

## 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.

### Palumbo School

Governance	DISTRICT	Report Type	High
Address	1100 Catharine St. Philadelphia, Pa 19147	Enrollment	901
Phone/Fax	215-351-7618 / 215-351-7685	Grade Range	'09-12'
Website	Www.Philasd.Org/Schools/Palumbo	Admissions Category	Special Admit
		Turnaround Model	N/A

### Building/System FCI Tiers

Facility Condition Index (FCI) = $\frac{\text{Cost of Assessed Deficiencies}}{\text{Replacement Value}}$				
< 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
<b>Overall</b>	<b>11.09%</b>	<b>\$10,762,857</b>	<b>\$97,016,893</b>
Building	11.03 %	\$10,688,936	\$96,880,618
Grounds	54.24 %	\$73,921	\$136,275

### Major Building Systems

Building System	System FCI	Repair Costs	Replacement Cost
<b>Roof</b> (Shows physical condition of roof)	33.13 %	\$499,712	\$1,508,473
<b>Exterior Walls</b> (Shows condition of the structural condition of the exterior facade)	00.43 %	\$34,070	\$8,000,899
<b>Windows</b> (Shows functionality of exterior windows)	54.45 %	\$2,775,379	\$5,096,869
<b>Exterior Doors</b> (Shows condition of exterior doors)	00.00 %	\$0	\$214,839
<b>Interior Doors</b> (Classroom doors)	00.00 %	\$0	\$696,375
<b>Interior Walls</b> (Paint and Finishes)	18.40 %	\$539,726	\$2,933,663
<b>Plumbing Fixtures</b>	12.72 %	\$318,476	\$2,503,985
<b>Boilers</b>	00.00 %	\$0	\$3,457,796
<b>Chillers/Cooling Towers</b>	47.32 %	\$2,145,464	\$4,533,843
<b>Radiators/Unit Ventilators/HVAC</b>	05.32 %	\$423,719	\$7,962,006
<b>Heating/Cooling Controls</b>	00.00 %	\$0	\$2,500,281
<b>Electrical Service and Distribution</b>	39.96 %	\$717,939	\$1,796,498
<b>Lighting</b>	03.86 %	\$248,039	\$6,422,944
<b>Communications and Security</b> (Cameras, Pa System and Fire Alarm)	07.03 %	\$169,135	\$2,405,826

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  
**S262001;Palumbo**  
Final  
**Site Assessment Report**  
February 2, 2017



## Table of Contents

Site Executive Summary	4
Site Condition Summary	10
<b><u>B243001:Palumbo</u></b>	12
Executive Summary	12
Condition Summary	13
Condition Detail	14
System Listing	15
System Notes	17
Renewal Schedule	18
Forecasted Sustainment Requirement	21
Condition Index Forecast by Investment Scenario	22
Deficiency Summary By System	23
Deficiency Summary By Priority	24
Deficiency By Priority Investment	25
Deficiency Summary By Category	26
Deficiency Details By Priority	27
Equipment Inventory Detail	43
<b><u>G262001:Grounds</u></b>	44
Executive Summary	44
Condition Summary	45
Condition Detail	46
System Listing	47
System Notes	48
Renewal Schedule	49
Forecasted Sustainment Requirement	50
Condition Index Forecast by Investment Scenario	51
Deficiency Summary By System	52
Deficiency Summary By Priority	53
Deficiency By Priority Investment	54

## Site Assessment Report

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Deficiency Summary By Category	55
Deficiency Details By Priority	56
Equipment Inventory Detail	57
Glossary	58

## 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 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):	80,000
Year Built:	1930
Last Renovation:	
Replacement Value:	\$97,016,893
Repair Cost:	\$10,762,857.32
Total FCI:	11.09 %
Total RSLI:	46.87 %



### Description:

Facility Assessment

July 23<sup>th</sup> and 24<sup>th</sup> 2015

*School District of Philadelphia*

*Palumbo High School*

*1100 Catharine Street*

*Philadelphia, PA 19147*

185,206 SF / 1067 Students / LN 01

GENERAL

Mr. Dave Loftus Facility Area Coordinator, accompanied us on our tour of the school and provided us with detailed information on the building



## Site Assessment Report - S262001;Palumbo

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systems and maintenance history. School Principal was not available

The 7 story, 185,206 square foot building was originally constructed in 1930. The building has some enclosed space and multiple rooftop play yards on the seventh level (identified as "6<sup>th</sup> floor") and a multi-level basement (identified as "Basement"). Multiple areas throughout the building are not used or abandoned and have fallen into severe disrepair.

### ARCHITECTURAL/STRUCTURAL SYSTEMS

The building typically rests on concrete foundations and bearing walls that are showing signs of settlement damage with cracked concrete and exposed steel reinforcement. The main structure typically consists of cast-in-place concrete columns, beams, and concrete, one way ribbed slab. The main roof structure consists of concrete one-way slab supported by main structural frame with two small areas of steel truss. Main roofing is built up application in fair condition approaching the end of service life and failing lightweight concrete covered play yard area in poor condition with cracks and leaking into 5<sup>th</sup> floor. Roofing over 2 main stairs are pitched metal in fair condition. The building envelope is typically masonry and concrete with face brick and metal with chain link enclosure over rooftop play yard areas in good condition. Elevations are enhanced with decorative stonework around entrances that have multiple cracks and failing points that are becoming a hazard to pedestrian safety. In general, masonry is in good condition. The original windows were replaced in mid 1980s with extruded aluminum, double hung windows, Lexan Plexiglas with insect/security screens. All windows are generally in poor condition with heavy hazing. Exterior doors are typically hollow metal in good condition with at least one entrance with accessible hardware. Public access doors have granite stoops and stairs. The building is accessible per ADA requirements from public access sidewalks.

Partition wall types include: plastered ceramic hollow block in good condition; CMU block in good condition; and small amounts of metal stud and gypsum board construction that has since been abandoned. Interior doors are generally wood frame with both solid core and rail and stile wood doors with lites and transoms. Doors leading to exit stairways are rail and stile wood doors and frames with metal lattice embedded glass in fair condition. Most interior doors have lever type handles. Fittings include: toilet accessories in fair to good condition; wood and marble, hollow metal, and composite plastic toilet partitions in fair to good condition; marble shower partitions in poor condition; wood storage shelving in good condition; metal lockers in locker rooms and hallways in fair condition; and handrails and ornamental metals, generally in fair condition. Toilet partitions and accessories are ADA accessible. Interior identifying signage is typically mounted plastic plaques with brail in good condition. Stair construction is generally concrete treads, risers, and nosing in good condition. Stair railings are wall mounted metal and cast iron balusters with wood handrail in fair condition.

The interior wall finishes include: painted plaster, brick, and CMU with marble wainscot in corridors, stairs, and toilets; glazed brick wainscot in some classrooms, gyms, cafeteria, library and interior 6<sup>th</sup> floor areas; and wood panel wainscot in auditorium. Glazed brick cover full walls in kitchen, fan/mechanical room and locker rooms. Marble surrounds cover locker room shower areas. Painted plaster is damaged and in need of repair in multiple locations. Marble, glazed brick and wood panel is in good condition. Flooring includes patterned or bare concrete in corridors, stairways, storage, athletic training areas, utility and service areas and basement in good condition; hardwood in auditorium and balcony, stage, gyms, gym balconies, interior 6<sup>th</sup> floor areas, and 50% of classrooms in varying conditions with some replacement needed; vinyl in cafeteria, office areas, lounges, and 50% of classrooms in varying conditions with some replacement needed of both VCT and VAT tile; and tile in kitchen toilets in good condition. Wood base is typically in fair-good condition. Ceiling finishes include: suspended acoustic ceilings in corridors, library, and some classrooms in good condition with some damaged tiles; painted plaster or structural concrete in most toilets, stairs, kitchen, auditorium and balcony, gyms, gym balconies, office areas, athletic training areas, basement and service areas and other classrooms in poor to good condition with extensive damage in some areas in need of repair; and direct mounted acoustic tiles in cafeteria, lounge and fan/mechanical room in fair condition.

The building has two elevators serving 7 stories each and is accessible, and 4 single lifts for elevated classrooms on each main floor.

Commercial and Institutional equipment includes: stage equipment in fair condition, and gym equipment in fair condition. Other equipment includes: food service equipment in good condition.

Fixed furnishings include: fixed casework in classrooms, corridors and library, generally in fair to good condition; window shades/blinds, generally in good condition; fixed auditorium seating generally in good condition, fixed cafeteria tables and seating in good condition, and fixed locker room benches in good condition.

### MECHANICAL SYSTEMS

Building plumbing fixtures are a mixture of original and replacement. Large restrooms on each floor have wall hung flush valve water closets, urinals and lavatories. Many small restrooms, such as the nurse office, have floor mounted water closets. Sixth floor boys and girls rooms appear out of service, as well as many small bathrooms, such as the pair in the 4<sup>th</sup> floor fan room. Approximately 15% of plumbing fixtures will need repair or replacement.

## Site Assessment Report - S262001;Palumbo

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The school cafeteria kitchen has a stainless steel, triple basin, commercial, dish washing sink with chemical sanitization system, and also two lavatories. Kitchen sinks are in good condition and should be serviceable for 10-15 years.

Science classrooms have multiple laboratory sinks. These appear to have been installed within the past decade and are in excellent condition and will easily last another 20 years.

A service sinks are located in janitor closets on each floor. These are enameled cast iron, floor standing, single basin sinks. They have cast mixing faucets with vacuum breaker spouts. The basins are well past their expected useful life and should be replaced.

Drinking fountains in the corridors are a mixture of porcelain, painted metal, and stainless steel of various age. Some are accessible with integral refrigerated coolers, but about 2/3 of them are not. The older non-accessible, non-refrigerated fountains have exceeded their service life and should be replaced.

The gym teacher office and basement janitor office have showers. These are aged and appear out of service. There is a safety shower and eye wash in the chemistry store room. There is no floor drain for the safety shower, and one should be installed. The visitors and girls locker rooms have been remodeled recently and each includes two shower stalls which are in good condition and can be expected to last 10 more years. The boys locker room above the gym office has been partially remodeled and is currently in unusable condition as the plumbing has been removed from the shower area. The entire space should be remodeled.

Water service enters the building in the basement through a 4" line at the southwest corner. There is a water meter with bypass line, a strainer, and a double backflow preventer. After the backflow preventer, the water service splits to feed the boiler room and the domestic water. There is a severely rusted gate valve on the domestic water supply line which should be replaced. There is a domestic water pressure booster system with two 7.5 HP water pumps and an air bladder expansion tank. The domestic hot and cold water distribution piping is copper piping and soldered connections. There are several water flow problems with hot and cold pipes at various outlets throughout the building. Domestic water piping is beyond its service life and should be inspected carefully and repaired as needed. A 75 gallon vertical tank type, gas-fired water heater installed in July 2015 supplies hot water for domestic use. The water heater is within its service life and should provide reliable service for the next 15-20 years. There is a circulation pump which was running at the time of inspection. An obsolete drinking water cooler is abandoned in place in the basement mechanical room.

The sanitary sewer piping includes threaded galvanized steel pipe, bell and spigot cast iron pipe with lead and oakum connections, and hubless cast iron pipe with banded couplings, all of various unknown age. There is a sewage ejector with dual sump pumps and vent stack pipe located in the water service entry room. A janitor stated that one of the service sinks takes about a day to drain if filled. Rain water drain pipes are threaded galvanized steel which run inside the building. The roof does not have overflow drains. The district should hire a qualified contractor to examine the sanitary and rain water discharge piping using video cameras to locate and replace any damaged piping and to further quantify the extent of potential failures.

The building was originally designed for steam radiators along with hot air ducts supplied by multiple air handlers for classroom heating and ventilation. It still mostly operates this way.

Steam is generated by 4 Smith, model 4500A-21, 5,694 MBH (170 HP) capacity boilers with dual fuel Power Flame burners. The burners have pressure atomization for fuel oil. The boilers and burners were built in 2000. The boilers are within their expected service life and should be expected to last another 20 years. Combustion air makeup is supplied through louvers equipped with automatic control. There is gas piping to the boilers and a gas booster, but the building piping is not connected to the city gas utility supply. Fuel oil is stored in a 25,000 gallon indoor tank. Boiler feed water comes from a single tank with 5 feed pumps, one for each boiler and a single common spare pump. Multiple condensate collection sumps pump to the feed water tank. There is a water softener system for makeup water supplied from domestic water service via a double backflow prevention valve, and also a chemical injection system.

The building has central cooling for the library only, provided by a 30 ton capacity rooftop air cooled condenser and an air handler with direct expansion and steam coils located in the south west corner of the building behind the library bathrooms. These were installed in 2009, were operating very well during the assessment, and can be expected to last another 15 years. An additional 430 tons cooling capacity should be installed to provide cooling to the entire building and replace approximately 30 aged, inefficient window unit air conditioners.

Steam and condensate piping is steel with welded and threaded fittings. Steam mains from the basement level run up through the building to the terminal units and air handlers on all floors. They appear to be original to the building. The steam and condensate piping should be surveyed in detail and repaired as needed due to age.

Forced air is supplied to multiple parts of the building from 5 air handlers. There are two fan rooms at each end of the basement and the one on the 4<sup>th</sup> floor. They included primary and secondary steam heat sections. Steam coils are finned tube, and fans are air foil centrifugal with variable

## Site Assessment Report - S262001;Palumbo

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speed drives. Outside air intake and building plenum return air are controlled independently by electronically controlled dampers and doors at air handler inlets. Conditioned air is delivered through new insulated ducts to original concrete, clay tile, and uninsulated sheet metal ducts and various plenums and finally to class rooms, cafeteria, auditorium, and gym. Room discharge air is conducted through similar ducts and plenums to the attic where it either returns to the air handlers or is discharged through multiple gravity vent hoods on the roof. The library air handler supplies all new ductwork above a drop ceiling which also serves as the return plenum. These air handlers are modern state of the art equipment installed in 2009, and have 25 years expected service life remaining. The basement air handlers should have cooling coils installed as part of the building cooling upgrade.

Cast iron radiators and finned tube convectors supply heat for the entire building supplementing the forced air where it exists. Some are original to the building. They have manual thermostat controlled steam valves. The radiators are well beyond their service life and should be replaced with finned tube convectors.

Several offices and equipment rooms have window unit or mini-split air conditioners. Many are not working like the 5<sup>th</sup> floor network closet. These units can be removed when central air conditioning is supplied to the entire building.

The kitchen has a gas burning stove with exhaust hood and fire extinguishing system. This system appears functional and will not need replacement within 10 years.

The building utility air compressor in the boiler room is inoperable with a tag stating "caution unsafe do not use". The compressor includes dual two-stage intercooled piston pumps each with its own electric motor feeding a single compressed air storage tank. Instrument air is provided by a single stage, uncooled, electric motor belt driven, tank mounted, piston pump with refrigerated drier, located in the basement near the water booster pumps.

The building has an electronic control system for the new air handlers, including automatic dampers and steam flow control valves. It was installed in 2009 when the equipment was installed, and has 15 years useful life remaining. New cooling equipment should be integrated into the existing control system when it is installed.

The school building has stand pipes and automatic sprinkler system. The combination systems are of unknown age, but appear to be in good condition and should be inspected annually. There is a 6" inlet and outlet 85 HP (maximum) fire pump with 75 HP electric motor. There is also a 2 HP electric motor driven jockey pump. Ducts and plenums have smoke detectors.

### ELECTRICAL SYSTEMS

A 13.2 KV incoming feeder, a 13.2KV Metal Enclosed Load Interrupter Switch line up and 1500KVA unit substation provide the electrical service to this building. The 13.2 KV metal enclosed load interrupter switch line up is composed of pull section, CT (current transformer), PT (potential transformer) section and two 600A switches, one switch is for the fire pump and the other is for the unit substation. The fire pump is fed via a 300KVA step down transformer. The metal enclosed load interrupter switch line up is located at the basement electrical room, and the 1500KVA unit substation is located in the first floor electrical room, both electrical equipment were manufactured by Eaton/Cutler-Hammer and were installed in 2008, and are expected to provide 23 more years of useful life. The proposed mechanical load will exceed the capacity of the existing electrical service. Provide 1200 480/277V electrical service.

The electrical distribution is obtained using new 120/208V and original 120/240V panel-boards located at each floor. New panel-boards are manufactured by Eaton/Cutler hammer and were installed in 2009 and are expected to provide 23 more years of useful life. The original panel-boards are manufactured by Penn Panel & box Co and they already exceeded their useful service life. Replace original panel-boards with new 120/208V panel boards. Raceways are concealed in ceiling or wall spaces.

The numbers of receptacles in classrooms varies, approximate 40% of the classrooms have been remodeled and provided with the proper amount of receptacles but 60% of them the quantity of receptacles are inadequate. Teachers use extension cords. Provide approximate 27 classrooms with the teacher's whiteboard wall and the opposite of it with double compartment surface raceways, the other two walls with minimum two duplex outlets each, when feasible.

Most of the school is illuminated with surface mounted fluorescent fixtures with the exception of the auditorium which is illuminated with 500W incandescent lamps. Replace auditorium incandescent lamps with dimmable fluorescent lamps. Fluorescent fixtures are provided with T-8 lamps.

The fire alarm system is manufactured by Simplex 4100U with voice evacuation. The fire alarm system was installed in 2008 and is expected to provide 13 more years of useful life. The fire alarm system is composed of pull station at exit doors, voice/visual devices at corridors, classrooms and restrooms.



## Site Assessment Report - S262001;Palumbo

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The present telephone system is adequate.

An independent and separate PA system does not exist. School uses the telephone systems for public announcement. This system is working adequately for most part.

The school is provided with a central clock system, wireless, battery operated, manufactured by Primex Wireless. Clock system was installed in 2008 and is expected to provide 13 more years of useful life.

There is not television system.

The present CCTV system in the school does not work. CCTV cameras are abandoned in place. Provide a new CCTV system with cameras in the corridors, building entrance stairways and building exterior.

The emergency power system consists of a diesel powered generator, manufactured by MTU Onsite Energy rated 438 KW 480/277V. The present emergency power system serves the electric fire pump, the elevators, emergency lighting, exit signs, HVAC control panel, fire alarm panel and generator annunciator panel. The diesel powered generator is indoor located at the basement level in the generator room, it was installed in 2008 and is expected to provide 13 more years of useful service life.

There is adequate UPS in the IT room.

The emergency lighting is obtained with dedicated fixtures connected to the emergency generator. Exit signs are located at each exit door and corridors and are connected to the school emergency system.

The school is not provided with lightning protection system. A study should be conducted to determine if the lightning protection system is required.

The school has two traction power elevators rated 20HP at 208V. Elevator controllers and motor are approximately 10 years old and are expected to provide 10 more years of useful service life. Elevators are connected to the school emergency system.

The auditorium is provided with theatrical lighting ON/OFF from local panel-board. Provide theatrical lighting dimming control system

The auditorium is provided with portable sound system. Provide a more complete sound system

### GROUNDS SYSTEMS

The site surrounds the building on all four sides with concrete paving sidewalk only, which is set back from the street. Landscaping is limited to mature trees along the Catharine St. sidewalk.

Accessibility: the building does have an accessible entrance, and accessible routes. Some of the toilets are equipped with accessible fixtures, partitions and accessories, such as grab bars and accessible partitions. Most of the doors in the building have ADA required door handles.

The site lighting is accomplished with wall mounted lighting fixtures. As a safety issue provide 6 more wall mounted emergency lights in the building perimeter.

School CCTV system does not work. Provide CCTV cameras around the building perimeter. Approximate 6 cameras.

There is wall mounted loud speaker facing the main entrance.

### RECOMMENDATIONS

- Repair damaged structural columns and foundation walls in basement
- Repair entrance archway stonework – cracked and failing
- Replace Plexiglas windows – hazed
- Resurface concrete play yards – cracking and failing
- Replace marble shower partitions with modern facilities
- Replace fixed metal lockers in locker room – failing

## Site Assessment Report - S262001;Palumbo

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- Repair and repaint interior plaster walls (20% of plaster wall surface)
- Replace wood floor (15% of wood floor area)
- Replace damaged and mismatched VCT floor tiles (5% of vinyl areas)
- Replace damaged VAT floor tiles with VCT (10% of vinyl areas)
- Replace carpet – worn and beyond service life
- Replace acoustic ceiling tiles – discolored, damaged/missing (10% of suspended ceiling area)
- Repair and repaint plaster ceilings (15% of plaster ceiling surface)
- Replace plumbing fixtures in 15% of bathrooms.
- Replace service sinks due to age and wear.
- Replace non-accessible drinking fountains.
- Install floor drain for safety shower in chemistry store room.
- Remodel boys locker room.
- Inspect domestic water distribution pipe and repair as needed.
- Replace severely rusted gate valve on domestic water entry line.
- Inspect drainage piping and repair as needed.
- Install 430 tons more cooling including rooftop chillers and cooling coils in basement air handlers.
- Replace radiators with finned tube convectors due to age.
- Provide 1200A 480/277V electrical service.
- Replace original panel-boards with new 120/208V panel boards. Approximate 10
- Provide (2)25FT of surface raceways with 24" receptacles on center and two-duplex wall mount receptacles. Approximate 27 classrooms
- Replace auditorium incandescent lamps with dimmable fluorescent lamps. Approximate 50
- Replace abandoned in place CCTV system. Provide CCTV cameras in the corridors in the stairways and in front of the elevators. Approximate 40 cameras
- Prepare a study to determine if the school requires a lightning protection system.
- Provide theatrical lighting dimming control system
- Provide the auditorium with a more complete sound system
- Provide CCTV cameras around the building perimeter. Approximate 6 cameras.

### Attributes:

#### General Attributes:

Active:	Open	Bldg Lot Tm:	Lot 1 / Tm 3
Status:	Accepted by SDP	Team:	Tm 3
Site ID:	S262001		

## 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.

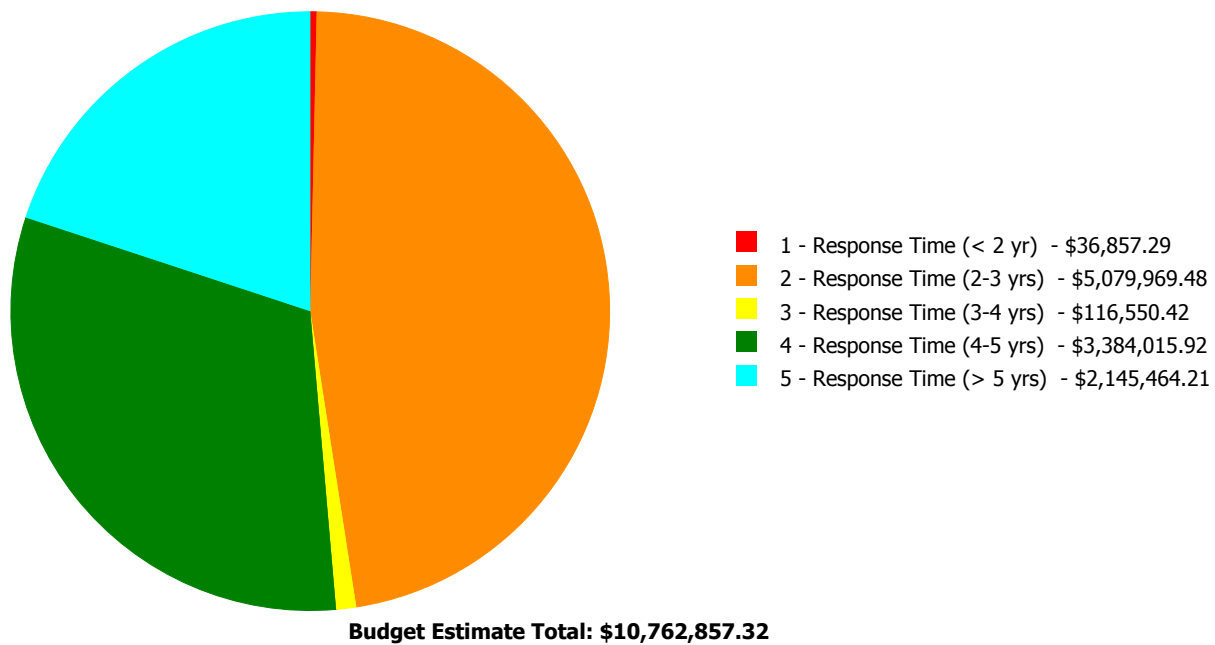
### Current Investment Requirement and Condition by Uniformat Classification

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	15.00 %	0.00 %	\$0.00
A20 - Basement Construction	15.00 %	0.78 %	\$20,495.92
B10 - Superstructure	15.00 %	0.00 %	\$0.00
B20 - Exterior Enclosure	28.87 %	21.10 %	\$2,809,448.99
B30 - Roofing	39.50 %	33.13 %	\$499,712.43
C10 - Interior Construction	22.83 %	13.35 %	\$685,346.96
C20 - Stairs	15.41 %	0.00 %	\$0.00
C30 - Interior Finishes	52.27 %	12.23 %	\$1,144,028.69
D10 - Conveying	42.86 %	0.00 %	\$0.00
D20 - Plumbing	47.49 %	41.92 %	\$1,507,762.98
D30 - HVAC	78.18 %	12.47 %	\$2,569,182.71
D40 - Fire Protection	82.86 %	0.00 %	\$0.00
D50 - Electrical	91.18 %	10.65 %	\$1,159,362.47
E10 - Equipment	52.21 %	9.96 %	\$293,594.70
E20 - Furnishings	42.50 %	0.00 %	\$0.00
G20 - Site Improvements	25.00 %	0.00 %	\$0.00
G40 - Site Electrical Utilities	106.67 %	163.30 %	\$73,921.47
<b>Totals:</b>	<b>46.87 %</b>	<b>11.09 %</b>	<b>\$10,762,857.32</b>

### 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)
B243001;Palumbo	185,206	11.03	\$36,857.29	\$5,006,048.01	\$116,550.42	\$3,384,015.92	\$2,145,464.21
G262001;Grounds	7,900	54.24	\$0.00	\$73,921.47	\$0.00	\$0.00	\$0.00
<b>Total:</b>		<b>11.09</b>	<b>\$36,857.29</b>	<b>\$5,079,969.48</b>	<b>\$116,550.42</b>	<b>\$3,384,015.92</b>	<b>\$2,145,464.21</b>

### Deficiencies By Priority



## Executive Summary

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

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

Function:	High School
Gross Area (SF):	185,206
Year Built:	1930
Last Renovation:	
Replacement Value:	\$96,880,618
Repair Cost:	\$10,688,935.85
Total FCI:	11.03 %
Total RSLI:	46.86 %



### Description:

#### Attributes:

##### General Attributes:

Active:	Open	Bldg ID:	B243001
Sewage Ejector:	Yes	Status:	Accepted by SDP
Site ID:	S262001		



## 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	15.00 %	0.00 %	\$0.00
A20 - Basement Construction	15.00 %	0.78 %	\$20,495.92
B10 - Superstructure	15.00 %	0.00 %	\$0.00
B20 - Exterior Enclosure	28.87 %	21.10 %	\$2,809,448.99
B30 - Roofing	39.50 %	33.13 %	\$499,712.43
C10 - Interior Construction	22.83 %	13.35 %	\$685,346.96
C20 - Stairs	15.41 %	0.00 %	\$0.00
C30 - Interior Finishes	52.27 %	12.23 %	\$1,144,028.69
D10 - Conveying	42.86 %	0.00 %	\$0.00
D20 - Plumbing	47.49 %	41.92 %	\$1,507,762.98
D30 - HVAC	78.18 %	12.47 %	\$2,569,182.71
D40 - Fire Protection	82.86 %	0.00 %	\$0.00
D50 - Electrical	91.18 %	10.65 %	\$1,159,362.47
E10 - Equipment	52.21 %	9.96 %	\$293,594.70
E20 - Furnishings	42.50 %	0.00 %	\$0.00
<b>Totals:</b>	<b>46.86 %</b>	<b>11.03 %</b>	<b>\$10,688,935.85</b>

### 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	\$27.30	S.F.	185,206	100	1930	2030		15.00 %	0.00 %	15			\$5,056,124
A1030	Slab on Grade	\$5.17	S.F.	185,206	100	1930	2030		15.00 %	0.00 %	15			\$957,515
A2010	Basement Excavation	\$4.36	S.F.	185,206	100	1930	2030		15.00 %	0.00 %	15			\$807,498
A2020	Basement Walls	\$9.91	S.F.	185,206	100	1930	2030		15.00 %	1.12 %	15		\$20,495.92	\$1,835,391
B1010	Floor Construction	\$85.34	S.F.	185,206	100	1930	2030		15.00 %	0.00 %	15			\$15,805,480
B1020	Roof Construction	\$14.39	S.F.	185,206	100	1930	2030		15.00 %	0.00 %	15			\$2,665,114
B2010	Exterior Walls	\$43.20	S.F.	185,206	100	1930	2030		15.00 %	0.43 %	15		\$34,069.74	\$8,000,899
B2020	Exterior Windows	\$27.52	S.F.	185,206	40	1985	2025	2035	50.00 %	54.45 %	20		\$2,775,379.25	\$5,096,869
B2030	Exterior Doors	\$1.16	S.F.	185,206	25	2001	2026		44.00 %	0.00 %	11			\$214,839
B3010105	Built-Up	\$37.76	S.F.	25,611	20	2001	2021		30.00 %	0.00 %	6			\$967,071
B3010120	Single Ply Membrane	\$38.73	S.F.	12,600	20	2001	2021	2027	60.00 %	102.40 %	12		\$499,712.43	\$487,998
B3010130	Preformed Metal Roofing	\$54.22	S.F.	780	30	1985	2015	2020	16.67 %	0.00 %	5			\$42,292
B3020	Roof Openings	\$0.06	S.F.	185,206	30	2001	2031		53.33 %	0.00 %	16			\$11,112
C1010	Partitions	\$21.05	S.F.	185,206	100	1930	2030		15.00 %	15.89 %	15		\$619,478.85	\$3,898,586
C1020	Interior Doors	\$3.76	S.F.	185,206	40	2001	2041		65.00 %	0.00 %	26			\$696,375
C1030	Fittings	\$2.90	S.F.	185,206	40	1985	2025		25.00 %	12.26 %	10		\$65,868.11	\$537,097
C2010	Stair Construction	\$1.18	S.F.	185,206	100	1930	2030		15.00 %	0.00 %	15			\$218,543
C2020	Stair Finishes	\$0.39	S.F.	185,206	30	1985	2015	2020	16.67 %	0.00 %	5			\$72,230

# Site Assessment Report - B243001;Palumbo

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	\$13.46	S.F.	185,206	10	2010	2020		50.00 %	21.65 %	5		\$539,725.79	\$2,492,873
C3010232	Wall Tile	\$2.38	S.F.	185,206	30	1931	1961	2031	53.33 %	0.00 %	16			\$440,790
C3020411	Carpet	\$7.30	S.F.	3,704	10	2001	2011	2027	120.00 %	153.30 %	12		\$41,450.57	\$27,039
C3020412	Terrazzo & Tile	\$75.52	S.F.	7,408	50	1985	2035		40.00 %	0.00 %	20			\$559,452
C3020413	Vinyl Flooring	\$9.68	S.F.	59,266	20	1985	2005	2037	110.00 %	22.15 %	22		\$127,052.61	\$573,695
C3020414	Wood Flooring	\$22.27	S.F.	59,266	25	2001	2026	2027	48.00 %	13.25 %	12		\$174,912.43	\$1,319,854
C3020415	Concrete Floor Finishes	\$0.97	S.F.	55,562	50	1985	2035		40.00 %	0.00 %	20			\$53,895
C3030	Ceiling Finishes	\$20.97	S.F.	185,206	25	2001	2026	2027	48.00 %	6.72 %	12		\$260,887.29	\$3,883,770
D1010	Elevators and Lifts	\$1.28	S.F.	185,206	35	1995	2030		42.86 %	0.00 %	15			\$237,064
D2010	Plumbing Fixtures	\$13.52	S.F.	185,206	35	1931	1966	2027	34.29 %	12.72 %	12		\$318,475.80	\$2,503,985
D2020	Domestic Water Distribution	\$1.68	S.F.	185,206	25	1931	1956	2037	88.00 %	124.18 %	22		\$386,392.01	\$311,146
D2030	Sanitary Waste	\$2.32	S.F.	185,206	30	1931	1961	2047	106.67 %	186.86 %	32		\$802,895.17	\$429,678
D2040	Rain Water Drainage	\$1.90	S.F.	185,206	30	1931	1961	2025	33.33 %	0.00 %	10			\$351,891
D3020	Heat Generating Systems	\$18.67	S.F.	185,206	35	2000	2035		57.14 %	0.00 %	20			\$3,457,796
D3030	Cooling Generating Systems	\$24.48	S.F.	185,206	30	2009	2039		80.00 %	47.32 %	24		\$2,145,464.21	\$4,533,843
D3040	Distribution Systems	\$42.99	S.F.	185,206	25	2009	2034		76.00 %	5.32 %	19		\$423,718.50	\$7,962,006
D3050	Terminal & Package Units	\$11.60	S.F.	185,206	20	1931	1951	2039	120.00 %	0.00 %	24			\$2,148,390
D3060	Controls & Instrumentation	\$13.50	S.F.	185,206	20	1931	1951	2030	75.00 %	0.00 %	15			\$2,500,281
D4010	Sprinklers	\$7.05	S.F.	185,206	35	2009	2044		82.86 %	0.00 %	29			\$1,305,702
D4020	Standpipes	\$1.01	S.F.	185,206	35	2009	2044		82.86 %	0.00 %	29			\$187,058
D5010	Electrical Service/Distribution	\$9.70	S.F.	185,206	30	2008	2038		76.67 %	39.96 %	23		\$717,938.68	\$1,796,498
D5020	Lighting and Branch Wiring	\$34.68	S.F.	185,206	20	1931	1951	2037	110.00 %	3.86 %	22		\$248,038.88	\$6,422,944
D5030	Communications and Security	\$12.99	S.F.	185,206	15	2008	2023		53.33 %	7.03 %	8		\$169,135.09	\$2,405,826
D5090	Other Electrical Systems	\$1.41	S.F.	185,206	30	2008	2038		76.67 %	9.29 %	23		\$24,249.82	\$261,140
E1020	Institutional Equipment	\$4.82	S.F.	185,206	35	1985	2020	2027	34.29 %	32.89 %	12		\$293,594.70	\$892,693
E1090	Other Equipment	\$11.10	S.F.	185,206	35	2001	2036		60.00 %	0.00 %	21			\$2,055,787
E2010	Fixed Furnishings	\$2.13	S.F.	185,206	40	1985	2025	2032	42.50 %	0.00 %	17			\$394,489
<b>Total</b>									<b>46.86 %</b>	<b>11.03 %</b>			<b>\$10,688,935.85</b>	<b>\$96,880,618</b>

## 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.

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<b>System:</b>	C3010 - Wall Finishes	This system contains no images
<b>Note:</b>	85% - Paint & Coverings 15% - Wall Tile (glazed brick)	

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<b>System:</b>	C3020 - Floor Finishes	This system contains no images
<b>Note:</b>	2% - Carpet 4% - Terrazzo & Tile (Ceramic) 32% - Vinyl Flooring (VCT & VAT) 32% - Wood Flooring 30% - Concrete Floor Finishes	

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



**Note:** There are three dry type transformers:

1. 500KVA 480V-120/208V for lighting and receptacle loads
2. 150KVA 208V-240V to reefed existing 240V loads
3. 75KVA 480-208V for the elevators.



## 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
<b>Total:</b>	<b>\$10,688,936</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,324,953</b>	<b>\$1,270,207</b>	<b>\$0</b>	<b>\$3,352,392</b>	<b>\$0</b>	<b>\$1,314,200</b>	<b>\$19,950,687</b>
<b>* A - Substructure</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>* A10 - Foundations</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A1010 - Standard Foundations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A1030 - Slab on Grade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>* A20 - Basement Construction</b>	\$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	\$20,496	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$20,496
<b>B - Shell</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>B10 - Superstructure</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B1010 - Floor Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B1020 - Roof Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>B20 - Exterior Enclosure</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B2010 - Exterior Walls	\$34,070	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$34,070
B2020 - Exterior Windows	\$2,775,379	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,775,379
B2030 - Exterior Doors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>B30 - Roofing</b>	\$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	\$0	\$0	\$0	\$0	\$0	\$0	\$1,270,207	\$0	\$0	\$0	\$0	\$1,270,207
B3010120 - Single Ply Membrane	\$499,712	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$499,712
B3010130 - Preformed Metal Roofing	\$0	\$0	\$0	\$0	\$0	\$53,931	\$0	\$0	\$0	\$0	\$0	\$53,931
B3020 - Roof Openings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>C - Interiors</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>C10 - Interior Construction</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C1010 - Partitions	\$619,479	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$619,479
C1020 - Interior Doors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

# Site Assessment Report - B243001;Palumbo

C1030 - Fittings	\$65,868	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$793,995	\$859,863
C20 - Stairs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C2010 - Stair Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C2020 - Stair Finishes	\$0	\$0	\$0	\$0	\$0	\$92,108	\$0	\$0	\$0	\$0	\$0	\$92,108
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	\$539,726	\$0	\$0	\$0	\$0	\$3,178,915	\$0	\$0	\$0	\$0	\$0	\$3,718,641
C3010232 - Wall Tile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020 - Floor Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020411 - Carpet	\$41,451	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$41,451
C3020412 - Terrazzo & Tile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020413 - Vinyl Flooring	\$127,053	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$127,053
C3020414 - Wood Flooring	\$174,912	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$174,912
C3020415 - Concrete Floor Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3030 - Ceiling Finishes	\$260,887	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$260,887
D - Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D10 - Conveying	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D1010 - Elevators and Lifts	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D20 - Plumbing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D2010 - Plumbing Fixtures	\$318,476	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$318,476
D2020 - Domestic Water Distribution	\$386,392	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$386,392
D2030 - Sanitary Waste	\$802,895	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$802,895
D2040 - Rain Water Drainage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$520,204	\$520,204
D30 - HVAC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3020 - Heat Generating Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3030 - Cooling Generating Systems	\$2,145,464	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,145,464
D3040 - Distribution Systems	\$423,719	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$423,719
D3050 - Terminal & Package Units	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3060 - Controls & Instrumentation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D40 - Fire Protection	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D4010 - Sprinklers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D4020 - Standpipes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D50 - Electrical	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

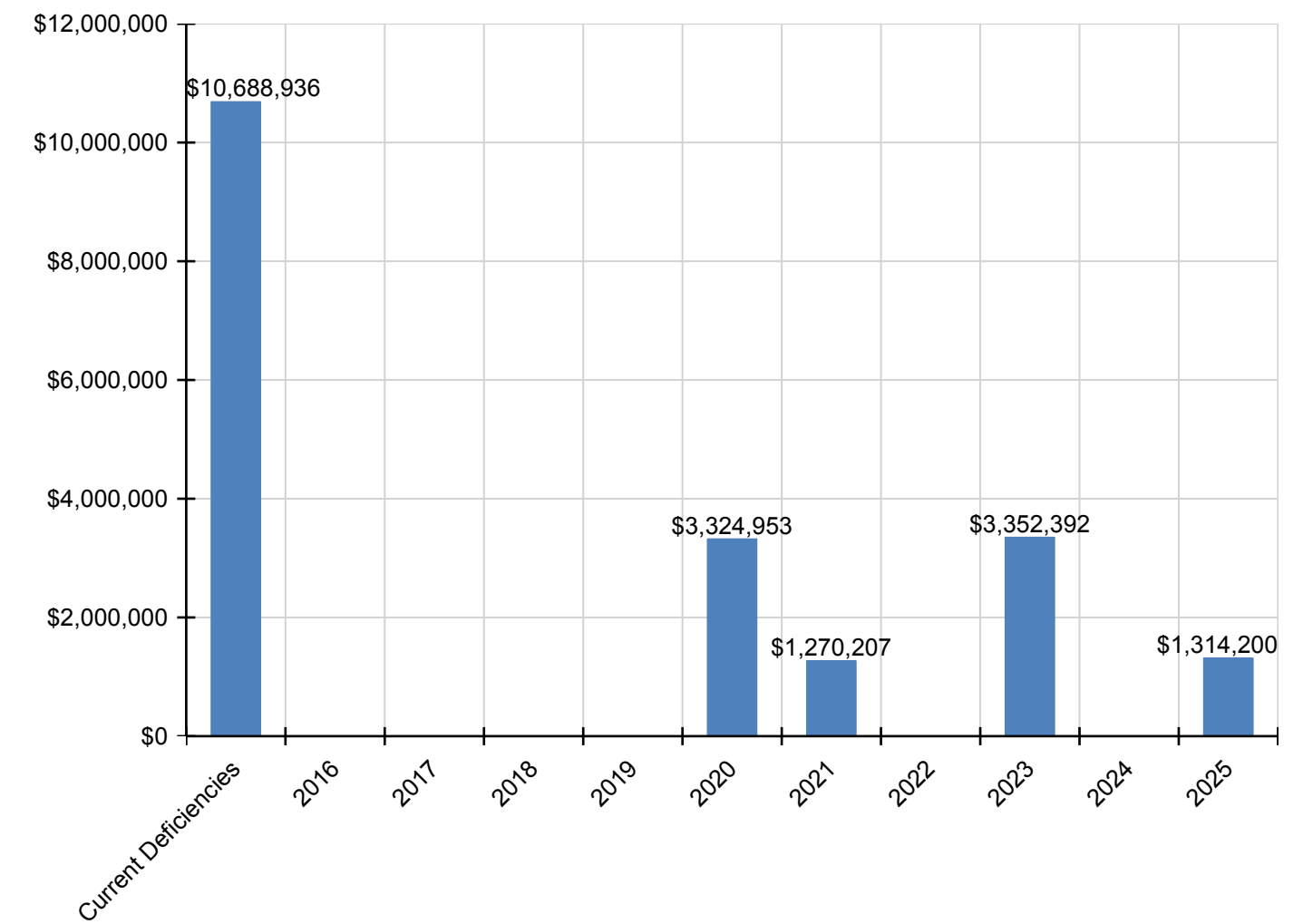
## Site Assessment Report - B243001;Palumbo

D5010 - Electrical Service/Distribution	\$717,939	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$717,939
D5020 - Lighting and Branch Wiring	\$248,039	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$248,039
D5030 - Communications and Security	\$169,135	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,352,392	\$0	\$0	\$3,521,527
D5090 - Other Electrical Systems	\$24,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24,250
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	\$293,595	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$293,595
E1090 - Other Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E20 - Furnishings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E2010 - Fixed Furnishings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

\* Indicates non-renewable system

Forecasted Sustainment Requirement

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

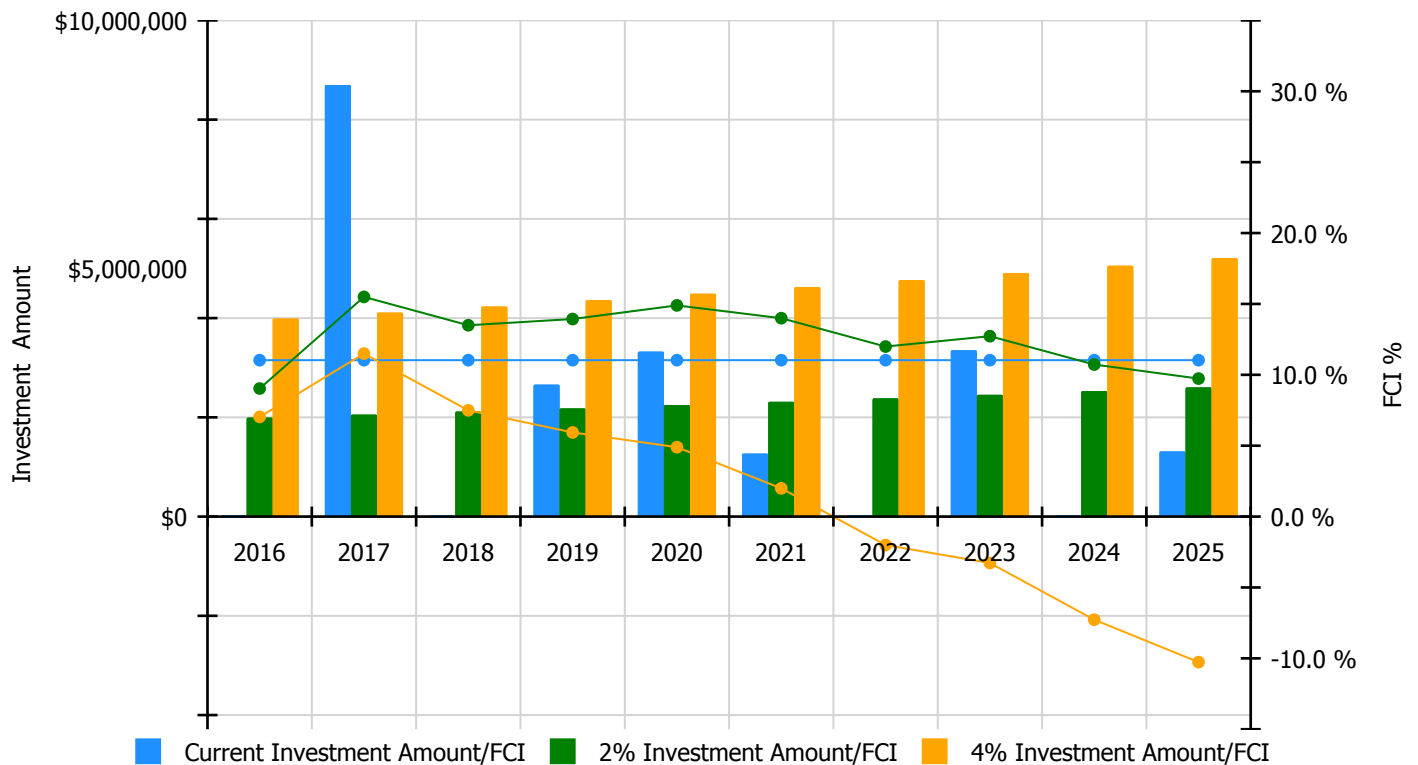


## 10 Year FCI Forecast by Investment Scenario

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

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

### Facility Investment vs. FCI Forecast

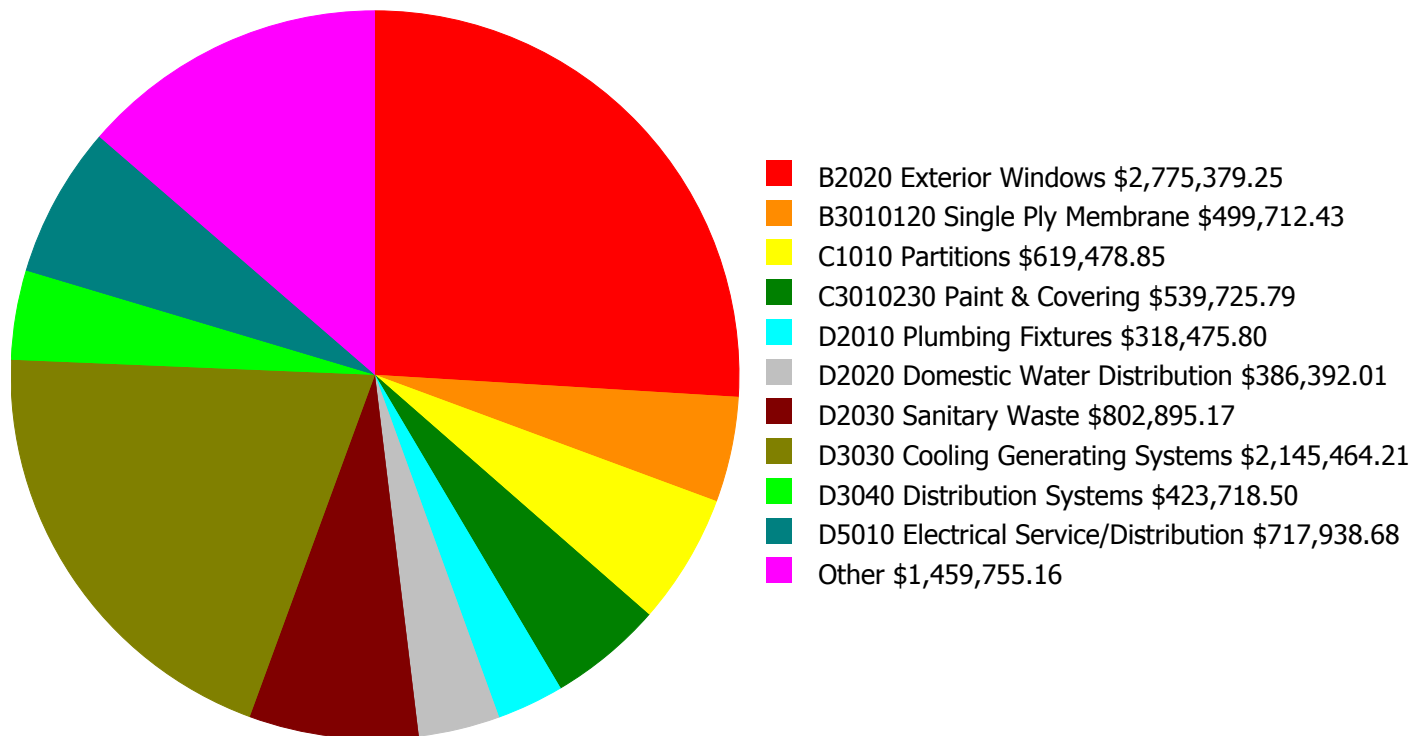


Year	Investment Amount Current FCI - 11.03%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	\$0	\$1,995,741.00	9.03 %	\$3,991,481.00	7.03 %
2017	\$8,697,991	\$2,055,613.00	15.50 %	\$4,111,226.00	11.50 %
2018	\$0	\$2,117,281.00	13.50 %	\$4,234,563.00	7.50 %
2019	\$2,659,835	\$2,180,800.00	13.94 %	\$4,361,600.00	5.94 %
2020	\$3,324,953	\$2,246,224.00	14.90 %	\$4,492,448.00	4.90 %
2021	\$1,270,207	\$2,313,610.00	13.99 %	\$4,627,221.00	1.99 %
2022	\$0	\$2,383,019.00	11.99 %	\$4,766,038.00	-2.01 %
2023	\$3,352,392	\$2,454,509.00	12.73 %	\$4,909,019.00	-3.27 %
2024	\$0	\$2,528,145.00	10.73 %	\$5,056,289.00	-7.27 %
2025	\$1,314,200	\$2,603,989.00	9.73 %	\$5,207,978.00	-10.27 %
<b>Total:</b>	<b>\$20,619,578</b>	<b>\$22,878,931.00</b>		<b>\$45,757,863.00</b>	



## Deficiency Summary by System

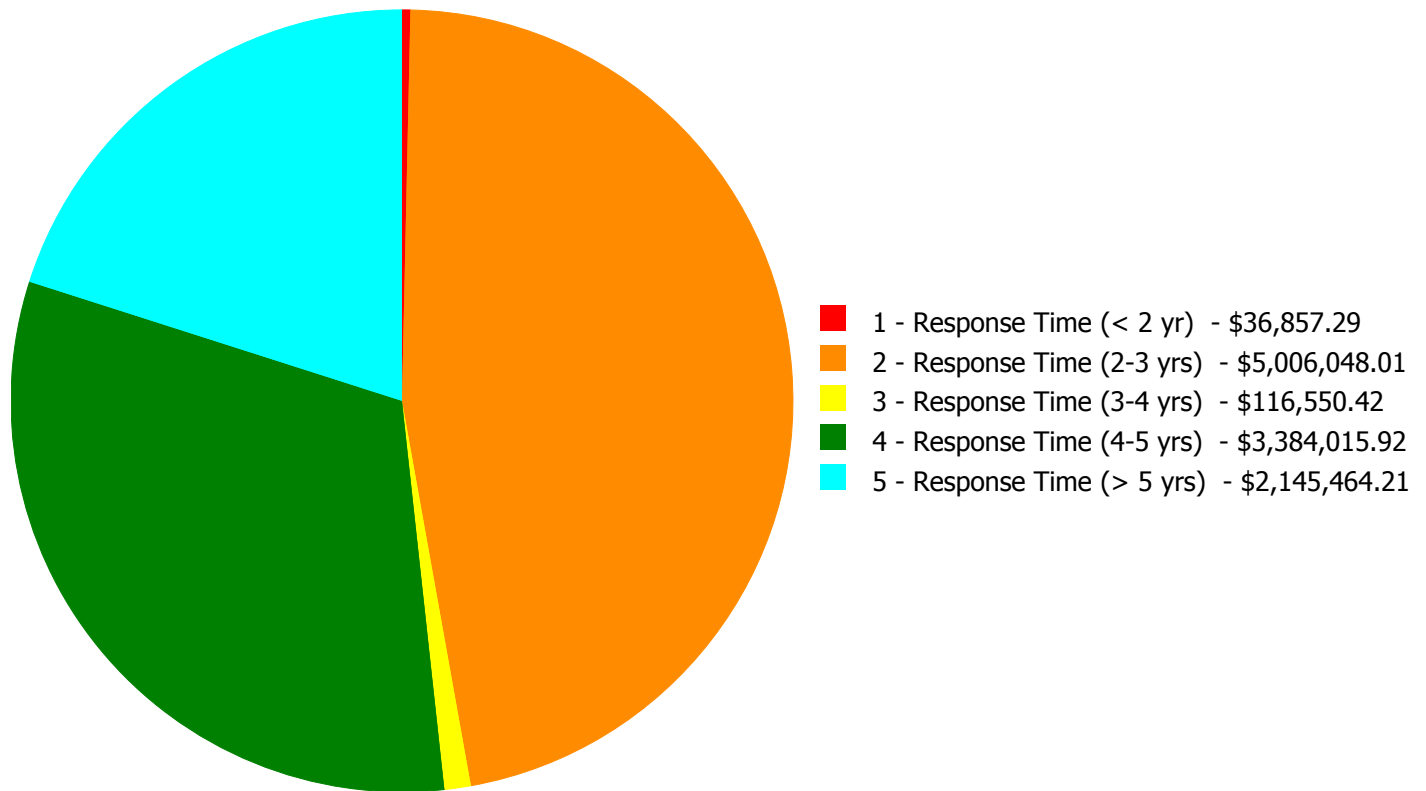
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



**Budget Estimate Total: \$10,688,935.85**

## 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: \$10,688,935.85**

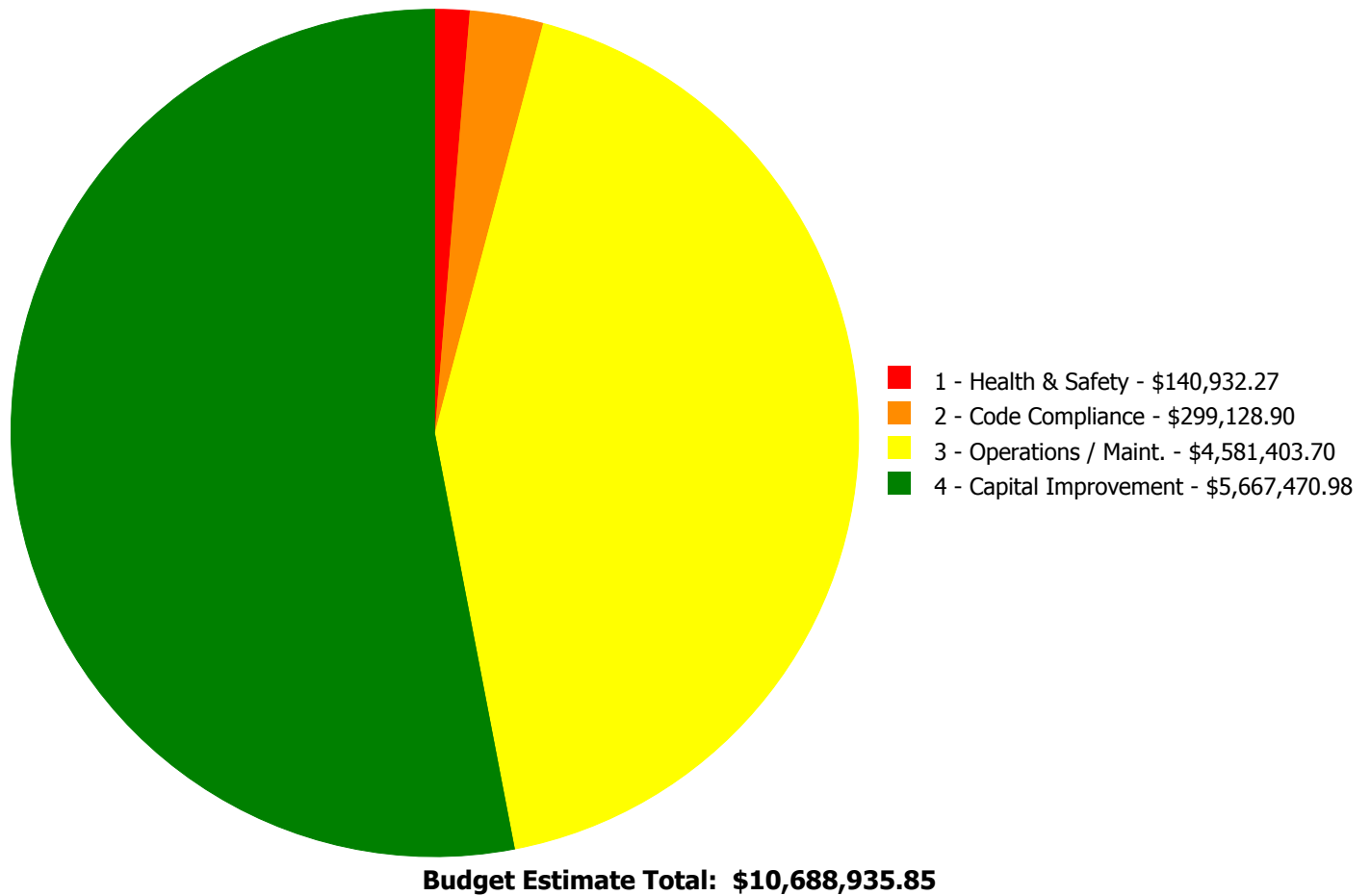
## Deficiency By Priority Investment Table

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	\$20,495.92	\$0.00	\$0.00	\$0.00	\$20,495.92
B2010	Exterior Walls	\$34,069.74	\$0.00	\$0.00	\$0.00	\$0.00	\$34,069.74
B2020	Exterior Windows	\$0.00	\$0.00	\$0.00	\$2,775,379.25	\$0.00	\$2,775,379.25
B3010120	Single Ply Membrane	\$0.00	\$499,712.43	\$0.00	\$0.00	\$0.00	\$499,712.43
C1010	Partitions	\$0.00	\$619,478.85	\$0.00	\$0.00	\$0.00	\$619,478.85
C1030	Fittings	\$0.00	\$65,868.11	\$0.00	\$0.00	\$0.00	\$65,868.11
C3010230	Paint & Covering	\$0.00	\$539,725.79	\$0.00	\$0.00	\$0.00	\$539,725.79
C3020411	Carpet	\$0.00	\$41,450.57	\$0.00	\$0.00	\$0.00	\$41,450.57
C3020413	Vinyl Flooring	\$0.00	\$127,052.61	\$0.00	\$0.00	\$0.00	\$127,052.61
C3020414	Wood Flooring	\$0.00	\$174,912.43	\$0.00	\$0.00	\$0.00	\$174,912.43
C3030	Ceiling Finishes	\$0.00	\$183,737.13	\$77,150.16	\$0.00	\$0.00	\$260,887.29
D2010	Plumbing Fixtures	\$0.00	\$94,157.37	\$39,400.26	\$184,918.17	\$0.00	\$318,475.80
D2020	Domestic Water Distribution	\$2,787.55	\$383,604.46	\$0.00	\$0.00	\$0.00	\$386,392.01
D2030	Sanitary Waste	\$0.00	\$802,895.17	\$0.00	\$0.00	\$0.00	\$802,895.17
D3030	Cooling Generating Systems	\$0.00	\$0.00	\$0.00	\$0.00	\$2,145,464.21	\$2,145,464.21
D3040	Distribution Systems	\$0.00	\$0.00	\$0.00	\$423,718.50	\$0.00	\$423,718.50
D5010	Electrical Service/Distribution	\$0.00	\$717,938.68	\$0.00	\$0.00	\$0.00	\$717,938.68
D5020	Lighting and Branch Wiring	\$0.00	\$248,038.88	\$0.00	\$0.00	\$0.00	\$248,038.88
D5030	Communications and Security	\$0.00	\$169,135.09	\$0.00	\$0.00	\$0.00	\$169,135.09
D5090	Other Electrical Systems	\$0.00	\$24,249.82	\$0.00	\$0.00	\$0.00	\$24,249.82
E1020	Institutional Equipment	\$0.00	\$293,594.70	\$0.00	\$0.00	\$0.00	\$293,594.70
<b>Total:</b>		\$36,857.29	\$5,006,048.01	\$116,550.42	\$3,384,015.92	\$2,145,464.21	\$10,688,935.85

## 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:



## Deficiency Details by Priority

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

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

#### System: B2010 - Exterior Walls



**Location:** Entrances

**Distress:** Damaged

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

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

**Correction:** Remove and replace precast concrete wall features - SF of surface

**Qty:** 100.00

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

**Estimate:** \$34,069.74

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Repair entrance archway stonework – cracked and failing

---

#### System: D2020 - Domestic Water Distribution



**Location:** Basement mechanical room

**Distress:** Failing

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

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

**Correction:** Replace valves

**Qty:** 1.00

**Unit of Measure:** Ea.

**Estimate:** \$2,787.55

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Replace severely rusted gate valve on domestic water entry line.

---



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

**System: A2020 - Basement Walls**



**Location:** Basement

**Distress:** Building Envelope Integrity

**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:** 150.00

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

**Estimate:** \$20,495.92

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Repair damaged structural columns and foundation walls in basement

---

**System: B3010120 - Single Ply Membrane**



**Location:** Roof top

**Distress:** Failing

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

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

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

**Qty:** 12,600.00

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

**Estimate:** \$499,712.43

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Resurface concrete play yards – cracking and failing

---

**System: C1010 - Partitions**



**Location:** Locker rooms

**Distress:** Obsolete

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

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

**Correction:** Remodel and refurbish shower room - based on approximately 8 showers

**Qty:** 2.00

**Unit of Measure:** Ea.

**Estimate:** \$438,757.14

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace marble shower partitions with modern facilities

---

**System: C1010 - Partitions**



**Location:** Boys locker room

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

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

**Correction:** Build new gang restroom to meet code or occupant needs - select type and number of fixtures and toilet partitions for mens or womens

**Qty:** 1.00

**Unit of Measure:** Ea.

**Estimate:** \$180,721.71

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Remodel boys restroom to meet current code or occupant needs

---

**System: C1030 - Fittings**



**Location:** Locker rooms

**Distress:** Failing

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

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

**Correction:** Remove and replace lockers - select size

**Qty:** 100.00

**Unit of Measure:** Ea.

**Estimate:** \$65,868.11

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace fixed metal lockers in locker room – failing

---

**System: C3010230 - Paint & Covering**



**Location:** Throughout

**Distress:** Damaged

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

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

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

**Qty:** 63,000.00

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

**Estimate:** \$539,725.79

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Repair and repaint interior plaster walls (20% of plaster wall surface)

---

**System: C3020411 - Carpet**



**Location:** Various

**Distress:** Failing

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

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

**Correction:** Remove and replace carpet

**Qty:** 3,704.00

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

**Estimate:** \$41,450.57

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace carpet – worn and beyond service life

---

**System: C3020413 - Vinyl Flooring**



**Location:** Various

**Distress:** Damaged

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

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

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

**Qty:** 6,000.00

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

**Estimate:** \$91,000.01

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace damaged VAT floor tiles with VCT (10% of vinyl areas)

---

**System: C3020413 - Vinyl Flooring**



**Location:** Various

**Distress:** Damaged

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

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

**Correction:** Remove and replace VCT

**Qty:** 3,000.00

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

**Estimate:** \$36,052.60

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace damaged and mismatched VCT floor tiles (5% of vinyl areas)

---

**System: C3020414 - Wood Flooring**



**Location:** Various

**Distress:** Damaged

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

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

**Correction:** Remove and replace wood flooring

**Qty:** 6,000.00

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

**Estimate:** \$174,912.43

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace wood floor (15% of wood floor area)

---



**System: C3030 - Ceiling Finishes**



**Location:** Various

**Distress:** Damaged

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

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

**Correction:** Repair and resurface plaster ceilings - 2 coats plaster

**Qty:** 14,000.00

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

**Estimate:** \$183,737.13

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Repair and repaint plaster ceilings (15% of plaster ceiling surface)

---

**System: D2010 - Plumbing Fixtures**



**Location:** Hallways

**Distress:** Accessibility

**Category:** 2 - Code Compliance

**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:** 6.00

**Unit of Measure:** Ea.

**Estimate:** \$94,157.37

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Replace non-accessible drinking fountains.

---

**System: D2020 - Domestic Water Distribution**



**Location:** Entire building

**Distress:** Failing

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

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

**Correction:** Replace domestic water piping (150 KSF)

**Qty:** 92,500.00

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

**Estimate:** \$383,604.46

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Inspect domestic water distribution pipe and repair as needed.

---

**System: D2030 - Sanitary Waste**



**Location:** Entire building

**Distress:** Failing

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

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

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

**Qty:** 185,000.00

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

**Estimate:** \$802,895.17

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Inspect drainage piping and repair as needed.

---

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



**Location:** Basement

**Distress:** Inadequate

**Category:** 4 - Capital Improvement

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

**Correction:** Add Electrical Switchgear and Distribution System

**Qty:** 1.00

**Unit of Measure:** Ea.

**Estimate:** \$470,385.82

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Provide 1200A 480/277V electrical service.

---

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



**Location:** Entire school

**Distress:** Beyond Service Life

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

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

**Correction:** Replace Panelboard

**Qty:** 10.00

**Unit of Measure:** Ea.

**Estimate:** \$247,552.86

**Assessor Name:** System

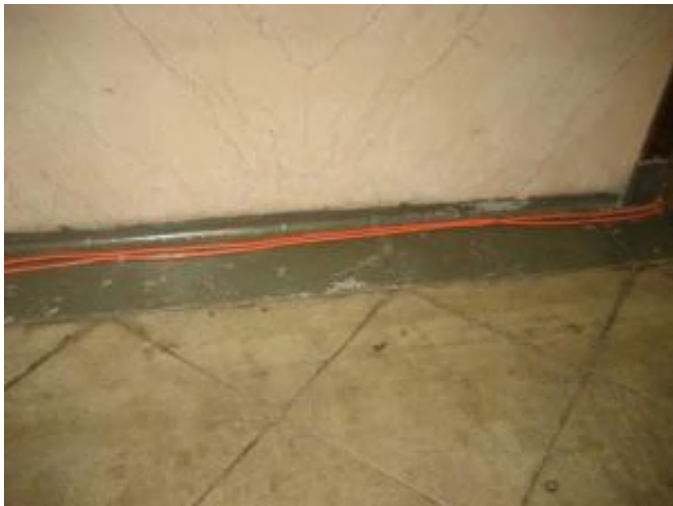
**Date Created:** 08/11/2015

**Notes:** Replace original panel-boards with new 120/208V panel boards. Approximate 10

---



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



**Location:** classrooms

**Distress:** Inadequate

**Category:** 4 - Capital Improvement

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

**Correction:** Add wiring device

**Qty:** 432.00

**Unit of Measure:** Ea.

**Estimate:** \$235,171.81

**Assessor Name:** System

**Date Created:** 08/11/2015

**Notes:** Provide (2)25FT of surface raceways with 24" receptacles on center and two-duplex wall mount receptacles. Approximate 27 classrooms

---

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



**Location:** Auditorium

**Distress:** Inadequate

**Category:** 4 - Capital Improvement

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

**Correction:** Replace lighting fixtures

**Qty:** 50.00

**Unit of Measure:** Ea.

**Estimate:** \$12,867.07

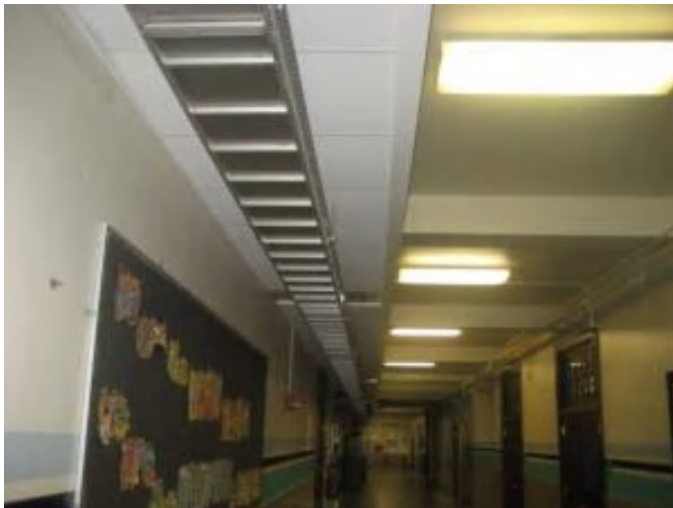
**Assessor Name:** System

**Date Created:** 08/11/2015

**Notes:** Replace auditorium incandescent lamps with dimmable fluorescent lamps. Approximate 50

---

**System: D5030 - Communications and Security**



**Location:** Corridors, stairways

**Distress:** Security Issue

**Category:** 1 - Health & Safety

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

**Correction:** Add/Replace Video Surveillance System

**Qty:** 40.00

**Unit of Measure:** Ea.

**Estimate:** \$140,932.27

**Assessor Name:** System

**Date Created:** 08/11/2015

**Notes:** Replace abandoned in place CCTV system. Provide CCTV cameras in the corridors in the stairways and in front of the elevators. Approximate 40 cameras

---

**System: D5030 - Communications and Security**



**Location:** Auditorium

**Distress:** Inadequate

**Category:** 4 - Capital Improvement

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

**Correction:** Add/Replace Sound System

**Qty:** 1.00

**Unit of Measure:** LS

**Estimate:** \$28,202.82

**Assessor Name:** System

**Date Created:** 08/11/2015

**Notes:** Provide the auditorium with a more complete sound system

---

**System: D5090 - Other Electrical Systems**



**Location:** Roof

**Distress:** Building / MEP Codes

**Category:** 2 - Code Compliance

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

**Correction:** Repair Lightning Protection System

**Qty:** 1.00

**Unit of Measure:** Job

**Estimate:** \$24,249.82

**Assessor Name:** System

**Date Created:** 08/11/2015

**Notes:** Prepare a study to determine if the school requires a lightning protection system.

---

**System: E1020 - Institutional Equipment**



**Location:** Auditorium

**Distress:** Obsolete

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

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

**Correction:** Add/Replace Stage Theatrical Lighting System

**Qty:** 1.00

**Unit of Measure:** Ea.

**Estimate:** \$293,594.70

**Assessor Name:** System

**Date Created:** 08/11/2015

**Notes:** Provide theatrical lighting dimming control system

---

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

**System: C3030 - Ceiling Finishes**



**Location:** Various

**Distress:** Damaged

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

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

**Correction:** Remove and replace ceiling tiles only in suspended ceiling - pick the proper material

**Qty:** 10,000.00

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

**Estimate:** \$77,150.16

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace acoustic ceiling tiles – discolored, damaged/missing (10% of suspended ceiling area)

---

**System: D2010 - Plumbing Fixtures**



**Location:** Service closets

**Distress:** Beyond Service Life

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

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

**Correction:** Replace lavatory - with finishes

**Qty:** 12.00

**Unit of Measure:** Ea.

**Estimate:** \$39,400.26

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Replace service sinks due to age and wear.

---

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

**System: B2020 - Exterior Windows**



**Location:** Throughout

**Distress:** Energy Efficiency

**Category:** 4 - Capital Improvement

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

**Correction:** Remove and replace double slider windows

**Qty:** 550.00

**Unit of Measure:** Ea.

**Estimate:** \$2,775,379.25

**Assessor Name:** System

**Date Created:** 09/04/2015

**Notes:** Replace Plexiglas windows – hazed

---

**System: D2010 - Plumbing Fixtures**



**Location:** Bathrooms

**Distress:** Beyond Service Life

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

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

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

**Qty:** 20.00

**Unit of Measure:** Ea.

**Estimate:** \$184,918.17

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Replace plumbing fixtures in 15% of bathrooms.

---

**System: D3040 - Distribution Systems**



**Location:** Entire building

**Distress:** Beyond Service Life

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

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

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

**Qty:** 1,050.00

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

**Estimate:** \$423,718.50

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Replace radiators with finned tube convectors due to age.

---



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

**System: D3030 - Cooling Generating Systems**



**Location:** Entire building

**Distress:** Inadequate

**Category:** 4 - Capital Improvement

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

**Correction:** Install chilled water system with distribution piping and pumps. (+150KSF)

**Qty:** 129,000.00

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

**Estimate:** \$2,145,464.21

**Assessor Name:** System

**Date Created:** 09/10/2015

**Notes:** Install 430 tons more cooling including rooftop chillers and cooling coils in basement air handlers.

---

## Equipment Inventory

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

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D2020 Domestic Water Distribution	Pump, pressure booster system, variable speed, base, controls, starter, duplex, 100' head, 400 GPM, 7-1/2 H.P., 4" discharge	1.00	Ea.	Basement					25	2009	2034	\$51,870.00	\$57,057.00
D3020 Heat Generating Systems	Boiler, gas/oil combination, cast iron, steam, gross output, 6100 MBH, includes burners, controls and insulated jacket, packaged	4.00	Ea.	Basement boiler room					35	2000	2035	\$140,742.00	\$619,264.80
D3040 Distribution Systems	AHU, field fabricated, built up, cool/heat coils, filters, constant volume, 40,000 CFM	2.00	Ea.	Fan room 1 and 4					25	2009	2034	\$151,511.80	\$333,325.96
D4010 Sprinklers	Fire pumps, electric, 750 GPM, 100 psi, 66 HP, 3,550 RPM, 4" pump, including controller, fittings and relief valve	1.00	Ea.	Basement					35	2009	2044	\$27,321.80	\$30,053.98
D5010 Electrical Service/Distribution	Load interrupter switch, 2 position, 400 kVA & above, 13.8 kV, 600 amp w/CLF fuses, NEMA 1	1.00	Ea.	Basement electrical room	Eaton /Cutler Hammer	MVS metal enclosed load interrupter switchgear			30	2008	2038	\$42,849.00	\$47,133.90
D5010 Electrical Service/Distribution	Switchgear installation, incl switchboard, panels & circuit breaker, 120/208 V, 1600 A	1.00	Ea.	First floor electrical room	Eaton/Cutler Hammer	Switchboard			20	2008	2028	\$40,458.15	\$44,503.97
D5010 Electrical Service/Distribution	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 1600 A	1.00	Ea.	Basement electrical room	Eaton/Cutler Hammer	Switchboard			20	2008	2028	\$53,561.25	\$58,917.38
D5010 Electrical Service/Distribution	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 2000 A	1.00	Ea.	First floor electrical room	Eaton/Cutler Hammer	Switchgear			20	2008	2028	\$64,242.45	\$70,666.70
D5010 Electrical Service/Distribution	Transformer, liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 3 phase, 1500 kVA, pad mounted	1.00	Ea.	First floor electrical room	Eaton/Cutler Hammer	Step down, dry type			30	2008	2038	\$58,498.20	\$64,348.02
												<b>Total:</b>	<b>\$1,325,271.71</b>



## 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): 7,900

Year Built: 1930

Last Renovation:

Replacement Value: \$136,275

Repair Cost: \$73,921.47

Total FCI: 54.24 %

Total RSLI: 52.13 %



### Description:

#### Attributes:

##### General Attributes:

Bldg ID:	S262001	Site ID:	S262001
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## 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	25.00 %	0.00 %	\$0.00
G40 - Site Electrical Utilities	106.67 %	163.30 %	\$73,921.47
<b>Totals:</b>	<b>52.13 %</b>	<b>54.24 %</b>	<b>\$73,921.47</b>

### 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 \$
G2030	Pedestrian Paving	\$11.52	S.F.	7,900	40	1985	2025		25.00 %	0.00 %	10			\$91,008
G2050	Landscaping & Irrigation	\$3.78	S.F.		15	2001	2016	2030	100.00 %	0.00 %	15			\$0
G4020	Site Lighting	\$3.58	S.F.	7,900	30	1931	1961	2047	106.67 %	0.00 %	32			\$28,282
G4030	Site Communications & Security	\$2.15	S.F.	7,900	30	1931	1961	2047	106.67 %	435.22 %	32		\$73,921.47	\$16,985
<b>Total</b>									<b>52.13 %</b>	<b>54.24 %</b>			<b>\$73,921.47</b>	<b>\$136,275</b>

## 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.

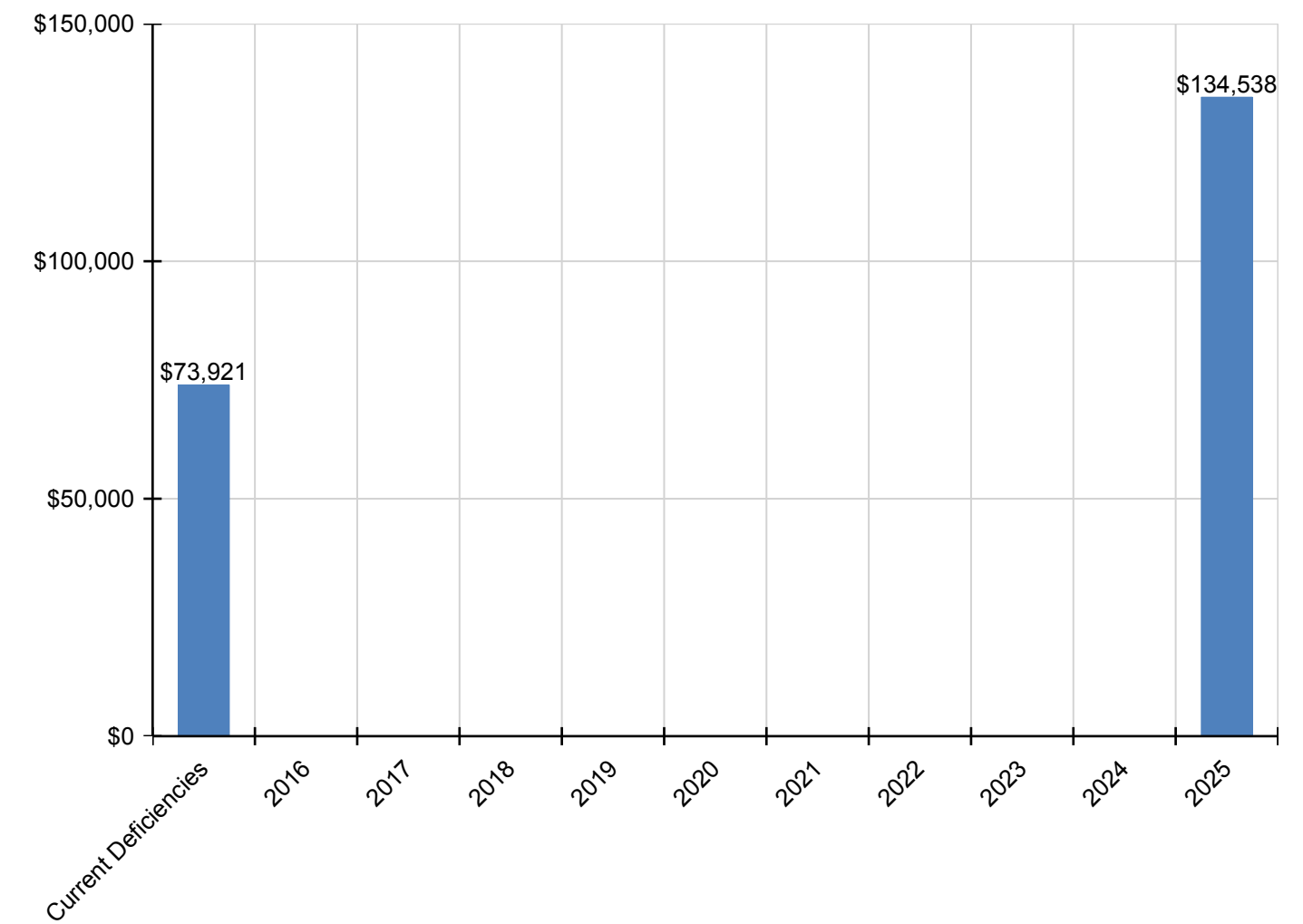
*Inflation Rate: 3%*

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
<b>Total:</b>	<b>\$73,921</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$134,538</b>	<b>\$208,460</b>
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
G2030 - Pedestrian Paving	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$134,538	\$134,538
G2050 - Landscaping & Irrigation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G40 - Site Electrical Utilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G4020 - Site Lighting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G4030 - Site Communications & Security	\$73,921	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$73,921

*\* Indicates non-renewable system*

Forecasted Sustainment Requirement

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

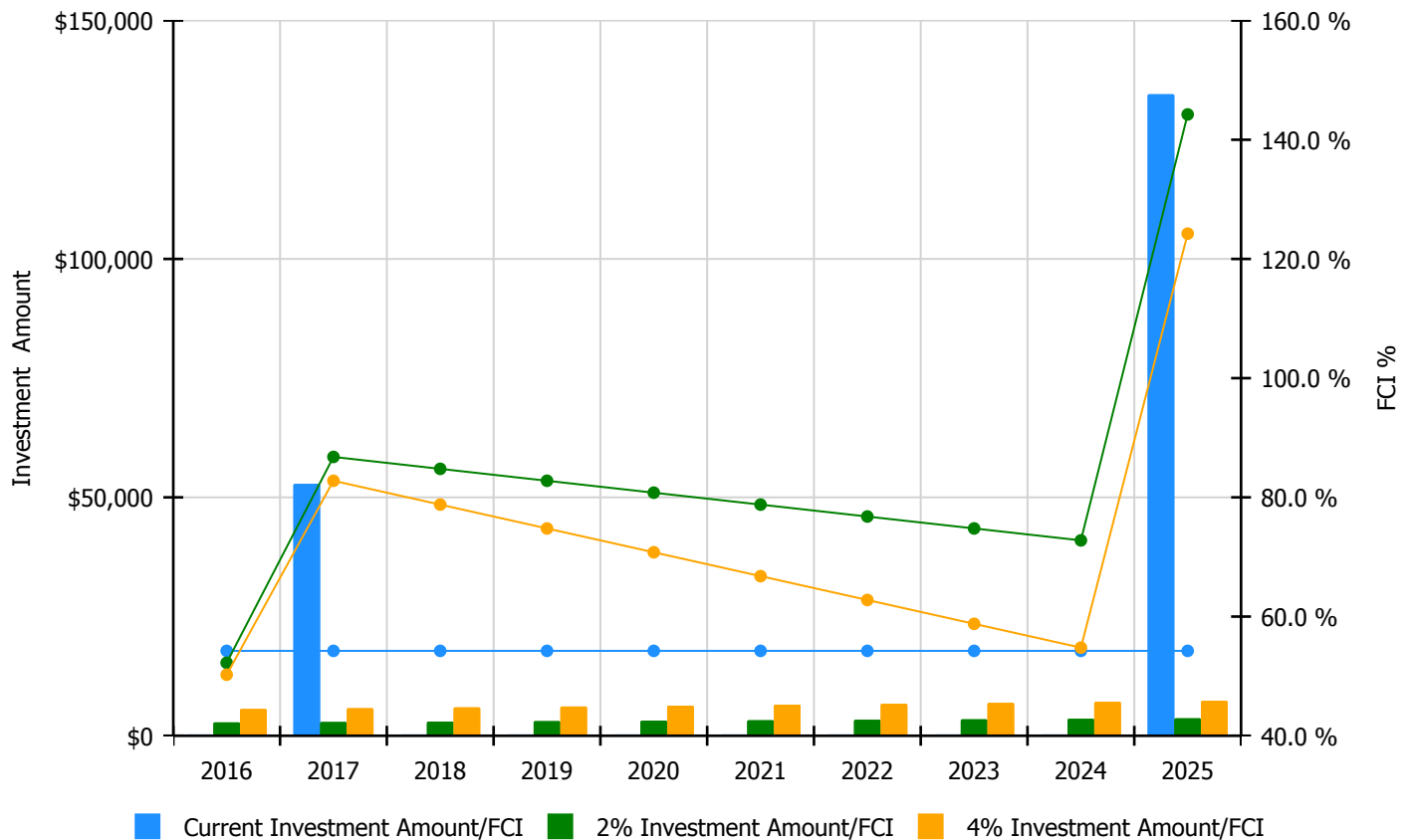


## 10 Year FCI Forecast by Investment Scenario

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

**Facility Investment vs. FCI Forecast**

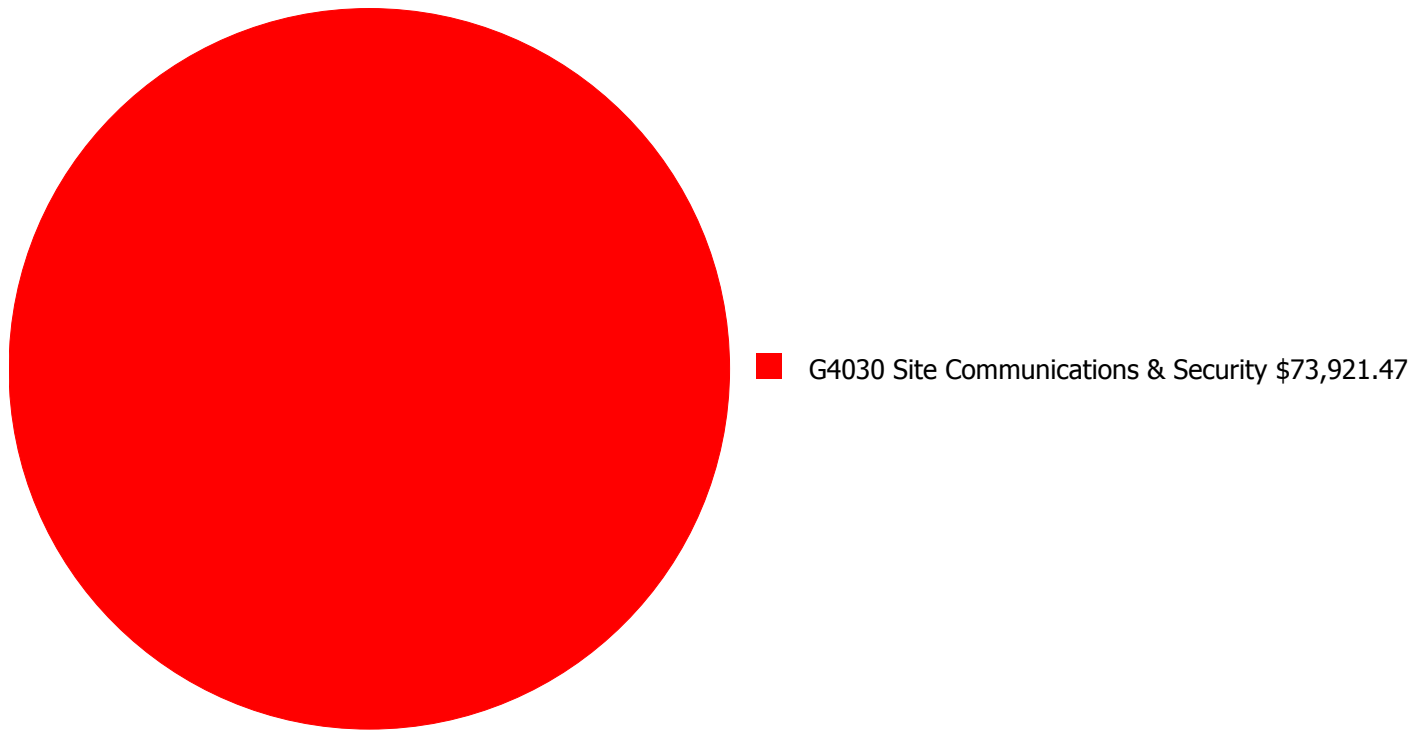


Year	Investment Amount Current FCI - 54.24%	2% Investment		4% Investment	
		Amount	FCI	Amount	FCI
2016	\$0	\$2,807.00	52.24 %	\$5,615.00	50.24 %
2017	\$52,826	\$2,891.00	86.78 %	\$5,783.00	82.78 %
2018	\$0	\$2,978.00	84.78 %	\$5,956.00	78.78 %
2019	\$0	\$3,068.00	82.78 %	\$6,135.00	74.78 %
2020	\$0	\$3,160.00	80.78 %	\$6,319.00	70.78 %
2021	\$0	\$3,254.00	78.78 %	\$6,509.00	66.78 %
2022	\$0	\$3,352.00	76.78 %	\$6,704.00	62.78 %
2023	\$0	\$3,453.00	74.78 %	\$6,905.00	58.78 %
2024	\$0	\$3,556.00	72.78 %	\$7,112.00	54.78 %
2025	\$134,538	\$3,663.00	144.24 %	\$7,326.00	124.24 %
<b>Total:</b>	<b>\$187,365</b>	<b>\$32,182.00</b>		<b>\$64,364.00</b>	



## Deficiency Summary by System

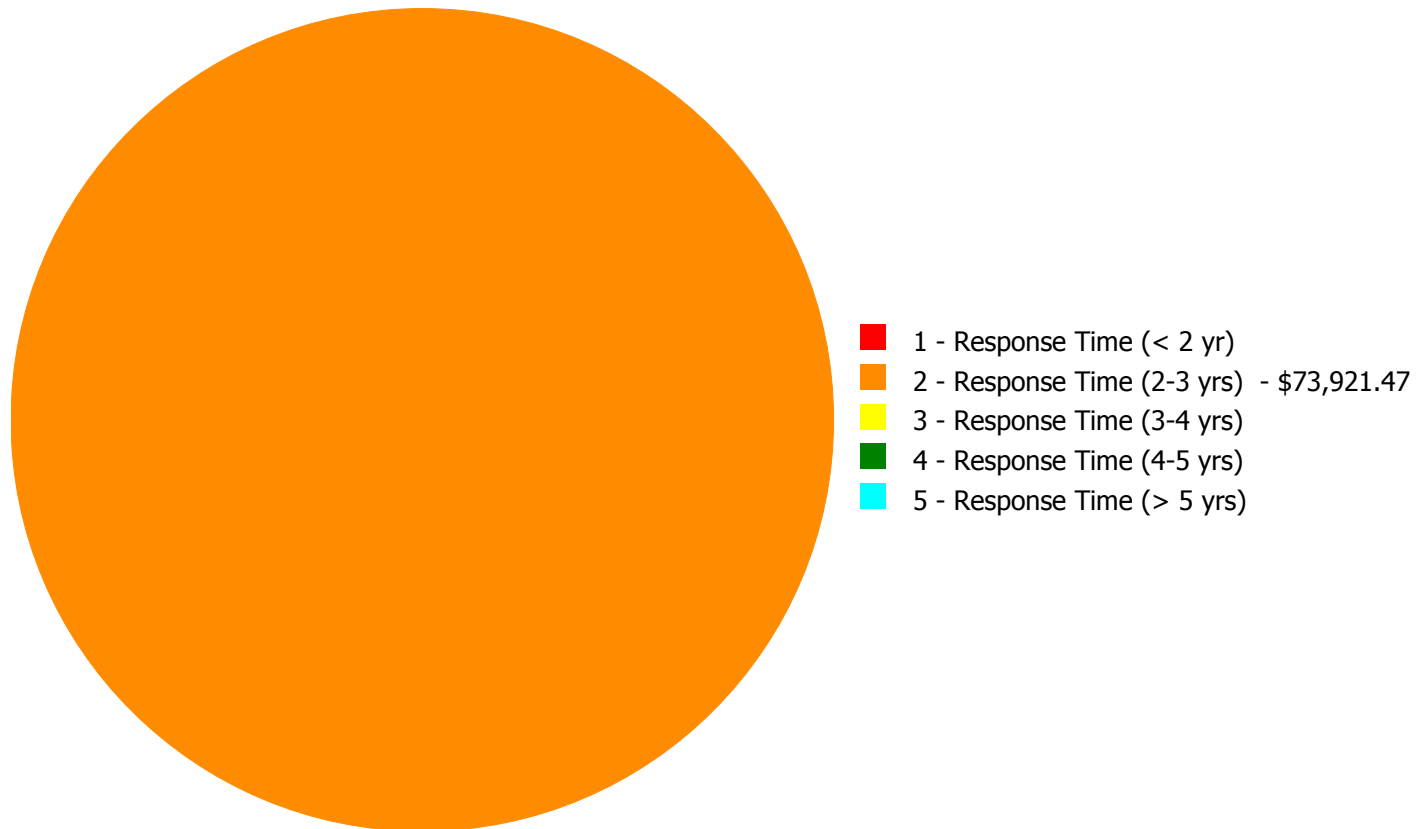
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart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



**Budget Estimate Total: \$73,921.47**

## 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: \$73,921.47**

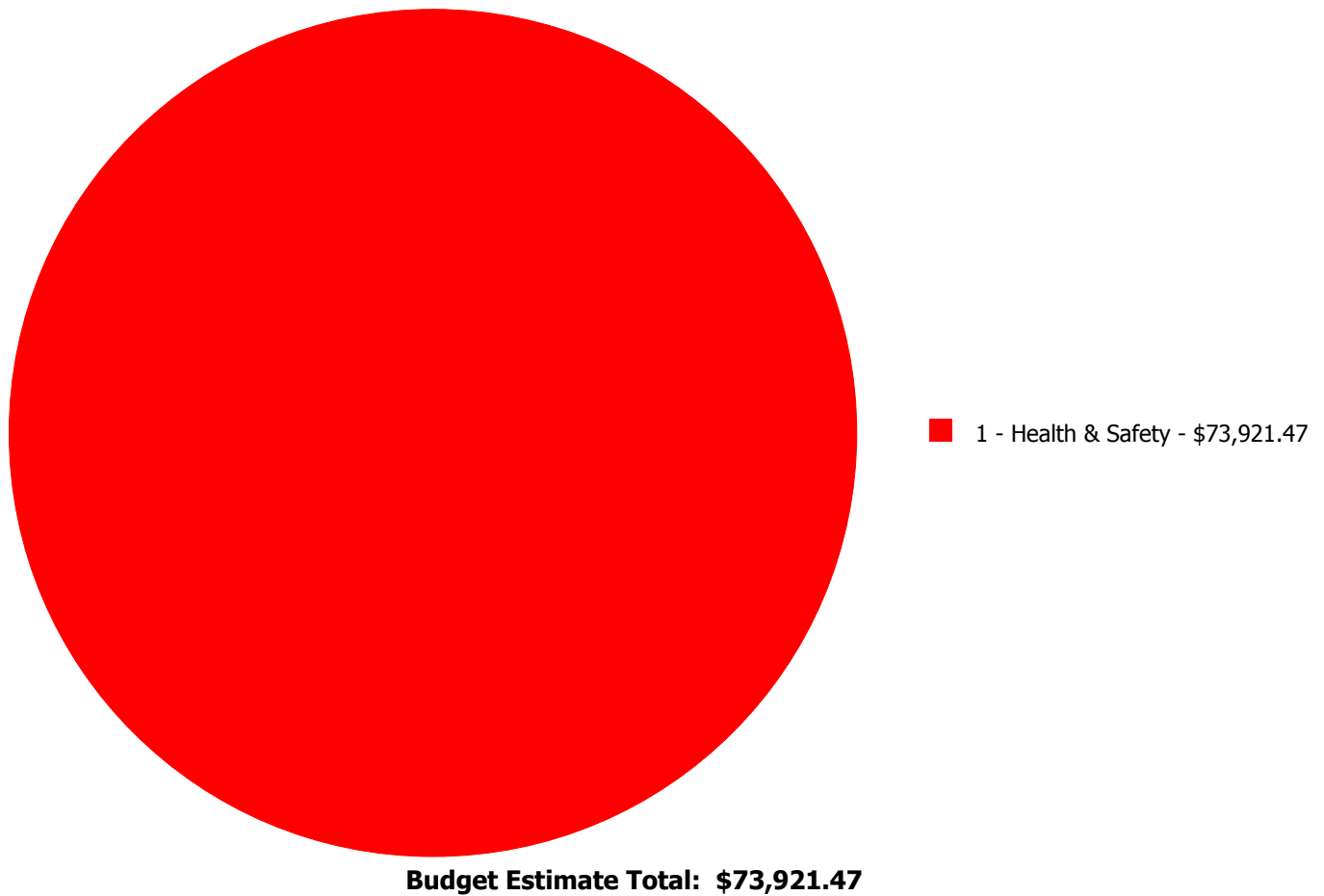
Deficiency By Priority Investment Table

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
G4030	Site Communications & Security	\$0.00	\$73,921.47	\$0.00	\$0.00	\$0.00	\$73,921.47
	Total:	\$0.00	\$73,921.47	\$0.00	\$0.00	\$0.00	\$73,921.47

## 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:



## Deficiency Details by Priority

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

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

#### System: G4030 - Site Communications & Security



**Location:** Building perimeter

**Distress:** Health Hazard / Risk

**Category:** 1 - Health & Safety

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

**Correction:** Add Video Surveillance System

**Qty:** 6.00

**Unit of Measure:** Ea.

**Estimate:** \$73,921.47

**Assessor Name:** Craig Anding

**Date Created:** 08/11/2015

**Notes:** Provide CCTV cameras around the building perimeter. Approximate 6 cameras.

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## 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 <a href="http://www.abma.com/">http://www.abma.com/</a>
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

## Site Assessment Report - S262001;Palumbo

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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



## Site Assessment Report - S262001;Palumbo

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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

## Site Assessment Report - S262001;Palumbo

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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.

## Site Assessment Report - S262001;Palumbo

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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

## Site Assessment Report - S262001;Palumbo

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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

## Site Assessment Report - S262001;Palumbo

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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.

## Site Assessment Report - S262001;Palumbo

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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	Photovoltaic system

## Site Assessment Report - S262001;Palumbo

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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

## Site Assessment Report - S262001;Palumbo

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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 Unifomat 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 Unifomat 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



## Site Assessment Report - S262001;Palumbo

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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