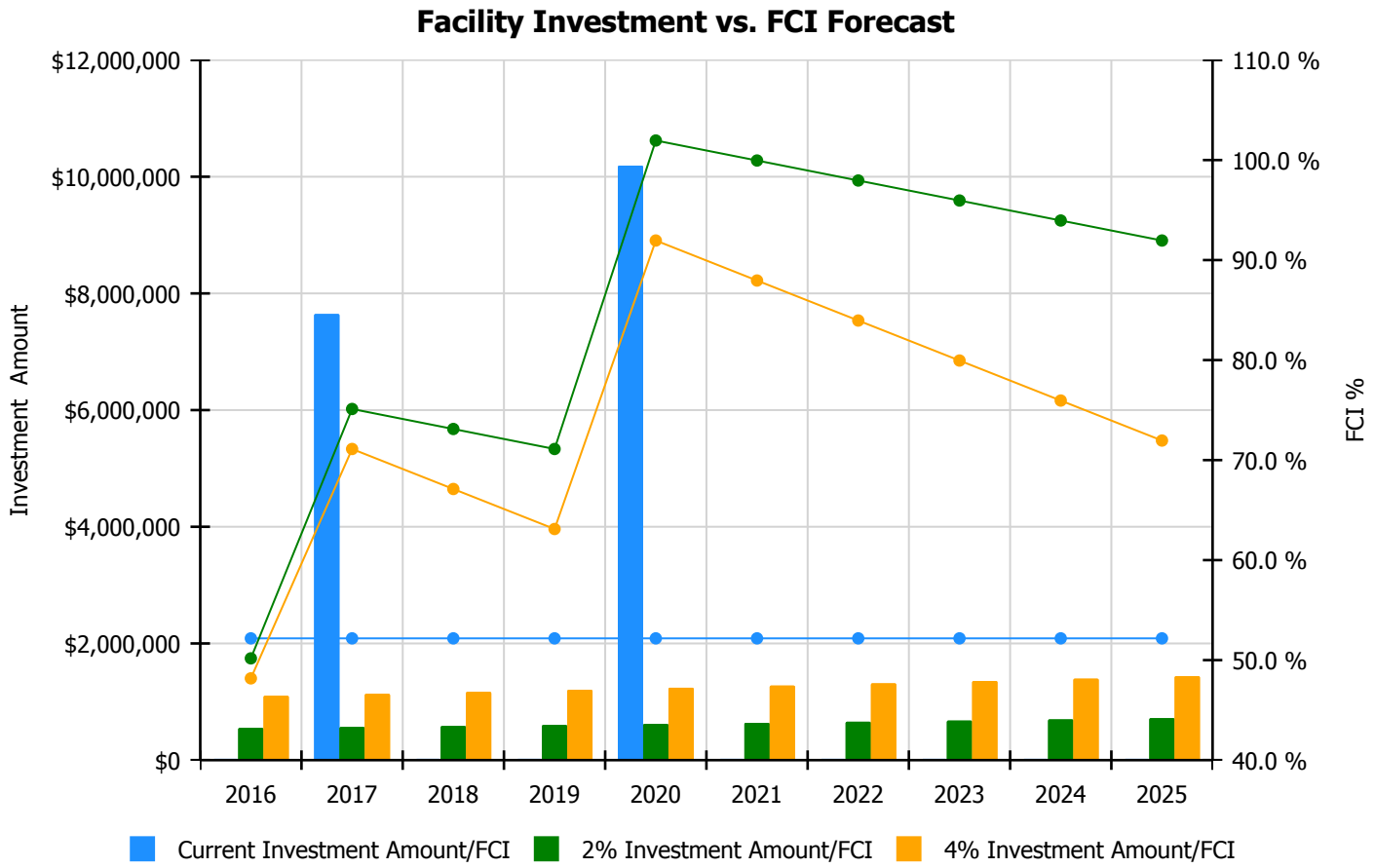
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

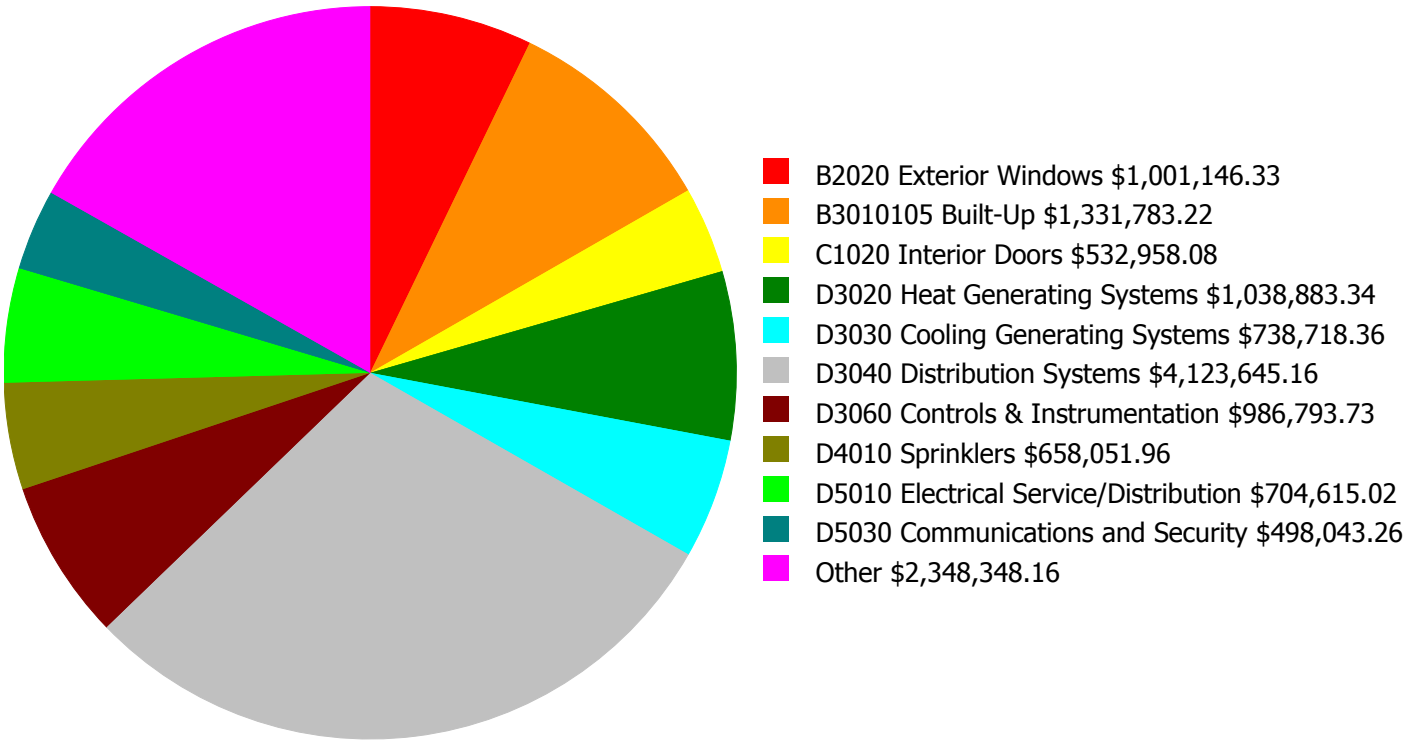
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 52.18%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$551,283.00	50.18 %	$1,102,565.00	48.18 %
2017	$7,646,934	$567,821.00	75.11 %	$1,135,642.00	71.11 %
2018	$0	$584,856.00	73.11 %	$1,169,711.00	67.11 %
2019	$0	$602,401.00	71.11 %	$1,204,803.00	63.11 %
2020	$10,189,266	$620,473.00	101.95 %	$1,240,947.00	91.95 %
2021	$0	$639,088.00	99.95 %	$1,278,175.00	87.95 %
2022	$0	$658,260.00	97.95 %	$1,316,520.00	83.95 %
2023	$0	$678,008.00	95.95 %	$1,356,016.00	79.95 %
2024	$0	$698,348.00	93.95 %	$1,396,696.00	75.95 %
2025	$0	$719,299.00	91.95 %	$1,438,597.00	71.95 %
Total:	**$17,836,200**	**$6,319,837.00**		**$12,639,672.00**	

Deficiency Summary by System

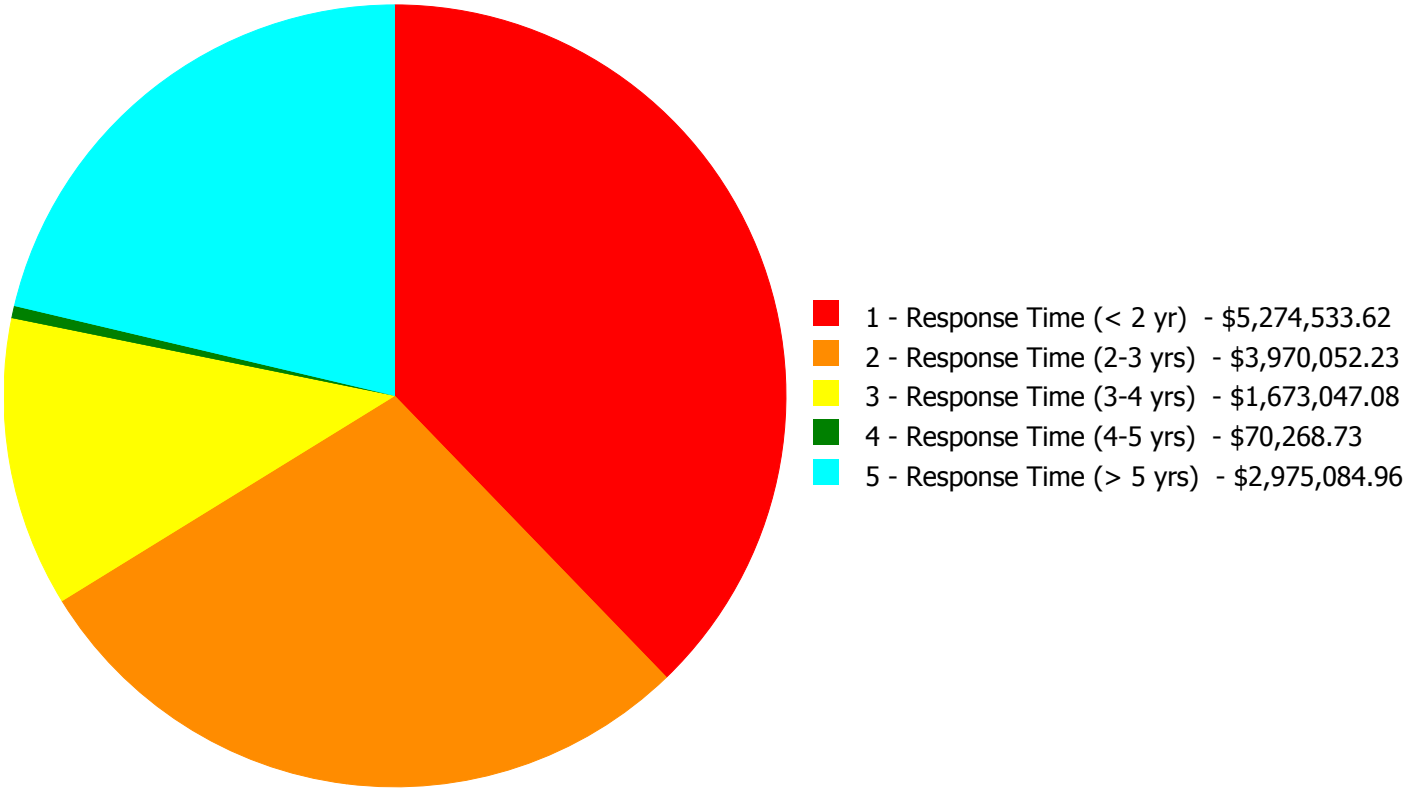
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $13,962,986.62

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: $13,962,986.62

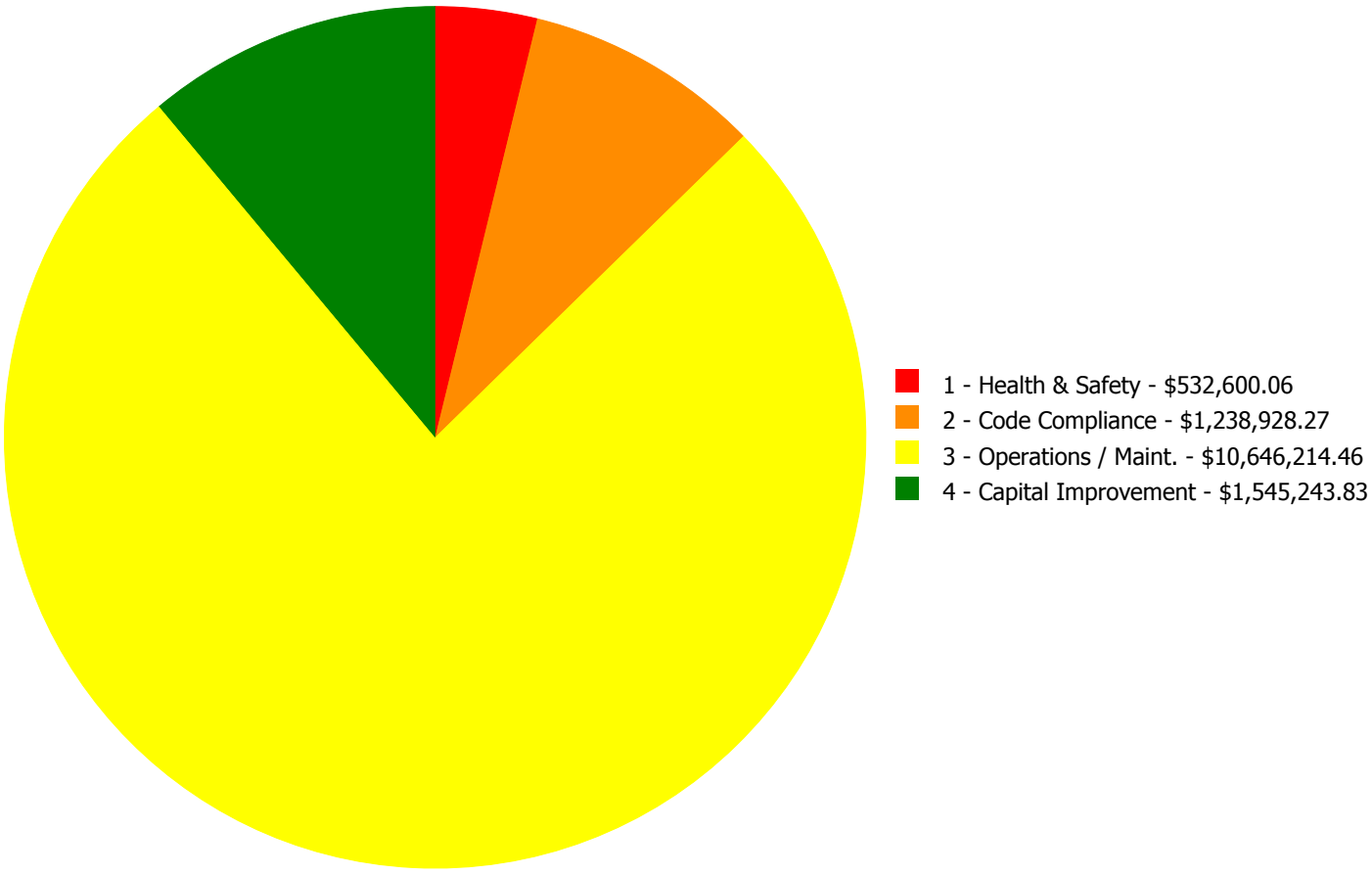
Deficiency By Priority Investment Table

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	$8,820.66	$120,012.92	$0.00	$0.00	$0.00	$128,833.58
B2020	Exterior Windows	$0.00	$1,001,146.33	$0.00	$0.00	$0.00	$1,001,146.33
B2030	Exterior Doors	$0.00	$104,809.19	$0.00	$0.00	$0.00	$104,809.19
B3010105	Built-Up	$1,331,783.22	$0.00	$0.00	$0.00	$0.00	$1,331,783.22
C1020	Interior Doors	$0.00	$532,958.08	$0.00	$0.00	$0.00	$532,958.08
C1030	Fittings	$0.00	$5,867.13	$0.00	$0.00	$0.00	$5,867.13
C2010	Stair Construction	$47,897.78	$2,835.04	$0.00	$0.00	$0.00	$50,732.82
C3010230	Paint & Covering	$0.00	$20,414.58	$0.00	$0.00	$0.00	$20,414.58
C3020413	Vinyl Flooring	$0.00	$426,183.37	$0.00	$0.00	$0.00	$426,183.37
C3020414	Wood Flooring	$0.00	$50,604.62	$0.00	$0.00	$0.00	$50,604.62
C3020415	Concrete Floor Finishes	$0.00	$26,911.73	$0.00	$0.00	$0.00	$26,911.73
C3030	Ceiling Finishes	$0.00	$87,351.64	$0.00	$0.00	$0.00	$87,351.64
D1010	Elevators and Lifts	$0.00	$139,831.95	$0.00	$0.00	$0.00	$139,831.95
D2010	Plumbing Fixtures	$0.00	$464,331.92	$0.00	$0.00	$0.00	$464,331.92
D2020	Domestic Water Distribution	$0.00	$0.00	$0.00	$48,947.09	$233,098.17	$282,045.26
D2030	Sanitary Waste	$0.00	$0.00	$225,664.59	$0.00	$0.00	$225,664.59
D3020	Heat Generating Systems	$0.00	$0.00	$1,012,205.26	$0.00	$26,678.08	$1,038,883.34
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$738,718.36	$738,718.36
D3040	Distribution Systems	$2,369,929.54	$0.00	$435,177.23	$0.00	$1,318,538.39	$4,123,645.16
D3060	Controls & Instrumentation	$0.00	$986,793.73	$0.00	$0.00	$0.00	$986,793.73
D4010	Sprinklers	$0.00	$0.00	$0.00	$0.00	$658,051.96	$658,051.96
D5010	Electrical Service/Distribution	$704,615.02	$0.00	$0.00	$0.00	$0.00	$704,615.02
D5020	Lighting and Branch Wiring	$128,310.94	$0.00	$0.00	$0.00	$0.00	$128,310.94
D5030	Communications and Security	$498,043.26	$0.00	$0.00	$0.00	$0.00	$498,043.26
D5090	Other Electrical Systems	$93,009.05	$0.00	$0.00	$0.00	$0.00	$93,009.05
E1020	Institutional Equipment	$92,124.15	$0.00	$0.00	$0.00	$0.00	$92,124.15
E2010	Fixed Furnishings	$0.00	$0.00	$0.00	$21,321.64	$0.00	$21,321.64
	Total:	$5,274,533.62	$3,970,052.23	$1,673,047.08	$70,268.73	$2,975,084.96	$13,962,986.62

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: $13,962,986.62

Deficiency Details by Priority

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

Priority 1 - Response Time (< 2 yr):

System: B2010 - Exterior Walls

Location: chimney coping cap
Distress: Failing
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Remove and replace precast concrete wall features - SF of surface
Qty: 16.00
Unit of Measure: S.F.
Estimate: $5,451.15
Assessor Name: System
Date Created: 01/28/2016

Notes: Replace concrete coping on top of chimney (16sf)

System: B2010 - Exterior Walls

Location: exterior walls and walls above roof
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Remove graffiti - power wash and paint
Qty: 500.00
Unit of Measure: S.F.
Estimate: $3,369.51
Assessor Name: System
Date Created: 01/28/2016

Notes: Remove graffiti from building, roof areas (500sf)

System: B3010105 - Built-Up

Location: roof

Distress: Failing

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Remove and Replace Built Up Roof

Qty: 37,547.00

Unit of Measure: S.F.

Estimate: $1,272,167.87

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace roof (37,547sf)

System: B3010105 - Built-Up

Location: roof

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Repair or replace flashing where it connects to masonry parapet - choose proper material

Qty: 1,000.00

Unit of Measure: L.F.

Estimate: $56,410.25

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace roof flashing (2000lf)

System: B3010105 - Built-Up

Location: low roof gravel stop

Distress: Failing

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace stripping (gravel stop) at the edge of roof

Qty: 150.00

Unit of Measure: L.F.

Estimate: $3,205.10

Assessor Name: System

Date Created: 01/28/2016

Notes: Repair gravel stop on low roof (150lf)

System: C2010 - Stair Construction

Location: interior stairways

Distress: Building / MEP Codes

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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

Qty: 250.00

Unit of Measure: L.F.

Estimate: $38,042.54

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace interior stair handrails (250ft)

System: C2010 - Stair Construction

Location: exterior ramp handrails

Distress: Building / MEP Codes

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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

Qty: 60.00

Unit of Measure: L.F.

Estimate: $9,855.24

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace exterior handrails along handicap entrance ramps, complying with 2015 building codes (60ft total length)

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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

Qty: 46,000.00

Unit of Measure: S.F.

Estimate: $2,218,998.56

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace the existing unit ventilators throughout the building with new units designed to provide adequate ventilation per ASHRAE Std 62. The new units shall be equipped with hot water / chilled water coils and integral heat exchanger.

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

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

Qty: 46,000.00

Unit of Measure: S.F.

Estimate: $150,930.98

Assessor Name: System

Date Created: 02/08/2016

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

System: D5010 - Electrical Service/Distribution

Location: Boiler Room

Distress: Beyond Service Life

Category: 4 - Capital Improvement

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Switchboard

Qty: 1.00

Unit of Measure: Ea.

Estimate: $434,860.07

Assessor Name: System

Date Created: 12/29/2015

Notes: Upgrade existing service entrance for adding a new 1600A, 208/120V, 3PH, 4 wire substation.

System: D5010 - Electrical Service/Distribution

Location: Entire building

Distress: Beyond Service Life

Category: 4 - Capital Improvement

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Electrical Distribution System (U)

Qty: 1.00

Unit of Measure: Ea.

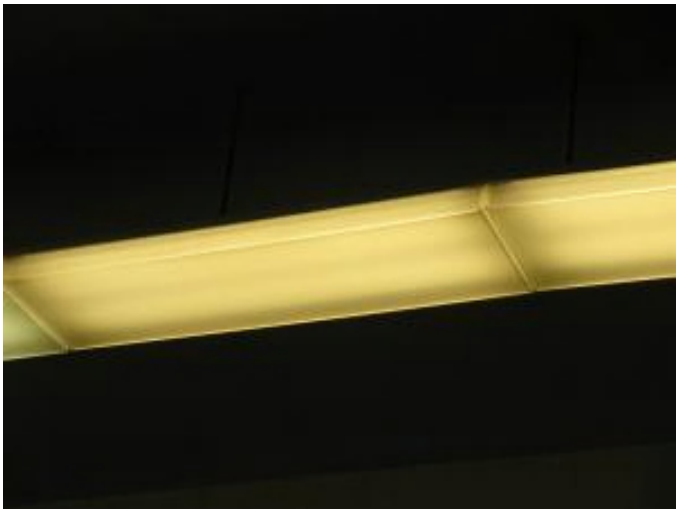
Estimate: $269,754.95

Assessor Name: System

Date Created: 12/29/2015

Notes: Replace the entire distribution system with new panels and new wiring/conduits. Provide arc flash label on the electrical equipment. Estimated 12 panel boards.

System: D5020 - Lighting and Branch Wiring



Location: Interior Building

Distress: Beyond Service Life

Category: 4 - Capital Improvement

Priority: 1 - Response Time (< 2 yr)

Correction: Replace lighting fixtures

Qty: 1.00

Unit of Measure: Ea.

Estimate: $69,381.12

Assessor Name: System

Date Created: 12/29/2015

Notes: Replace all the lighting fixtures in electrical/mechanical rooms with new industrial fluorescent lighting fixtures with T8. Estimated 25each. Repair/replace existing damaged lighting fixtures with new fluorescent fixtures. Estimated 50 total. Replace gymnasium illuminates with LED high bay. Estimated 20 total.

System: D5020 - Lighting and Branch Wiring

Location: Entire Building
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 1 - Response Time (< 2 yr)
Correction: Add receptacles and branch circuits
Qty: 1.00
Unit of Measure: Ea.
Estimate: $32,529.33
Assessor Name: System
Date Created: 12/29/2015

Notes: Install minimum two receptacles in each wall of class rooms in Annex area. Total 50 receptacles.

System: D5020 - Lighting and Branch Wiring

Location: Exterior Building
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Add Exterior Lighting
Qty: 1.00
Unit of Measure: Ea.
Estimate: $14,351.01
Assessor Name: System
Date Created: 12/29/2015

Notes: Replace/repair existing exterior lighting fixtures. Estimate 5 lighting fixtures.

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: $12,049.48
Assessor Name: System
Date Created: 12/29/2015

Notes: Replace existing outdated/damaged exit sign with battery pack exit signs. Total 30 exit sign.

System: D5030 - Communications and Security

Location: Entire Building
Distress: Security Issue
Category: 1 - Health & Safety
Priority: 1 - Response Time (< 2 yr)
Correction: Add/Replace Video Surveillance System
Qty: 1.00
Unit of Measure: Ea.
Estimate: $264,259.53
Assessor Name: System
Date Created: 12/29/2015

Notes: Provide an adequate video surveillance system including camera and Closed Circuit Television (CCTV) system. Cameras should install in the corridors, school entrance doors and on the walls around the building.

System: D5030 - Communications and Security

Location: Entire Building

Distress: Life Safety / NFPA / PFD

Category: 1 - Health & Safety

Priority: 1 - Response Time (< 2 yr)

Correction: Replace fire alarm system

Qty: 1.00

Unit of Measure: S.F.

Estimate: $167,071.77

Assessor Name: System

Date Created: 12/29/2015

Notes: Replace existing fire alarm system with an automatic fire alarm system including smoke detectors in corridors and other recommended areas per NEC. Install horn/strobes in class rooms, corridors, offices, toilets, library and other recommended areas per codes.

System: D5030 - Communications and Security

Location: Auditorium

Distress: Inadequate

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Add/Replace Sound System

Qty: 1.00

Unit of Measure: LS

Estimate: $44,392.64

Assessor Name: System

Date Created: 12/29/2015

Notes: Provide new sound system per ECE-40020 (standard for reinforcement system design) including a freestanding 19” rack backstage with mixer per amplifiers, digital media recording with playback capability, AM-FM radio, graphic or parametric equalizer, and receivers for wireless microphone.

System: D5030 - Communications and Security

Location: Entier Building
Distress: Damaged
Category: 3 - Operations / Maint.
Priority: 1 - Response Time (< 2 yr)
Correction: Add/Replace Clock System or Components
Qty: 0.00
Unit of Measure: Ea.
Estimate: $22,319.32
Assessor Name: System
Date Created: 12/29/2015

Notes: Replace existing master clock system with new wireless clock system.

System: D5090 - Other Electrical Systems

Location: Boiler Room
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: $70,674.04
Assessor Name: System
Date Created: 12/29/2015

Notes: Replace existing generator with new 30KW generator

System: D5090 - Other Electrical Systems

Location: Roof

Distress: Health Hazard / Risk

Category: 1 - Health & Safety

Priority: 1 - Response Time (< 2 yr)

Correction: Provide Lightning Protection System

Qty: 1.00

Unit of Measure: LS

Estimate: $22,335.01

Assessor Name: System

Date Created: 12/29/2015

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

System: E1020 - Institutional Equipment

Location: Auditorium

Distress: Inadequate

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Add/Replace Stage Theatrical Lighting System

Qty: 1.00

Unit of Measure: Ea.

Estimate: $92,124.15

Assessor Name: System

Date Created: 12/29/2015

Notes: Provide new modern stage lighting with automatic dimmer bank controller in the Auditorium.

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

System: B2010 - Exterior Walls

Location: exterior walls - first floor
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Repaint exterior walls - CMU
Qty: 10,000.00
Unit of Measure: S.F.
Estimate: $87,723.45
Assessor Name: System
Date Created: 01/28/2016

Notes: Reapply anti graffiti coating to first floor of building exterior walls (10,000sf)

System: B2010 - Exterior Walls

Location: exterior walls
Distress: Building Envelope Integrity
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: 1,000.00
Unit of Measure: S.F.
Estimate: $32,289.47
Assessor Name: System
Date Created: 01/28/2016

Notes: Repoint cracked and failing brick masonry walls around building (1,000sf)

System: B2020 - Exterior Windows

Location: windows

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: 224.00

Unit of Measure: Ea.

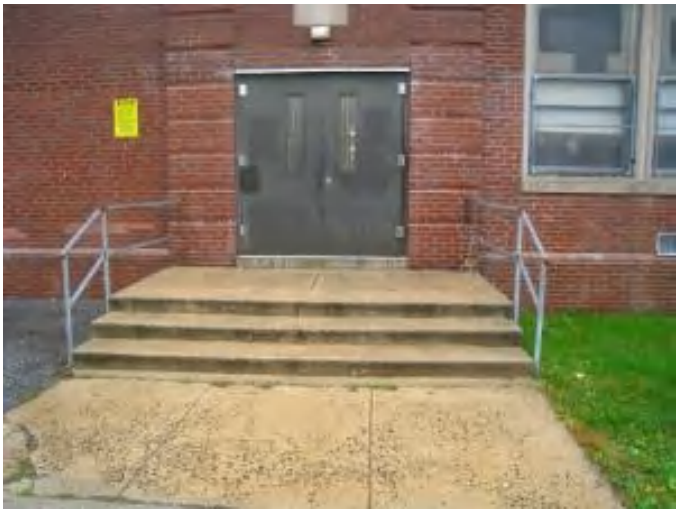
Estimate: $1,001,146.33

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace all windows (180 3.5'x7' main bldg; 44 3.5'x7' annex)

System: B2030 - Exterior Doors



Location: exterior doors

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

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

Qty: 30.00

Unit of Measure: Ea.

Estimate: $104,809.19

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace weatherstripping and hardware on exterior metal doors; repaint doors and frames (30 3x7)

System: C1020 - Interior Doors

Location: classroom, toilet room, office doors

Distress: Building / MEP Codes

Category: 3 - Operations / Maint.

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

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

Qty: 60.00

Unit of Measure: Ea.

Estimate: $286,235.23

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace wood doors in classroom, toilet rooms, offices, auditorium (60 3x7)

System: C1020 - Interior Doors

Location: closet doors (5 door sets)

Distress: Inadequate

Category: 3 - Operations / Maint.

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

Correction: Remove and replace interior doors - wood doors with wood frame - per leaf

Qty: 35.00

Unit of Measure: Ea.

Estimate: $160,745.86

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace 7 classroom closet doors - 5-door coordinated sets with 5 individual doors (35 doors)

System: C1020 - Interior Doors

Location: stairway doors

Distress: Building / MEP Codes

Category: 3 - Operations / Maint.

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

Correction: Remove and replace hollow metal frames and doors

Qty: 14.00

Unit of Measure: Ea.

Estimate: $71,091.82

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace 1 hour rated steel stairway doors (14 doors)

System: C1020 - Interior Doors

Location: corridor doors to classrooms and offices

Distress: Security Issue

Category: 1 - Health & Safety

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

Correction: Provide security hardware for classroom and office doors

Qty: 36.00

Unit of Measure: Ea.

Estimate: $8,259.71

Assessor Name: System

Date Created: 01/28/2016

Notes: Provide security hardware for classrooms and offices, locking from the inside of the room (36)

System: C1020 - Interior Doors

Location: basement doors

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Refinish interior doors

Qty: 8.00

Unit of Measure: Ea.

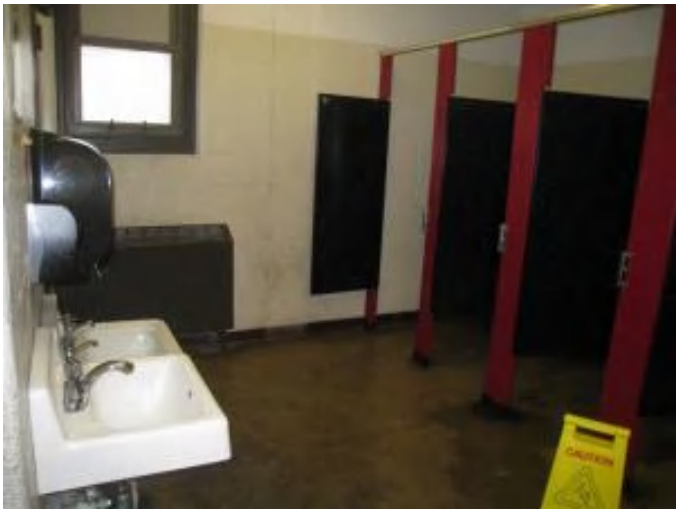
Estimate: $6,625.46

Assessor Name: System

Date Created: 01/28/2016

Notes: Repaint steel doors and metal frames in mechanical rooms in basement (8 3x7)

System: C1030 - Fittings



Location: toilet rooms

Distress: Accessibility

Category: 2 - Code Compliance

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

Correction: Remove and replace damaged toilet paritions - handicap units

Qty: 6.00

Unit of Measure: Ea.

Estimate: $5,867.13

Assessor Name: System

Date Created: 01/28/2016

Notes: Provide toilet room accessories where broken; create handicap toilet rooms (6 toilet rooms)

System: C2010 - Stair Construction

Location: exterior stairway handrails

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 200.00

Unit of Measure: S.F.

Estimate: $2,835.04

Assessor Name: System

Date Created: 01/28/2016

Notes: Repaint front and rear handrails at stairs (30ft; 200sf)

System: C3010230 - Paint & Covering

Location: interior block walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 2,000.00

Unit of Measure: S.F.

Estimate: $15,004.00

Assessor Name: System

Date Created: 01/28/2016

Notes: Repair and repaint interior block walls where damaged in corridors, cafeteria, classrooms and stairways (Rooms 101, 102, 109, etc.; 2,000sf)

System: C3010230 - Paint & Covering

Location: kindergartens

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: 1,000.00

Unit of Measure: S.F.

Estimate: $5,410.58

Assessor Name: System

Date Created: 01/28/2016

Notes: Refinish wood built-ins in Kindergartens (1,000sf)

System: C3020413 - Vinyl Flooring

Location: floors

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove VAT and replace with VCT - SF of area

Qty: 28,100.00

Unit of Measure: S.F.

Estimate: $426,183.37

Assessor Name: System

Date Created: 01/28/2016

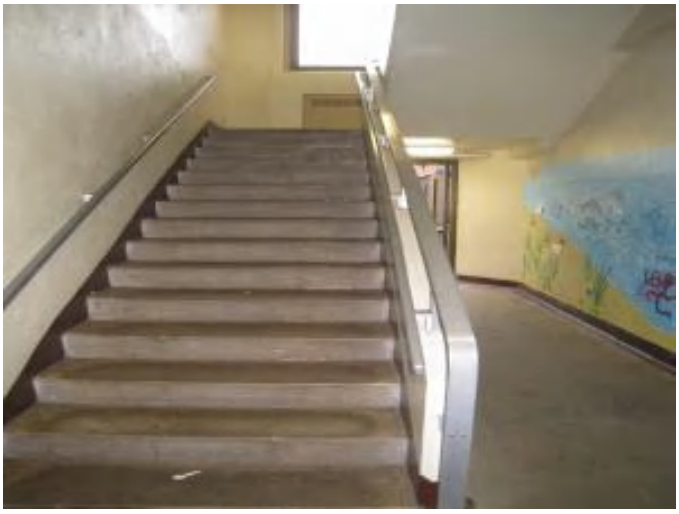
Notes: Remove 9”x9” VAT floors in classrooms, corridors, and cafeteria with and replace with VCT (28,100sf)

System: C3020414 - Wood Flooring

Location: gymnasium and stage
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Refinish wood floors
Qty: 4,700.00
Unit of Measure: S.F.
Estimate: $50,604.62
Assessor Name: System
Date Created: 01/28/2016

Notes: Refinish wood floors in gymnasium and auditorium stage (4,700sf)

System: C3020415 - Concrete Floor Finishes



Location: mechanical areas, toilet rooms, stairways
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Clean and reseal concrete floors
Qty: 7,000.00
Unit of Measure: S.F.
Estimate: $26,911.73
Assessor Name: System
Date Created: 01/28/2016

Notes: Strip and reseal concrete floors in stairways, toilet rooms and part of basement, (7,000sf)

System: C3030 - Ceiling Finishes

Location: corridor ceilings

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace glued on or mechanically attached acoustical ceiling tiles

Qty: 7,000.00

Unit of Measure: S.F.

Estimate: $87,351.64

Assessor Name: System

Date Created: 01/28/2016

Notes: Replace damaged 12x12 corridor ceilings (7,000sf)

System: D1010 - Elevators and Lifts

This deficiency has no image.

Location: existing closet

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Replace elevator - 2 stop hydraulic

Qty: 1.00

Unit of Measure: Ea.

Estimate: $139,831.95

Assessor Name: System

Date Created: 01/28/2016

Notes: Add wheelchair elevator, 2 floor travel

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 21.00

Unit of Measure: Ea.

Estimate: $156,705.10

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace all water closets in the building with lower flow fixtures, as the fixtures are original.

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace water fountains to meet ADA - includes high and low fountains and new recessed alcove

Qty: 8.00

Unit of Measure: Ea.

Estimate: $125,543.18

Assessor Name: System

Date Created: 02/08/2016

Notes: 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.

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 26.00

Unit of Measure: Ea.

Estimate: $99,086.33

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace all lavatories in the building with lower flow fixtures, as the fixtures are original.

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 12.00

Unit of Measure: Ea.

Estimate: $62,549.03

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace all urinals in the building with lower flow fixtures, as the fixtures are original.

System: D2010 - Plumbing Fixtures

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace floor janitor or mop sink - insert the quantity

Qty: 3.00

Unit of Measure: Ea.

Estimate: $20,448.28

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace service sinks (janitor sinks) in the building.

System: D3060 - Controls & Instrumentation

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace pneumatic controls with DDC (75KSF)

Qty: 46,000.00

Unit of Measure: S.F.

Estimate: $986,793.73

Assessor Name: System

Date Created: 02/08/2016

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

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

System: D2030 - Sanitary Waste

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 46,000.00

Unit of Measure: S.F.

Estimate: $225,664.59

Assessor Name: System

Date Created: 02/08/2016

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

System: D3020 - Heat Generating Systems

Location: Main boiler mechanical equipment room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace boiler, cast iron sectional (150 HP)

Qty: 2.00

Unit of Measure: Ea.

Estimate: $1,012,205.26

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace the two 3,385 MBH Weil McLain 94 series steam boilers estimated to have been in service since the 1970s.

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 2 - Code Compliance

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

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

Qty: 46,000.00

Unit of Measure: S.F.

Estimate: $435,177.23

Assessor Name: System

Date Created: 02/08/2016

Notes: Hire a qualified contractor to examine the steam and condensate piping in service for 65 years and perform additional testing to locate and replace any damaged piping and to further quantify the extent of potential failures. The District should budget for replacing this piping over the next 10 years.

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

System: D2020 - Domestic Water Distribution

Location: Main boiler mechanical equipment room
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 4 - Response Time (4-5 yrs)
Correction: Replace instantaneous water heater
Qty: 2.00
Unit of Measure: Ea.
Estimate: $48,947.09
Assessor Name: System
Date Created: 02/08/2016

Notes: Replace two instantaneous natural gas fired tankless water heaters.

System: E2010 - Fixed Furnishings

Location: auditorium
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 4 - Response Time (4-5 yrs)
Correction: Refinish auditorium seating
Qty: 40.00
Unit of Measure: Ea.
Estimate: $21,321.64
Assessor Name: System
Date Created: 01/28/2016

Notes: Refinish auditorium seats (40)

Priority 5 - Response Time (> 5 yrs):

System: D2020 - Domestic Water Distribution

Location: Throughout the building
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 5 - Response Time (> 5 yrs)
Correction: Replace domestic water piping (75 KSF)
Qty: 46,000.00
Unit of Measure: S.F.
Estimate: $233,098.17
Assessor Name: System
Date Created: 02/08/2016

Notes: Inspect and replace the original as needed the domestic water piping in the building

System: D3020 - Heat Generating Systems

Location: Main boiler mechanical equipment room
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 5 - Response Time (> 5 yrs)
Correction: Replace fuel oil pumps
Qty: 1.00
Unit of Measure: Ea.
Estimate: $26,678.08
Assessor Name: System
Date Created: 02/08/2016

Notes: Replace duplex fuel oil pumps.

System: D3030 - Cooling Generating Systems

Location: Adjacent to the building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 46,000.00

Unit of Measure: S.F.

Estimate: $738,718.36

Assessor Name: System

Date Created: 02/08/2016

Notes: Remove the window air conditioning units and install a 250 ton air-cooled chiller on the roof with chilled water distribution piping and pumps located in a mechanical room on the basement level to supply more reliable air conditioning for the building with a much longer service life.

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Provide classroom FC units and dedicated OA ventilation system. (20 clsrms)

Qty: 6.00

Unit of Measure: C

Estimate: $498,365.98

Assessor Name: System

Date Created: 02/08/2016

Notes: Provide ventilation for the corridors at six basement and first floor entryways (9 locations total) by installing fan coil air handling units hung from the structure with outdoor air ducted to the unit from louvers in the window openings

System: D3040 - Distribution Systems

Location: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

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

Qty: 850.00

Unit of Measure: Student

Estimate: $434,958.00

Assessor Name: System

Date Created: 02/08/2016

Notes: Provide ventilation, heating and cooling for the Cafeteria by removing the existing unit ventilators and installing a package rooftop constant volume air handling unit with distribution ductwork and registers.

System: D3040 - Distribution Systems

Location: Roof

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Install HVAC unit for Gymnasium (single station).

Qty: 6,000.00

Unit of Measure: S.F.

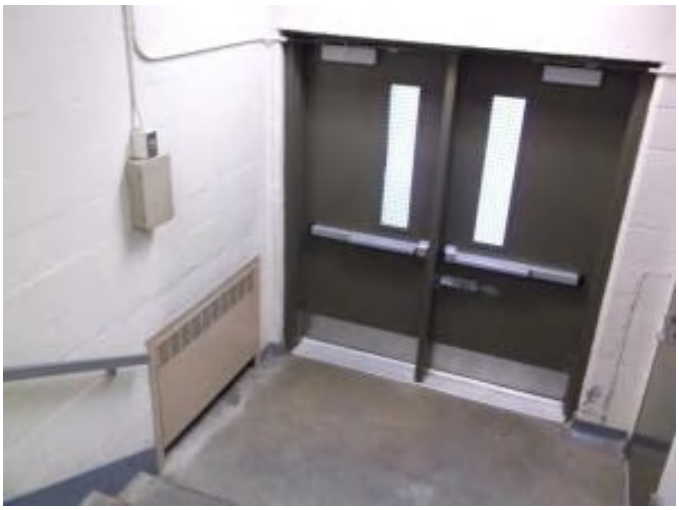
Estimate: $344,860.27

Assessor Name: System

Date Created: 02/08/2016

Notes: Provide ventilation, heating and cooling for the gymnasium by installing a packaged roof top unit.

System: D3040 - Distribution Systems



Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Replace finned tube radiation terminals (per 100 LF)

Qty: 100.00

Unit of Measure: L.F.

Estimate: $40,354.14

Assessor Name: System

Date Created: 02/08/2016

Notes: Replace the steam convection units and any of the original radiant heating (manifold) terminals fashioned from welded piping still present in the building with finned tube elements to protect students from exposure to the hot surfaces.

System: D4010 - Sprinklers

Location: Throughout the building

Distress: Life Safety / NFPA / PFD

Category: 2 - Code Compliance

Priority: 5 - Response Time (> 5 yrs)

Correction: Install a fire protection sprinkler system

Qty: 46,000.00

Unit of Measure: S.F.

Estimate: $658,051.96

Assessor Name: System

Date Created: 02/08/2016

Notes: Install a fire protection sprinkler system with quick response type heads to reduce insurance costs by providing protection for the property. A fire pump may be required depending on the available city water pressure. Install a new sprinkler system throughout the building

Equipment Inventory

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

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D3020 Heat Generating Systems	Boiler, cast iron, gas & oil, steam, 4650 MBH	2.00	Ea.	Main boiler mechanical equipment room	Weil Mclain	1794			35			$168,672.60	$371,079.72
												Total:	**$371,079.72**

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):	298,500
Year Built:	1949
Last Renovation:	
Replacement Value:	$4,667,901
Repair Cost:	$278,305.57
Total FCI:	5.96 %
Total RSLI:	38.48 %

Description:

Attributes:

General Attributes:

Bldg ID:	S836001	Site ID:	S836001

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	53.31 %	8.26 %	$278,305.57
G40 - Site Electrical Utilities	0.00 %	0.00 %	$0.00
Totals:	**38.48 %**	**5.96 %**	**$278,305.57**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
G2010	Roadways	$11.52	S.F.		30				0.00 %	0.00 %				$0
G2020	Parking Lots	$7.65	S.F.	18,200	30	1949	1979	2047	106.67 %	164.17 %	32		$228,573.85	$139,230
G2030	Pedestrian Paving	$11.52	S.F.	112,300	40	1949	1989	2028	32.50 %	0.98 %	13		$12,649.84	$1,293,696
G2040	Site Development	$4.36	S.F.	298,500	25	1949	1974	2028	52.00 %	2.85 %	13		$37,081.88	$1,301,460
G2050	Landscaping & Irrigation	$3.78	S.F.	168,000	15	1949	1964	2028	86.67 %	0.00 %	13			$635,040
G4020	Site Lighting	$3.58	S.F.	298,500	30	1949	1979		0.00 %	0.00 %	-36			$1,068,630
G4030	Site Communications & Security	$0.77	S.F.	298,500	30	1949	1979		0.00 %	0.00 %	-36			$229,845
								Total	**38.48 %**	**5.96 %**			**$278,305.57**	**$4,667,901**

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.

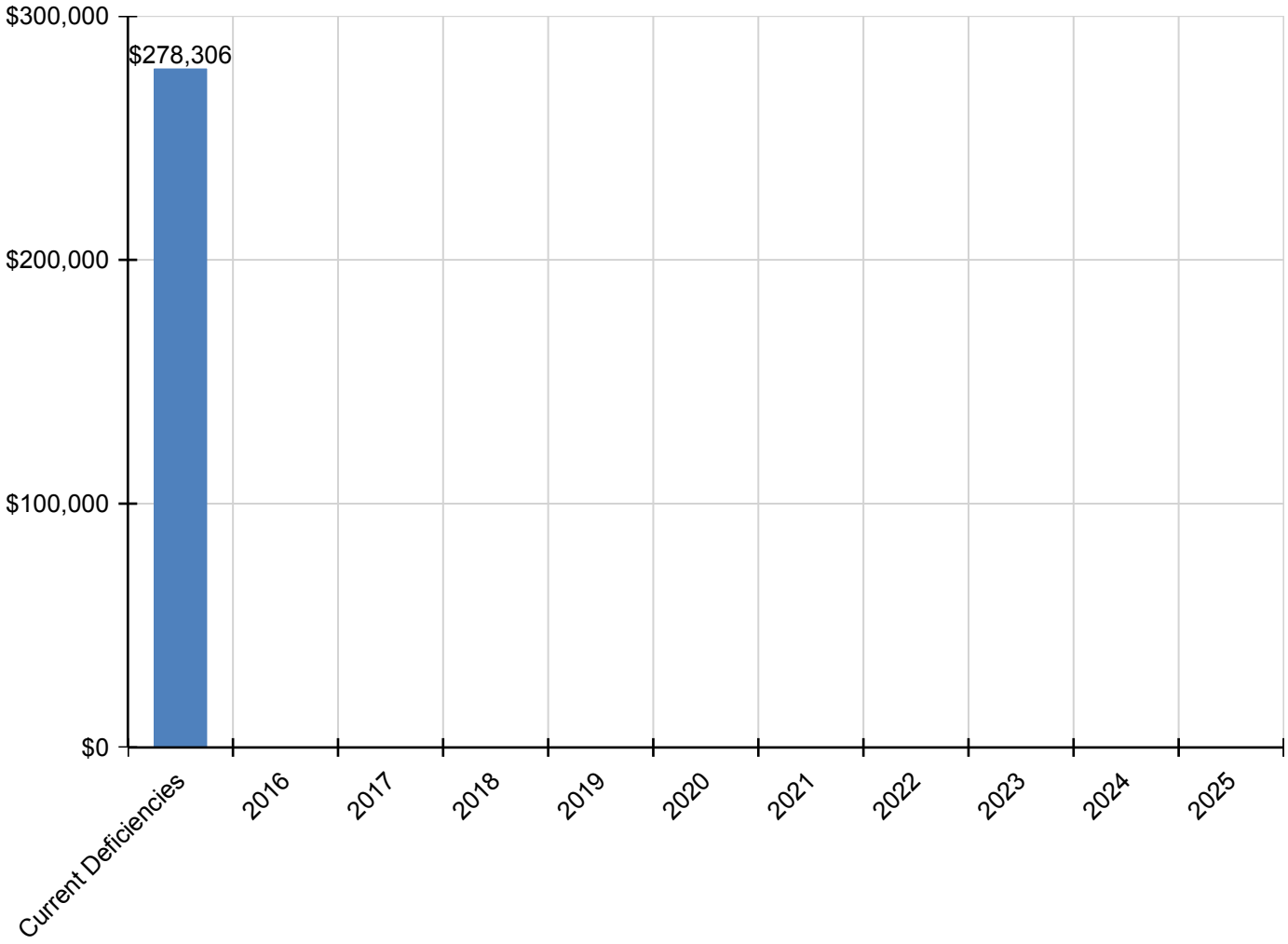
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$278,306**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$278,306**
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	$228,574	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$228,574**
G2030 - Pedestrian Paving	$12,650	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$12,650**
G2040 - Site Development	$37,082	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$37,082**
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

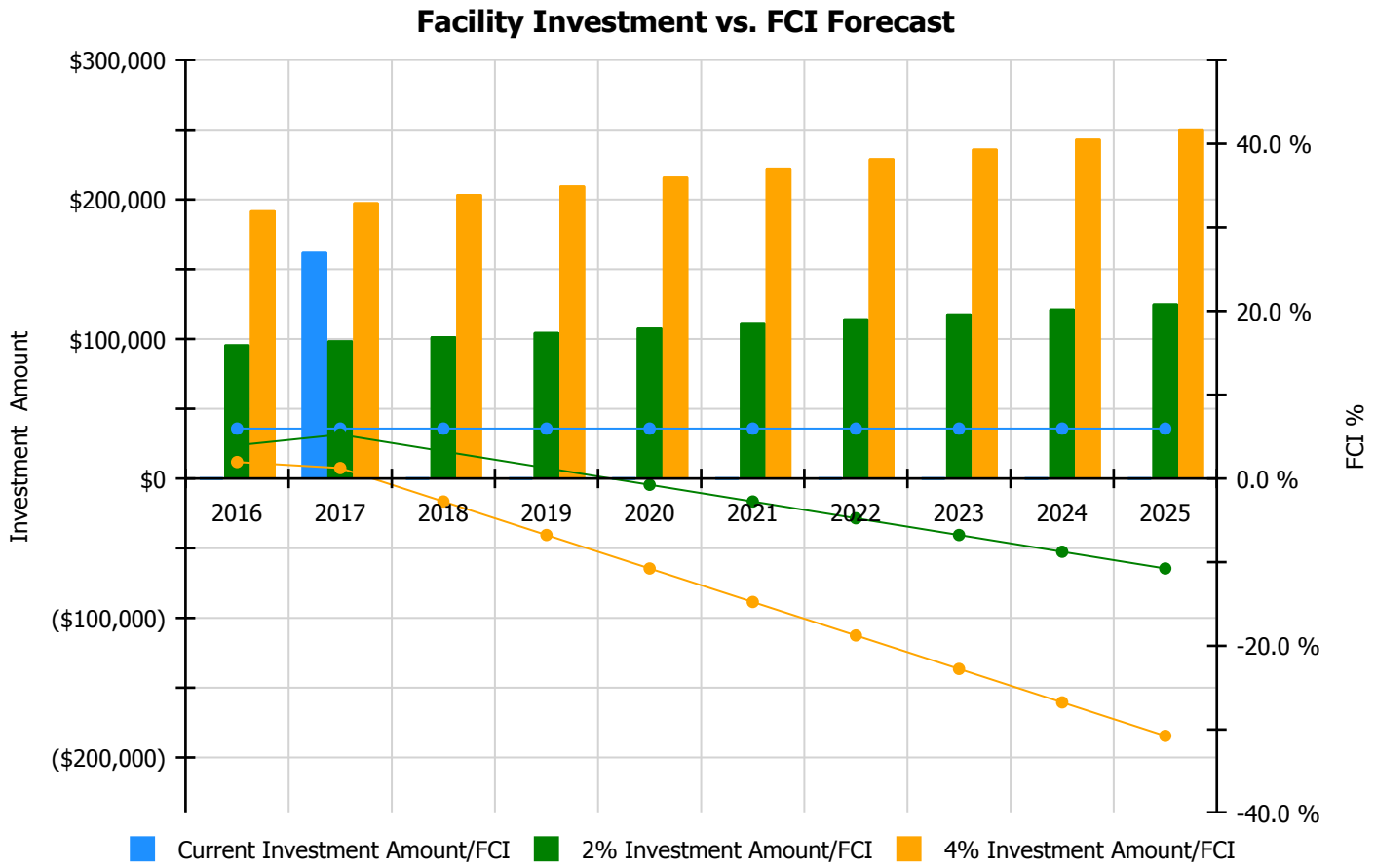
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

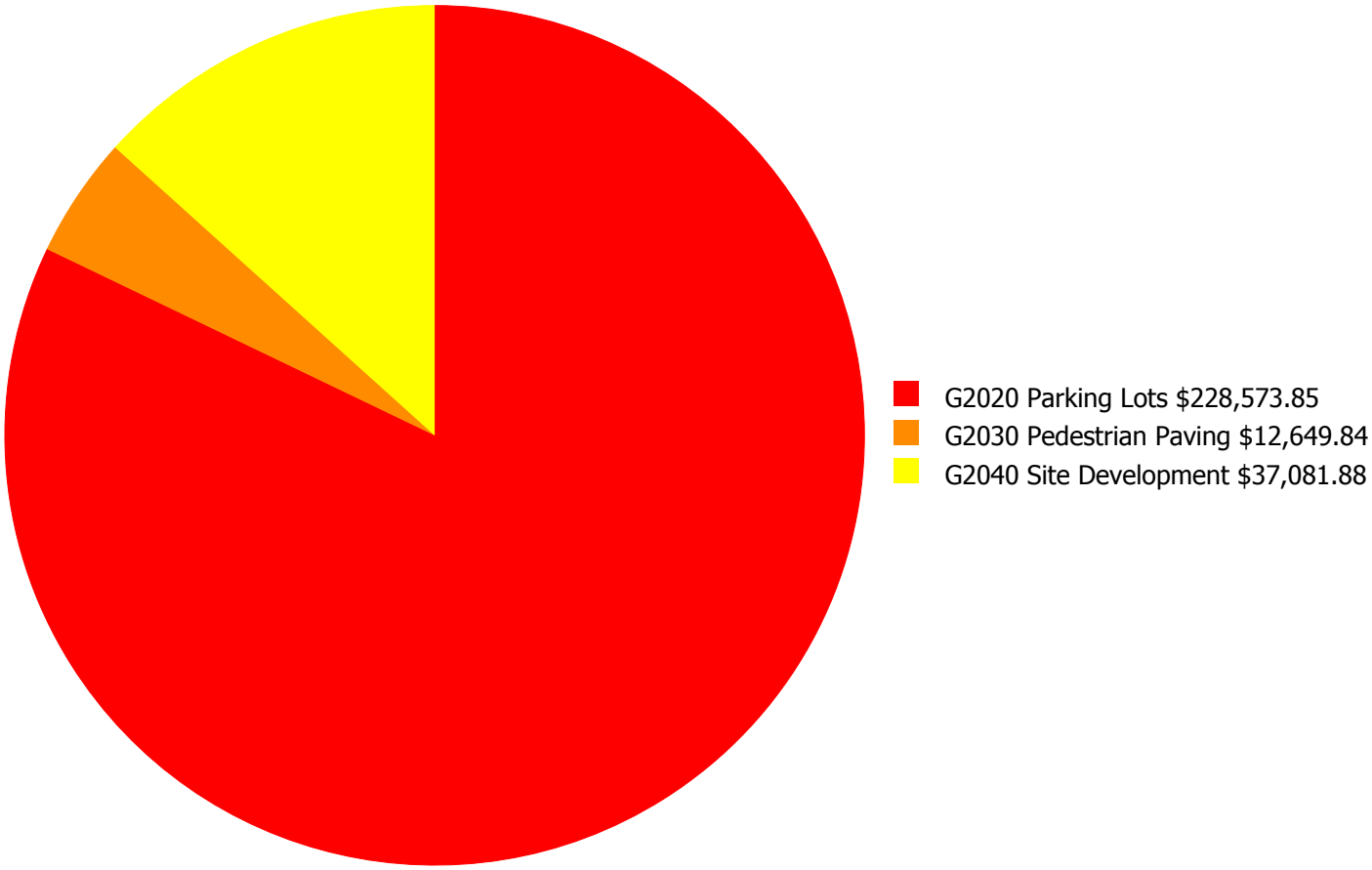
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 5.96%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$96,159.00	3.96 %	$192,318.00	1.96 %
2017	$162,480	$99,044.00	5.24 %	$198,087.00	1.24 %
2018	$0	$102,015.00	3.24 %	$204,030.00	-2.76 %
2019	$0	$105,075.00	1.24 %	$210,151.00	-6.76 %
2020	$0	$108,228.00	-0.76 %	$216,455.00	-10.76 %
2021	$0	$111,474.00	-2.76 %	$222,949.00	-14.76 %
2022	$0	$114,819.00	-4.76 %	$229,637.00	-18.76 %
2023	$0	$118,263.00	-6.76 %	$236,526.00	-22.76 %
2024	$0	$121,811.00	-8.76 %	$243,622.00	-26.76 %
2025	$0	$125,465.00	-10.76 %	$250,931.00	-30.76 %
Total:	**$162,480**	**$1,102,353.00**		**$2,204,706.00**	

Deficiency Summary by System

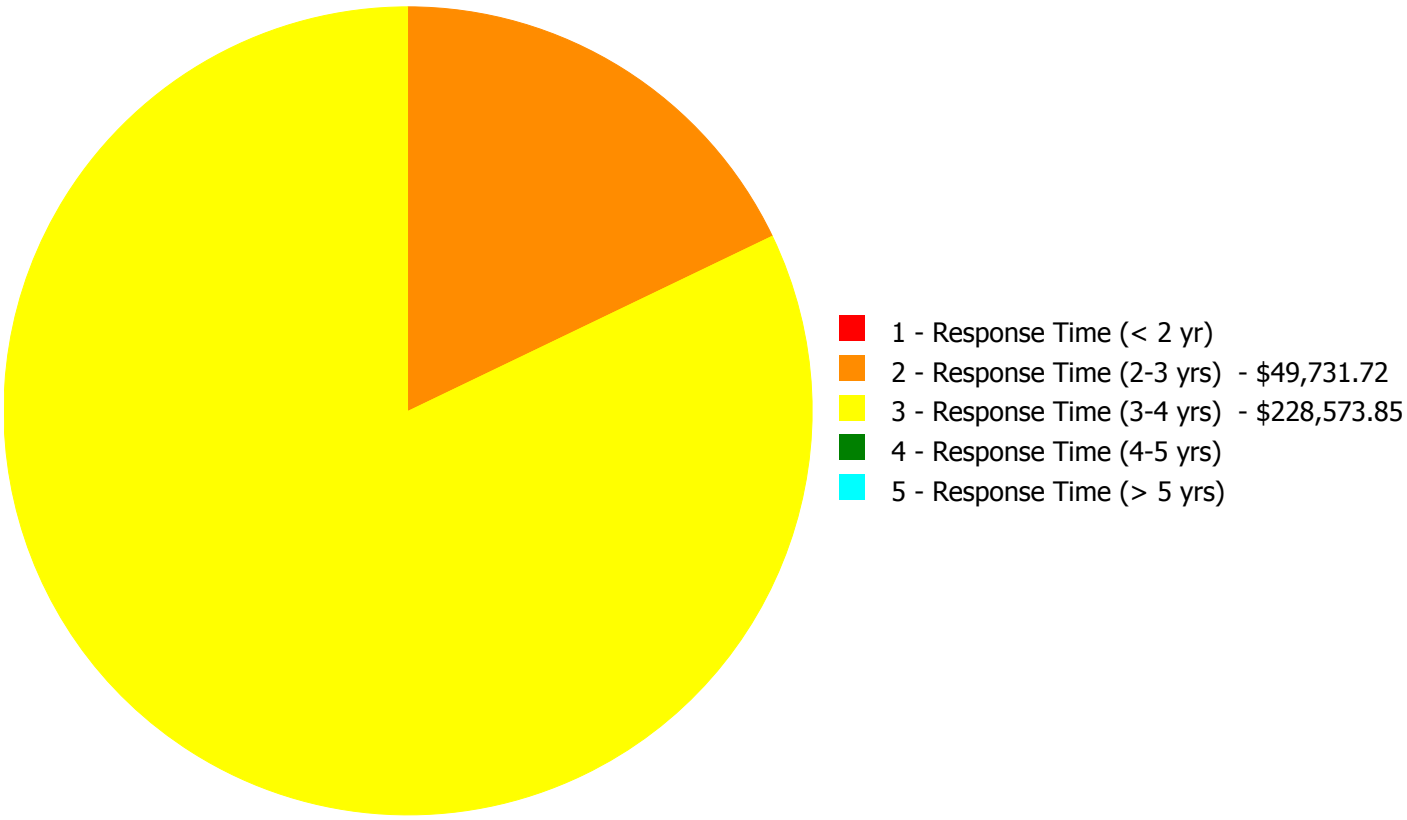
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $278,305.57

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: $278,305.57

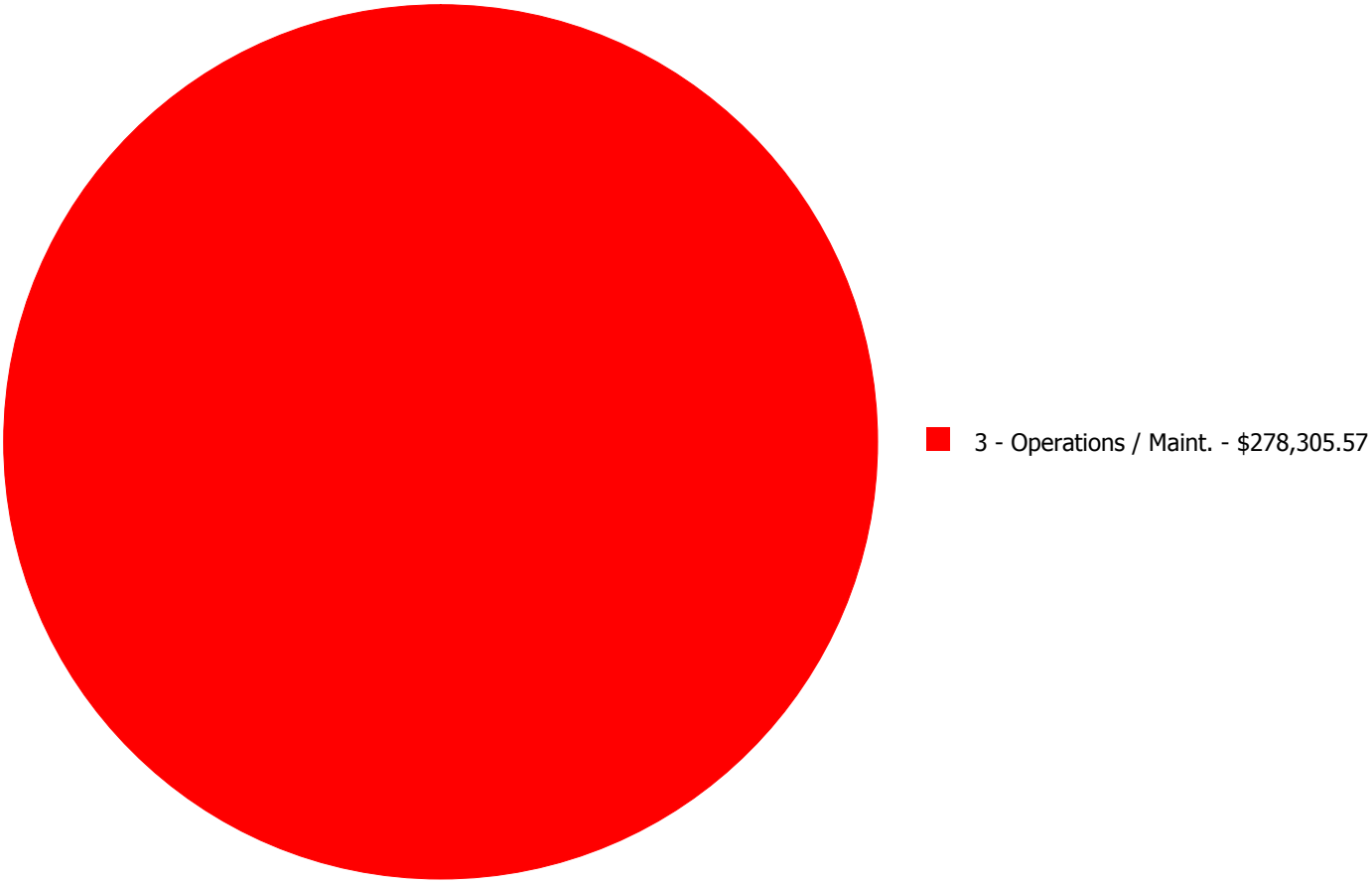
Deficiency By Priority Investment Table

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	$0.00	$228,573.85	$0.00	$0.00	$228,573.85
G2030	Pedestrian Paving	$0.00	$12,649.84	$0.00	$0.00	$0.00	$12,649.84
G2040	Site Development	$0.00	$37,081.88	$0.00	$0.00	$0.00	$37,081.88
	Total:	$0.00	$49,731.72	$228,573.85	$0.00	$0.00	$278,305.57

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: $278,305.57

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: G2030 - Pedestrian Paving

Location: concrete walkways

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: 500.00

Unit of Measure: S.F.

Estimate: $7,191.43

Assessor Name: Craig Anding

Date Created: 01/28/2016

Notes: Repave broken sections of concrete paving (500sf)

System: G2030 - Pedestrian Paving

Location: exterior stair

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Repair on grade concrete stairs - nosings and exposed rebar

Qty: 4.00

Unit of Measure: Riser

Estimate: $5,458.41

Assessor Name: Craig Anding

Date Created: 01/28/2016

Notes: Repair broken concrete stairs (100sf)

System: G2040 - Site Development

Location: site fence and gates at front/sides

Distress: Inadequate

Category: 3 - Operations / Maint.

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

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

Qty: 200.00

Unit of Measure: L.F.

Estimate: $37,081.88

Assessor Name: Craig Anding

Date Created: 01/28/2016

Notes: Add security fencing and 2 gates starting from side property line fencing connecting to the building to close-off and secure the rear of the building (200ft)

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

System: G2020 - Parking Lots

Location: parking lot and play area

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Resurface parking lot - grind and resurface including striping

Qty: 60,000.00

Unit of Measure: S.F.

Estimate: $228,573.85

Assessor Name: Craig Anding

Date Created: 01/28/2016

Notes: Repave damaged asphalt parking lot and play area with new asphalt (60,000sf)

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