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.

Wilson, W Middle School

Governance	DISTRICT	Report Type	Middle
Address	1800 Cottman Ave.	Enrollment	1315
	Philadelphia, Pa 19111	Grade Range	'06-08'
Phone/Fax	215-728-5015 / 215-728-5051	Admissions Category	Neighborhood
Website	Www.Philasd.Org/Schools/Wilson	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	**41.68%**	**$30,508,627**	**$73,202,247**
Building	42.08 %	$29,995,424	$71,285,230
Grounds	26.77 %	$513,203	$1,917,017

Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
Roof (Shows physical condition of roof)	02.58 %	$52,210	$2,026,964
Exterior Walls (Shows condition of the structural condition of the exterior facade)	00.63 %	$38,425	$6,107,310
Windows (Shows functionality of exterior windows)	00.00 %	$0	$2,985,300
Exterior Doors (Shows condition of exterior doors)	91.82 %	$185,730	$202,275
Interior Doors (Classroom doors)	204.23 %	$999,998	$489,645
Interior Walls (Paint and Finishes)	06.73 %	$148,788	$2,209,680
Plumbing Fixtures	50.08 %	$944,589	$1,886,040
Boilers	64.49 %	$1,679,574	$2,604,465
Chillers/Cooling Towers	65.60 %	$2,240,285	$3,414,960
Radiators/Unit Ventilators/HVAC	136.60 %	$8,191,794	$5,997,105
Heating/Cooling Controls	158.90 %	$2,992,567	$1,883,250
Electrical Service and Distribution	79.99 %	$1,082,419	$1,353,150
Lighting	66.20 %	$3,202,883	$4,837,860
Communications and Security (Cameras, Pa System and Fire Alarm)	06.81 %	$123,364	$1,812,105

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

S812001;Wilson, W

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):	139,500
Year Built:	1928
Last Renovation:	
Replacement Value:	$73,202,247
Repair Cost:	$30,508,626.66
Total FCI:	41.68 %
Total RSLI:	67.05 %

Description:

Facility Condition Assessment

October 2015

School District of Philadelphia
Woodrow Wilson Middle School
1800 Cottman Avenue
Philadelphia, PA 19111

139,500 SF / 1,190 Students / LN 08

General

Woodrow Wilson Middle School is located at 1800 Cottman Avenue. The main entrance faces Cottman Avenue. This school was constructed in 1928, has 139,500 square feet, and is 3-4 stories tall. There is a basement under the south side of the building, on the side Englewood Street. Element 2, a 4th floor addition was constructed on top of 3rd floor rooms in the center area of the building, sometime in the 1940's; it was originally utilized as a gymnasium but is now used as classrooms. In the mid 1960's, Elements 3 and 4

were additions constructed onto the west side of the building connected by short corridors in the area now used as faculty parking; these two structures were demolished sometime in the 1980's to make space for the faculty parking lot and a park/outdoor assembly area along Frontenac Street. The Woodrow Wilson School can be found on the National Historical Register, number 88003347 with the address of Cottman Avenue and Loretto Avenue. Pat McMahon, the Building Engineer accompanied the team during the building inspection.

The inspection team met with Principal Stephanie Ressler at the time of field inspection. In particular, she indicated that some drinking fountain drains back-up during heavy rains, there are steam leaks in many radiators, heating controls do not work (the heat is either all on or completely off), the lighting board in the auditorium is not functional, stage curtain is ripped, auditorium seating needs to be refinished, the basement mechanical area retaining wall along Englewood Street is leaning and failing, there are roof leaks, windows are difficult to open (although only 7-8 years old), faculty parking is not adequate, and student drop-off causes traffic jams.

Architectural/Structural

Foundations in the boiler room (basement) appear to be constructed of concrete and brick. Joints are in good condition with no major settlement cracks observed in any area except the south wall along the outside areaway. There is substantial peeling paint observed on all basement walls and ceilings but the inside of the areaway wall is the worst of all peeling walls. All walls, floors and ceilings are dirty. There are exposed reinforced concrete columns throughout the space. Footings were not seen and their construction type or condition could not be ascertained.

Floor slabs in the boiler room are very dirty but in good condition. Outside the boiler room, basement slabs are in good condition without any major cracks or settlement. There is a trap door in the boiler room wall that views the space under the areaway. It can be seen that the areaway slab is failing and allowing water to seep in, forming stalactites; this is one of the many structural deficiency issues with the areaway. Upper floor slabs are also constructed of cast-in-place concrete with cast-in-place concrete beams. Columns, beams and floor deck above also appeared to be in good condition. Cracking and spalling of the concrete structure was observed in the outside areas of the fire stair towers but not in any interior building spaces.

Roof construction is a complex system of flat, minimum overall slope areas and low-slope pitched areas between walls and adjacent higher flat-roof areas. The building is shaped like a square "O" with all spaces inside the "O" filled with buildings having different roof heights. This type of building design creates many pockets, walls with roofs terminating against them, troughs against walls for water collection and areas of potential leaks. None of the roofs or low areas have overflow or secondary storm drains; when one drain gets clogged with debris, the area floods and there is a high probability that a leak will occur. The roof superstructure is constructed of reinforced concrete columns, beams, and floor slabs. The roof over the main classroom section (perimeter "O") of the building is also constructed of reinforced concrete beams and deck, bearing on masonry walls with a flat roof and minimum pitch to roof drains. Roof drains are located at low areas of the roof in the center areas of the perimeter legs of the rectangular "O"; there are no dished areas around the roof drains, but there are crickets which direct the water towards the drains and away from the parapet walls. Even though the roof is only 10 years old, there are leaks in the roof; since the membrane appears to be in good condition, penetrations and coping are possible sources of leaks. Penetrations should be resealed and coping reinstalled where there are large gaps between adjacent coping panels. Access to the main "O" roof is via a door out of a brick penthouse. Access to other lower roofs is somewhat difficult, requiring the use of portable ladders or climbing through windows. This building, unlike Harding and Cooke (same architect and same design) this building has a 4^{th} floor addition (Element 2) constructed over the auditorium, possibly in the 1940's. The roof over Element 2 is also flat and the structure could not be seen. It is drained to roof drains along the left and right low parapet walls. Between the Element 2 area and the outer "O" walls are the girl's gym on one side and the boy's gym on the other side. The roofs over these one-story elements are low-sloped roofs, peaked at the center, drained to scuppers and vertical leaders to low troughs to the left and right. Gymnasium roofs are supported by custom-designed steel trusses consisting of riveted sections creating the raised clerestory glazed sections on two sides of each gym; these complex trusses have many areas of rust especially at the bottom sections and need to be repaired to avoid losing load carrying capacity. The drain troughs on the sides under the clerestory glazing have internal roof drains to internal piping through spaces below to the storm system underground; there are leaks around the drains and also in the troughs. This complex arrangement creates many cavities, troughs against walls, and low areas that can trap water, snow, leaves, and debris; they also create many areas of potentially poor drainage and high probability for leaks. The cascading low areas also will trap and hold ice in winter months that can cause freeze-thaw damage to roofing and adjacent building walls. Frequent and diligent maintenance is required to keep this system draining the collected water. Typical areas of leaks where roof water collects and is trapped forming leaks are seen in the Harding School along the corridors outside the auditorium on the left and right sides; it seems that Wilson does not have leaks in those areas.

Exterior brick walls facing the street are generally in good condition. It appears as if many areas have been repointed. The lower limestone cornices, horizontal accent band, and brickwork below need to be powerwashed to remove years of dirt and grime. Front and side window have thin brick columns between triple windows. There are cracks along the tops of the brick columns along most first floor windows on the Cottman Ave elevation and some of the windows on the side elevations; these joints need to be repointed or rebuilt where bricks have broken out of the joints. Masonry walls facing the inside of the "O" have been repointed "recently" within

the past 10 years (estimated). However, new cracks are forming in brickwork on these walls. The steel stairway security gratings set into the brick enclosing the two sets of rear fire stairs were recently repainted and in fair condition. The top of the furnace flue has cracks and needs to be pointed. Of most concern is an area of serious structural spalling and failing of the concrete wall that forms the window well along the Englewood Street side of the building. A concrete walkway with brick walls serving as guards (instead of aluminum handrails and guards) spans the recessed areaway allowing access to the kitchen from Englewood Street. This concrete "bridge" has lost a great deal of concrete material underneath, exposing reinforcing rods and appearing to be to the point of failure at any time. The brick walls on the sides of the access bridge from the street to the kitchen are also cracking and sagging. The concrete retaining wall supporting the sidewalk above is also in a state of spalling, cracking, crumbling and failure. The building wall on the opposite side of the areaway is also cracking and thee lintels supporting the brick wall over the louvers and windows are rusting. The steel stair up from the base of the areaway to the street is heavily rusted and might not be safe to utilize. The area drains at the bottom of the areaway might be clogged as evident from debris in and around the drains. Since the bridge is the only from the street into the building, the bridge, concrete retaining wall and building wall systems need to be repaired immediately before collapsing into the window well. The exterior walls of Element 2, the 4th floor, are finished with a metal panel system. Since it is in good condition, it is thought that it was installed as a replacement wall system, approximately 8 years ago with the windows or with the roof.

Exterior windows were replaced around 2007 with dark bronze anodized aluminum frame operable single hung units with double pane insulated glazing. The windows in the front and sides have brick mullions dividing the triple windows, cracking at the top under the lintel which spans the triple windows; some of the bricks are cracking in pieces and need to be repaired/replaced. Windows are in good condition and although new, it was indicated that some units are difficult to operate. Clerestory windows in the gym were replaced with all other windows, however half of the electric motor operators are not functioning. Since these units may still be under a manufacturer's warranty, the contractor should be contacted, but in any case windows should be adjusted to make operation easier. Black bug/security screen are utilized on first floor windows for security which are unobtrusive and make the school look less like a prison.

Exterior doors are painted steel framed flush hollow metal units with steel frames. The main entrance has a classical 4 column colonnade portico and the original wood doors which creates an impressive entrance. Secondary entrances around the building have limestone accents panels and details that provide decoration around the door openings. Some side doors have small glazing vision panels. Doors have been recently repainted but are still in poor condition, have broken or non-functioning panic hardware, rusted dented panels and door frames, and are not ADA compliant. All doors and hardware should be replaced; the front doors, being original, should be repaired and refinished. The right side entrance has a make-shift temporary wooden ramp to provide minimal handicap entrance to the main floor and access for certain students that attend the school at this time, however there are no permanent ADA accessible ramps and or elevators; these should be provided to give the school permanent accessibility.

Roof covering on the main building flat roof is a fully adhered rolled asphalt sheet system that was installed approximately 10 years ago. Although the membrane and flashing appear to be in good condition, leaks have been reported. Inspection of all penetrations and flashing should be conducted as well as cleaning of all roof drains. Roof openings include toilet room vents, ventilation ductwork, and roof drains. Brick rooftop structures, brick parapets, and ventilation fan structures are flashed with the same roofing membrane material. Low parapets less than a foot in height are also flashed full height with the asphalt membrane. Taller brick structures and building walls with roofing terminations have aluminum counterflashing attached to the brick, counterflashed, and sealed with caulking along the top edge; this caulking is cracking and may not provide an effective seal. Aluminum coping used on the tops of all parapet walls is also thought to be 10 years old, however many gaps up to 3/8" or larger have developed between adjacent sections of coping, which could be sources of water infiltration. Separated coping should be removed and reinstalled over new flashing.

Partitions in basements are constructed of brick masonry and concrete. The upper 3 floors of the building have plaster which is thought to be applied on wood or terra cotta lath on masonry partitions. The 4th floor classrooms have gypsum board partitions with a vinyl base; toilet rooms have ceramic tile wainscots. There are wood framed clerestory glass panels located in walls above classroom doors in the corridors. These panels are in generally good condition being above the reach of anyone, but the glass is not wired or fire rated; they should be removed and replaced with fire-rated gypsum board assemblies. Between some classrooms are manually operated full height wood folding partitions. It appears that some of these moveable wall systems are still operational, although their stability before and after opening could not be determined. They are very heavy, rolling mechanisms do not work well and they do not provide good sound attenuation between classes. Nobody opens the walls. In many third floor corridor locations on the inside of the "O", peeling ceiling and wall plaster could be seen resulting from roof leaks. Exterior walls should be inspected and repointed, roof drains should be tested to determine if leaks are occurring around the outside of the housings, and coping should be re -installed. Leaks seem to be occurring on interior facing walls, not exterior street facing walls.

Interior doors are either the original oak wood and plate glass (not fire rated or wired) raised panel doors with replacement hardware or replacement wood doors with narrow lite wired glass vision panels and replacement hardware at least 20 years of age. Many of the original wood doors have damaged panels, broken glass, and broken hardware. Some interior basement doors and most interior stairway doors are hollow metal or steel panel doors in metal frames; stairway doors are full glass. Many steel doors and frames are rusted where coming in contact with floors, due to cleaning solutions corroding the frames. Doors are generally in poor condition

throughout the building, are not ADA compliant, do not have ADA or proper locking hardware, and are not fire rated where required. Stairway doors do not positively latch (they do not have panic or latching hardware) as required of fire rated doors. Classroom doors do not have security locking feature from inside classrooms. Newer wood replacement doors already in place can be refinished and reused where not heavily damaged, but steel stairway doors and all original wood doors need to be replaced with positively latching fire rated doors with approved fire rated glazing. All door hardware needs to be replaced.

Interior fittings/hardware include black slate chalkboards with oak chalk trays or bulletin boards integral to the original dark oak folding wall partitions built into the folding panels. Most have chalk boards and tack boards mounted onto the panels. White boards should be provided to replace old blackboards and chalk. Folding wood panels are covered with staples and small gouges. Most of these folding partition units are no longer opened as they are heavy and most hinges and bearings are not operable. Damaged folding wall units need to be replaced with sturdier, safer, fixed partitions; operational panels may remain although refinishing is required. Some toilet rooms have new solid plastic HDPE (high density polyethylene) replacement partitions and doors. Some older partitions are marble with wood door or no doors. Toilet room accessories (toilet paper dispensers, soap, paper towel or dryers, grab bars, door latches) have been recently replaced in most toilet rooms. Some components are missing and others are not fully functional. Marble and wood toilet partitions should be replaced with HDPE partitions. Missing and broken toilet room accessories should be replaced. The toilet rooms in the main entrance lobby have HDPE lavatory counters with stainless steel sinks but the original marble toilet partitions. Steel lockers line many corridors on each floor; they have the original factory painted finish and are in fair condition. Girls' and Boys' Cafeterias have folding portable plastic laminate table/chair units.

Stair construction throughout the building consists of concrete treads with steel nosings, concrete risers, and concrete stringers with wood handrails (29" high), guards (36" high), and steel balusters with 3" spacing. The two emergency egress stairs facing Englewood Street are constructed of concrete treads, risers, and stringers with steel handrails (29" high) and full height glass and steel walls between stair runs; steel mullions are covered with rust. Since handrail and guard heights are not in compliance with today's codes, new handrail and guard systems are required for all stairs. The exterior sections of the emergency exit stair enclosures are in very poor condition; concrete decks supporting floors or roof above are cracking and spalling with reinforcing bars exposed and roof drains beginning to fall out of the deck. Brickwork is cracking on all exterior surfaces. Doors and frames are rusted. The stairs themselves are in good condition in need only of cleaning and paint.

Wall finishes in the old building are plaster which is cracked with surface crazing in a number of classroom and corridor locations. There is damage in most classrooms at doorways and corners; corridors also have scattered areas of damage. Corridors have a pink marble wainscot protecting the lower section of wall, in good condition needing cleaning at the bottom where coming in contact with the floor. There are also areas of water damage on upper floor plaster walls due to water penetration from coping or roof leaks or lintel leaks. Stained wood trim in all rooms is damaged and worn but should be sanded, patched and refinished. Toilet room walls are painted plaster with pink marble wainscots. The auditorium has a painted wood wainscot that should be repainted where damaged and decorative plaster pilasters and decorative wood classical architectural elements in need of repair and repainting. The queuing area outside the auditorium is part of the grand lobby entrance to the building. The entrance is a two story space with full height marble walls and marble floors. There are some minor chips and a few broken panels, but generally the lobby and queueing area outside the auditorium is in good condition. In the auditorium and backstage, there are a number of wall and ceiling areas that have been damaged from water leaks, coming from the trapped wall/roof areas previously discussed in the roof discussion. Assuming these leaks have been addressed after roof and wall repairs, the auditorium plaster should be repaired. The two separate cafeterias (designated boys and girls) and the common kitchen have glazed brick wainscots, painted decorative bands and painted brick upper sections, all in good condition only requiring a good cleaning at the base where coming in contact with floors.

Floor finishes in the building consist of dark stained oak floors in classrooms and the auditorium, VAT (vinyl asbestos tile) and VCT (vinyl composition tile) in some classrooms, VAT in the cafeterias, high-build paint in the gymnasium, and concrete panels (typical for all schools in the District of this age) in corridors and basement. Wood floors are generally in good enough condition to be stripped, sanded, and refinished; some planks will need to be replaced as they are warped or broken. Classrooms, cafeteria, and other rooms with either 12"x12" VCT or 9"x9" VAT over wood are worn, have damages and cupping edges; the finishes in these rooms should be removed and replaced with new VCT where possible presence of asbestos. If present, the tiles should be removed using proper asbestos abatement procedures and replaced with 12"x12" VCT. The gymnasium floors have holes and cracks and are worn; these floors should also be replaced (existing coating removed and new coatings applied). The lobby is finished in 1'x2' (nominal) marble tile on first floor, the two decorative open stairs, and the second floor auditorium queue area overlooking the lobby. These floors are in excellent condition, are extremely durable, and have no visible damages. All corridor floors are finished with 2'x2' (nominal size) concrete tiles which appear to be a monolithic system and highly durable. Edges along the walls are painted; these corridor floors have not recently been stripped and cleaned and have years of dirt sealed into the surface and corners, causing their color to be very dark and dingy. There is an especially large build-up of dirt at all corners. Toilet room floors also have a sealed concrete floor finish. A thorough cleaning and resealing of these floors is required. The cafeteria kitchen floor is quarry tile, which is old, broken in many places, and should be replaced with a new quarry tile floor finish.

Ceiling finishes are mostly 2x4 suspended acoustical tile ceiling system with recessed 2x4 fluorescent lighting fixtures throughout the

building. Most 2x4 ceilings and lighting fixtures are aging, in poor condition, and should be replaced. The auditorium has a plaster ceiling with decorative cornice elements and moldings, in good condition. The boys and girls gymnasiums have exposed structural joists and concrete deck ceilings. The paint that once covered the exposed custom steel trusses is peeling and the trusses are rusting, and the concrete decks are in need of refinishing.

Furnishings in the building include the original folding wood seating in the auditorium which is still in use. Many of the 600 (approximate number) seats need to be repaired to operate properly and many are scratched; most are damaged in appearance and many do not work properly. The broken seating should be repaired and the worn seating should be refinished. Casework and storage cabinets in the classrooms and the office is damaged, worn and needs replacement. Student lockers throughout the building appear to be in good condition.

An elevator was not present in this school. An ADA accessible elevator is required to provide access to all floors.

Mechanical

Plumbing Fixtures – The building is equipped with wall hung urinals (flush valve type), wall hung water closets (flush valve type), and wall hung lavatories with wheel handle faucets. 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.

Drinking fountains in the corridors and at the restrooms are wall hung fountains. There are a few vertical floor standing electrical water coolers. Drinking fountains are typically located in the hallways at intervals, but are not located at the bathroom groups. Most appear to be the original installed equipment. The replacement of all drinking fountains is recommended as the equipment is approximately 87 years old and beyond its service life. The building engineer reports that during occurrences of heavy rainfalls the drinking fountains overflow. Confirmation should be performed of whether the sanitary system is a combined system with the storm water.

Wall hung service sinks are original and are available throughout the building for use by the janitorial staff. Service sinks are typically located in the vicinity of the bathroom groups. The sinks appear have exceeded their service life, and should be replaced. The Cafeteria's food prep/kitchen is equipped with two, two compartment stainless steel sink with wheel handle operated faucets. One sink is served by a floor mounted grease trap. The kitchen is also equipped with a hand sink. Each double compartment 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 4" 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) and a new 4" water meter on the main line upon entering the building. The dedicated make up cold water for the boiler is equipped with an RPZA backflow preventer. The water meter appears to be new. 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.

There is one vertical tank, natural gas fired water heater, Bradford White, Model 75T80B3N, 75 gallons of storage, 76,000 btuh in this facility which is still in service located in the boiler mechanical room. There is another similar water heater which fed into the domestic hot water supply but has been disconnected and abandoned in place. The water heater is fitted with P and T relief. There is no expansion tank installed on the system. The hot water system is equipped with a recirculation pump as well. The water heater appears to be in satisfactory condition however, based on the nameplate data ANSI Z21.10-3b 2004 edition was in effect when the unit was produced. Based on this the water heater was manufactured between 2004 and 2006, prior to the issuance of ANSI Z21.10-3 2007, meaning the unit is approximately 10-12 years old and has reached the end of its service life. When the water heater is replaced, two water heaters should be installed to provide system redundancy. A water softener was located in the boiler room for treating the boiler make up water system. The water softener system appears to be 5-10 years old.

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 a sewage ejector located in the Boiler Mechanical Equipment Room.

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. The roof drainage piping material consists of galvanized steel piping with threaded fittings. There is no secondary roof drainage system 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 in the paved area by the dumpsters near Englewood Street.. The fuel pumps and controls are original vintage, are beyond their serviceable life and therefore should be replaced. Natural gas enters the building on the first level on the building exterior facing Frontenac Street.. The gas service is 2". 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 three 300 HP Superior Scotch Marine steam boilers with oil fuel burners. All boilers are equipped with oil burners. The boilers were installed in 1972 and are at the end of their service life and should be replaced. Each boiler flue is equipped with draft control. Combustion air louvers serve the boiler room to provide combustion air for the boiler operation. Burner oil pumps are driven by independent motors. . The oil supply to the burner is equipped with dual solenoid valves and strainer/disposable media filter.

Cooling Generating Systems – The fourth floor was at one time served by a split system RTU with the condensing unit and evaporator air handler both mounted on the roof. This system is no longer functional and has been abandoned in place.

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 is a condensate receiver system which has been abandoned. Condensate returns 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 two pumps and a pump control panel. The steam traps are failing throughout the building and have not been replaced 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.

Ventilation and additional heating for the building was provided by a house fan in the basement which is operational but is not used. The air was pushed into the various rooms of the building through ducts built into the walls. The air was exhausted from other ducts built into the walls, up through the attic space, and out through roof mounted vents. Additional fresh air is admitted into the building through the unit ventilators and by opening windows. The house fans are no longer in use. Two house fans are located in the basement while others are located on the roof level. The fans located at the roof have had the flexible connector between the fan and the ductwork removed.

The building uses cast iron steam radiators in the classrooms, hallways, stairwells and entryways, and currently is the sole source of heat for these areas. These radiators and the original radiant heating (manifold) terminals are fashioned from welded piping. There is a combination of steam radiators which have protective enclosures while others do not. These units without protective enclosures should be replaced with finned tube convectors or should have protection added to protect students from exposure to the hot surfaces.

The gymnasium is served by steam radiators. There are also operable windows which are used for natural ventilation of the space. The girls' and boys' locker areas are also equipped with suspended steam radiators from the ceiling. 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 steam radiators. The radiators are part of the original building equipment, have exceeded their life expectancy and should be replaced. 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 hood is served by a makeup air with gas heat and exhaust air fan which is mounted on the kitchen roof. The hood has been provided with an Ansul fire suppression system. From visual inspection the unit appears in need of being replaced The replacement make up air and exhaust air system should be coupled with a heating and ventilating supply air system which serves the cafeteria space. 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.

Terminal & Package Units - There are a few areas which have window air conditioning units, but predominantly the building does not have cooling systems. There are four roof mounted exhaust fans of which serve the restrooms. In addition, there are two fans which independently serve each locker room, girls and boys.

Controls & Instrumentation - The original pneumatic systems no longer functions. Pneumatic room thermostats at one time controlled

the steam radiator valves. The existing air compressor (with a refrigerated air dryer)which generated control air for the temperature control system which is located in the boiler room is no longer operate due to the air leaks in the pneumatic tubing throughout the building. The maintenance staff reports temperature control is non-existent throughout the facility and that the heating system is either in full heating mode or off. Potential problems with oil, moisture or dirt in the pneumatic copper tubing as well as the prevalence of leaking air lines are probable sources 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 87 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, however the fire stair towers are both equipped with a standpipe riser with angle hose valve connections at each floor level as well as the roof. The piping consists of galvanized piping with mechanical couplings. 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

Site Electrical Service is from Medium voltage overhead lines on wooden poles along Englewood St. One pit mounted utility transformer with medium voltage primary (voltage level unknown at this time) and 208/120VAC secondary and at an estimated available power of 300 KVA is installed outside the building for supplying power to facility.

The service entrance to the facility consist of a disconnect switch, utility meter and 1600A, 208/120V, 3phase, 4wire switchboard located in the Boiler Room in the basement of the building. Service entrance and the switchboard are old and have exceeded their useful life. There may not be enough capacity to accommodate future HVAC loads.

Power distribution in main building is achieved through corridor located lighting/receptacle panel boards. Each floor has four panel boards. There are five more power panels also provided (two in dining area and three in boiler room) for feeding the kitchen and mechanical loads. It appears that all panel boards and branch circuit breakers have out-lived their useful lives thus are ready for upgrade/replacement.

In general there are not enough receptacles in classrooms. It is recommended to have a minimum of two receptacles on each classroom wall, but the current installation falls short of this recommendation. The computer room should have receptacles at three feet on center on each wall.

Lighting in the building is provided by fluorescent fixtures with outdated T-12 lamps or in specific areas like mechanical rooms or attics, incandescent fixtures are utilized. Classrooms utilize 2x4 lay in grid type fixtures; cafeteria and kitchen utilize 2x4 surface mounted fluorescent fixtures; auditorium utilizes traditional decorative chandeliers; boiler room utilizes 1x4 industrial fluorescent fixtures, and the gymnasium utilizes pendent mounted metal halide fixtures which have high energy consumption and are difficult to re-lamp. Lighting levels in the some areas like the gymnasium does not meet IES (Illuminating Engineering Society) standards. Lighting fixtures in corridors and auditorium have already been upgraded with T8 fluorescent lamps and only some fixtures in those areas need to be repaired or replaced. Gymnasium lighting fixtures should be replaced with LED high bay fixtures. All other lighting fixtures should be replaced with new T-8 fluorescent fixtures.

Fire Alarm system in the building was upgraded less than four years ago and is functioning properly. Monitoring is by smoke detectors in corridors and pulls stations at building egress points. There are sufficient numbers of horn/strobes installed throughout the building in rooms such as classrooms, corridors, offices, and other areas of occupancy. No major deficiencies were observed.

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

Separate PA system does not exist. The telephone systems is used for public announcements and is working adequately.

Each classroom is served by an intercom telephone service. The system permits paging and intercom communications between the main office phone and classroom phones and classroom to classroom. 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 paging speakers are old and should be replaced.

The present master clock system is not functioning. System is old and has exceeded its useful service life thus requiring replacement. The existing bell system is working adequately.

Television system is not provided in the school.

Security System, access control, and video surveillance systems are provided inside the school. A sufficient number of cameras are installed to cover exit doors, corridors and other critical areas; they are controlled by a Closed Circuit Television system (CCTV), which is working properly.

Emergency Power System is provided in the school. A 30KW, 208/120V, 3PH, 4W diesel generator manufactured by "Kohler" is installed in the boiler room. This generator is new and working properly.

Uninterruptible Power System (UPS) is provided for Local Area Network.

Emergency lighting, including exit lights is provided in the building. Corridors, library, and egress corridors are fed by the emergency generator. Exit lights are old and should be replaced.

Lightning Protection System is adequate and is incompliant with NFPA 780.

Grounding is present and is adequate.

Elevator is not provided in the building.

Theater Lighting and dimming controls are old and not working. They should be replaced with new systems.

Auditorium Sound System is old and should be replaced with a new PA/sound system.

Site Lighting is adequate. 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 not provided in the school. Play yard should be provided with two outdoor speakers.

Grounds

Walkway paving in the front and side streets is constructed of 4'x4' (nominal) concrete panels; roughly 25% are in need of replacement and although they are not all contiguous, it may be possible to replace only those that are failing. Many concrete panels in the concrete play area are also cracked and need to be replaced. Granite block stairways into the front and left side of the building are cracked and need resetting and regrouting. New handrails and guards are required at all stairs. An ADA accessible entrance with a permanent ADA accessible ramp and marked route is required in the parking area. The asphalt parking lot is in need of repaving, new wheelstops, and restriping. The number of required parking spaces provided is inadequate to meet the full needs of faculty and staff, however there is no space for additional parking. Faculty, staff, and visiting parents not able to find spaces in the parking lot must park on the street. The concrete slab in the dumpster area is severely cracked and broken.

Wrought iron fencing is almost totally rusted and needs repainting. There are some damaged and bent fence panels in need of replacement. The gates on the parking lot facing Cottman and Englewood are new and in good condition. The brick wall along Cottman Avenue and the concrete play area is spalling and cracked, and bowing out in many locations. The concrete bridge leading from Englewood Street into the building is failing as discussed in the Exterior Wall paragraph, above.

RECOMMENDATIONS

Architectural

- Remove failing concrete walk "bridge" with brick side walls over window well, replace with new structural slab bridge (500sf)
- Replace brick side walls on concrete bridge over areaway (40sf each side)
- Repair concrete areaway retaining wall – all 3 sides (150ft x 8ft tall)

- Repair basement wall over and around windows and louvers in areaway (500sf)
- Replace rusted stair from areaway to grade level at Englewood Street (13 risers)
- Repair concrete slab at bottom of areaway (1000sf)
- Clean out two clogged deck drains at bottom of areaway
- Repoint cracks in parapet above counterflashing, masonry walls above roof, cracks in brick walls on facing inside of "O", and joints above and below limestone band (400sf)
- Re-seal roof penetrations at gravity vents, plumbing vents and fans (assume 25 penetrations in 53,085sf roof)
- Replace coping panels that have separated (allowance of 250ft)
- Reset gutter drains in troughs and reseal metal troughs (500ft)
- Powerwash rear building wall and limestone band and below on front and sides of building (10,000sf)
- Repair broken brick under triple window lintels on first floor Cottman Ave. and Frontenac St. (17ea)
- Strip and repaint concrete foundation (interior basement) walls in mechanical rooms (4,000sf)
- Clean and repaint basement floor in mechanical rooms; clean and reseal concrete floors in hallways, stairways, and toilet rooms (42,000sf)
- Replace all exterior doors and frames; also provide new exit hardware. (20)3x7
- Repair and refinish historical, solid wood front doors (6)
- Remove non-rated glass panels between classrooms and corridors; fill with fire rated gyp bd sys. (120 @ 6sf each)
- Refinish all original wood interior doors, frames and hardware inside classrooms, closets, offices, etc. (80)
- Replace all original wood interior doors in hallways (160)
- Provide security hardware for classrooms and offices, locking from inside classroom. (160)
- Remove and replace all basement steel doors, frames, and hardware in mechanical rooms; fire rated doors with panic hardware for stairs (30) 3x7 doors
- Remove folding wood partitions; replace with gypsum board and metal stud walls (8) @300sf ea =2700sf
- Repair and repaint cracked and damaged plaster walls throughout the building (5000sf)
- Repair damaged marble wainscot panels in area of auditorium and other areas (200sf)
- Repaint exposed steel truss and beam ceilings including concrete roof deck; repair peeling and water damaged walls and beams under clerestory on high walls sill in gyms over boys and girls gymnasiums (10,000sf)
- Remove and replace stairway handrails and guards with code compliant systems (6 stairways) x4 story; =50x24=1200lf
- Strip, sand, repair and refinish all wood floors in classrooms and in auditorium (37,600sf)
- Remove and replace all high-build painted floors in boy's and girl's gymnasiums (13,300sf)
- Replace VCT floors (11,700sf)
- Replace VAT floors using proper asbestos abatement procedures if determined asbestos is present. (17,900sf)
- Replace 2x4 acoustical tile ceilings or 12"x12" glued-on ceiling tiles where damaged or where grid is rusted (107,800sf)
- Provide toilet room accessories where broken or missing (6 sets)
- Replace damaged marble and wood water closet partitions with HDPE plastic partitions (assume 20)
- Repair and refinish damaged folding wood auditorium chairs; 33% of total = 200
- Provide new 5 stop traction elevator

- **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 12,000 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 vertical tank natural gas fired water heaters.
- Inspect and replace the original as needed the domestic water piping in the building
- 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 87 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 three, 300 HP Superior Scotch Marine steam boilers installed in 1972.
- Replace the steam radiators 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 steam radiators throughout the building with new fan coil 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 10 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 radiators 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 the existing electrical service with a new service. Replace the existing switchboard with new2000A, 208/120V, 3PH, 4 wire switchboard.
- Replace the entire distribution system with new panel boards and new feeders. Provide arc flush label on the all panel boards. Estimated, 20 panel boards.
- Install minimum two receptacles in each wall of class rooms. It is recommend that surface mounted raceway with two-compartment, for data and power, be installed in the computer lab room.
- Replace all existing lighting fixtures with new fluorescent fixtures with T8 lamps except those in corridors and offices which have already been upgraded. Replace existing fixtures in gymnasium with LED high bay and replace/repair damaged lighting fixtures in corridors. Estimated 20 total.
- Replace all exit lights with new battery pack exit lights. Estimated 30 total.
- Replace existing master clock system with a 10 watt wireless master clock system. Provide new battery type clocks in the classrooms, Offices, Gymnasium, auditorium. Kitchen and library. Total 50 clocks.
- Provide new stage lighting and lighting controller stage lighting in the Auditorium.
- Provide new sound system including a freestanding 19” tack back stage with mixer per amplifiers, CD player, cassette player, AM-FM radio, graphic or parametric equalizer, and receivers for wireless microphone.
- Replace/repair existing exterior lighting fixtures. Estimate 4 lighting fixtures.
- Install 1 camera on each corner of the exterior building and one on the main entrance of the building.
- Provide two speakers on exterior walls for covering the play yard area.

- **Grounds**

- Regrout joints between limestone block tread/risers at misc. exterior stairs (10 treads, 6ft long)
- Repair/Reconstruct landscape retaining walls leaning and broken along Cottman Ave, Englewood Ave, and playground area (approx. 50% of 800ft long retaining walls 3 feet height)
- Repave 2000sf damaged sections of concrete walkway along streets; repave 4000sf concrete playground (6,000sf total)
- Repave 100% of parking lot (10,000sf)
- Repave dumpster slab and access slab to dumpster (2,000sf)
- Repaint rusted wrought iron fence surrounding site and along playground and raised walkway (1,600ft)
- Replace failing and non-code compliant handrails/guards on all site stairs both sides of each stair (4) 7 riser stairs, (4) 4 riser stairs, (2) 2 riser stairs; main entrance stair 8 risers – 4 handrails

Attributes:

General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 3 / Tm 2
Status:	Accepted by SDP	Team:	Tm 2
Site ID:	S812001		

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	35.00 %	0.00 %	$0.00
A20 - Basement Construction	35.00 %	11.33 %	$227,667.53
B10 - Superstructure	35.00 %	1.13 %	$150,608.38
B20 - Exterior Enclosure	50.87 %	2.41 %	$224,155.28
B30 - Roofing	50.27 %	2.58 %	$52,209.56
C10 - Interior Construction	27.92 %	33.21 %	$1,137,001.83
C20 - Stairs	35.00 %	221.05 %	$434,797.50
C30 - Interior Finishes	93.35 %	42.04 %	$2,830,197.34
D10 - Conveying	105.71 %	354.64 %	$756,931.22
D20 - Plumbing	64.88 %	79.58 %	$2,224,720.11
D30 - HVAC	97.02 %	97.33 %	$15,104,220.12
D40 - Fire Protection	105.71 %	177.49 %	$1,995,609.76
D50 - Electrical	110.11 %	53.77 %	$4,408,666.20
E10 - Equipment	37.14 %	13.86 %	$307,820.42
E20 - Furnishings	32.50 %	47.39 %	$140,818.41
G20 - Site Improvements	59.93 %	35.13 %	$513,203.00
G40 - Site Electrical Utilities	40.59 %	0.00 %	$0.00
Totals:	**67.05 %**	**41.68 %**	**$30,508,626.66**

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)
B812001;Wilson, W	139,500	42.08	$5,583,681.03	$9,472,491.83	$3,674,233.24	$9,571.34	$11,255,446.22
G812001;Grounds	104,900	26.77	$24,621.13	$450,486.23	$38,095.64	$0.00	$0.00
Total:		**41.68**	**$5,608,302.16**	**$9,922,978.06**	**$3,712,328.88**	**$9,571.34**	**$11,255,446.22**

Deficiencies By Priority

1 - Response Time (< 2 yr) - $5,608,302.16
2 - Response Time (2-3 yrs) - $9,922,978.06
3 - Response Time (3-4 yrs) - $3,712,328.88
4 - Response Time (4-5 yrs) - $9,571.34
5 - Response Time (> 5 yrs) - $11,255,446.22

Budget Estimate Total: $30,508,626.66

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:	Middle School
Gross Area (SF):	139,500
Year Built:	1928
Last Renovation:	
Replacement Value:	$71,285,230
Repair Cost:	$29,995,423.66
Total FCI:	42.08 %
Total RSLI:	67.37 %

Description:

Facility Condition Assessment

October 2015

School District of Philadelphia
Woodrow Wilson Middle School
1800 Cottman Avenue
Philadelphia, PA 19111

139,500 SF / 1,190 Students / LN 08

General

Woodrow Wilson Middle School is located at 1800 Cottman Avenue. The main entrance faces Cottman Avenue. This school was constructed in 1928, has 139,500 square feet, and is 3-4 stories tall. There is a basement under the south side of the building, on the side Englewood Street. Element 2, a 4th floor addition was constructed on top of 3rd floor rooms in the center area of the building, sometime in the 1940's; it was originally utilized as a gymnasium but is now used as classrooms. In the mid 1960's, Elements 3 and 4 were additions constructed onto the west side of the building connected by short corridors in the area now used as faculty parking; these two structures were demolished sometime in the 1980's to make space for the faculty parking lot and a park/outdoor assembly area along Frontenac Street. The Woodrow Wilson School can be found on the National Historical Register, number 88003347 with the address of Cottman Avenue and

Loretto Avenue. Pat McMahon, the Building Engineer accompanied the team during the building inspection.

The inspection team met with Principal Stephanie Ressler at the time of field inspection. In particular, she indicated that some drinking fountain drains back-up during heavy rains, there are steam leaks in many radiators, heating controls do not work (the heat is either all on or completely off), the lighting board in the auditorium is not functional, stage curtain is ripped, auditorium seating needs to be refinished, the basement mechanical area retaining wall along Englewood Street is leaning and failing, there are roof leaks, windows are difficult to open (although only 7-8 years old), faculty parking is not adequate, and student drop-off causes traffic jams.

Architectural/Structural

Foundations in the boiler room (basement) appear to be constructed of concrete and brick. Joints are in good condition with no major settlement cracks observed in any area except the south wall along the outside areaway. There is substantial peeling paint observed on all basement walls and ceilings but the inside of the areaway wall is the worst of all peeling walls. All walls, floors and ceilings are dirty. There are exposed reinforced concrete columns throughout the space. Footings were not seen and their construction type or condition could not be ascertained.

Floor slabs in the boiler room are very dirty but in good condition. Outside the boiler room, basement slabs are in good condition without any major cracks or settlement. There is a trap door in the boiler room wall that views the space under the areaway. It can be seen that the areaway slab is failing and allowing water to seep in, forming stalactites; this is one of the many structural deficiency issues with the areaway. Upper floor slabs are also constructed of cast-in-place concrete with cast-in-place concrete beams. Columns, beams and floor deck above also appeared to be in good condition. Cracking and spalling of the concrete structure was observed in the outside areas of the fire stair towers but not in any interior building spaces.

Roof construction is a complex system of flat, minimum overall slope areas and low-slope pitched areas between walls and adjacent higher flat-roof areas. The building is shaped like a square “O” with all spaces inside the “O” filled with buildings having different roof heights. This type of building design creates many pockets, walls with roofs terminating against them, troughs against walls for water collection and areas of potential leaks. None of the roofs or low areas have overflow or secondary storm drains; when one drain gets clogged with debris, the area floods and there is a high probability that a leak will occur. The roof superstructure is constructed of reinforced concrete columns, beams, and floor slabs. The roof over the main classroom section (perimeter “O”) of the building is also constructed of reinforced concrete beams and deck, bearing on masonry walls with a flat roof and minimum pitch to roof drains. Roof drains are located at low areas of the roof in the center areas of the perimeter legs of the rectangular “O”; there are no dished areas around the roof drains, but there are crickets which direct the water towards the drains and away from the parapet walls. Even though the roof is only 10 years old, there are leaks in the roof; since the membrane appears to be in good condition, penetrations and coping are possible sources of leaks. Penetrations should be resealed and coping reinstalled where there are large gaps between adjacent coping panels. Access to the main “O” roof is via a door out of a brick penthouse. Access to other lower roofs is somewhat difficult, requiring the use of portable ladders or climbing through windows. This building, unlike Harding and Cooke (same architect and same design) this building has a 4th floor addition (Element 2) constructed over the auditorium, possibly in the 1940’s. The roof over Element 2 is also flat and the structure could not be seen. It is drained to roof drains along the left and right low parapet walls. Between the Element 2 area and the outer “O” walls are the girl’s gym on one side and the boy’s gym on the other side. The roofs over these one-story elements are low-sloped roofs, peaked at the center, drained to scuppers and vertical leaders to low troughs to the left and right. Gymnasium roofs are supported by custom-designed steel trusses consisting of riveted sections creating the raised clerestory glazed sections on two sides of each gym; these complex trusses have many areas of rust especially at the bottom sections and need to be repaired to avoid losing load carrying capacity. The drain troughs on the sides under the clerestory glazing have internal roof drains to internal piping through spaces below to the storm system underground; there are leaks around the drains and also in the troughs. This complex arrangement creates many cavities, troughs against walls, and low areas that can trap water, snow, leaves, and debris; they also create many areas of potentially poor drainage and high probability for leaks. The cascading low areas also will trap and hold ice in winter months that can cause freeze-thaw damage to roofing and adjacent building walls. Frequent and diligent maintenance is required to keep this system draining the collected water. Typical areas of leaks where roof water collects and is trapped forming leaks are seen in the Harding School along the corridors outside the auditorium on the left and right sides; it seems that Wilson does not have leaks in those areas.

Exterior brick walls facing the street are generally in good condition. It appears as if many areas have been repointed. The lower limestone cornices, horizontal accent band, and brickwork below need to be powerwashed to remove years of dirt and grime. Front and side window have thin brick columns between triple windows. There are cracks along the tops of the brick columns along most first floor windows on the Cottman Ave elevation and some of the windows on the side elevations; these joints need to be repointed or rebuilt where bricks have broken out of the joints. Masonry walls facing the inside of the “O” have been repointed “recently” within the past 10 years (estimated). However, new cracks are forming in brickwork on these walls. The steel stairway security gratings set into the brick enclosing the two sets of rear fire stairs were recently repainted and in fair condition. The top of the furnace flue has cracks and needs to be pointed. Of most concern is an area of serious structural spalling and failing of the concrete wall that forms the window well along the Englewood Street side of the building. A concrete walkway with brick walls serving as guards (instead of aluminum handrails and guards) spans the recessed areaway allowing access to the kitchen from Englewood Street. This concrete “bridge” has lost a great deal of concrete material underneath, exposing reinforcing rods and appearing to be to the point of failure at any time. The brick walls on the sides of the access bridge from the street to the kitchen are also cracking and sagging. The concrete retaining wall supporting the sidewalk above is also in a state of spalling, cracking, crumbling and failure. The building wall on the opposite side of the areaway is also cracking and thee lintels supporting the brick wall over the louvers and windows are rusting. The steel stair up from the base of the areaway to the street is heavily rusted and might not be safe to utilize. The area drains at the bottom of the areaway might be clogged as evident from debris in and around the drains. Since the bridge is the only from the street into the building, the bridge, concrete retaining wall and building wall systems need to be repaired immediately before collapsing into the window well. The exterior walls of Element 2, the 4th floor, are finished with a metal panel system. Since it is in good condition, it is thought that it was installed as a replacement wall system, approximately 8 years ago with the windows or with the roof.

Exterior windows were replaced around 2007 with dark bronze anodized aluminum frame operable single hung units with double pane insulated glazing. The windows in the front and sides have brick mullions dividing the triple windows, cracking at the top under the lintel which spans the triple windows; some of the bricks are cracking in pieces and need to be repaired/replaced. Windows are in good condition and although new, it was indicated that some units are difficult to operate. Clerestory windows in the gym were replaced with all other windows, however half of the electric motor operators are not functioning. Since these units may still be under a manufacturer's warranty, the contractor should be contacted, but in any case windows should be adjusted to make operation easier. Black bug/security screen are utilized on first floor windows for security which are unobtrusive and make the school look less like a prison.

Exterior doors are painted steel framed flush hollow metal units with steel frames. The main entrance has a classical 4 column colonnade portico and the original wood doors which creates an impressive entrance. Secondary entrances around the building have limestone accents panels and details that provide decoration around the door openings. Some side doors have small glazing vision panels. Doors have been recently repainted but are still in poor condition, have broken or non -functioning panic hardware, rusted dented panels and door frames, and are not ADA compliant. All doors and hardware should be replaced; the front doors, being original, should be repaired and refinished. The right side entrance has a make-shift temporary wooden ramp to provide minimal handicap entrance to the main floor and access for certain students that attend the school at this time, however there are no permanent ADA accessible ramps and or elevators; these should be provided to give the school permanent accessibility.

Roof covering on the main building flat roof is a fully adhered rolled asphalt sheet system that was installed approximately 10 years ago. Although the membrane and flashing appear to be in good condition, leaks have been reported. Inspection of all penetrations and flashing should be conducted as well as cleaning of all roof drains. Roof openings include toilet room vents, ventilation ductwork, and roof drains. Brick rooftop structures, brick parapets, and ventilation fan structures are flashed with the same roofing membrane material. Low parapets less than a foot in height are also flashed full height with the asphalt membrane. Taller brick structures and building walls with roofing terminations have aluminum counterflashing attached to the brick, counterflashed, and sealed with caulking along the top edge; this caulking is cracking and may not provide an effective seal. Aluminum coping used on the tops of all parapet walls is also thought to be 10 years old, however many gaps up to 3/8" or larger have developed between adjacent sections of coping, which could be sources of water infiltration. Separated coping should be removed and reinstalled over new flashing.

Partitions in basements are constructed of brick masonry and concrete. The upper 3 floors of the building have plaster which is thought to be applied on wood or terra cotta lath on masonry partitions. The 4th floor classrooms have gypsum board partitions with a vinyl base; toilet rooms have ceramic tile wainscots. There are wood framed clerestory glass panels located in walls above classroom doors in the corridors. These panels are in generally good condition being above the reach of anyone, but the glass is not wired or fire rated; they should be removed and replaced with fire-rated gypsum board assemblies. Between some classrooms are manually operated full height wood folding partitions. It appears that some of these moveable wall systems are still operational, although their stability before and after opening could not be determined. They are very heavy, rolling mechanisms do not work well and they do not provide good sound attenuation between classes. Nobody opens the walls. In many third floor corridor locations on the inside of the "O", peeling ceiling and wall plaster could be seen resulting from roof leaks. Exterior walls should be inspected and repointed, roof drains should be tested to determine if leaks are occurring around the outside of the housings, and coping should be re-installed. Leaks seem to be occurring on interior facing walls, not exterior street facing walls.

Interior doors are either the original oak wood and plate glass (not fire rated or wired) raised panel doors with replacement hardware or replacement wood doors with narrow lite wired glass vision panels and replacement hardware at least 20 years of age. Many of the original wood doors have damaged panels, broken glass, and broken hardware. Some interior basement doors and most interior stairway doors are hollow metal or steel panel doors in metal frames; stairway doors are full glass. Many steel doors and frames are rusted where coming in contact with floors, due to cleaning solutions corroding the frames. Doors are generally in poor condition throughout the building, are not ADA compliant, do not have ADA or proper locking hardware, and are not fire rated where required. Stairway doors do not positively latch (they do not have panic or latching hardware) as required of fire rated doors. Classroom doors do not have security locking feature from inside classrooms. Newer wood replacement doors already in place can be refinished and reused where not heavily damaged, but steel stairway doors and all original wood doors need to be replaced with positively latching fire rated doors with approved fire rated glazing. All door hardware needs to be replaced.

Interior fittings/hardware include black slate chalkboards with oak chalk trays or bulletin boards integral to the original dark oak folding wall partitions built into the folding panels. Most have chalk boards and tack boards mounted onto the panels. White boards should be provided to replace old blackboards and chalk. Folding wood panels are covered with staples and small gouges. Most of these folding partition units are no longer opened as they are heavy and most hinges and bearings are not operable. Damaged folding wall units need to be replaced with sturdier, safer, fixed partitions; operational panels may remain although refinishing is required. Some toilet rooms have new solid plastic HDPE (high density polyethylene) replacement partitions and doors. Some older partitions are marble with wood door or no doors. Toilet room accessories (toilet paper dispensers, soap, paper towel or dryers, grab bars, door latches) have been recently replaced in most toilet rooms. Some components are missing and others are not fully functional. Marble and wood toilet partitions should be replaced with HDPE partitions. Missing and broken toilet room accessories should be replaced. The toilet rooms in the main entrance lobby have HDPE lavatory counters with stainless steel sinks but the original marble toilet partitions. Steel lockers line many corridors on each floor; they have the original factory painted finish and are in fair condition. Girls' and Boys' Cafeterias have folding portable plastic laminate table/chair units.

Stair construction throughout the building consists of concrete treads with steel nosings, concrete risers, and concrete stringers with wood handrails (29" high), guards (36" high), and steel balusters with 3" spacing. The two emergency egress stairs facing Englewood Street are constructed of concrete treads, risers, and stringers with steel handrails (29" high) and full height glass and steel walls between stair runs; steel mullions are covered with rust. Since handrail and guard heights are not in compliance with today's codes, new handrail and guard systems are required for all stairs. The exterior sections of the emergency exit stair enclosures are in very poor condition; concrete decks supporting floors or roof above are cracking and spalling with reinforcing bars exposed and roof drains beginning to fall out of the deck. Brickwork is cracking on all exterior surfaces. Doors and frames are rusted. The stairs themselves are in good condition in need

only of cleaning and paint.

Wall finishes in the old building are plaster which is cracked with surface crazing in a number of classroom and corridor locations. There is damage in most classrooms at doorways and corners; corridors also have scattered areas of damage. Corridors have a pink marble wainscot protecting the lower section of wall, in good condition needing cleaning at the bottom where coming in contact with the floor. There are also areas of water damage on upper floor plaster walls due to water penetration from coping or roof leaks or lintel leaks. Stained wood trim in all rooms is damaged and worn but should be sanded, patched and refinished. Toilet room walls are painted plaster with pink marble wainscots. The auditorium has a painted wood wainscot that should be repainted where damaged and decorative plaster pilasters and decorative wood classical architectural elements in need of repair and repainting. The queuing area outside the auditorium is part of the grand lobby entrance to the building. The entrance is a two story space with full height marble walls and marble floors. There are some minor chips and a few broken panels, but generally the lobby and queueing area outside the auditorium is in good condition. In the auditorium and backstage, there are a number of wall and ceiling areas that have been damaged from water leaks, coming from the trapped wall/roof areas previously discussed in the roof discussion. Assuming these leaks have been addressed after roof and wall repairs, the auditorium plaster should be repaired. The two separate cafeterias (designated boys and girls) and the common kitchen have glazed brick wainscots, painted decorative bands and painted brick upper sections, all in good condition only requiring a good cleaning at the base where coming in contact with floors.

Floor finishes in the building consist of dark stained oak floors in classrooms and the auditorium, VAT (vinyl asbestos tile) and VCT (vinyl composition tile) in some classrooms, VAT in the cafeterias, high-build paint in the gymnasium, and concrete panels (typical for all schools in the District of this age) in corridors and basement. Wood floors are generally in good enough condition to be stripped, sanded, and refinished; some planks will need to be replaced as they are warped or broken. Classrooms, cafeteria, and other rooms with either 12”x12” VCT or 9”x9” VAT over wood are worn, have damages and cupping edges; the finishes in these rooms should be removed and replaced with new VCT where possible presence of asbestos. If present, the tiles should be removed using proper asbestos abatement procedures and replaced with 12”x12” VCT. The gymnasium floors have holes and cracks and are worn; these floors should also be replaced (existing coating removed and new coatings applied). The lobby is finished in 1’x2’ (nominal) marble tile on first floor, the two decorative open stairs, and the second floor auditorium queue area overlooking the lobby. These floors are in excellent condition, are extremely durable, and have no visible damages. All corridor floors are finished with 2’x2’ (nominal size) concrete tiles which appear to be a monolithic system and highly durable. Edges along the walls are painted; these corridor floors have not recently been stripped and cleaned and have years of dirt sealed into the surface and corners, causing their color to be very dark and dingy. There is an especially large build-up of dirt at all corners. Toilet room floors also have a sealed concrete floor finish. A thorough cleaning and resealing of these floors is required. The cafeteria kitchen floor is quarry tile, which is old, broken in many places, and should be replaced with a new quarry tile floor finish.

Ceiling finishes are mostly 2x4 suspended acoustical tile ceiling system with recessed 2x4 fluorescent lighting fixtures throughout the building. Most 2x4 ceilings and lighting fixtures are aging, in poor condition, and should be replaced. The auditorium has a plaster ceiling with decorative cornice elements and moldings, in good condition. The boys and girls gymnasiums have exposed structural joists and concrete deck ceilings. The paint that once covered the exposed custom steel trusses is peeling and the trusses are rusting, and the concrete decks are in need of refinishing.

Furnishings in the building include the original folding wood seating in the auditorium which is still in use. Many of the 600 (approximate number) seats need to be repaired to operate properly and many are scratched; most are damaged in appearance and many do not work properly. The broken seating should be repaired and the worn seating should be refinished. Casework and storage cabinets in the classrooms and the office is damaged, worn and needs replacement. Student lockers throughout the building appear to be in good condition.

An elevator was not present in this school. An ADA accessible elevator is required to provide access to all floors.

Mechanical

Plumbing Fixtures – The building is equipped with wall hung urinals (flush valve type), wall hung water closets (flush valve type), and wall hung lavatories with wheel handle faucets. 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.

Drinking fountains in the corridors and at the restrooms are wall hung fountains. There are a few vertical floor standing electrical water coolers. Drinking fountains are typically located in the hallways at intervals, but are not located at the bathroom groups. Most appear to be the original installed equipment. The replacement of all drinking fountains is recommended as the equipment is approximately 87 years old and beyond its service life. The building engineer reports that during occurrences of heavy rainfalls the drinking fountains overflow. Confirmation should be performed of whether the sanitary system is a combined system with the storm water.

Wall hung service sinks are original and are available throughout the building for use by the janitorial staff. Service sinks are typically located in the vicinity of the bathroom groups. The sinks appear have exceeded their service life, and should be replaced. The Cafeteria’s food prep/kitchen is equipped with two, two compartment stainless steel sink with wheel handle operated faucets. One sink is served by a floor mounted grease trap. The kitchen is also equipped with a hand sink. Each double compartment 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 4” 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) and a new 4” water meter on the main line upon entering the building. The dedicated make up cold water for the boiler is equipped with an RPZA backflow preventer. The water meter appears to be new. 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.

There is one vertical tank, natural gas fired water heater, Bradford White, Model 75T80B3N, 75 gallons of storage, 76,000 btuh in this facility which is still in service located in the boiler mechanical room. There is another similar water heater which fed into the domestic hot water supply but has been disconnected and abandoned in place. The water heater is fitted with P and T relief. There is no expansion tank installed on the system. The hot water system is equipped with a recirculation pump as well. The water heater appears to be in satisfactory condition however, based on the nameplate data ANSI Z21.10-3b 2004 edition was in effect when the unit was produced. Based on this the water heater was manufactured between 2004 and 2006, prior to the issuance of ANSI Z21.10-3 2007, meaning the unit is approximately 10-12 years old and has reached the end of its service life. When the water heater is replaced, two water heaters should be installed to provide system redundancy. A water softener was located in the boiler room for treating the boiler make up water system. The water softener system appears to be 5-10 years old.

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 a sewage ejector located in the Boiler Mechanical Equipment Room.

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. The roof drainage piping material consists of galvanized steel piping with threaded fittings. There is no secondary roof drainage system 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 in the paved area by the dumpsters near Englewood Street.. The fuel pumps and controls are original vintage, are beyond their serviceable life and therefore should be replaced. Natural gas enters the building on the first level on the building exterior facing Frontenac Street.. The gas service is 2”. 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 three 300 HP Superior Scotch Marine steam boilers with oil fuel burners. All boilers are equipped with oil burners. The boilers were installed in 1972 and are at the end of their service life and should be replaced. Each boiler flue is equipped with draft control. Combustion air louvers serve the boiler room to provide combustion air for the boiler operation. Burner oil pumps are driven by independent motors. . The oil supply to the burner is equipped with dual solenoid valves and strainer/disposable media filter.

Cooling Generating Systems – The fourth floor was at one time served by a split system RTU with the condensing unit and evaporator air handler both mounted on the roof. This system is no longer functional and has been abandoned in place.

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 is a condensate receiver system which has been abandoned. Condensate returns 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 two pumps and a pump control panel. The steam traps are failing throughout the building and have not been replaced 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.

Ventilation and additional heating for the building was provided by a house fan in the basement which is operational but is not used. The air was pushed into the various rooms of the building through ducts built into the walls. The air was exhausted from other ducts built into the walls, up through the attic space, and out through roof mounted vents. Additional fresh air is admitted into the building through the unit ventilators and by opening windows. The house fans are no longer in use. Two house fans are located in the basement while others are located on the roof level. The fans located at the roof have had the flexible connector between the fan and the ductwork removed.

The auditorium was served by a house fan with a steam coil and mushroom vents below the seats. Recess steam radiators were at the perimeter walls. The system have surpassed their service life and should be replaced with a rooftop unit system with heating and cooling.

The building uses cast iron steam radiators in the classrooms, hallways, stairwells and entryways, and currently is the sole source of heat for these areas. These radiators and the original radiant heating (manifold) terminals are fashioned from welded piping. There is a combination of steam radiators which have protective enclosures while others do not. These units without protective enclosures should be replaced with finned tube convectors or should have protection added to protect students from exposure to the hot surfaces.

The gymnasium is served by steam radiators. There are also operable windows which are used for natural ventilation of the space. The girls’ and boys’ locker areas are also equipped with suspended steam radiators from the ceiling. 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 steam radiators. The radiators are part of the original building equipment, have exceeded their life expectancy and should be replaced. 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 hood is served by a makeup air with gas heat and exhaust air fan which is mounted on the kitchen roof. The hood has been provided with an Ansul fire suppression system. From visual inspection the unit appears in need of being replaced The replacement make up air and exhaust air system should be coupled with a heating and ventilating supply air system which serves the cafeteria space. 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.

Terminal & Package Units - There are a few areas which have window air conditioning units, but predominantly the building does not have cooling systems. There are four roof mounted exhaust fans of which serve the restrooms. In addition, there are two fans which independently serve each locker room, girls and boys.

Controls & Instrumentation - The original pneumatic systems no longer functions. Pneumatic room thermostats at one time controlled the steam radiator valves. The existing air compressor (with a refrigerated air dryer)which generated control air for the temperature control system which is located in the boiler room is no longer operate due to the air leaks in the pneumatic tubing throughout the building. The maintenance staff reports temperature control is non-existent throughout the facility and that the heating system is either in full heating mode or off. Potential problems with oil, moisture or dirt in the pneumatic copper tubing as well as the prevalence of leaking air lines are probable sources 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 87 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, however the fire stair towers are both equipped with a standpipe riser with angle hose valve connections at each floor level as well as the roof. The piping consists of galvanized piping with mechanical couplings. 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

Site Electrical Service is from Medium voltage overhead lines on wooden poles along Englewood St. One pit mounted utility transformer with medium voltage primary (voltage level unknown at this time) and 208/120VAC secondary and at an estimated available power of 300 KVA is installed outside the building for supplying power to facility.

The service entrance to the facility consist of a disconnect switch, utility meter and 1600A, 208/120V, 3phase, 4wire switchboard located in the Boiler Room in the basement of the building. Service entrance and the switchboard are old and have exceeded their useful life. There may not be enough capacity to accommodate future HVAC loads.

Power distribution in main building is achieved through corridor located lighting/receptacle panel boards. Each floor has four panel boards. There are five more power panels also provided (two in dining area and three in boiler room) for feeding the kitchen and mechanical loads. It appears that all panel boards and branch circuit breakers have out-lived their useful lives thus are ready for upgrade/replacement.

In general there are not enough receptacles in classrooms. It is recommended to have a minimum of two receptacles on each classroom wall, but the current installation falls short of this recommendation. The computer room should have receptacles at three feet on center on each wall.

Lighting in the building is provided by fluorescent fixtures with outdated T-12 lamps or in specific areas like mechanical rooms or attics, incandescent fixtures are utilized. Classrooms utilize 2x4 lay in grid type fixtures; cafeteria and kitchen utilize 2x4 surface mounted fluorescent fixtures; auditorium utilizes traditional decorative chandeliers; boiler room utilizes 1x4 industrial fluorescent fixtures, and the gymnasium utilizes pendent mounted metal halide fixtures which have high energy consumption and are difficult to re-lamp. Lighting levels in the some areas like the gymnasium does not meet IES (Illuminating Engineering Society) standards. Lighting fixtures in corridors and auditorium have already been upgraded with T8 fluorescent lamps and only some fixtures in those areas need to be repaired or replaced. Gymnasium lighting fixtures should be replaced with LED high bay fixtures. All other lighting fixtures should be replaced with new T-8 fluorescent fixtures.

Fire Alarm system in the building was upgraded less than four years ago and is functioning properly. Monitoring is by smoke detectors in corridors and pulls stations at building egress points. There are sufficient numbers of horn/strobes installed throughout the building in rooms such as classrooms, corridors, offices, and other areas of occupancy. No major deficiencies were observed.

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

Separate PA system does not exist. The telephone systems is used for public announcements and is working adequately.

Each classroom is served by an intercom telephone service. The system permits paging and intercom communications between the main office phone and classroom phones and classroom to classroom. 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 paging speakers are old and should be replaced.

The present master clock system is not functioning. System is old and has exceeded its useful service life thus requiring replacement. The existing bell system is working adequately.

Television system is not provided in the school.

Security System, access control, and video surveillance systems are provided inside the school. A sufficient number of cameras are installed to cover exit doors, corridors and other critical areas; they are controlled by a Closed Circuit Television system (CCTV), which is working properly.

Emergency Power System is provided in the school. A 30KW, 208/120V, 3PH, 4W diesel generator manufactured by "Kohler" is installed in the boiler room. This generator is new and working properly.

Uninterruptible Power System (UPS) is provided for Local Area Network.

Emergency lighting, including exit lights is provided in the building. Corridors, library, and egress corridors are fed by the emergency generator. Exit lights are old and should be replaced.

Lightning Protection System is adequate and is incompliant with NFPA 780.

Grounding is present and is adequate.

Elevator is not provided in the building.

Theater Lighting and dimming controls are old and not working. They should be replaced with new systems.

Auditorium Sound System is old and should be replaced with a new PA/sound system.

Site Lighting is adequate. 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 not provided in the school. Play yard should be provided with two outdoor speakers.

Grounds

Walkway paving in the front and side streets is constructed of 4'x4' (nominal) concrete panels; roughly 25% are in need of replacement and although they are not all contiguous, it may be possible to replace only those that are failing. Many concrete panels in the concrete play area are also cracked and need to be replaced. Granite block stairways into the front and left side of the building are cracked and need resetting and regrouting. New handrails and guards are required at all stairs. An ADA accessible entrance with a permanent ADA accessible ramp and marked route is required in the parking area. The asphalt parking lot is in need of repaving, new wheelstops, and restriping. The number of required parking spaces provided is inadequate to meet the full needs of faculty and staff, however there is no space for additional parking. Faculty, staff, and visiting parents not able to find spaces in the parking lot must park on the street. The concrete slab in the dumpster area is severely cracked and broken.

Wrought iron fencing is almost totally rusted and needs repainting. There are some damaged and bent fence panels in need of replacement. The gates on the parking lot facing Cottman and Englewood are new and in good condition. The brick wall along Cottman Avenue and the concrete play area is spalling and cracked, and bowing out in many locations. The concrete bridge leading from Englewood Street into the building is failing as discussed in the Exterior Wall paragraph, above.

RECOMMENDATIONS

Architectural

Remove failing concrete walk "bridge" with brick side walls over window well, replace with new structural slab bridge (500sf)

Replace brick side walls on concrete bridge over areaway (40sf each side)

Repair concrete areaway retaining wall – all 3 sides (150ft x 8ft tall)

Repair basement wall over and around windows and louvers in areaway (500sf)

Replace rusted stair from areaway to grade level at Englewood Street (13 risers)

Repair concrete slab at bottom of areaway (1000sf)

Clean out two clogged deck drains at bottom of areaway

Repoint cracks in parapet above counterflashing, masonry walls above roof, cracks in brick walls on facing inside of “O”, and joints above and below limestone band (400sf)

Re-seal roof penetrations at gravity vents, plumbing vents and fans (assume 25 penetrations in 53,085sf roof)

Replace coping panels that have separated (allowance of 250ft)

Reset gutter drains in troughs and reseal metal troughs (500ft)

Powerwash rear building wall and limestone band and below on front and sides of building (10,000sf)

Repair broken brick under triple window lintels on first floor Cottman Ave. and Frontenac St. (17ea)

Strip and repaint concrete foundation (interior basement) walls in mechanical rooms (4,000sf)

Clean and repaint basement floor in mechanical rooms; clean and reseal concrete floors in hallways, stairways, and toilet rooms (42,000sf)

Replace all exterior doors and frames; also provide new exit hardware. (20)3x7

Repair and refinish historical, solid wood front doors (6)

Remove non-rated glass panels between classrooms and corridors; fill with fire rated gyp bd sys. (120 @ 6sf each)

Refinish all original wood interior doors, frames and hardware inside classrooms, closets, offices, etc. (80)

Replace all original wood interior doors in hallways (160)

Provide security hardware for classrooms and offices, locking from inside classroom. (160)

Remove and replace all basement steel doors, frames, and hardware in mechanical rooms; fire rated doors with panic hardware for stairs (30) 3x7 doors

Remove folding wood partitions; replace with gypsum board and metal stud walls (8) @300sf ea =2700sf

Repair and repaint cracked and damaged plaster walls throughout the building (5000sf)

Repair damaged marble wainscot panels in area of auditorium and other areas (200sf)

Repaint exposed steel truss and beam ceilings including concrete roof deck; repair peeling and water damaged walls and beams under clerestory on high walls sill in gyms over boys and girls gymnasiums (10,000sf)

Remove and replace stairway handrails and guards with code compliant systems (6 stairways) x4 story; =50x24=1200lf

Strip, sand, repair and refinish all wood floors in classrooms and in auditorium (37,600sf)

Remove and replace all high-build painted floors in boy's and girl's gymnasiums (13,300sf)

Replace VCT floors (11,700sf)

Replace VAT floors using proper asbestos abatement procedures if determined asbestos is present. (17,900sf)

Replace 2x4 acoustical tile ceilings or 12"x12" glued-on ceiling tiles where damaged or where grid is rusted (107,800sf)

Provide toilet room accessories where broken or missing (6 sets)

Replace damaged marble and wood water closet partitions with HDPE plastic partitions (assume 20)

Repair and refinish damaged folding wood auditorium chairs; 33% of total = 200

Provide new 5 stop traction elevator

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 12,000 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 vertical tank natural gas fired water heaters.

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

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 87 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 three, 300 HP Superior Scotch Marine steam boilers installed in 1972.

Replace the steam radiators 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 steam radiators throughout the building with new fan coil 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 recovery wheels. Install steam converters in the existing boiler room with circulating pumps, distribution piping and controls to provide heating hot water for the new coils.

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, heating and cooling for the auditorium by installing a packaged roof top unit.

Provide ventilation for the corridors at 10 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 radiators 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

Replace domestic water heaters

Electrical

Upgrade the existing electrical service with a new service. Replace the existing switchboard with new2000A, 208/120V, 3PH, 4 wire switchboard.

Replace the entire distribution system with new panel boards and new feeders. Provide arc flush label on the all panel boards. Estimated, 20 panel boards.

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

Replace all existing lighting fixtures with new fluorescent fixtures with T8 lamps except those in corridors and offices which have already been upgraded. Replace existing fixtures in gymnasium with LED high bay and replace/repair damaged lighting fixtures in corridors. Estimated 20 total.

Replace all exit lights with new battery pack exit lights. Estimated 30 total.

Replace existing master clock system with a 10 watt wireless master clock system. Provide new battery type clocks in the classrooms, Offices, Gymnasium, auditorium. Kitchen and library. Total 50 clocks.

Provide new stage lighting and lighting controller stage lighting in the Auditorium.

Provide new sound system including a freestanding 19” tack back stage with mixer per amplifiers, CD player, cassette player, AM-FM radio, graphic or parametric equalizer, and receivers for wireless microphone.

Replace/repair existing exterior lighting fixtures. Estimate 4 lighting fixtures.

Install 1 camera on each corner of the exterior building and one on the main entrance of the building.

Provide two speakers on exterior walls for covering the play yard area.

Grounds

Regrout joints between limestone block tread/risers at misc. exterior stairs (10 treads, 6ft long)

Repair/Reconstruct landscape retaining walls leaning and broken along Cottman Ave, Englewood Ave, and playground area (approx. 50% of 800ft long retaining walls 3 feet height)

Repave 2000sf damaged sections of concrete walkway along streets; repave 4000sf concrete playground (6,000sf total)

Repave 100% of parking lot (10,000sf)

Repave dumpster slab and access slab to dumpster (2,000sf)

Repaint rusted wrought iron fence surrounding site and along playground and raised walkway (1,600ft)

Replace failing and non-code compliant handrails/guards on all site stairs both sides of each stair (4) 7 riser stairs, (4) 4 riser stairs, (2) 2 riser stairs; main entrance stair 8 risers – 4 handrails

Attributes:

General Attributes:

Active:	Open	Bldg ID:	B812001
Sewage Ejector:	No	Status:	Accepted by SDP
Site ID:	S812001		

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	35.00 %	0.00 %	$0.00
A20 - Basement Construction	35.00 %	11.33 %	$227,667.53
B10 - Superstructure	35.00 %	1.13 %	$150,608.38
B20 - Exterior Enclosure	50.87 %	2.41 %	$224,155.28
B30 - Roofing	50.27 %	2.58 %	$52,209.56
C10 - Interior Construction	27.92 %	33.21 %	$1,137,001.83
C20 - Stairs	35.00 %	221.05 %	$434,797.50
C30 - Interior Finishes	93.35 %	42.04 %	$2,830,197.34
D10 - Conveying	105.71 %	354.64 %	$756,931.22
D20 - Plumbing	64.88 %	79.58 %	$2,224,720.11
D30 - HVAC	97.02 %	97.33 %	$15,104,220.12
D40 - Fire Protection	105.71 %	177.49 %	$1,995,609.76
D50 - Electrical	110.11 %	53.77 %	$4,408,666.20
E10 - Equipment	37.14 %	13.86 %	$307,820.42
E20 - Furnishings	32.50 %	47.39 %	$140,818.41
Totals:	**67.37 %**	**42.08 %**	**$29,995,423.66**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
A1010	Standard Foundations	$23.16	S.F.	139,500	100	1928	2028	2050	35.00 %	0.00 %	35			$3,230,820
A1030	Slab on Grade	$5.17	S.F.	139,500	100	1928	2028	2050	35.00 %	0.00 %	35			$721,215
A2010	Basement Excavation	$4.36	S.F.	139,500	100	1928	2028	2050	35.00 %	0.00 %	35			$608,220
A2020	Basement Walls	$10.05	S.F.	139,500	100	1928	2028	2050	35.00 %	16.24 %	35		$227,667.53	$1,401,975
B1010	Floor Construction	$85.94	S.F.	139,500	100	1928	2028	2050	35.00 %	1.26 %	35		$150,608.38	$11,988,630
B1020	Roof Construction	$9.26	S.F.	139,500	100	1928	2028	2050	35.00 %	0.00 %	35			$1,291,770
B2010	Exterior Walls	$43.78	S.F.	139,500	100	1928	2028	2050	35.00 %	0.63 %	35		$38,425.33	$6,107,310
B2020	Exterior Windows	$21.40	S.F.	139,500	40	2007	2047		80.00 %	0.00 %	32			$2,985,300
B2030	Exterior Doors	$1.45	S.F.	139,500	25	2015	2040		100.00 %	91.82 %	25		$185,729.95	$202,275
B3010105	Built-Up	$37.76	S.F.	53,083	20	2005	2025		50.00 %	1.88 %	10		$37,672.25	$2,004,414
B3010120	Single Ply Membrane	$38.73	S.F.		20				0.00 %	0.00 %				$0
B3010130	Preformed Metal Roofing	$54.22	S.F.		30				0.00 %	0.00 %				$0
B3010140	Shingle & Tile	$38.73	S.F.	500	20	2005	2025	2030	75.00 %	75.07 %	15		$14,537.31	$19,365
B3020	Roof Openings	$0.06	S.F.	53,083	30	2005	2035		66.67 %	0.00 %	20			$3,185
C1010	Partitions	$17.91	S.F.	139,500	100	1928	2028		13.00 %	3.18 %	13		$79,414.16	$2,498,445
C1020	Interior Doors	$3.51	S.F.	139,500	40	2015	2055		100.00 %	204.23 %	40		$999,998.33	$489,645
C1030	Fittings	$3.12	S.F.	139,500	40	1928	1968	2028	32.50 %	13.23 %	13		$57,589.34	$435,240
C2010	Stair Construction	$1.41	S.F.	139,500	100	1928	2028	2050	35.00 %	221.05 %	35		$434,797.50	$196,695

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System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
C3010230	Paint & Covering	$13.21	S.F.	139,500	10	1928	1938	2028	130.00 %	7.69 %	13		$141,794.41	$1,842,795
C3010231	Vinyl Wall Covering	$0.97	S.F.		15				0.00 %	0.00 %				$0
C3010232	Wall Tile	$2.63	S.F.	139,500	30	2000	2030	2020	16.67 %	1.91 %	5		$6,993.86	$366,885
C3020411	Carpet	$7.30	S.F.		10				0.00 %	0.00 %				$0
C3020412	Terrazzo & Tile	$75.52	S.F.	5,400	50	1928	1978	2028	26.00 %	0.00 %	13			$407,808
C3020413	Vinyl Flooring	$9.68	S.F.	29,600	20	1928	1948	2037	110.00 %	143.82 %	22		$412,088.48	$286,528
C3020414	Wood Flooring	$22.27	S.F.	37,600	25	1928	1953	2028	52.00 %	48.35 %	13		$404,836.94	$837,352
C3020415	Concrete Floor Finishes	$0.97	S.F.	66,900	50	1928	1978	2050	70.00 %	367.68 %	35		$238,597.67	$64,893
C3030	Ceiling Finishes	$20.97	S.F.	139,500	25	1928	1953	2040	100.00 %	55.58 %	25		$1,625,885.98	$2,925,315
D1010	Elevators and Lifts	$1.53	S.F.	139,500	35			2052	105.71 %	354.64 %	37		$756,931.22	$213,435
D2010	Plumbing Fixtures	$13.52	S.F.	139,500	35	1928	1963	2035	57.14 %	50.08 %	20		$944,588.90	$1,886,040
D2020	Domestic Water Distribution	$1.68	S.F.	139,500	25	1928	1953	2042	108.00 %	293.45 %	27		$687,729.62	$234,360
D2030	Sanitary Waste	$2.52	S.F.	139,500	30	1928	1958	2047	106.67 %	168.52 %	32		$592,401.59	$351,540
D2040	Rain Water Drainage	$2.32	S.F.	139,500	30	1928	1958	2025	33.33 %	0.00 %	10			$323,640
D3020	Heat Generating Systems	$18.67	S.F.	139,500	35	1928	1963	2047	91.43 %	64.49 %	32		$1,679,574.30	$2,604,465
D3030	Cooling Generating Systems	$24.48	S.F.	139,500	30	1928	1958	2042	90.00 %	65.60 %	27		$2,240,285.44	$3,414,960
D3040	Distribution Systems	$42.99	S.F.	139,500	25	1928	1953	2042	108.00 %	136.60 %	27		$8,191,793.65	$5,997,105
D3050	Terminal & Package Units	$11.60	S.F.	139,500	20	1928	1948	2028	65.00 %	0.00 %	13			$1,618,200
D3060	Controls & Instrumentation	$13.50	S.F.	139,500	20	1928	1948	2037	110.00 %	158.90 %	22		$2,992,566.73	$1,883,250
D4010	Sprinklers	$7.05	S.F.	139,500	35			2052	105.71 %	202.91 %	37		$1,995,609.76	$983,475
D4020	Standpipes	$1.01	S.F.	139,500	35			2052	105.71 %	0.00 %	37			$140,895
D5010	Electrical Service/Distribution	$9.70	S.F.	139,500	30	1928	1958	2047	106.67 %	79.99 %	32		$1,082,419.21	$1,353,150
D5020	Lighting and Branch Wiring	$34.68	S.F.	139,500	20	1928	1948	2037	110.00 %	66.20 %	22		$3,202,883.08	$4,837,860
D5030	Communications and Security	$12.99	S.F.	139,500	15	1928	1943	2032	113.33 %	6.81 %	17		$123,363.91	$1,812,105
D5090	Other Electrical Systems	$1.41	S.F.	139,500	30	1928	1958	2047	106.67 %	0.00 %	32			$196,695
E1020	Institutional Equipment	$4.82	S.F.	139,500	35	1928	1963	2028	37.14 %	45.78 %	13		$307,820.42	$672,390
E1090	Other Equipment	$11.10	S.F.	139,500	35	1928	1963	2028	37.14 %	0.00 %	13			$1,548,450
E2010	Fixed Furnishings	$2.13	S.F.	139,500	40	1928	1968	2028	32.50 %	47.39 %	13		$140,818.41	$297,135
								Total	**67.37 %**	**42.08 %**			**$29,995,423.66**	**$71,285,230**

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 79%
marble 12%
glazed brick 8%
ceramic tile 1%

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

Note:
Concrete (sealed) = 53,60038%
Concrete (High build paint)= 13,30010%
Wood = 37,60027%
VCT - = 11,700 8%
VAT - = 17,90013%
Marble/QT = 5,400 4%

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

Note:
Plaster = 11,700 8%
Acoustical tile (glued or suspended)107,800 77%
Exposed structure painted (steel or concrete) 20,00015%

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:	**$29,995,424**	**$0**	**$0**	**$0**	**$0**	**$467,853**	**$0**	**$0**	**$0**	**$0**	**$3,441,580**	**$33,904,857**
*** 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	$227,668	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$227,668**
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	$150,608	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$150,608**
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	$38,425	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$38,425**
B2020 - Exterior Windows	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B2030 - Exterior Doors	$185,730	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$185,730**
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	$37,672	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,963,141	**$3,000,813**
B3010120 - Single Ply Membrane	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010130 - Preformed Metal Roofing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
B3010140 - Shingle & Tile	$14,537	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$14,537**
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	$79,414	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$79,414**

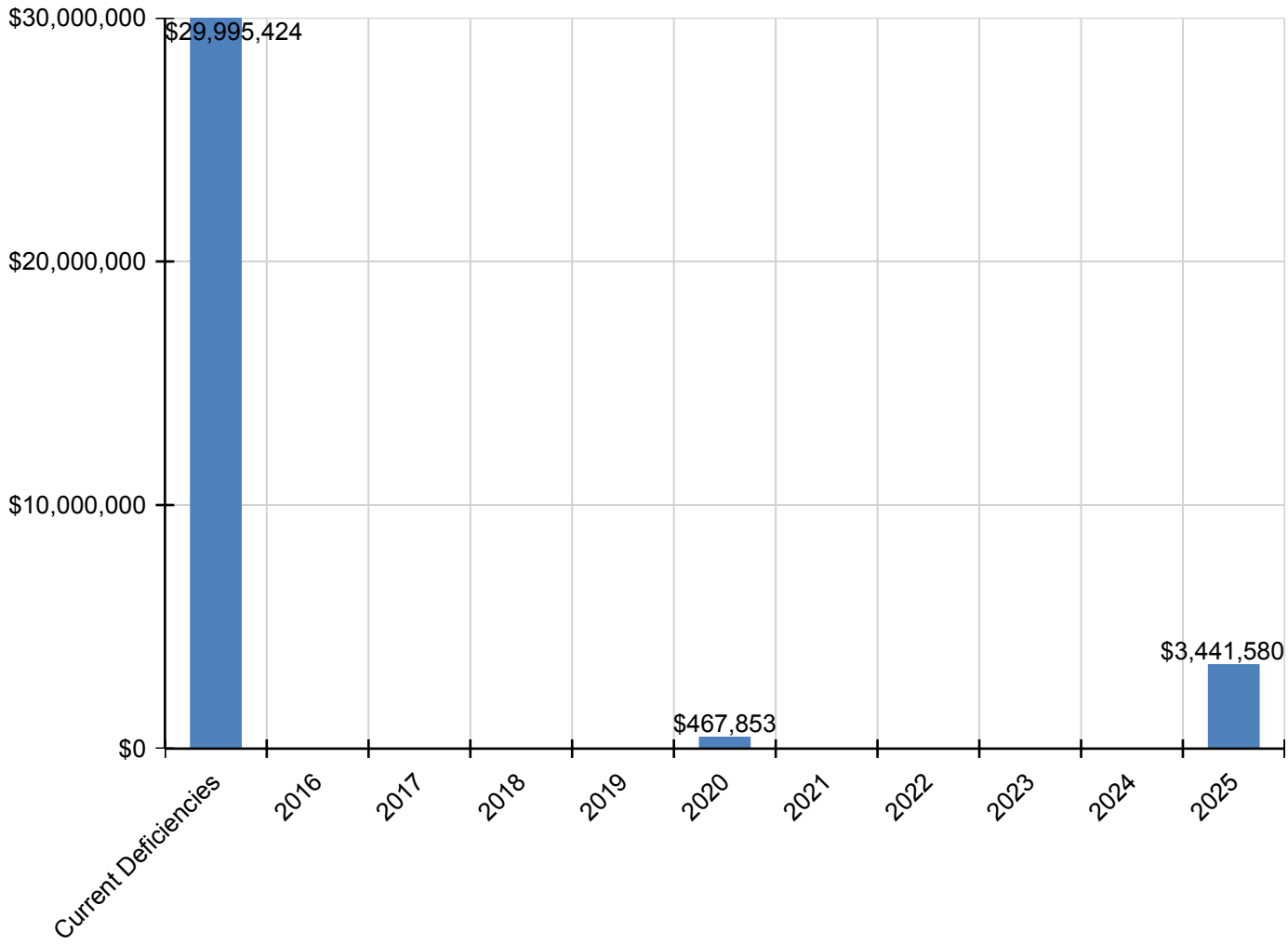
C1020 - Interior Doors	$999,998	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$999,998**
C1030 - Fittings	$57,589	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$57,589**
C20 - Stairs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C2010 - Stair Construction	$434,798	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$434,798**
C30 - Interior Finishes	$0	$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	$141,794	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$141,794**
C3010231 - Vinyl Wall Covering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
C3010232 - Wall Tile	$6,994	$0	$0	$0	$0	$467,853	$0	$0	$0	$0	$0	**$474,847**
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	$0	$0	$0	$0	$0	$0	**$0**
C3020413 - Vinyl Flooring	$412,088	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$412,088**
C3020414 - Wood Flooring	$404,837	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$404,837**
C3020415 - Concrete Floor Finishes	$238,598	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$238,598**
C3030 - Ceiling Finishes	$1,625,886	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,625,886**
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	$756,931	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$756,931**
D20 - Plumbing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D2010 - Plumbing Fixtures	$944,589	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$944,589**
D2020 - Domestic Water Distribution	$687,730	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$687,730**
D2030 - Sanitary Waste	$592,402	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$592,402**
D2040 - Rain Water Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$478,440	**$478,440**
D30 - HVAC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3020 - Heat Generating Systems	$1,679,574	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,679,574**
D3030 - Cooling Generating Systems	$2,240,285	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,240,285**
D3040 - Distribution Systems	$8,191,794	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$8,191,794**
D3050 - Terminal & Package Units	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D3060 - Controls & Instrumentation	$2,992,567	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,992,567**
D40 - Fire Protection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D4010 - Sprinklers	$1,995,610	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,995,610**
D4020 - Standpipes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**

D50 - Electrical	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
D5010 - Electrical Service/Distribution	$1,082,419	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,082,419**
D5020 - Lighting and Branch Wiring	$3,202,883	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$3,202,883**
D5030 - Communications and Security	$123,364	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$123,364**
D5090 - Other Electrical Systems	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E - Equipment & Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E10 - Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
E1020 - Institutional Equipment	$307,820	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$307,820**
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	$140,818	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$140,818**

** Indicates non-renewable system*

Forecasted Sustainment Requirement

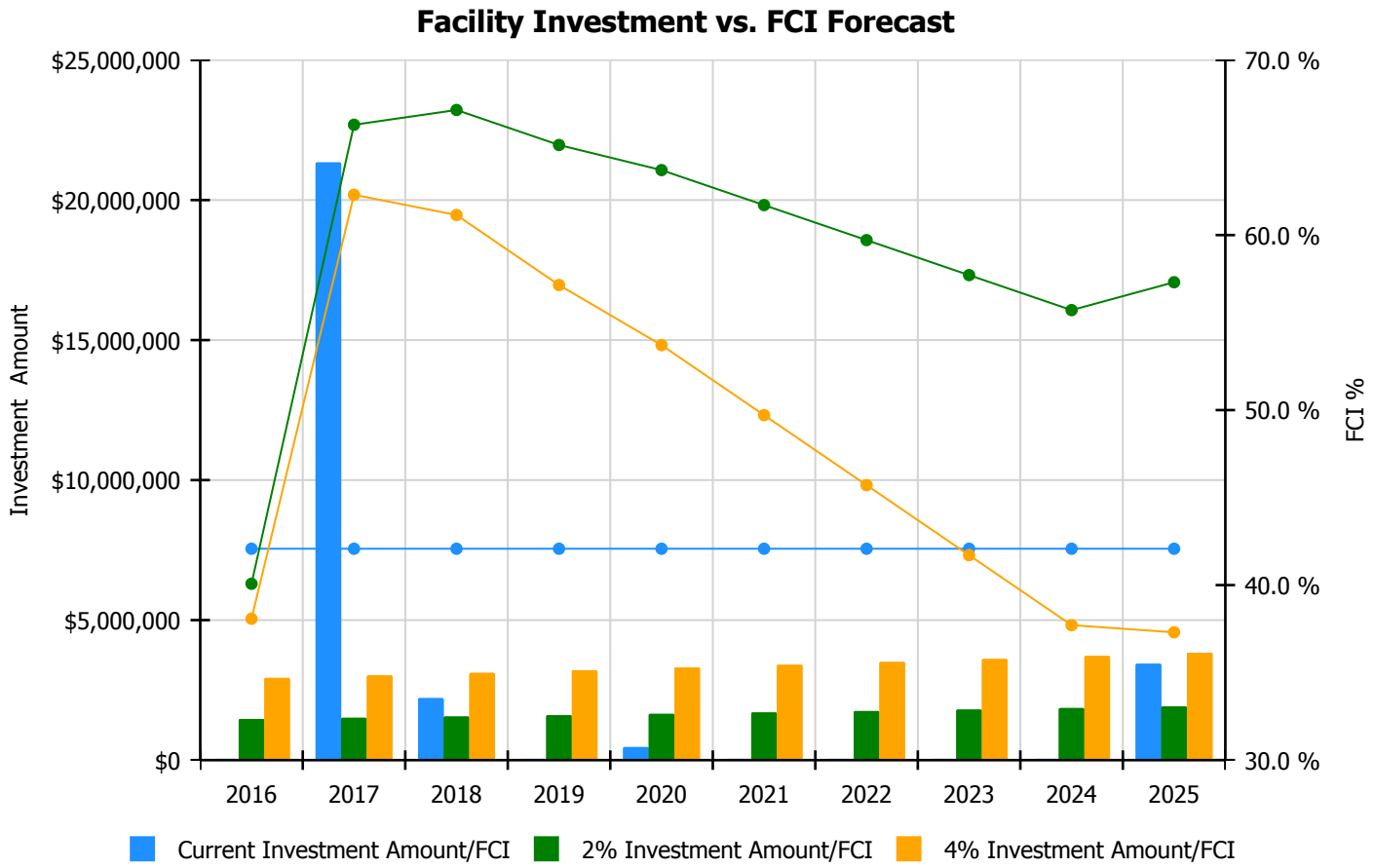
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

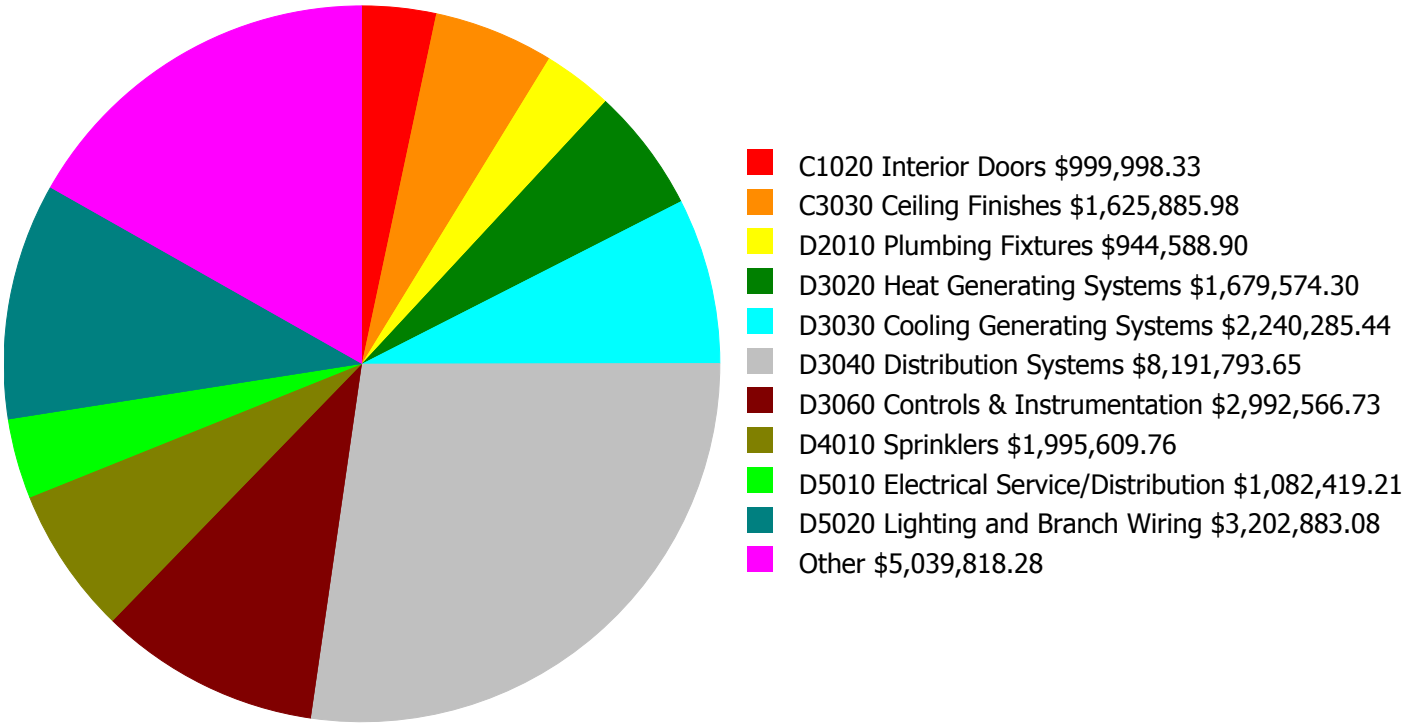
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 42.08%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$1,468,476.00	40.08 %	$2,936,951.00	38.08 %
2017	$21,344,715	$1,512,530.00	66.30 %	$3,025,060.00	62.30 %
2018	$2,215,040	$1,557,906.00	67.15 %	$3,115,812.00	61.15 %
2019	$0	$1,604,643.00	65.15 %	$3,209,286.00	57.15 %
2020	$467,853	$1,652,782.00	63.71 %	$3,305,565.00	53.71 %
2021	$0	$1,702,366.00	61.71 %	$3,404,732.00	49.71 %
2022	$0	$1,753,437.00	59.71 %	$3,506,874.00	45.71 %
2023	$0	$1,806,040.00	57.71 %	$3,612,080.00	41.71 %
2024	$0	$1,860,221.00	55.71 %	$3,720,442.00	37.71 %
2025	$3,441,580	$1,916,028.00	57.30 %	$3,832,056.00	37.30 %
Total:	**$27,469,188**	**$16,834,429.00**		**$33,668,858.00**	

Deficiency Summary by System

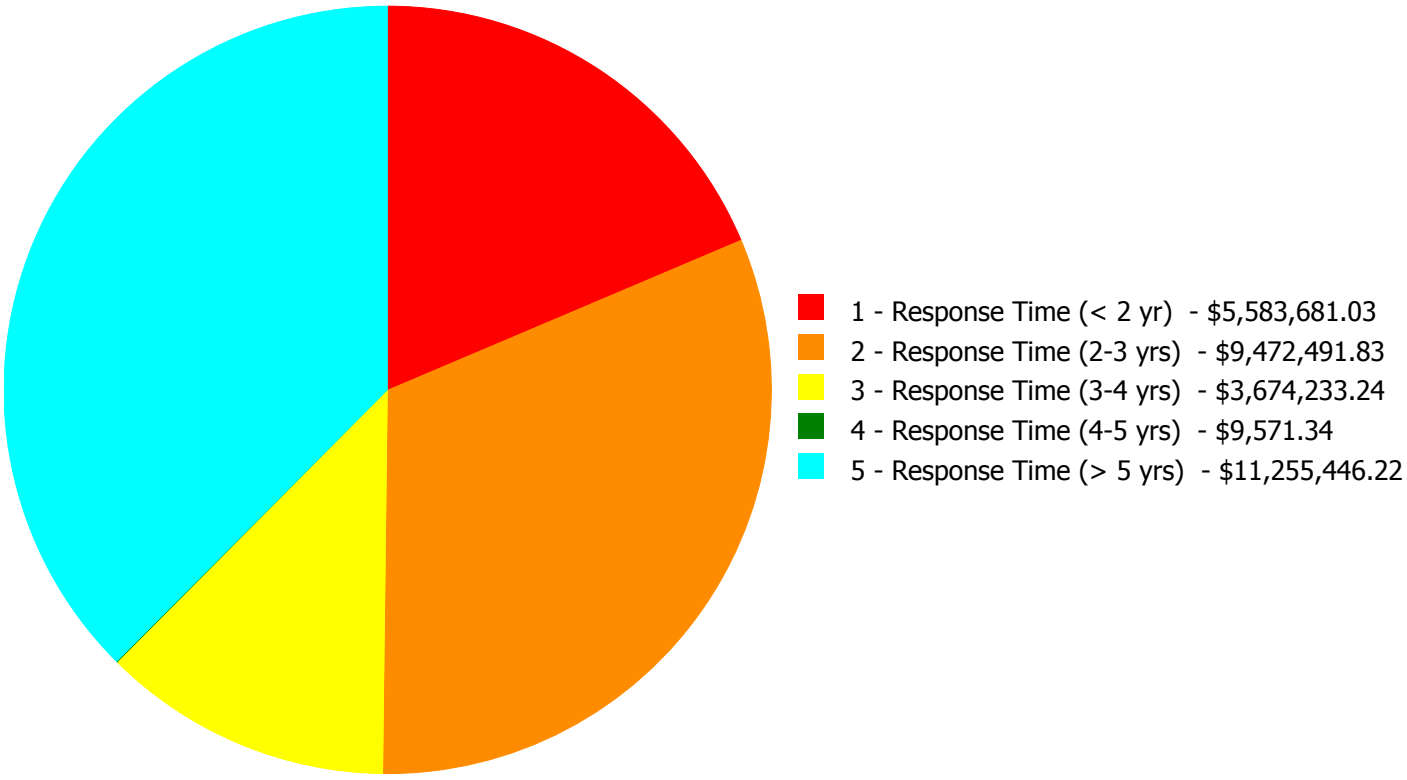
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $29,995,423.66

Deficiency Summary by Priority

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



Budget Estimate Total: $29,995,423.66

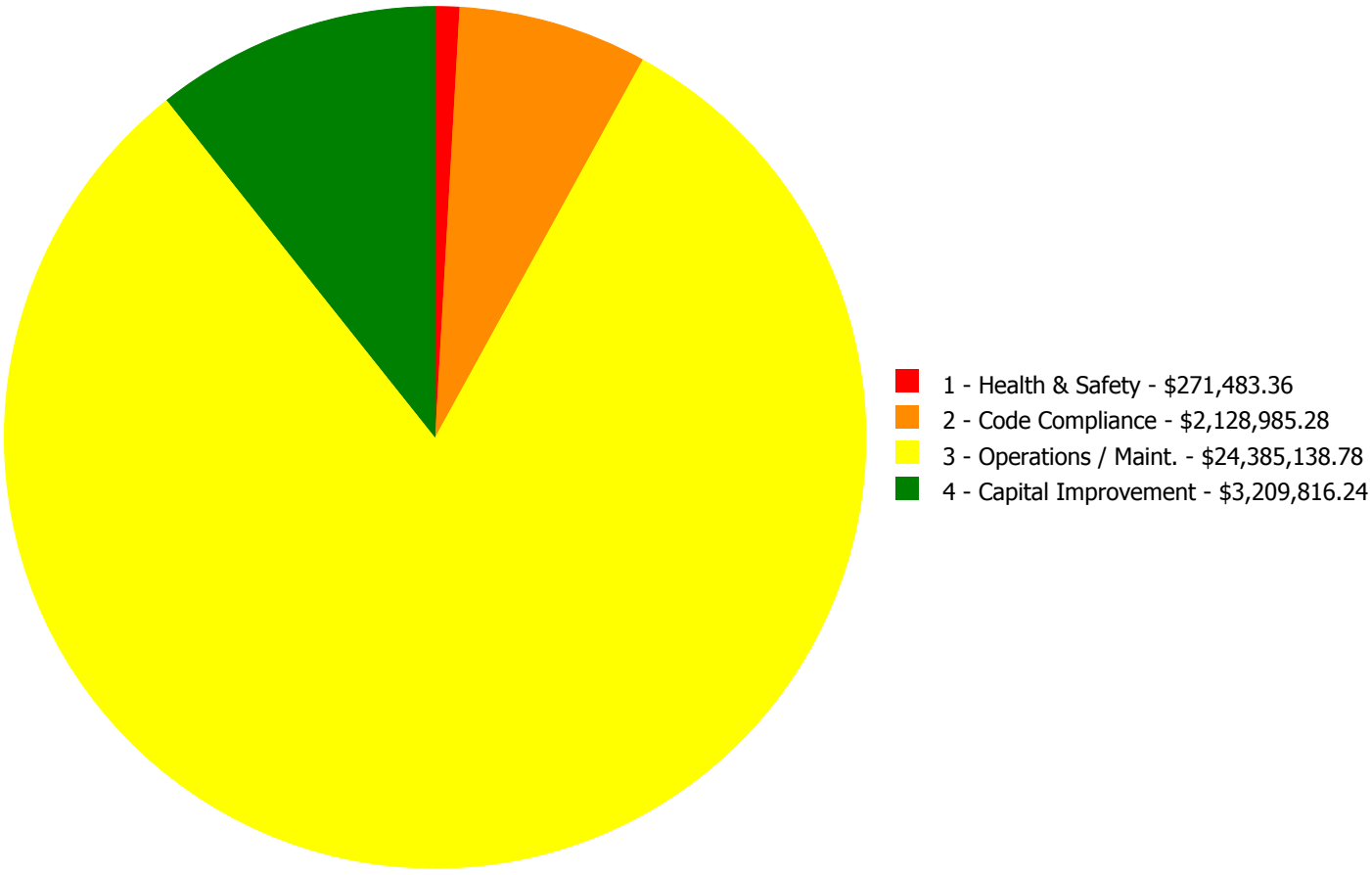
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
A2020	Basement Walls	$0.00	$227,667.53	$0.00	$0.00	$0.00	$227,667.53
B1010	Floor Construction	$0.00	$150,608.38	$0.00	$0.00	$0.00	$150,608.38
B2010	Exterior Walls	$0.00	$38,425.33	$0.00	$0.00	$0.00	$38,425.33
B2030	Exterior Doors	$0.00	$185,729.95	$0.00	$0.00	$0.00	$185,729.95
B3010105	Built-Up	$0.00	$37,672.25	$0.00	$0.00	$0.00	$37,672.25
B3010140	Shingle & Tile	$0.00	$14,537.31	$0.00	$0.00	$0.00	$14,537.31
C1010	Partitions	$0.00	$79,414.16	$0.00	$0.00	$0.00	$79,414.16
C1020	Interior Doors	$0.00	$999,998.33	$0.00	$0.00	$0.00	$999,998.33
C1030	Fittings	$0.00	$57,589.34	$0.00	$0.00	$0.00	$57,589.34
C2010	Stair Construction	$419,050.85	$15,746.65	$0.00	$0.00	$0.00	$434,797.50
C3010230	Paint & Covering	$0.00	$141,794.41	$0.00	$0.00	$0.00	$141,794.41
C3010232	Wall Tile	$0.00	$6,993.86	$0.00	$0.00	$0.00	$6,993.86
C3020413	Vinyl Flooring	$0.00	$412,088.48	$0.00	$0.00	$0.00	$412,088.48
C3020414	Wood Flooring	$0.00	$404,836.94	$0.00	$0.00	$0.00	$404,836.94
C3020415	Concrete Floor Finishes	$0.00	$238,597.67	$0.00	$0.00	$0.00	$238,597.67
C3030	Ceiling Finishes	$0.00	$1,625,885.98	$0.00	$0.00	$0.00	$1,625,885.98
D1010	Elevators and Lifts	$0.00	$756,931.22	$0.00	$0.00	$0.00	$756,931.22
D2010	Plumbing Fixtures	$0.00	$944,588.90	$0.00	$0.00	$0.00	$944,588.90
D2020	Domestic Water Distribution	$0.00	$0.00	$109,213.45	$0.00	$578,516.17	$687,729.62
D2030	Sanitary Waste	$0.00	$0.00	$592,401.59	$0.00	$0.00	$592,401.59
D3020	Heat Generating Systems	$0.00	$0.00	$1,652,896.22	$0.00	$26,678.08	$1,679,574.30
D3030	Cooling Generating Systems	$0.00	$0.00	$0.00	$0.00	$2,240,285.44	$2,240,285.44
D3040	Distribution Systems	$457,714.90	$0.00	$1,319,721.98	$0.00	$6,414,356.77	$8,191,793.65
D3060	Controls & Instrumentation	$0.00	$2,992,566.73	$0.00	$0.00	$0.00	$2,992,566.73
D4010	Sprinklers	$0.00	$0.00	$0.00	$0.00	$1,995,609.76	$1,995,609.76
D5010	Electrical Service/Distribution	$1,082,419.21	$0.00	$0.00	$0.00	$0.00	$1,082,419.21
D5020	Lighting and Branch Wiring	$3,193,311.74	$0.00	$0.00	$9,571.34	$0.00	$3,202,883.08
D5030	Communications and Security	$123,363.91	$0.00	$0.00	$0.00	$0.00	$123,363.91
E1020	Institutional Equipment	$307,820.42	$0.00	$0.00	$0.00	$0.00	$307,820.42
E2010	Fixed Furnishings	$0.00	$140,818.41	$0.00	$0.00	$0.00	$140,818.41
	Total:	$5,583,681.03	$9,472,491.83	$3,674,233.24	$9,571.34	$11,255,446.22	$29,995,423.66

Deficiency Summary by Category

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



Budget Estimate Total: $29,995,423.66

Deficiency Details by Priority

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

Priority 1 - Response Time (< 2 yr):

System: C2010 - Stair Construction

Location: stairways

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 1 - Response Time (< 2 yr)

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

Qty: 1,200.00

Unit of Measure: L.F.

Estimate: $419,050.85

Assessor Name: System

Date Created: 12/21/2015

Notes: Remove and replace stairway handrails and guards with code compliant systems (6 stairways) x4 story; =50x24=1200lf

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: 139,500.00

Unit of Measure: S.F.

Estimate: $457,714.90

Assessor Name: System

Date Created: 02/07/2016

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: Entire Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Electrical Distribution System (U)

Qty: 1.00

Unit of Measure: Ea.

Estimate: $635,724.68

Assessor Name: System

Date Created: 11/12/2015

Notes: Replace the entire distribution system with new panel boards and new feeders. Provide arc flush label on the all panel boards. Estimated, 20 panel boards.

System: D5010 - Electrical Service/Distribution

Location: Boiler Room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Switchboard

Qty: 1.00

Unit of Measure: Ea.

Estimate: $446,694.53

Assessor Name: System

Date Created: 11/12/2015

Notes: Upgrade the existing electrical service with a new service. Replace the existing switchboard with new2000A, 208/120V, 3PH, 4 wire switchboard.

System: D5020 - Lighting and Branch Wiring

Location: Entire Building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Replace Lighting Fixtures (SF)

Qty: 1.00

Unit of Measure: S.F.

Estimate: $2,263,691.04

Assessor Name: System

Date Created: 11/12/2015

Notes: Replace all existing lighting fixtures with new fluorescent fixtures with T5 lamps except those in corridors and offices which have already been upgraded. Replace existing fixtures in gymnasium with LED high bay and replace/repair damaged lighting fixtures in corridors. Estimated 20each.

System: D5020 - Lighting and Branch Wiring

Location: Entire Building

Distress: Inadequate

Category: 4 - Capital Improvement

Priority: 1 - Response Time (< 2 yr)

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

Qty: 1.00

Unit of Measure: S.F.

Estimate: $929,620.70

Assessor Name: System

Date Created: 11/12/2015

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

System: D5030 - Communications and Security

Location: Entire Building

Distress: Damaged

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Add/Replace Clock System or Components

Qty: 1.00

Unit of Measure: Ea.

Estimate: $43,670.01

Assessor Name: System

Date Created: 11/12/2015

Notes: Replace existing master clock system with a 10 watt wireless master clock system. Provide new battery type clocks in the classrooms, Offices, Gymnasium, auditorium. Kitchen and library. Total 50 clocks.

System: D5030 - Communications and Security

Location: Auditorium

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 1 - Response Time (< 2 yr)

Correction: Add/Replace Sound System

Qty: 1.00

Unit of Measure: LS

Estimate: $39,783.80

Assessor Name: System

Date Created: 11/12/2015

Notes: Provide new sound system including a freestanding 19” tack back stage with mixer per amplifiers, CD player, cassette player, AM-FM radio, graphic or parametric equalizer, and receivers for wireless microphone.

System: D5030 - Communications and Security

Location: Building Exterior
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 1 - Response Time (< 2 yr)
Correction: Add/Replace Video Surveillance System
Qty: 1.00
Unit of Measure: Ea.
Estimate: $32,824.64
Assessor Name: System
Date Created: 11/12/2015

Notes: Install 1 camera on each corner of the exterior building and one on the main entrance of the building.

System: D5030 - Communications and Security

This deficiency has no image.

Location: Building Exterior
Distress: Inadequate
Category: 4 - Capital Improvement
Priority: 1 - Response Time (< 2 yr)
Correction: Add/Replace Paging System
Qty: 1.00
Unit of Measure: Ea.
Estimate: $7,085.46
Assessor Name: System
Date Created: 11/12/2015

Notes: Provide two speakers on exterior walls for covering the play yard area.

System: E1020 - Institutional Equipment

Location: Auditorium

Distress: Beyond Service Life

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: $307,820.42

Assessor Name: System

Date Created: 11/12/2015

Notes: Provide new stage lighting and lighting controller stage lighting in the Auditorium.

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

System: A2020 - Basement Walls

Location: areaway

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 800.00

Unit of Measure: S.F.

Estimate: $183,263.58

Assessor Name: System

Date Created: 12/21/2015

Notes: Repair concrete areaway retaining wall – all 3 sides (100ft x 8ft tall)

System: A2020 - Basement Walls

Location: areaway

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Repair spalled concrete - pick the appropriate repair and insert the SF of wall area

Qty: 500.00

Unit of Measure: S.F.

Estimate: $44,403.95

Assessor Name: System

Date Created: 12/21/2015

Notes: Repair basement wall over and around windows and louvers in areaway (500sf)

System: B1010 - Floor Construction

Location: concrete bridge over areaway

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove and replace elevated concrete deck with one way concrete beams and slab

Qty: 500.00

Unit of Measure: S.F.

Estimate: $134,380.51

Assessor Name: System

Date Created: 12/21/2015

Notes: Remove failing concrete walk "bridge" with brick side walls over window well, replace with new structural slab bridge (500sf)

System: B1010 - Floor Construction

Location: areaway

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Repair spalled concrete floor - pick the correct repair and insert the SF of floor area

Qty: 500.00

Unit of Measure: S.F.

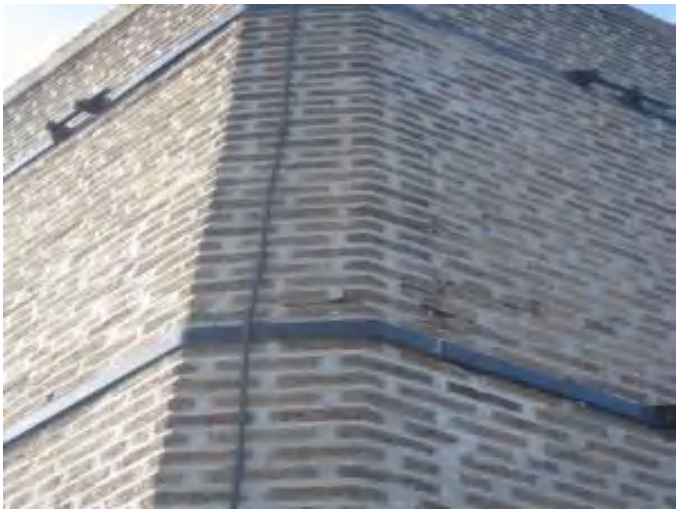
Estimate: $16,227.87

Assessor Name: System

Date Created: 12/21/2015

Notes: Repair concrete slab at bottom of areaway (500sf)
Clean out deck drains

System: B2010 - Exterior Walls



Location: masonry walls above roof

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 400.00

Unit of Measure: S.F.

Estimate: $12,915.80

Assessor Name: System

Date Created: 12/21/2015

Notes: Repoint cracks in parapet above counterflashing, masonry walls above roof, cracks in brick walls on facing inside of "O", and joints above and below limestone band (400sf)

System: B2010 - Exterior Walls

Location: concrete bridge over areaway

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Repair spalled concrete wall structure

Qty: 200.00

Unit of Measure: S.F.

Estimate: $11,343.24

Assessor Name: System

Date Created: 12/21/2015

Notes: Replace brick side walls on concrete bridge over areaway (40sf each side)

System: B2010 - Exterior Walls

Location: exterior limestone band and walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Sooty and dirty walls - powerwash

Qty: 10,000.00

Unit of Measure: S.F.

Estimate: $10,937.35

Assessor Name: System

Date Created: 12/21/2015

Notes: Powerwash rear building wall and limestone band and below on front and sides of building (10,000sf)

System: B2010 - Exterior Walls

Location: brick window mullions

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 100.00

Unit of Measure: S.F.

Estimate: $3,228.94

Assessor Name: System

Date Created: 12/21/2015

Notes: Repair broken brick and cracked joints under triple window lintels on first floor Cottman Ave. and Frontenac St (17ea)

System: B2030 - Exterior Doors

Location: exterior doors
Distress: Failing
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Remove and replace exterior doors - per leaf
Qty: 20.00
Unit of Measure: Ea.
Estimate: $182,146.42
Assessor Name: System
Date Created: 12/21/2015

Notes: Replace all exterior doors and frames; also provide new exit hardware. (20)3x7

System: B2030 - Exterior Doors

Location: main entrance - front doors
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Refinish and repaint exterior doors - per leaf
Qty: 6.00
Unit of Measure: Ea.
Estimate: $3,583.53
Assessor Name: System
Date Created: 12/21/2015

Notes: Repair and refinish historical, solid wood front doors (6)

System: B3010105 - Built-Up

Location: roof

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove and replace or replace parapet caps - BUR

Qty: 250.00

Unit of Measure: L.F.

Estimate: $21,397.65

Assessor Name: System

Date Created: 12/21/2015

Notes: Replace coping panels that have separated (allowance of 250ft)

System: B3010105 - Built-Up

Location: roof

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

Correction: Repair pourable pockets for rooftop mounted items

Qty: 25.00

Unit of Measure: Ea.

Estimate: $16,274.60

Assessor Name: System

Date Created: 12/21/2015

Notes: Re-seal roof penetrations at gravity vents, plumbing vents and fans (assume 25 penetrations in 53,085sf roof)

System: B3010140 - Shingle & Tile

Location: roof gutters

Distress: Building Envelope Integrity

Category: 3 - Operations / Maint.

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

Correction: Rain gutter replacment - select the type of material and number of mitres

Qty: 500.00

Unit of Measure: L.F.

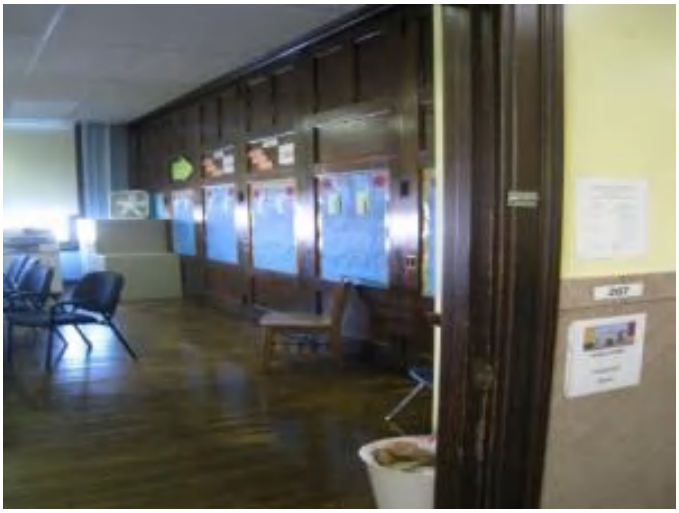
Estimate: $14,537.31

Assessor Name: System

Date Created: 12/21/2015

Notes: Reset gutter drains in troughs and reseal metal troughs (500ft)

System: C1010 - Partitions



Location: folding partitions in classrooms

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Remove folding wood partitions; replace with metal studs and gypsum board painted

Qty: 2,700.00

Unit of Measure: S.F.

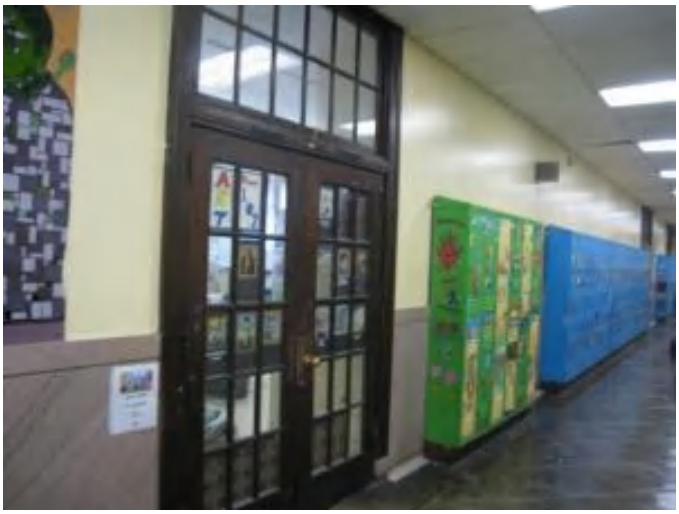
Estimate: $60,154.64

Assessor Name: System

Date Created: 12/21/2015

Notes: Remove folding wood partitions; replace with gypsum board and metal stud walls (8) @300sf ea =2700sf

System: C1010 - Partitions



Location: corridor walls

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Remove non-rated interior glass panels and replace with studs, gypsum board, paint (E) wall

Qty: 720.00

Unit of Measure: S.F.

Estimate: $19,259.52

Assessor Name: System

Date Created: 12/21/2015

Notes: Remove non-rated glass panels between classrooms and corridors; fill with fire rated gyp bd sys. (120 @ 6sf each)

System: C1020 - Interior Doors

Location: corridor doors

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

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

Qty: 160.00

Unit of Measure: Ea.

Estimate: $744,694.24

Assessor Name: System

Date Created: 12/21/2015

Notes: Replace all original wood interior doors in hallways with fire rated doors (160)

System: C1020 - Interior Doors

Location: steel doors in basement and stairs

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Remove and replace hollow metal frames and doors

Qty: 30.00

Unit of Measure: Ea.

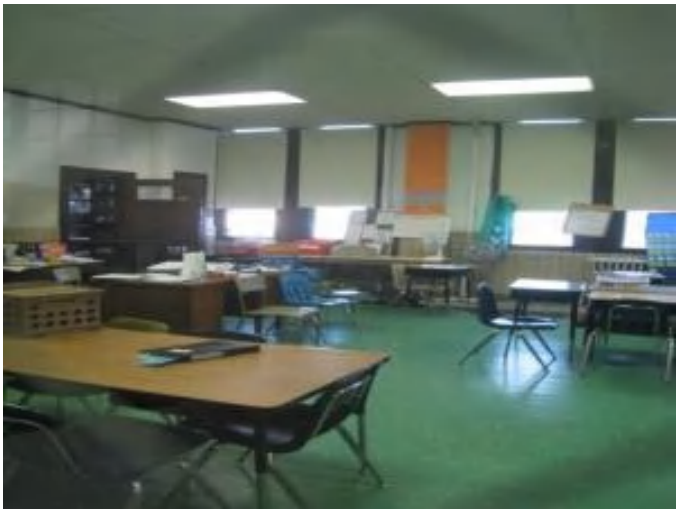
Estimate: $152,339.61

Assessor Name: System

Date Created: 12/21/2015

Notes: Remove and replace all basement steel doors, frames, and hardware in mechanical rooms; fire rated doors with panic hardware for stairs (30) 3x7 doors

System: C1020 - Interior Doors



Location: interior doors inside classrooms and offices

Distress: Appearance

Category: 3 - Operations / Maint.

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

Correction: Refinish interior doors

Qty: 80.00

Unit of Measure: Ea.

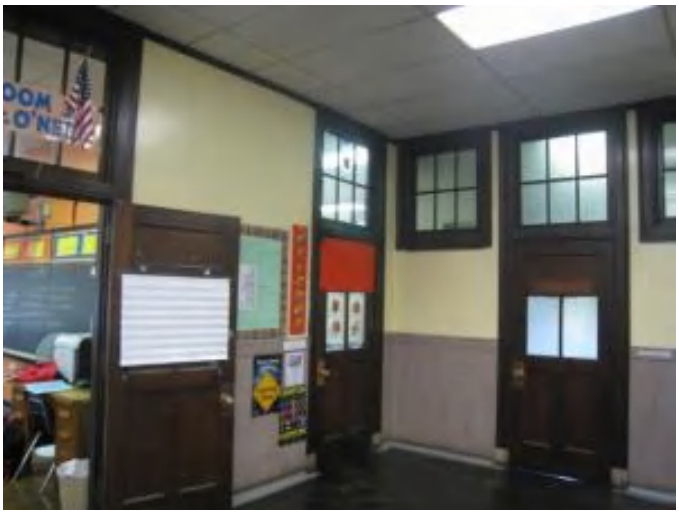
Estimate: $66,254.64

Assessor Name: System

Date Created: 12/21/2015

Notes: Refinish all original wood interior doors, frames and hardware inside classrooms, closets, offices, etc. (80)

System: C1020 - Interior Doors



Location: corridor doors

Distress: Security Issue

Category: 2 - Code Compliance

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

Correction: Provide security hardware for classroom and office doors

Qty: 160.00

Unit of Measure: Ea.

Estimate: $36,709.84

Assessor Name: System

Date Created: 12/21/2015

Notes: Provide security hardware for classrooms and offices, locking from inside classroom. (160)

System: C1030 - Fittings

Location: toilet rooms

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Remove and replace toilet partitions

Qty: 20.00

Unit of Measure: Ea.

Estimate: $51,328.09

Assessor Name: System

Date Created: 12/21/2015

Notes: Replace damaged marble and wood water closet partitions with HDPE plastic partitions (assume 20)

System: C1030 - Fittings

Location: toilet rooms

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Replace toilet accessories - select accessories and quantity

Qty: 6.00

Unit of Measure: Ea.

Estimate: $6,261.25

Assessor Name: System

Date Created: 12/21/2015

Notes: Provide toilet room accessories where broken or missing (6 sets)

System: C2010 - Stair Construction

Location: areaway

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Add exterior stairs - per flight - galvanized or painted for rooftop use

Qty: 1.00

Unit of Measure: Flight

Estimate: $15,746.65

Assessor Name: System

Date Created: 12/21/2015

Notes: Replace rusted stair from areaway to grade level at Englewood Street (13 risers)

System: C3010230 - Paint & Covering

Location: gymnasium trusses and deck

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 10,000.00

Unit of Measure: S.F.

Estimate: $80,829.51

Assessor Name: System

Date Created: 12/21/2015

Notes: Repaint exposed steel truss and beam ceilings including concrete roof deck; repair peeling and water damaged walls and beams under clerestory on high walls sill in gyms over boys and girls gymnasiums (10,000sf)

System: C3010230 - Paint & Covering

Location: interior walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 5,000.00

Unit of Measure: S.F.

Estimate: $33,869.39

Assessor Name: System

Date Created: 12/21/2015

Notes: Repair and repaint cracked and damaged plaster walls throughout the building (5000sf)

System: C3010230 - Paint & Covering

Location: boiler room walls

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 4,000.00

Unit of Measure: S.F.

Estimate: $27,095.51

Assessor Name: System

Date Created: 12/21/2015

Notes: Strip and repaint concrete foundation (interior basement) walls in mechanical rooms (4,000sf)

System: C3010232 - Wall Tile

Location: marble panels near auditorium

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Remove and replace wall tile

Qty: 200.00

Unit of Measure: S.F.

Estimate: $6,993.86

Assessor Name: System

Date Created: 12/21/2015

Notes: Repair damaged marble wainscot panels in area of auditorium and other areas (200sf)

System: C3020413 - Vinyl Flooring

Location: cafeteria, classrooms
Distress: Health Hazard / Risk
Category: 1 - Health & Safety
Priority: 2 - Response Time (2-3 yrs)
Correction: Remove VAT and replace with VCT - SF of area
Qty: 17,900.00
Unit of Measure: S.F.
Estimate: $271,483.36
Assessor Name: System
Date Created: 12/21/2015

Notes: Replace VAT floors using proper asbestos abatement procedures if determined asbestos is present. (17,900sf)

System: C3020413 - Vinyl Flooring

Location: classrooms
Distress: Beyond Service Life
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Remove and replace VCT
Qty: 11,700.00
Unit of Measure: S.F.
Estimate: $140,605.12
Assessor Name: System
Date Created: 12/21/2015

Notes: Replace VCT floors (11,700sf)

System: C3020414 - Wood Flooring

Location: wood floors - classrooms, auditorium
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Refinish wood floors
Qty: 37,600.00
Unit of Measure: S.F.
Estimate: $404,836.94
Assessor Name: System
Date Created: 12/21/2015

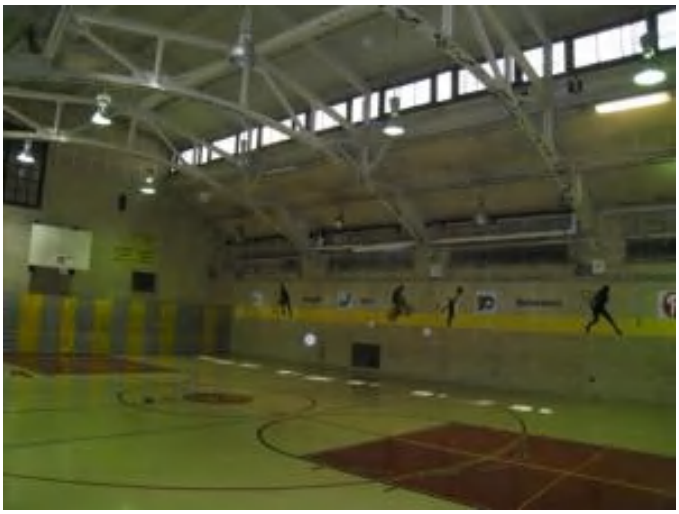
Notes: Strip, sand, repair and refinish all wood floors in classrooms and in auditorium (37,600sf)

System: C3020415 - Concrete Floor Finishes

Location: concrete slabs
Distress: Appearance
Category: 3 - Operations / Maint.
Priority: 2 - Response Time (2-3 yrs)
Correction: Clean and reseal concrete floors
Qty: 42,000.00
Unit of Measure: S.F.
Estimate: $161,470.40
Assessor Name: System
Date Created: 12/21/2015

Notes: Clean and repaint basement floor in mechanical rooms; clean and reseal concrete floors in hallways, stairways, and toilet rooms (42,000sf)

System: C3020415 - Concrete Floor Finishes



Location: gymnasium floors

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Prepare and repaint concrete floor

Qty: 13,300.00

Unit of Measure: S.F.

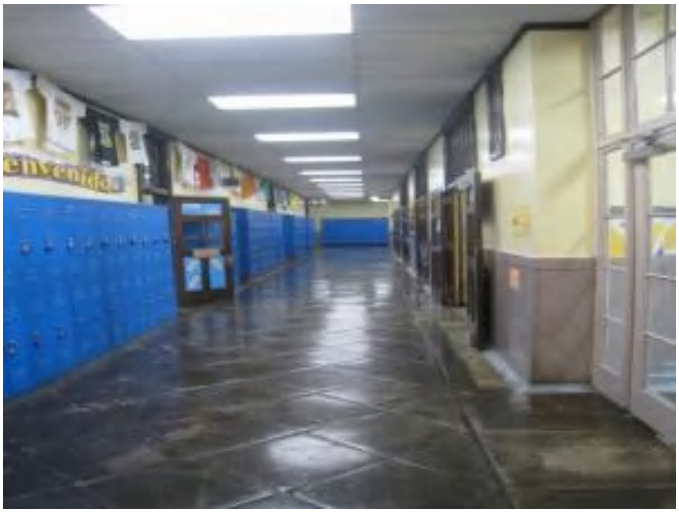
Estimate: $77,127.27

Assessor Name: System

Date Created: 12/21/2015

Notes: Remove and replace all high-build painted floors in boy's and girl's gymnasiums (13,300sf)

System: C3030 - Ceiling Finishes



Location: interiors

Distress: Appearance

Category: 3 - Operations / Maint.

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

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

Qty: 107,800.00

Unit of Measure: S.F.

Estimate: $1,625,885.98

Assessor Name: System

Date Created: 12/21/2015

Notes: Replace 2x4 acoustical tile ceilings or 12"x12" glued-on ceiling tiles where damaged or where grid is rusted (107,800sf)

System: D1010 - Elevators and Lifts

This deficiency has no image.

Location: corridor - to be determined

Distress: Building / MEP Codes

Category: 2 - Code Compliance

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

Correction: Add interior elevator - 5 floors - adjust the electrical run lengths to hook up the elevator

Qty: 1.00

Unit of Measure: Ea.

Estimate: $756,931.22

Assessor Name: System

Date Created: 12/21/2015

Notes: Provide new 5 stop traction elevator

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: 49.00

Unit of Measure: Ea.

Estimate: $365,645.24

Assessor Name: System

Date Created: 02/07/2016

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: 18.00

Unit of Measure: Ea.

Estimate: $282,472.14

Assessor Name: System

Date Created: 02/07/2016

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: 36.00

Unit of Measure: Ea.

Estimate: $137,196.45

Assessor Name: System

Date Created: 02/07/2016

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 wall hung urinals

Qty: 26.00

Unit of Measure: Ea.

Estimate: $96,357.41

Assessor Name: System

Date Created: 02/07/2016

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 wall janitor or mop sink - insert the quantity

Qty: 8.00

Unit of Measure: Ea.

Estimate: $62,917.66

Assessor Name: System

Date Created: 02/07/2016

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: 139,500.00

Unit of Measure: S.F.

Estimate: $2,992,566.73

Assessor Name: System

Date Created: 02/07/2016

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.

System: E2010 - Fixed Furnishings

Location: auditorium

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 200.00

Unit of Measure: Ea.

Estimate: $140,818.41

Assessor Name: System

Date Created: 12/21/2015

Notes: Repair and refinish damaged folding wood auditorium chairs; 33% of total = 200

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

System: D2020 - Domestic Water Distribution

Location: Main boiler mechanical equipment room

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

Correction: Replace vertical tank type gas-fired water heater (75 gal)

Qty: 2.00

Unit of Measure: Ea.

Estimate: $109,213.45

Assessor Name: System

Date Created: 02/07/2016

Notes: Replace two vertical tank natural gas fired water heaters.

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. (+100KSF)

Qty: 139,500.00

Unit of Measure: S.F.

Estimate: $592,401.59

Assessor Name: System

Date Created: 02/07/2016

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, fire tube (300 HP)

Qty: 3.00

Unit of Measure: Ea.

Estimate: $1,652,896.22

Assessor Name: System

Date Created: 02/07/2016

Notes: Replace the three, 300 HP Superior Scotch Marine steam boilers installed in 1972.

System: D3040 - Distribution Systems

Location: Throughout the building

Distress: Beyond Service Life

Category: 3 - Operations / Maint.

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

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

Qty: 139,500.00

Unit of Measure: S.F.

Estimate: $1,319,721.98

Assessor Name: System

Date Created: 02/07/2016

Notes: Hire a qualified contractor to examine the steam and condensate piping in service for 87 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: D5020 - Lighting and Branch Wiring

Location: Building Exterior

Distress: Damaged

Category: 3 - Operations / Maint.

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

Correction: Add Exterior Lighting

Qty: 1.00

Unit of Measure: Ea.

Estimate: $9,571.34

Assessor Name: System

Date Created: 11/12/2015

Notes: Replace/repair existing exterior lighting fixtures. Estimate 4 lighting fixtures.

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 (150 KSF)
Qty: 139,500.00
Unit of Measure: S.F.
Estimate: $578,516.17
Assessor Name: System
Date Created: 02/07/2016

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: 02/07/2016

Notes: Replace duplex fuel oil pumps.

System: D3030 - Cooling Generating Systems

Location: Throughout 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: 139,500.00

Unit of Measure: S.F.

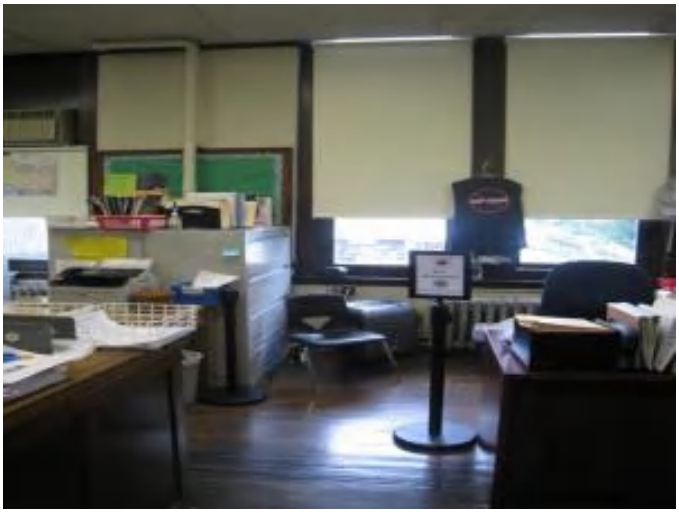
Estimate: $2,240,285.44

Assessor Name: System

Date Created: 02/07/2016

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: 50.00

Unit of Measure: C

Estimate: $4,153,049.46

Assessor Name: System

Date Created: 02/07/2016

Notes: Replace the existing steam radiators throughout the building with new fan coil 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: 5 - Response Time (> 5 yrs)

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

Qty: 10.00

Unit of Measure: C

Estimate: $830,609.93

Assessor Name: System

Date Created: 02/07/2016

Notes: Provide ventilation for the corridors at 10 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 Auditorium (200 seat).

Qty: 400.00

Unit of Measure: Seat

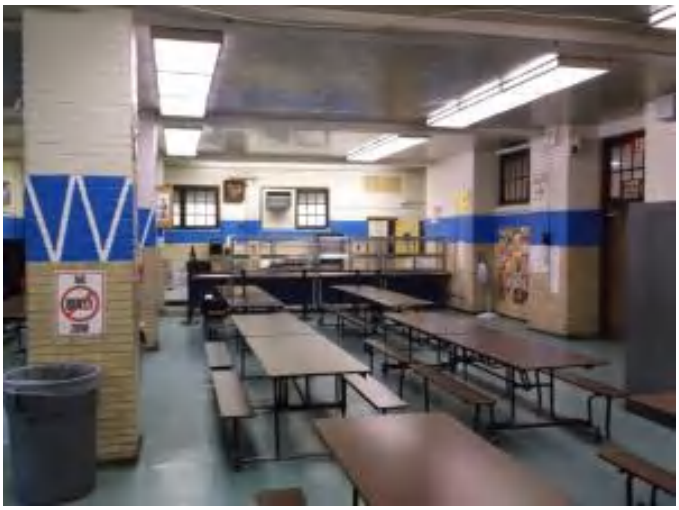
Estimate: $570,170.82

Assessor Name: System

Date Created: 02/07/2016

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

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

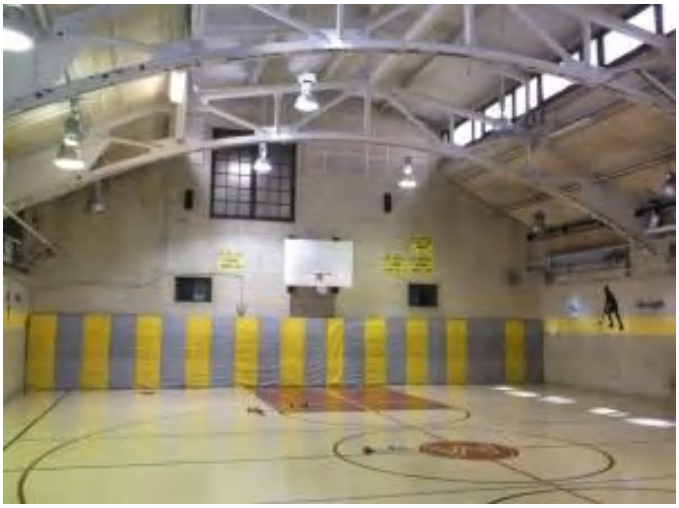
Estimate: $434,958.00

Assessor Name: System

Date Created: 02/07/2016

Notes: Provide ventilation, heating and cooling for the Cafeteria by removing the existing radiators 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.

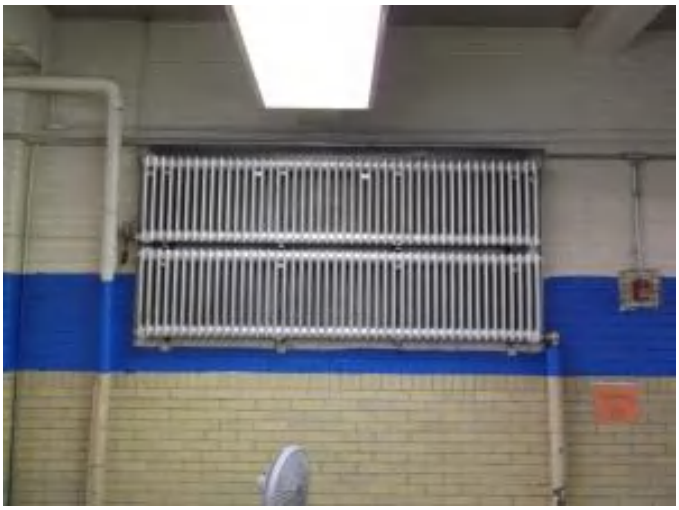
Estimate: $344,860.27

Assessor Name: System

Date Created: 02/07/2016

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: 200.00

Unit of Measure: L.F.

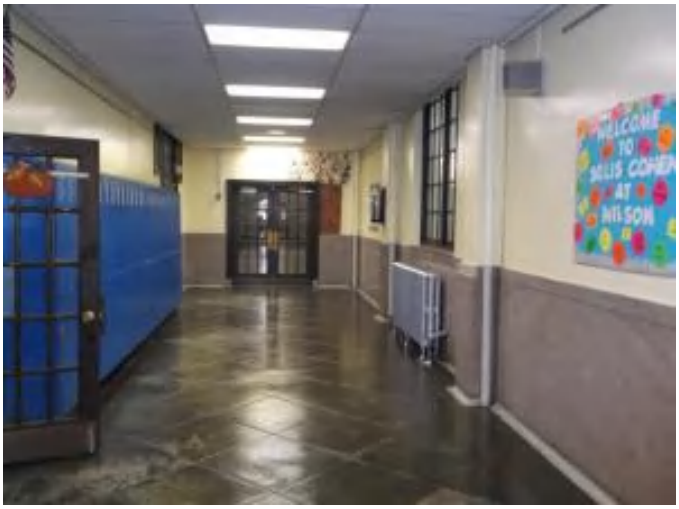
Estimate: $80,708.29

Assessor Name: System

Date Created: 02/07/2016

Notes: Replace the steam radiators 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: Beyond Service Life

Category: 3 - Operations / Maint.

Priority: 5 - Response Time (> 5 yrs)

Correction: Install a fire protection sprinkler system

Qty: 139,500.00

Unit of Measure: S.F.

Estimate: $1,995,609.76

Assessor Name: System

Date Created: 02/07/2016

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, hot water, 13,500 MBH	3.00	Ea.	Main boiler mechanical equipment room	Superior	n/a			35			$381,037.50	$1,257,423.75
D3020 Heat Generating Systems	Boiler, cast iron, gas & oil, hot water, 13,500 MBH	3.00	Ea.	Main boiler mechanical equipment room	Superior	n/a			35			$381,037.50	$1,257,423.75
D3020 Heat Generating Systems	Boiler, packaged scotch marine, fire tube, gross output, #2 oil, 15 PSI steam, 10,044 MBH, 300 H.P.	3.00	Ea.	B-3	Superior		7043-125360		35			$186,539.00	$615,578.70
D3020 Heat Generating Systems	Boiler, packaged scotch marine, fire tube, gross output, #2 oil, 15 PSI steam, 10,044 MBH, 300 H.P.	3.00	Ea.	B-2	Superior		7043-125359		35			$186,539.00	$615,578.70
D3020 Heat Generating Systems	Boiler, packaged scotch marine, fire tube, gross output, #2 oil, 15 PSI steam, 10,044 MBH, 300 H.P.	3.00	Ea.	B-1	Superior		7043-125358		35			$186,539.00	$615,578.70
D5010 Electrical Service/Distribution	Switchboards, pressure switch, 4 wire, 120/208 V, 1600 amp, incl CT compartment, excl CT's or PT's	1.00	Ea.	Boiler Room					30	1928	2017	$31,422.60	$34,564.86
												Total:	**$4,396,148.46**

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):	104,900
Year Built:	1928
Last Renovation:	
Replacement Value:	$1,917,017
Repair Cost:	$513,203.00
Total FCI:	26.77 %
Total RSLI:	55.32 %

Description:

Attributes:

General Attributes:

Bldg ID:	S812001	Site ID:	S812001

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	59.93 %	35.13 %	$513,203.00
G40 - Site Electrical Utilities	40.59 %	0.00 %	$0.00
Totals:	**55.32 %**	**26.77 %**	**$513,203.00**

Condition Detail

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

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

System Listing

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

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

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

System Code	System Description	Unit Price $	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency $	Replacement Value $
G2010	Roadways	$11.52	S.F.		30				0.00 %	0.00 %				$0
G2020	Parking Lots	$7.65	S.F.	8,600	30	1928	1958	2042	90.00 %	57.90 %	27		$38,095.64	$65,790
G2030	Pedestrian Paving	$11.52	S.F.	74,100	40	1928	1968	2028	32.50 %	16.38 %	13		$139,820.08	$853,632
G2040	Site Development	$4.36	S.F.	104,900	25	1928	1953	2042	108.00 %	73.31 %	27		$335,287.28	$457,364
G2050	Landscaping & Irrigation	$3.78	S.F.	22,200	15	1928	1943	2023	53.33 %	0.00 %	8			$83,916
G4020	Site Lighting	$3.58	S.F.	104,900	30	1928	1958	2027	40.00 %	0.00 %	12			$375,542
G4030	Site Communications & Security	$0.77	S.F.	104,900	30	1928	1958	2028	43.33 %	0.00 %	13			$80,773
								Total	**55.32 %**	**26.77 %**			**$513,203.00**	**$1,917,017**

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.

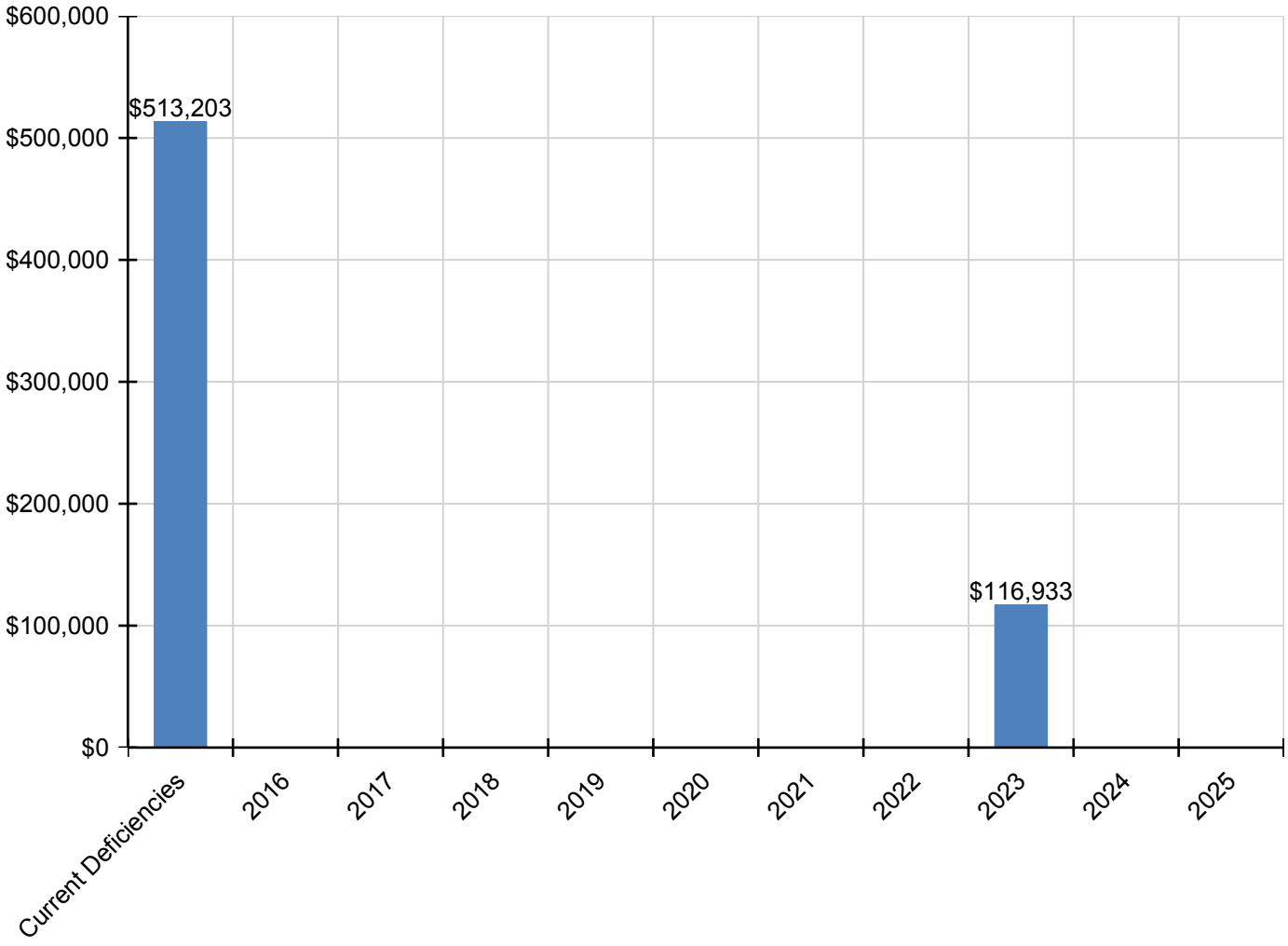
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	**$513,203**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$116,933**	**$0**	**$0**	**$630,136**
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	$38,096	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$38,096**
G2030 - Pedestrian Paving	$139,820	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$139,820**
G2040 - Site Development	$335,287	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$335,287**
G2050 - Landscaping & Irrigation	$0	$0	$0	$0	$0	$0	$0	$0	$116,933	$0	$0	**$116,933**
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

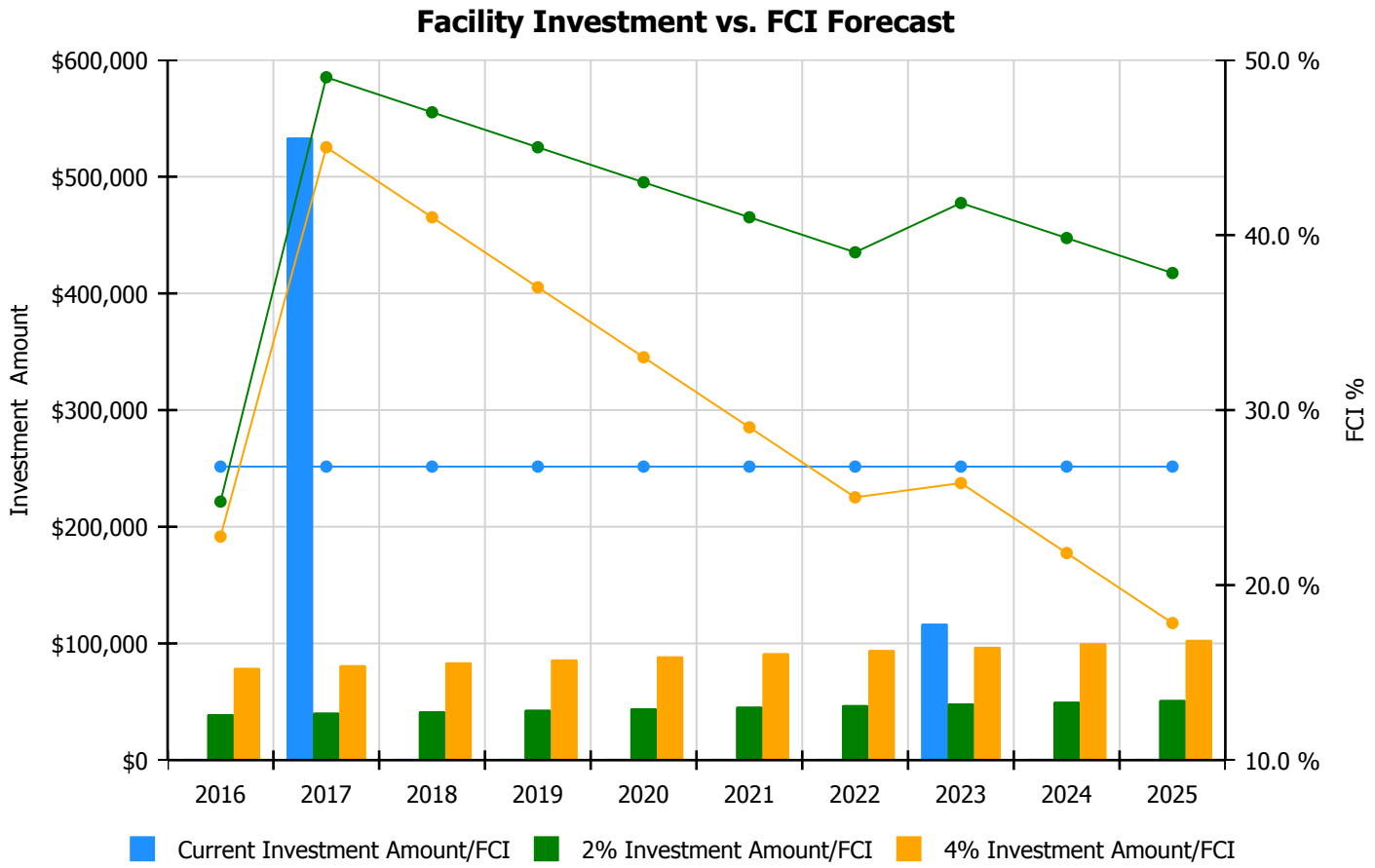
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



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:

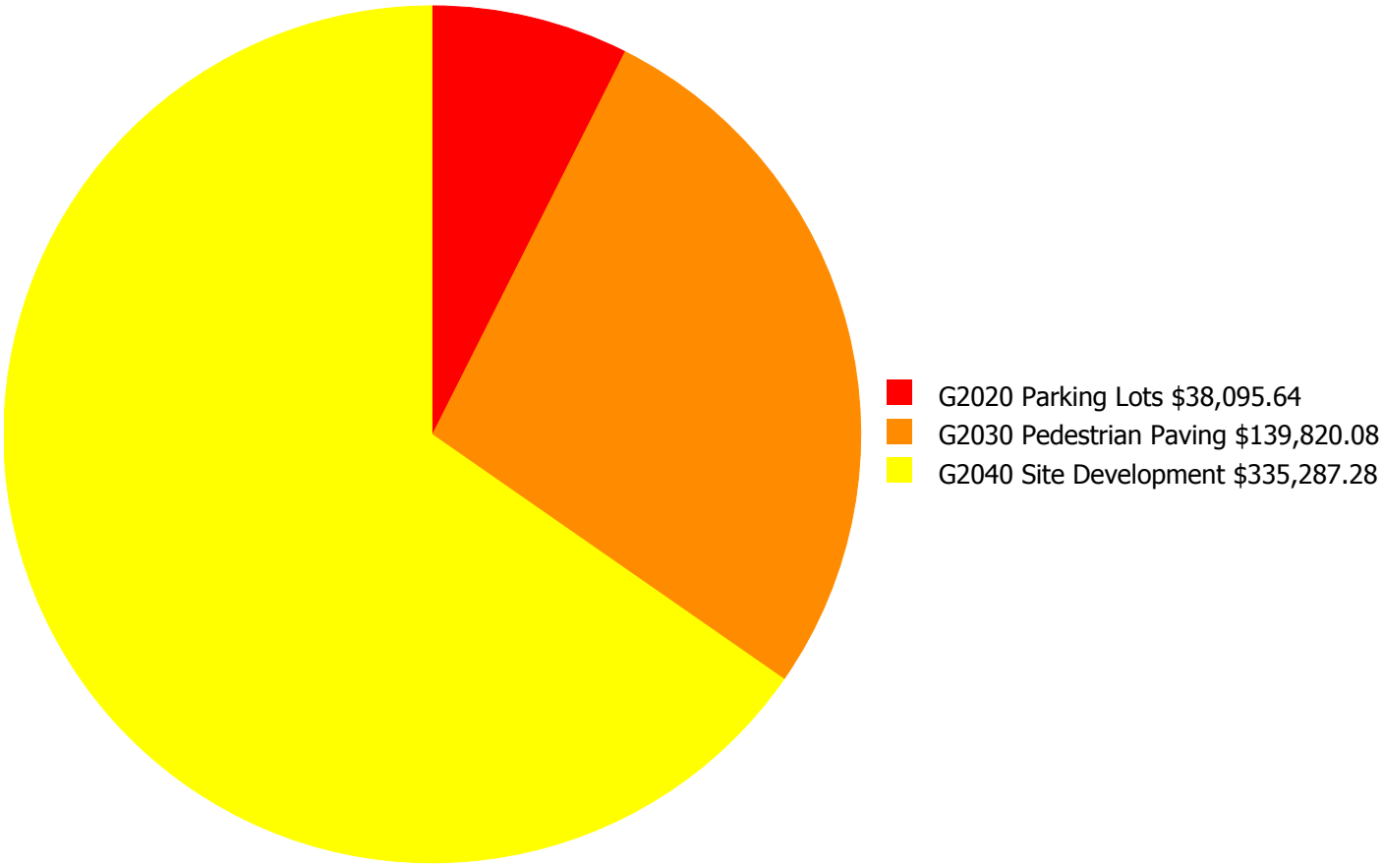
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value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



Year	Investment Amount Current FCI - 26.77%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	$0	$39,491.00	24.77 %	$78,981.00	22.77 %
2017	$533,739	$40,675.00	49.01 %	$81,351.00	45.01 %
2018	$0	$41,896.00	47.01 %	$83,791.00	41.01 %
2019	$0	$43,152.00	45.01 %	$86,305.00	37.01 %
2020	$0	$44,447.00	43.01 %	$88,894.00	33.01 %
2021	$0	$45,780.00	41.01 %	$91,561.00	29.01 %
2022	$0	$47,154.00	39.01 %	$94,308.00	25.01 %
2023	$116,933	$48,568.00	41.83 %	$97,137.00	25.83 %
2024	$0	$50,025.00	39.83 %	$100,051.00	21.83 %
2025	$0	$51,526.00	37.83 %	$103,052.00	17.83 %
Total:	**$650,672**	**$452,714.00**		**$905,431.00**	

Deficiency Summary by System

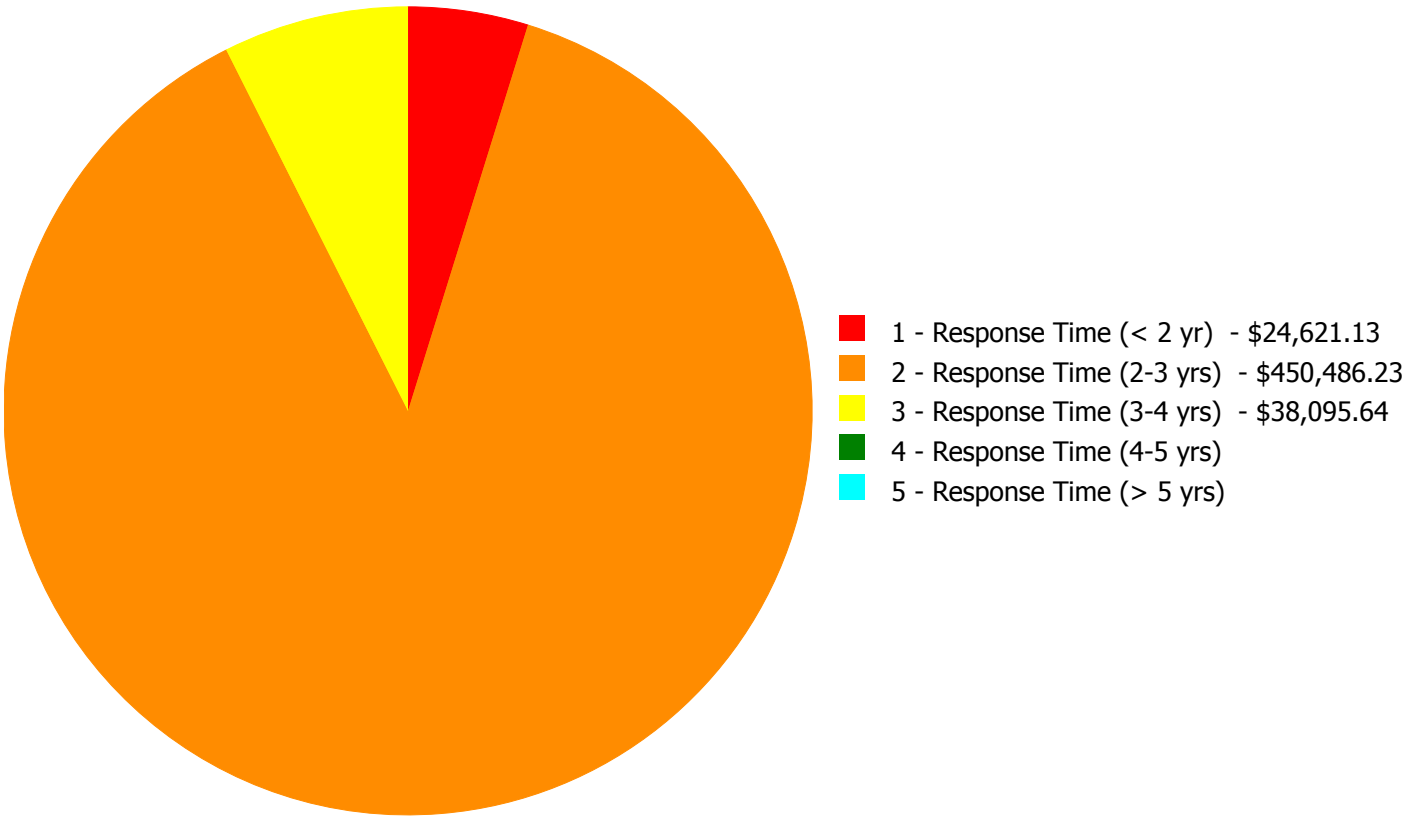
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



Budget Estimate Total: $513,203.00

Deficiency Summary by Priority

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



Budget Estimate Total: $513,203.00

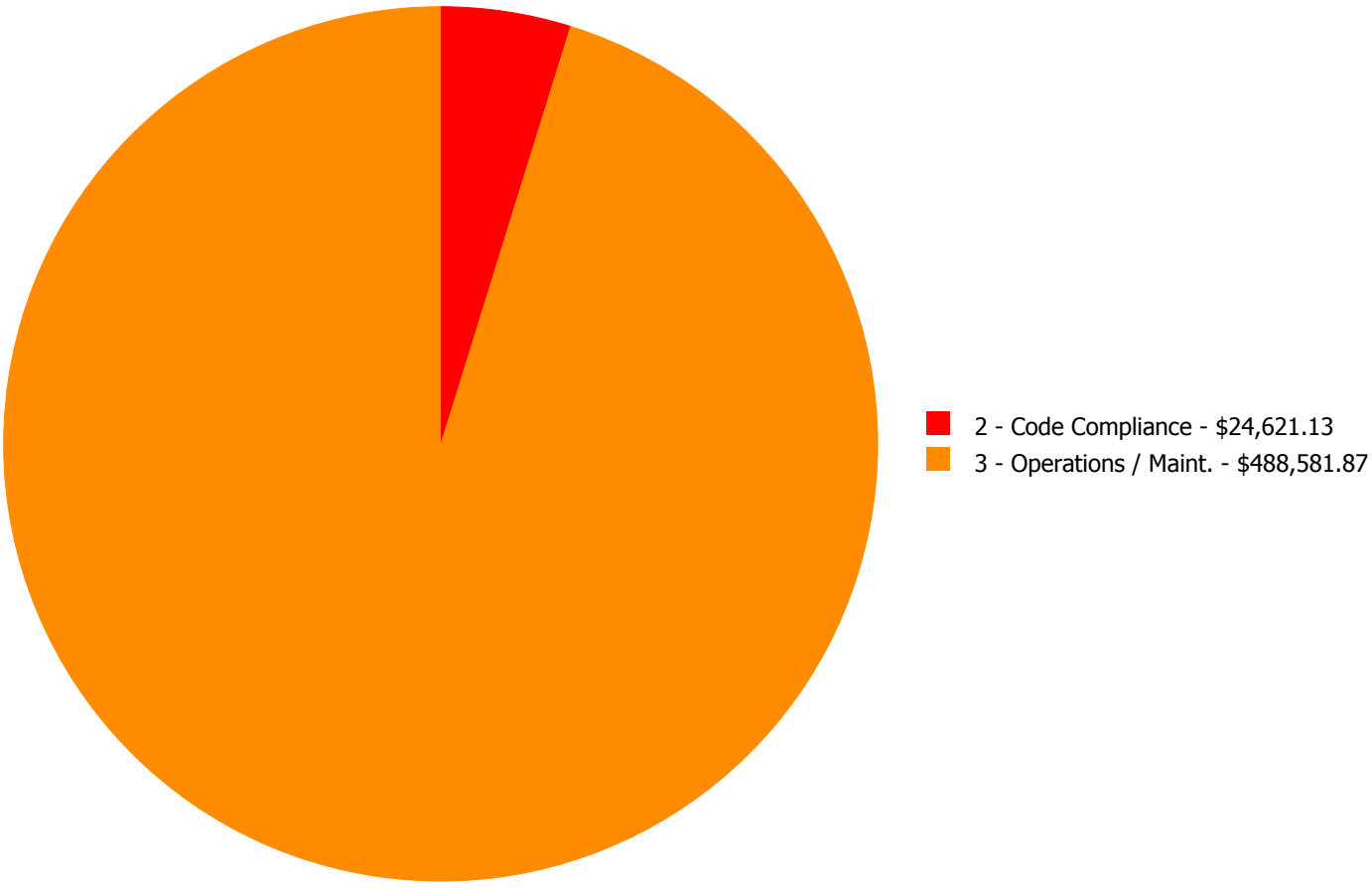
Deficiency By Priority Investment Table

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

System Code	System Description	1 - Response Time (< 2 yr)	2 - Response Time (2-3 yrs)	3 - Response Time (3-4 yrs)	4 - Response Time (4-5 yrs)	5 - Response Time (> 5 yrs)	Total
G2020	Parking Lots	$0.00	$0.00	$38,095.64	$0.00	$0.00	$38,095.64
G2030	Pedestrian Paving	$0.00	$139,820.08	$0.00	$0.00	$0.00	$139,820.08
G2040	Site Development	$24,621.13	$310,666.15	$0.00	$0.00	$0.00	$335,287.28
	Total:	$24,621.13	$450,486.23	$38,095.64	$0.00	$0.00	$513,203.00

Deficiency Summary by Category

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



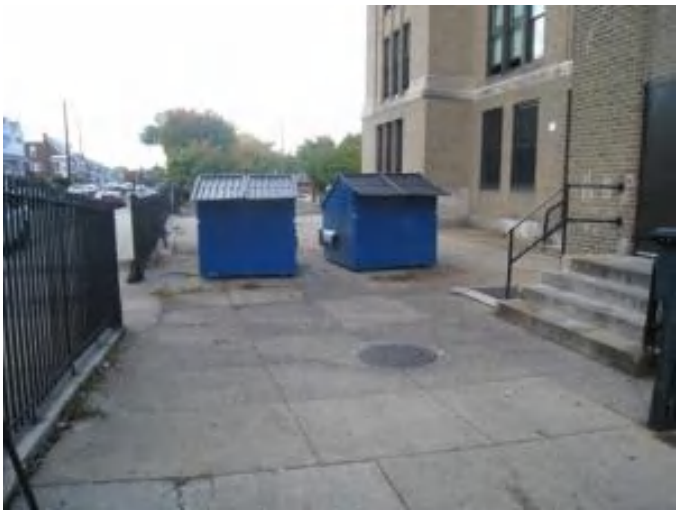
Budget Estimate Total: $513,203.00

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: G2040 - Site Development



Location: exterior stairs

Distress: Building / MEP Codes

Category: 2 - Code Compliance

Priority: 1 - Response Time (< 2 yr)

Correction: Replace or install exterior guardrails

Qty: 128.00

Unit of Measure: L.F.

Estimate: $24,621.13

Assessor Name: Craig Anding

Date Created: 12/21/2015

Notes: Replace failing and non-code compliant handrails/guards on all site stairs both sides of each stair (4) 7 riser stairs, (4) 4 riser stairs, (2) 2 riser stairs; main entrance stair 8 risers – 4 handrails

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

System: G2030 - Pedestrian Paving

Location: sidewalk and playground

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: 6,000.00

Unit of Measure: S.F.

Estimate: $86,297.10

Assessor Name: Craig Anding

Date Created: 12/21/2015

Notes: Repave 2000sf damaged sections of concrete walkway along streets; repave 4000sf concrete playground (6,000sf total)

System: G2030 - Pedestrian Paving

Location: dumpster slab

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 2,000.00

Unit of Measure: S.F.

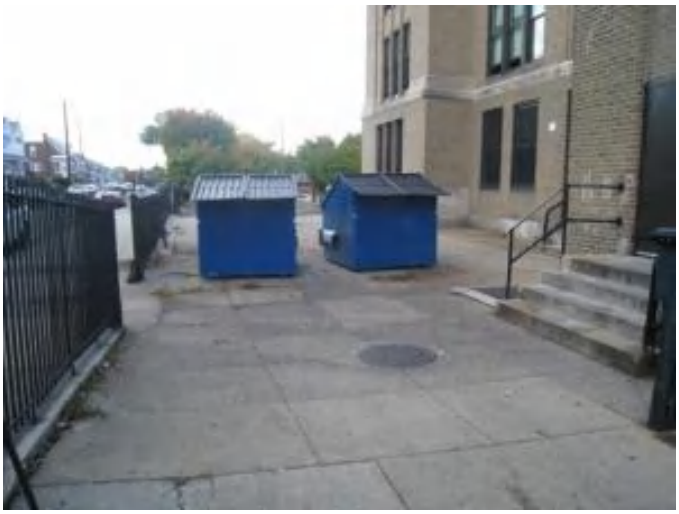
Estimate: $52,547.10

Assessor Name: Craig Anding

Date Created: 12/21/2015

Notes: Repave dumpster slab and access slab to dumpster (2,000sf)

System: G2030 - Pedestrian Paving



Location: exterior stairs

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Regrout joints between stone treads and risers - LF of grout

Qty: 60.00

Unit of Measure: L.F.

Estimate: $975.88

Assessor Name: Craig Anding

Date Created: 12/21/2015

Notes: Regrout joints between limestone block tread/risers at misc. exterior stairs (10 treads, 6ft long)

System: G2040 - Site Development

Location: sidewalks and play area

Distress: Failing

Category: 3 - Operations / Maint.

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

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

Qty: 400.00

Unit of Measure: L.F.

Estimate: $206,250.07

Assessor Name: Craig Anding

Date Created: 12/21/2015

Notes: Repair/Reconstruct landscape retaining walls leaning and broken along Cottman Ave, Englewood Ave, and playground area (approx. 50% of 800ft long retaining walls 3 feet height)

System: G2040 - Site Development

Location: site fence

Distress: Damaged

Category: 3 - Operations / Maint.

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

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

Qty: 1,600.00

Unit of Measure: L.F.

Estimate: $104,416.08

Assessor Name: Craig Anding

Date Created: 12/21/2015

Notes: Repaint rusted wrought iron fence surrounding site and along playground and raised walkway (1,600ft)

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

System: G2020 - Parking Lots

Location: faculty parking lot

Distress: Failing

Category: 3 - Operations / Maint.

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

Correction: Resurface parking lot - grind and resurface including striping

Qty: 10,000.00

Unit of Measure: S.F.

Estimate: $38,095.64

Assessor Name: Craig Anding

Date Created: 12/21/2015

Notes: Repave 100% of parking lot (10,000sf)

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