

EAST CAROLINA UNIVERSITY

Facility Condition Assessment

Cotanche Building

Asset 164

Inspected January 24, 2023

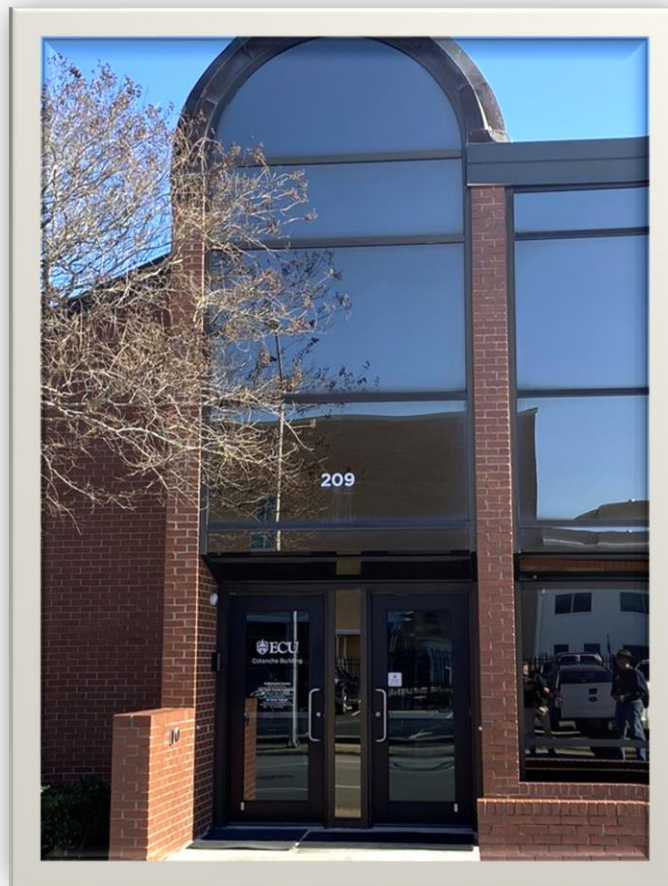


TABLE OF CONTENTS

SECTION 1 ASSET OVERVIEW

Asset Executive Summary.....	1.1.1
Asset Summary	1.2.1
Inspection Team Data.....	1.3.1
Definitions	1.4.1
Overview	1.4.1
Recurring Costs	1.4.2
Nonrecurring Costs	1.4.3
Drawings.....	1.4.6
Photographs	1.4.6
Sustainability/Energy Analysis	1.4.6

SECTION 2 COST SUMMARIES AND TOTALS

Renewal Needs Matrix.....	2.1.1
Renewal Needs by System	2.2.1
Facilities Renewal Plan – Recurring Component Replacement Costs.....	2.3.1
Facilities Renewal Plan – Nonrecurring Project Costs	2.4.1

SECTION 3 NONRECURRING PROJECT DETAILS..... 3.1.1

SECTION 4 LIFECYCLE COMPONENT INVENTORY

Renewable Component Inventory	4.1.1
Recurring Costs by Year	4.2.1
Recurring Component Expenditure Projections.....	4.3.1

SECTION 5 DRAWINGS

SECTION 6 PHOTOGRAPHS 6.1.1

SECTION 7 PRELIMINARY ENERGY ASSESSMENT..... 7.1.1

FACILITY CONDITION ASSESSMENT

SECTION 1

ASSET OVERVIEW

ASSET EXECUTIVE SUMMARY

All costs shown as Present Value

ASSET CODE 164	CURRENT REPLACEMENT VALUE \$17,344,000
ASSET NAME COTANCHE BUILDING	FACILITY CONDITION NEEDS INDEX 0.27
ASSET USE Data Center	FACILITY CONDITION INDEX 0.07
YEAR BUILT 1955	10-YEAR \$/SF 162.87
GSF 29,137	
INSPECTION DATE 01/25/2023	

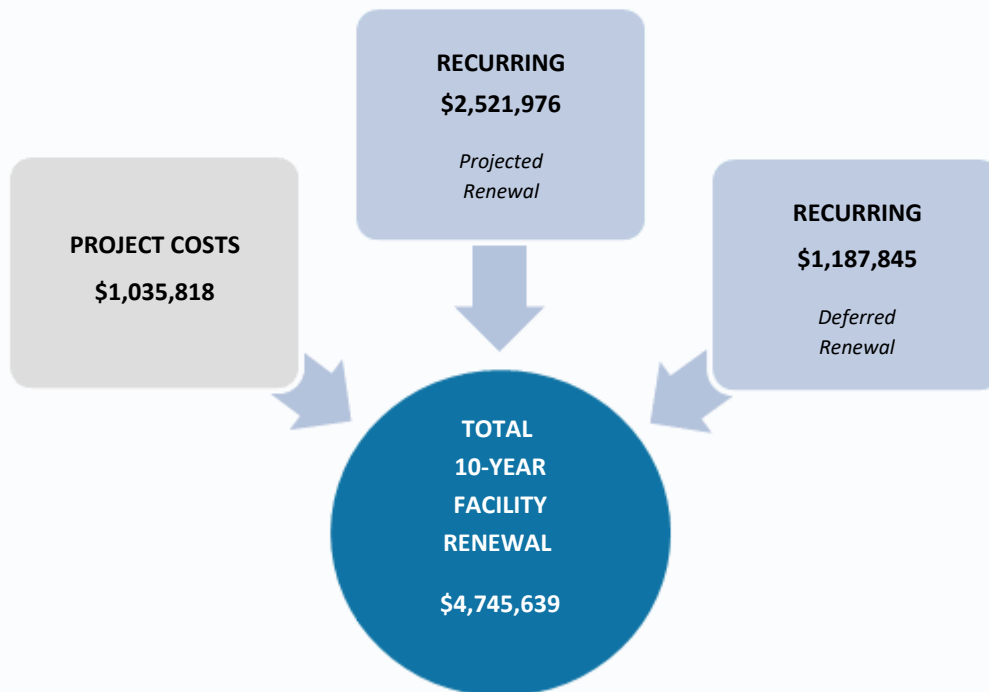
FCNI Scale

The FCNI for this asset is **0.27**

- Excellent Condition (typically new construction)
- Below Average Condition (major renovation required)
- Good Condition (maintained within lifecycle)
- Poor Condition (total renovation required)
- Fair Condition (normal renovations required)
- Replacement Indicated (unless historic)



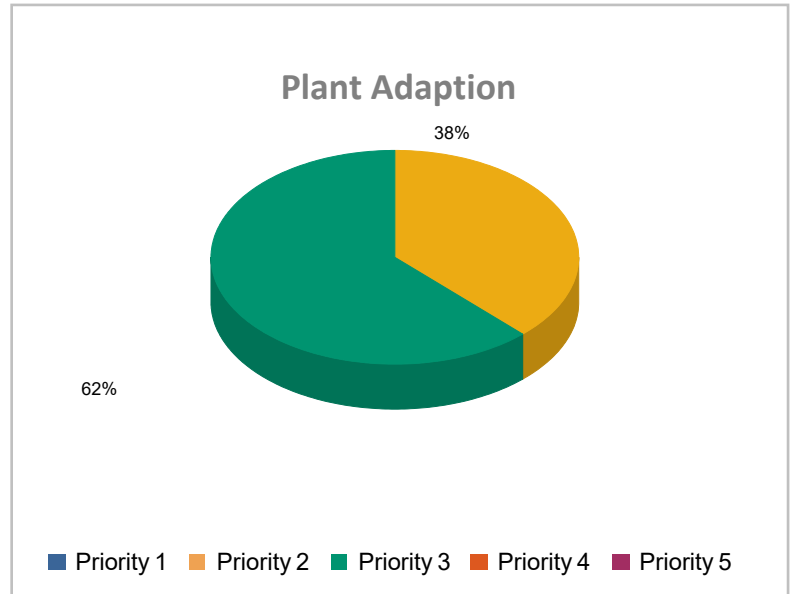
Total Facility Renewal Costs



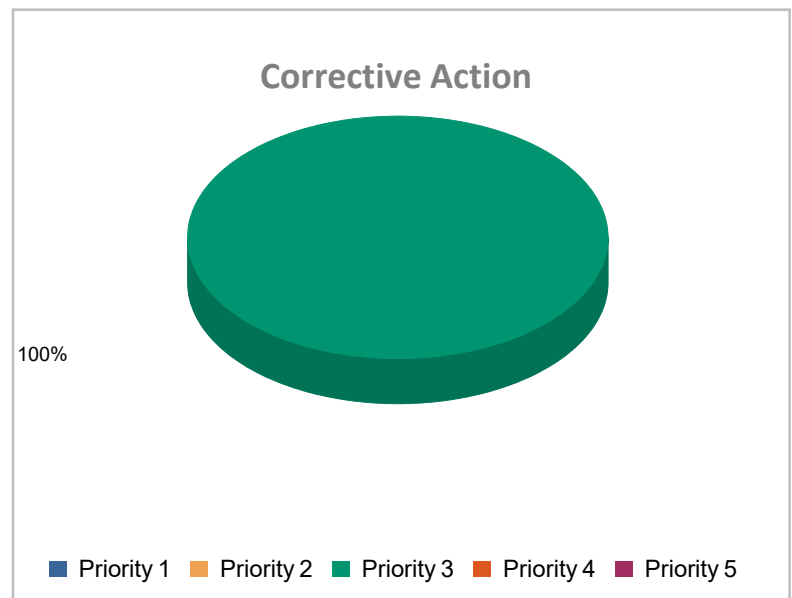
Project Costs

Project Cost by Priority

PLANT ADAPTION	
Priority 1	\$0
Priority 2	\$389,544
Priority 3	\$640,059
Priority 4	\$0
Priority 5	\$0

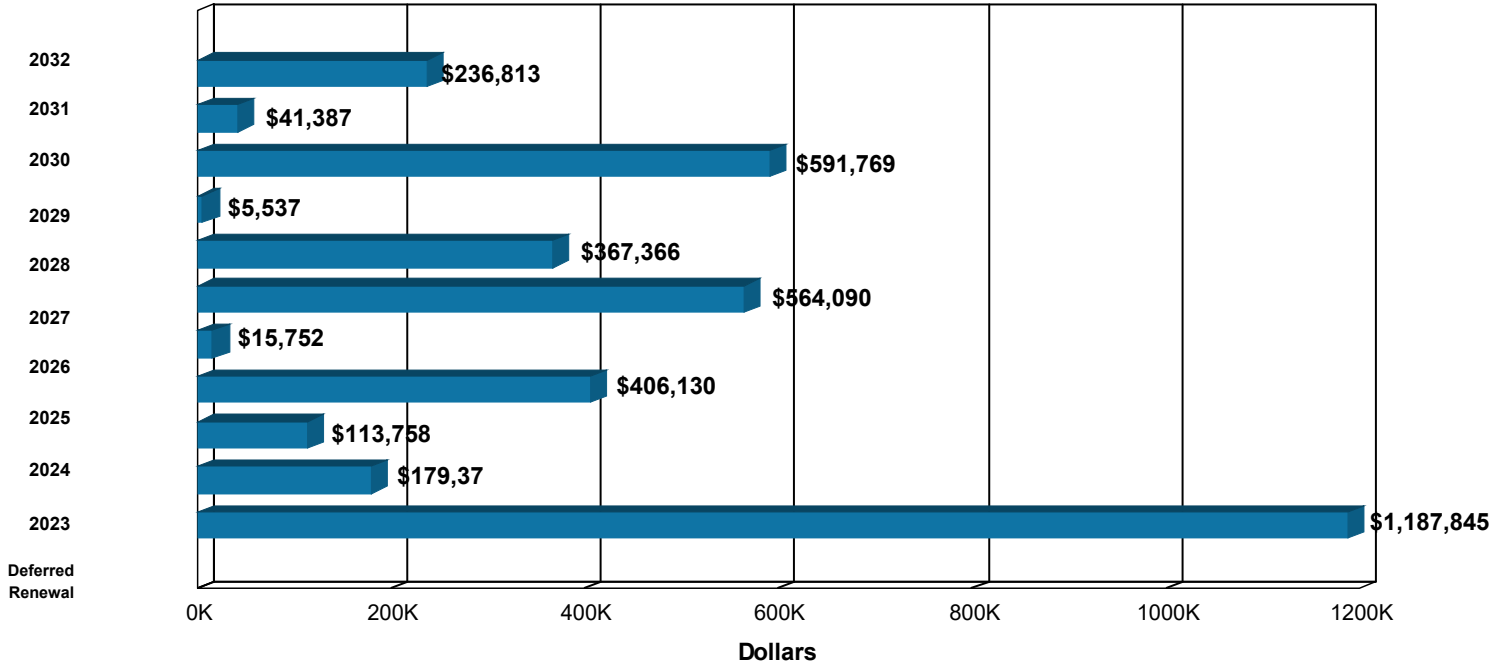


CORRECTIVE ACTION	
Priority 1	\$0
Priority 2	\$0
Priority 3	\$6,215
Priority 4	\$0
Priority 5	\$0

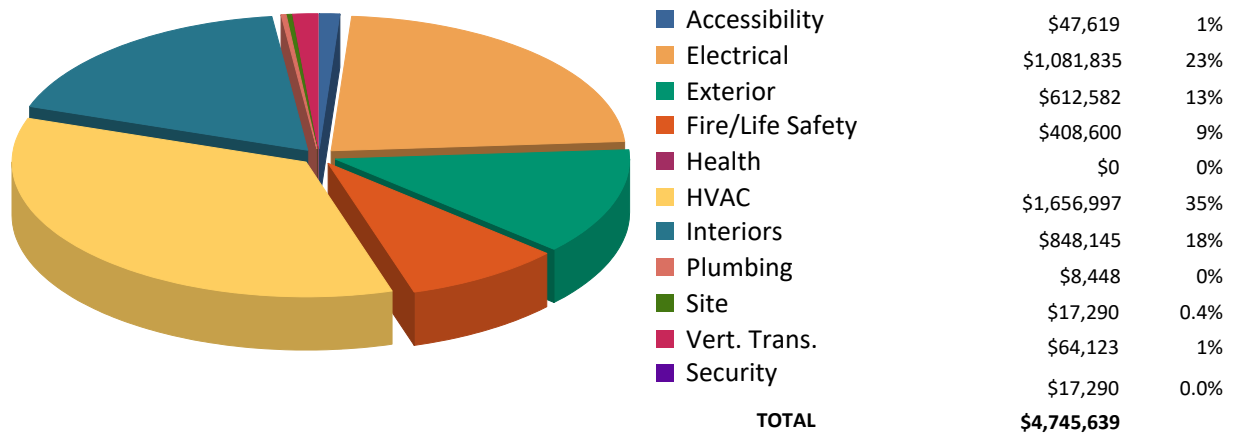


Recurring Costs

Component Replacement Cost by Year



Facilities Renewal Cost by System



ASSET SUMMARY

The Cotanche Building is a two-story office support space and data center at East Carolina University. Built in 1955, this 29,137 gross square foot building contains a few offices, but mostly cubicle work areas and data centers. Over the years there have been a few renovations and updates of various degrees to accommodate the need for more data servers. These date from 2002 to the one in progress during the site visit.

The information in this report was gathered during a site visit conducted on Jan 25, 2023.

Site

The site has a slight east to west slope and a mixture of pedestrian walkways, manicured shrubs, and trees. The walkways are in fair to poor condition in various areas and should be crack filled. The parking lot has exceeded its lifecycle and should be seal coated and restriped.

Exterior

The exterior facade is red brick with standing-seam metal siding on the roof level and thermal-pane glazing on the front of the building. The brick appears to be structurally sound and is in good condition. However, the siding is expected to need restoration within the few years and the glazing will also be due for replacement. Exterior doors are a combination of painted hollow metal and metal and glass with panic hardware and some power-assisted door operators. While the hollow-metal doors should outlast the report scope, the metal and glass doors, hardware, and powered door openers should be replaced within the next ten years.

This roof is primarily a modified bitumen application with a pitched metal area. Water is evacuated via roof drains. All signs of water infiltration or reported leaks have been rectified. While the standing-seam metal roof should outlast the scope of his report, the modified bitumen roof will need to be replaced in the near term.

Interior Finishes/Systems

Floor finishes include carpeting in the office and cubicle areas, vinyl composition tile in the corridors and stairwells, raised vinyl tile in the data centers, and ceramic tile in restrooms. Ceilings are mostly suspended acoustical tile, with some areas of painted drywall. Walls are painted in most areas with ceramic tile in the restrooms. The carpeting, vinyl tile, ceramic floor and wall tile, may need to be replaced within the next ten years. The painted walls should also be repainted in the same timeframe. The interior doors are wood with metal frames and standard commercial locksets. The hardware is recommended for replacement within the next ten years. Laminate countertops and cabinetry in the

break areas should be considered for replacement within the scope of this report as should the various partitions in the restrooms.

Accessibility

The building contains several accessible features such as grade-level entry, an elevator, ADA-compliant restrooms, and dual-level drinking fountains. However, the stairs are deficient in handrail and guardrail design relative to current standards. Future renovation efforts should include comprehensive stair railing upgrades. Also, the single-level drinking fountain on the second floor should be replaced with a dual-level unit set in and alcove or with a tapered lower cabinet design. The installation of handrails on the ramp at the main entrance is also recommended.

Health

The HVAC distribution network reportedly has mold in the first floor ductwork. There is evidence (black cast off) at distribution supply grills at the main lobby. These areas should be checked and affected areas abated of the mold. This will include replacement of the affected HVAC distribution network.

Fire/Life Safety

Fall protection is required to protect workers on roofs over six feet above grade. The installation of hard looped tie-off points is recommended at intervals throughout the roof to support worker lifelines and harness personal protective equipment.

Structural fire separations are not maintained according to code requirements for new construction in select areas of this facility. These areas include data and telecom rooms. Although only these instances were noted, other fire separation compromises may exist elsewhere in this building. It is recommended that the entire building be surveyed for similar problem areas, especially in conditions and spaces that are similar to those that were observed. Intumescent passive firestopping and some minor structural separation repairs should be accomplished promptly.

A modern, point addressable Notifier fire alarm control panel in electrical room 137 monitors detection and notification devices throughout the building. Devices include manual pull stations, horns and strobes, and open area and HVAC duct smoke detectors and CO2 sensors. The main panel and remote annunciators are newer than the aged devices and have significant remaining useful service life. The devices are older but communicate with the new software and panel with no issues. It is recommended that the devices throughout the building be replaced.

The office portion of the building is not protected by an automated fire suppression sprinkler system. Primary fire suppression is by manual chemical fire extinguishers. The computer room (server) areas are protected by a manually activated chemical suppression system. The system dispenses FM 200 agent and is monitored by a dedicated fire alarm panel in electrical room 137. Devices include manual pull stations, horns and strobes, and manual system activation buttons. Both the panel and devices should

outlast the scope of this assessment. The existing FM 200 fire suppression system in server rooms 131 and 132 is incapable of supporting space planned as expansion to the server areas. Replacement or adaptation of the existing system is required.

HVAC

The offices are heated and cooled by rooftop package units. Supplementary heating and cooling are provided by a combination of split ductless units and split systems. The rooftop package units are a mixture of cooling only and gas-fired heating. These units are fairly new with remaining useful service life but will all be due for lifecycle replacement towards the end of the scope of this assessment. Humidity is a constant concern, likely due to the small population density for the building square footage and the related reduced heat load. While it is not recommended that the HVAC system be modified, consideration should be given to closing off portions of the building from the rest to allow realistic heating and cooling loads for the current design. The split ductless units vary in age and at least one is anticipated for renewal toward the end of the project scope. Three split systems provide heating and cooling to the mechanical and electrical spaces at the east side of the building. These units are modern split DX systems and should last another ten years. General building exhaust is provided by eight roof exhausters. These fans were installed in 2002 and should be planned for renewal due to age.

The HVAC air distribution network consists of internally and noninsulated metal ductwork. Currently, the distribution network adequately serves all areas of the building but it has been reported to house mildew or mold. This is likely due to the reduced heating and cooling loads from the sparsely populated building. It is recommended that the ductwork be inspected and impacted areas replaced. HVAC controls for the office areas are simple digital thermostats with single zone responsibilities. These are fine and should be replaced with the next generation of RTU replacements.

Heating and cooling for the computer rooms is included in the general office building systems but is supplemented by dedicated specialty cooling consisting of Liebert computer room air conditioners (CRACs) and Liebert in row cooling chillers. These units are combinations of self-contained refrigerant units and chiller supported units. The majority of the CRAC date to 2002 and are in need of replacement. The air-cooled condensers for these units have been replaced and may be able to be re-used. The newer in row cooling has significant remaining useful life. Two 80 ton Trane scroll chillers support the server cooling and have adequate cooling capacity and significant useful life. Electric motor-driven chilled water pumps circulate cooling medium (water and glycol) through the network. These pumps should last at least another ten years.

The HVAC controls for the computer cooling is Trane direct digital controls (DDC) that monitor and allow adjustments to the HVAC system. This portion of the building is considered fully addressable and is in line with the current campus preferred controls network.

Electrical

Power is supplied from the utility to the facility underground to the main electrical room. Multiple main electrical and emergency power distribution panels then feed power to downline remote panels and

devices. The primary electrical MDP is a Square D, 1600 amp, 277/480 volt phase distribution panel. Sub-distribution panels EDP, EDP2, DP, CDP and CDP2 then distribute power to mainline devices or through dry-type step down transformers to downline devices. The main distribution panels date from 2002 and although adequate they are aged and should be planned for replacement. As described, dry-type step down transformers through the building step voltage from the primary 480 voltage to single-phase 120/240, and three phase 120/208 and 277 volt service voltages. Secondary electrical distribution energizes circuits through the building feeding safety switches, local panelboards, and devices. Some newer secondary electrical distribution has been added to the 2002 distribution and the network as a whole has significant remaining useful life and should outlast the scope of this assessment. Chilled water pumps have electric motors and are equipped with variable frequency drives as an energy efficiency measure. All four of the VFDs will reach or surpass their expected useful life within the scope of this assessment. Replacement of all devices is recommended.

Emergency power is provided from two 500-kW diesel-powered generators. Fuel is stored in large day tanks at the base of each generator. The units only run periodically, are run tested monthly, and should last another ten years. Automatic transfer switches engage emergency power when the generator is activated due to utility power loss. These switches are also exercised regularly and have remaining useful life but the smaller, older unit will be due for lifecycle replacement within the assessment scope. Emergency UPS systems bridge the gap between loss of utility power and startup of emergency generator power. The 2015 UPS is due for lifecycle replacement within the scope of this assessment. The building is equipped with adequate emergency power generation (generators) and UPSs. However, the current configuration does not allow for adequate redundant coverage for all servers. It is recommended that the current power plan be analyzed and modifications recommended to provide full redundancy of the emergency power network.

Interior lighting is fluorescent with mainly open parabolic, lay-in type acrylic lenses, surface-mounted, recessed, and pendant type fixtures. Although fluorescent fixtures are current T8 technology, the fixtures throughout are yellowing and exhibiting degradation of reflectivity. These fixtures should be planned for systematic replacement.

Exterior lighting is a combination of mainly LED and HID wall packs. All are operational and should last another ten years. Parking lot lighting is provided by 20-foot pole lights with LED fixtures. These newer fixtures should outlast the scope of this assessment.

This facility would benefit from the addition of lightning protection. Install an appropriately designed system that protects the structure and rooftop structure and equipment.

Plumbing

Domestic water is supplied to functional spaces through a copper piping network. The drain piping for functional spaces is cast-iron or plastic. Supply and drain piping should last at least another ten years. Domestic hot water is produced by a commercial electric water heater. This unit is relatively new and should outlast the scope of this assessment. The domestic and cooling water supply piping both have backflow preventers. It is anticipated that they will all need to be replaced within the next ten years.

Restroom plumbing fixtures include wall-hung and counter lavatories, tank type water closets, and urinals. All of these fixtures, as well as the kitchen and utility sinks, are in satisfactory condition and they should outlast the scope of this report.

Vertical Transportation

The building has a 2,500 pound hydraulic passenger elevator. The machine was installed circa 2002 with a submersible pump and oil tank and new solid state controller. The cab should be planned for remodeling. A hydraulic lift at the load dock is operable and should last another ten years.

Note: The renewal needs outlined in this report were identified from the visual inspection and staff interviews. Our professional architectural and engineering inspectors examined the accessible equipment and various building components to determine what repairs or modifications may be necessary to restore the systems and asset to an acceptable condition, or to a level defined by the Client. The estimated costs represent correction of existing deficiencies and anticipated lifecycle failures within a ten-year period. These recommendations are to bring the facility to modern standards without any anticipation of change to facility space layout or function. The total costs include variable project delivery costs as determined by the Owner. The costs developed do not represent the cost of a complete facility renovation. Soft costs not represented in this report include telecommunications, security, furniture, window treatment, space change, program issues, relocation, swing space, contingency, or costs that could not be identified or determined from the visual inspection and available building information.

INSPECTION TEAM DATA

Report Development

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Project Manager

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Date of Inspection

January 24, 2023

Inspection Team Personnel

NAME	POSITION	SPECIALTY
Michelle Thompson	Facility Assessor	Interior Finishes, Exterior Structure, ADA Compliance, Site, Fire/Life Safety, Health
Jerry Watkins	Senior Project Manager	Mechanical, Electrical, Plumbing, Energy, Fire/Life Safety, Health

Client Contact

NAME	POSITION
Griffin L. Avin, CEFP	Director of Facilities Services, Health Sciences Campus Chief Sustainability Officer

DEFINITIONS

The following information is a clarification of the Facility Condition Assessment report using example definitions.

Overview

Recurring and Nonrecurring Facility Renewal Costs

Facility renewal costs are divided into two main categories – recurring and nonrecurring. Recurring costs are cyclical and consist primarily of major repairs to or replacement/rebuilding of facility systems and components (e.g., roof or HVAC system replacement at or past the end of its normal useful life). The tool for projecting the recurring renewal costs is the Renewable Component Inventory, which is explained in detail below. Nonrecurring costs typically consist of modifications or repairs necessary to comply with fire/life safety or accessibility code requirements or to address isolated, nonrecurring deficiencies that could negatively affect the structure of the facility or the systems and components within. For these nonrecurring costs, projects have been developed and include estimated material and labor costs.

Facility Condition Needs Index (FCNI)

The FCNI provides a lifecycle cost comparison. It is a ratio of the sum of the recurring and nonrecurring renewal costs over ten years to the current replacement value of the asset. The current replacement value is based on replacement with current construction standards for the facility use type, and not original design parameters. This index gives the university a comparison within all buildings for identifying worst case/best case building conditions.

$$\text{FCNI} = \frac{\text{Nonrecurring Projects} + \text{10-Year Recurring Component Renewal}}{\text{Current Replacement Value}}$$

Facility Condition Index (FCI)

The FCI is a ratio of the Deferred Renewal costs to the current replacement value.

$$\text{FCI} = \frac{\text{Deferred Renewal}}{\text{Current Replacement Value}}$$

Material and Labor Cost Factors and Additional Markups

The project costs are adjusted from the national averages to reflect conditions in Greenville using the R. S. Means City Cost Index for material and labor cost factors. The percentage adjustment of the national average is shown in the table below. Also included in the renewal costs are the construction markup (general contractor profit and overhead, construction management, permitting, accounting, site security, insurance, bonds, sales tax, institutional fees, site utilities, refuse fees, and insurance) and professional fees (architect or engineer design fees and in-house design costs).

GLOBAL MARKUP	%
Local Labor Index	71.3
Local Materials Index	100.7
Construction Markup	20.0
Professional Fees	16.0

Recurring Costs

Renewable Component Inventory and Cost Projections

The Renewable Component Inventory (starting on page 4.1.1) is based on industry standard lifecycle expectancies applied to an inventory of major systems and components within a facility. Each indicated component has the following associated information:

CATEGORY	DESCRIPTION
Component Code	A four-digit code assigned by AMS to the component
Component Description	Description of the individual component
Identifier	Identifying information can be entered as necessary.
Customer ID	Customer-provided equipment ID number
Location	The location of each component can be entered if applicable.
Quantity	The quantity of the listed component
Units	The unit of measure associated with the quantity
Complexity Factor	Adjusts the component replacement costs when it is anticipated that the actual cost will deviate from the average for that component
Total Cost	The unit cost multiplied by quantity, in today's dollars (note that this is a one-time renewal/replacement cost)
Install Date	This is the year that the component was or is estimated to have been installed. When this data is not available, the default is the year the asset was constructed.
Useful Life	Average life expectancy of the component
Useful Life Adjustment	An optional adjustment that lengthens or reduces the first lifecycle of the component
Replacement Year	Expresses when the next replacement should occur and is the sum of the install date, useful life, and any useful life adjustment

The component listing forms the basis of the Recurring Costs by Year report, which provides a year-by-year list of projected recurring renewal costs (in future year dollars) over the next ten years. Each individual component is assigned a replacement year based on lifecycles. For items already past the end of their lifecycle, the replacement year is shown as Deferred Renewal.

For a longer term perspective, the Recurring Component Expenditure Projections Graph presents recurring renewal cost projections over a 50-year period (starting from the date the report is run) based on each individual item's renewal cost and life span. Some components might require renewal several times within the 50-year model, while others might not occur at all. The vertical bars on the graph represent the accumulated total costs for each individual year. The average annual cost per gross square foot (\$/GSF) is shown at the bottom of the graph. In this calculation, costs are not escalated. This figure can be utilized to assess the adequacy of existing capital renewal and repair budgets.

Recurring Cost Classifications

- **Deferred Renewal**
Recurring repairs, generated by the Renewable Component Inventory, that are past due for completion and have not yet been accomplished as part of normal maintenance or capital repair efforts. Further deferral could impair the proper functioning of the facility. Deferred Renewal upgrades should include compliance with applicable codes, even if such compliance requires expenditures beyond those essential to effect the needed repairs.
- **Projected Renewal**
Recurring renewal efforts, generated by the Renewable Component Inventory, that will be due within the scope of the assessment. These are regular or normal facility maintenance, repair, or renovation efforts that should be planned in the near future.

Nonrecurring Costs

As previously mentioned, modifications or repairs necessary to comply with fire/life safety or accessibility code requirements and those that address isolated, nonrecurring deficiencies that could negatively affect the structure of the facility or the systems and components within are not included in the Renewable Component Inventory. For each such deficiency identified during the facility inspection, a project with an estimated cost to rectify said deficiency is recommended. These projects each have a unique identifier and are categorized by system type, priority, and classification, which are defined below. The costs in these projects are also indexed to local conditions and markups applied as the situation dictates.

Project Number

Each project has a unique number consisting of three elements, the asset identification number, system code, and a sequential number assigned by the FCA software. For example, the third fire/life safety project identified for asset 0001 would have a project number of 0001FS03 (0001 for the asset number, FS for fire/life safety, and 03 being the next sequential number for a fire/life safety project).

Project Classifications

- **Plant Adaption**
Nonrecurring expenditures, stored in the Projects module, required to adapt the physical plant to the evolving needs of the institution and to changing codes or standards. These are expenditures beyond normal maintenance. Examples include compliance with changing codes (e.g., accessibility), facility alterations required by changing teaching or research methods, and improvements occasioned by the adoption of modern technology (e.g., the use of personal computer networks).
- **Corrective Action**
Nonrecurring expenditures, stored in the Projects module, for repairs needed to correct random and unpredictable deficiencies. Such projects are not related to aligning a building with codes or standards. Deficiencies classified as Corrective Action could have an effect on building aesthetics, safety, or usability.

Priority Classes

Recurring renewal needs do not receive individual prioritization, as the entire data set of needs in this category is year-based. Each separate component has a distinct need year, rendering further prioritization unnecessary. Each nonrecurring renewal project, however, has a priority assigned to indicate the criticality of the recommended work. The prioritization utilized for this subset of the data is as follows.

- **Priority 1 – High**
Items in this category include:
 - a. correcting a cited safety hazard
 - b. stopping accelerated deterioration
 - c. returning a facility to normal operation
- **Priority 2 – Medium**
Items in this category include:
 - a. repairs to prevent further deterioration
 - b. improvements to facility approach/entry and access to goods and services (DOJ ADA title III, priorities 1 and 2)
 - c. correction of potential safety hazards

- **Priority 3 – Low**

Items in this category include:

- a. improving access to restrooms and other amenities (DOJ ADA title III, priorities 3 and 4)
- b. bringing a facility into compliance with current building codes as grandfather clauses expire
- c. increasing usability following an occupancy or use change
- d. actions that are recommended but not required by code

Project Subclass

Subclass ratings are assigned to accessibility upgrade activities based on the four Department of Justice priority rankings recommended by the Title III regulations for planning readily achievable barrier removal projects. These ratings are:

- DOJ1 Accessible approach and entrance
- DOJ2 Access to goods and services
- DOJ3 Access to restrooms
- DOJ4 Any other necessary measures

Category Codes

CATEGORY CODE*	SYSTEM DESCRIPTION
AC1A – AC4B	ACCESSIBILITY
EL1A – EL8A	ELECTRICAL
ES1A – ES6E	EXTERIOR STRUCTURE
FS1A – FS6A	FIRE/LIFE SAFETY
HE1A – HE7A	HEALTH
HV1A – HV8B	HVAC
IS1A – IS6D	INTERIOR FINISHES/SYSTEMS
PL1A – PL5A	PLUMBING
SI1A – SI4A	SITE
VT1A – VT7A	VERTICAL TRANSPORTATION

<i>Example:</i> Category Code = EL5A	
EL	System Description
5	Component Description
A	Element Description

Priority Sequence

A Priority Sequence number is automatically assigned to each project to rank the projects in order of relative criticality and show the recommended execution order. This number is calculated based on the Priority Class and identified system of each project.

<i>Example</i>			
Priority Class	Category Code	Project Number	Priority Sequence
1	HV2C	0001HV04	01
1	PL1D	0001PL02	02
2	IS1E	0001IS06	03
2	EL4C	0001EL03	04

Drawings

Floor plans for this facility are provided as a reference.

Photographs

A code shown on the Photo Log identifies the asset number, photo sequence, and a letter designation for architect (a) or engineer (e).

<i>Example:</i>	
Photo Number: 0001006e	
0001	Asset Number
006	Photo Sequence
e	Engineering Photo

Sustainability/Energy Analysis

Energy/resource conservation measures (ECMs) are recommendations that will reduce resource consumption or the rate of growth in consumption. Examples include improving the efficiency of an HVAC system (e.g., digital motor speed controls, exhaust energy recovery, retrocommissioning) or directly reducing the consumption of a resource (e.g., low flow plumbing fixtures, high-efficiency lighting, or structural insulation improvement). Where significant conservation opportunities are evident for this facility, ECMs are identified and tabulated in Section 7 as a basis for further viability investigation.

FACILITY CONDITION ASSESSMENT

SECTION 2

**COST SUMMARIES
AND TOTALS**

RENEWAL NEEDS MATRIX

All dollars shown as Present Value

CATEGORY	NONRECURRING PROJECT NEEDS			RECURRING COMPONENT REPLACEMENT NEEDS											
	Immediate	Critical	Noncritical	Deferred Renewal	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	TOTAL
ACCESSIBILITY	0	47,619	0	0	0	0	0	0	0	0	0	0	0	0	\$47,619
EXTERIOR	0	0	0	69,186	157,973	0	0	0	18,057	367,366	0	0	0	0	\$612,582
INTERIOR	0	0	0	330,637	0	0	0	0	0	0	0	467,359	0	50,149	\$848,145
PLUMBING	0	0	0	2,816	0	0	0	5,632	0	0	0	0	0	0	\$8,448
HVAC	0	0	624,545	779,669	21,398	0	0	0	0	0	0	3,333	41,387	186,664	\$1,656,997
FIRE/LIFE SAFETY	0	294,843	0	0	0	113,758	0	0	0	0	0	0	0	0	\$408,600
ELECTRICAL	0	47,083	15,514	0	0	0	406,130	10,120	481,911	0	0	121,078	0	0	\$1,081,835
SITE	0	0	6,215	5,537	0	0	0	0	0	0	5,537	0	0	0	\$17,290
VERT. TRANS.	0	0	0	0	0	0	0	0	64,123	0	0	0	0	0	\$64,123
HEALTH/EQUIP.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0
SUBTOTAL	\$0	\$389,544	\$646,274	\$1,187,845	\$179,371	\$113,758	\$406,130	\$15,752	\$564,090	\$367,366	\$5,537	\$591,769	\$41,387	\$236,813	\$4,745,639
TOTAL NONRECURRING PROJECT NEEDS			\$1,035,818	TOTAL RECURRING COMPONENT REPLACEMENT NEEDS										\$3,709,821	

CURRENT REPLACEMENT VALUE	\$17,344,000
FACILITY CONDITION NEEDS INDEX	0.27
FACILITY CONDITION INDEX	0.07

GSF	TOTAL 10-YEAR FACILITY RENEWAL NEEDS	10-YEAR NEEDS/SF
29,137	\$4,745,639	\$162.87

RENEWAL NEEDS BY SYSTEM

All costs shown as Present Value

CATEGORY	NONRECURRING PROJECT COSTS	RECURRING COMPONENT REPLACEMENT COSTS	TOTAL 10-YEAR FACILITY RENEWAL COSTS
ACCESSIBILITY	\$47,619	\$0	\$47,619
EXTERIOR	\$0	\$612,582	\$612,582
INTERIOR	\$0	\$848,145	\$848,145
PLUMBING	\$0	\$8,448	\$8,448
HVAC	\$624,545	\$1,032,451	\$1,656,997
FIRE/LIFE SAFETY	\$294,843	\$113,758	\$408,600
ELECTRICAL	\$62,596	\$1,019,239	\$1,081,835
SITE	\$6,215	\$11,075	\$17,290
VERT. TRANS	\$0	\$64,123	\$64,123
HEALTH	\$0	\$0	\$0
TOTALS	\$1,035,818	\$3,709,821	\$4,745,639

FACILITIES RENEWAL PLAN
RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI- FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
164 EW03	WALL, EXTERIOR, SIDING, METAL CORRUGATED, V-BEAM, OR RIBBED	PT ON SIDING		EXTERIOR	B2010	Deferred Renewal	27,153
164 DR28	DOOR OPERATOR, POWER-ASSIST			EXTERIOR	B2030	Deferred Renewal	42,034
164 IW14	TOILET PARTITION WITH ACCESSORIES			RESTROOMS	C1010	Deferred Renewal	25,086
164 IW15	URINAL PARTITION WITH ACCESSORIES			RESTROOM	C1010	Deferred Renewal	585
164 DR24	DOOR LOCK, COMMERCIAL-GRADE			FLRS 1-2	C1020	Deferred Renewal	84,264
164 DR26	DOOR PANIC HARDWARE			METAL & GLASS DRS	C1020	Deferred Renewal	5,866
164 DR26	DOOR PANIC HARDWARE			METAL DRS	C1020	Deferred Renewal	13,200
164 CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	LAMINATE		BREAK ROOM	C1030	Deferred Renewal	28,564
164 IW03	WALL FINISH - TILE, CERAMIC / STONE, STANDARD	CERAMIC		RESTROOM	C3010	Deferred Renewal	142,752
164 IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	RAISED VINYL		DATA ROOMS	C3020	Deferred Renewal	9,104
164 IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	VCT		CORRIDORS	C3020	Deferred Renewal	21,216
164 BF02	BACKFLOW PREVENTER (1-2 INCHES)	DOM		MECH 136A	D2020	Deferred Renewal	2,816
164 FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-3	14807	ROOF	D3040	Deferred Renewal	4,627
164 FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-2	14808	ROOF	D3040	Deferred Renewal	4,627
164 FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-1	14809	ROOF	D3040	Deferred Renewal	4,627
164 FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	GH-1	14812	ROOF	D3040	Deferred Renewal	4,627

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI- FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
164 FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-4	14806	ROOF	D3040	Deferred Renewal	4,627
164 FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-7	14810	ROOF	D3040	Deferred Renewal	4,627
164 FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-5	14805	ROOF	D3040	Deferred Renewal	5,743
164 FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-6	14811	ROOF	D3040	Deferred Renewal	5,743
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-12	14777	TELECOM 145	D3050	Deferred Renewal	26,714
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-10	14775	CORRIDOR 130	D3050	Deferred Renewal	29,385
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-14	14782	SERVER 144	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-8	14776	SERVER 140	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-9	14779	SERVER 140	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-2	14772	SERVER 135	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-1	14771	SERVER 135	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-4	14778	UNKN	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-3	14781	UNKN	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-7	14783	UNKN	D3050	Deferred Renewal	32,056

FACILITIES RENEWAL PLAN
RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI- FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-15	14788	SERVER 134	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-19	14789	SERVER 134	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-18	14790	SERVER 134	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-20	14791	SERVER 134	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-17	14792	SERVER 134	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-16	14793	SERVER 134	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-11	14774	UNKN	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-5	14787	UNKN	D3050	Deferred Renewal	32,056
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-13	14780	SERVER 144	D3050	Deferred Renewal	37,399
164 AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-6	14770	TELECOM 145	D3050	Deferred Renewal	53,427
164 AH38	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (>20 TON)	CH-03		SERVER 133	D3050	Deferred Renewal	80,593
164 SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE			PKG LOTS	G2020	Deferred Renewal	5,537
164 RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	FLAT MOD BIT		ROOF	B3010	2023	157,973
164 AH36	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (3-10 TON)	CRAC-21	14794	TELECOM 145	D3050	2023	21,398

FACILITIES RENEWAL PLAN
RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI- FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
164 FA02	FIRE ALARM SYSTEM - DEVICES	HRN, STB, SMK, CO2 SENS, MAN PULL	14799	OFFICES	D4030	2024	113,758
164 LI03	LIGHTING SYSTEM, INTERIOR - DATA CENTER	T-8 FLUOR		SERVER AREAS	D5020	2025	76,426
164 LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	T-8 FLUOR		OFFICES	D5020	2025	329,704
164 BF02	BACKFLOW PREVENTER (1-2 INCHES)	COOLING-1		SOUTH SIDE	D2020	2026	2,816
164 BF02	BACKFLOW PREVENTER (1-2 INCHES)	COOLING-2		SOUTH SIDE	D2020	2026	2,816
164 VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-1 VFD		SERVER 144	D5010	2026	2,530
164 VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-2 VFD		SERVER 144	D5010	2026	2,530
164 VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-3 VFD		MECH 136A	D5010	2026	2,530
164 VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-4 VFD		MECH 136A	D5010	2026	2,530
164 DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	METAL AND GLASS		EXTERIOR	B2030	2027	18,057
164 VT04	ELEVATOR CAB RENOVATION - PASSENGER	EL 1	14818	ELEV 1 CAB	D1010	2027	64,123
164 SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	DP		ELEC 137	D5010	2027	56,085
164 SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	CDP		ELEC 137	D5010	2027	56,085
164 SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	EDP2		ELEC 137	D5010	2027	69,152
164 SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	EDP		ELEC 137	D5010	2027	69,152
164 SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	CDP2		ELEC 137	D5010	2027	69,152

FACILITIES RENEWAL PLAN
RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI- FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
164 SG05	MAIN SWITCHBOARD W/BREAKERS (1200-1600 AMP)	MDP		ELEC 137	D5010	2027	154,861
164 GN15	SWITCH - AUTO TRANSFER, 480 V (100-400 AMP)	ATS-E		ELEC 137	D5090	2027	7,424
164 WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	SINGLE PANE METAL FRAME		EXTERIOR	B2010	2028	367,366
164 SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE			PKG LOTS	G2020	2029	5,537
164 IW01	WALL FINISH - PAINT, STANDARD	PT ON DRYWALL		FLRS 1-2	C3010	2030	158,093
164 IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM		FLRS 1-2	C3020	2030	309,266
164 HU17	DUCTLESS DX SPLIT SYSTEM (<=1 TON)	LG		SOUTH SIDE	D3030	2030	3,333
164 UP02	UNINTERRUPTIBLE POWER SUPPLY - 277/480 VOLTS	UPS-2		ELEC 137	D5090	2030	121,078
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	CARRIER GP-13		ROOF	D3050	2031	20,694
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	CARRIER GP		ROOF	D3050	2031	20,694
164 IF06	FLOORING - TILE, CERAMIC / STONE / QUARRY STANDARD	CERAMIC		RESTROOM	C3020	2032	50,149
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-2		ROOF	D3050	2032	20,694
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-11		ROOF	D3050	2032	20,694
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-4		ROOF	D3050	2032	20,694
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-7		ROOF	D3050	2032	20,694

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI- FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-1		ROOF	D3050	2032	20,694
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-3		ROOF	D3050	2032	15,520
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-6		ROOF	D3050	2032	15,520
164 HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-5		ROOF	D3050	2032	15,520
164 HU31	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (5- 9 TON)	TRANE GP-10		ROOF	D3050	2032	17,521
164 HU31	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (5- 9 TON)	TRANE GP-9		ROOF	D3050	2032	19,114
TOTAL							\$3,709,821

FACILITIES RENEWAL PLAN

NONRECURRING PROJECT COSTS

All costs shown as Present Value

PROJECT NUMBER	PROJECT TITLE	UNI-FORMAT	PRIORITY CLASS	PROJECT CLASSIFICATION	PROJECT COST
164AC01	DRINKING FOUNTAIN ACCESSIBILITY UPGRADE	D2010	2	Plant Adaption	11,511
164AC02	BUILDING ENTRY ACCESSIBILITY UPGRADES	B2030	2	Plant Adaption	27,210
164AC03	STAIR UPGRADES	C2020	2	Plant Adaption	8,898
164EL02	ADD LIGHTNING PROTECTION SYSTEM	D5090	2	Plant Adaption	47,083
164FS01	MODIFY FM 200 FIRE SUPPRESSION SYSTEM	D4090	2	Plant Adaption	219,975
164FS02	ADD ROPE DAVITS TO SUPPORT WORKER FALL PROTECTION	B3010	2	Plant Adaption	72,678
164FS03	ELIMINATE FIRE RATING COMPROMISES	C1010	2	Plant Adaption	2,190
164EL01	REWIRE EMERGENCY POWER NETWORK	D5090	3	Plant Adaption	15,514
164HV01	HVAC SYSTEM DISTRIBUTION REPLACEMENT	D3040	3	Plant Adaption	624,545
164SI01	SITE PAVING RENEWAL	G2040	3	Corrective Action	6,215
TOTAL					\$1,035,818

FACILITY CONDITION ASSESSMENT

SECTION 3

**NONRECURRING
PROJECT DETAILS**

All costs shown as Present Value

MODIFY FM 200 FIRE SUPPRESSION SYSTEM			
Project Number:	164FS01	Category Code:	
Priority Sequence:	1	FS3D	
Priority Class:	Medium	System:	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	Component:	SUPPRESSION
Date Basis:	2/8/2023	Element:	OTHER

Code Application:

NFPA 2001

Subclass/Savings:

Not Applicable

Project Location:

Room Only: Floor(s) 1

Description

The FM 200 fire suppression system in server rooms 131 and 132 is incapable of supporting the space planned as expansion to the server areas. Replacement or adaptation of the existing system is required.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
FM200 or Inergen fire suppression system upgrade	CF	30,000	\$3.56	\$106,800	\$2.36	\$70,800	\$177,600
Base Material/Labor Costs				\$106,800		\$70,800	
Indexed Material/Labor Costs				\$107,548		\$50,480	\$158,028
Construction Mark Up at 20.0%							\$31,606
Original Construction Cost							\$189,634
Date of Original Estimate:	2/8/2023					Inflation	\$0
Current Year Construction Cost							\$189,634
Professional Fees at 16.0%							\$30,341
TOTAL PROJECT COST							\$219,975

All costs shown as Present Value

ADD ROPE DAVITS TO SUPPORT WORKER FALL PROTECTION			
Project Number:	164FS02	Category Code:	
Priority Sequence:	2	FS6A	
Priority Class:	Medium	System:	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	Component:	GENERAL
Date Basis:	3/6/2023	Element:	OTHER

Code Application:	Subclass/Savings:	Project Location:
Not Applicable	Not Applicable	Floor-wide: Floor(s) R

Description

Fall protection is required for roofing installations to protect the welfare of workers on roofing systems located over six feet above grade. The installation of hard looped tie-off points is recommended at intervals throughout the roof to support workers associated lifelines and harness personal protective equipment.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Allocation to install metal rope davits to support PPE equipment on roof	EA	62	\$391	\$24,267	\$628	\$38,955	\$63,221
Base Material/Labor Costs				\$24,267		\$38,955	
Indexed Material/Labor Costs				\$24,437		\$27,775	\$52,211
Construction Mark Up at 20.0%							\$10,442
Original Construction Cost							\$62,654
Date of Original Estimate:	3/6/2023					Inflation	\$0
Current Year Construction Cost							\$62,654
Professional Fees at 16.0%							\$10,025
TOTAL PROJECT COST							\$72,678

All costs shown as Present Value

ELIMINATE FIRE RATING COMPROMISES			
Project Number:	164FS03	Category Code:	
Priority Sequence:	3	FS5C	
Priority Class:	Medium	System:	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	Component:	EGRESS PATH
Date Basis:	3/23/2023	Element:	SEPARATION RATING

Code Application:		Subclass/Savings:	Project Location:
IBC	711.3	Not Applicable	Room Only: Floor(s) 1,2

Description

Structural fire separations are not maintained according to code requirements for new construction in select areas of this facility. These areas include data and telecom rooms. Although only these instances were noted, other fire separation compromises may exist elsewhere in this building. It is recommended that the entire building be surveyed for similar problem areas, especially in conditions and spaces that are similar to those that were observed. Intumescent passive firestopping and some minor structural separation repairs should be accomplished promptly.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Minor passive fire stopping efforts	LOT	1	\$500	\$500	\$1,500	\$1,500	\$2,000
Base Material/Labor Costs				\$500		\$1,500	
Indexed Material/Labor Costs				\$504		\$1,070	\$1,573
Construction Mark Up at 20.0%							\$315
Original Construction Cost							\$1,888
Date of Original Estimate:	3/23/2023					Inflation	\$0
Current Year Construction Cost							\$1,888
Professional Fees at 16.0%							\$302
TOTAL PROJECT COST							\$2,190

All costs shown as Present Value

DRINKING FOUNTAIN ACCESSIBILITY UPGRADE			
Project Number:	164AC01	Category Code:	
Priority Sequence:	4	AC3F	
Priority Class:	Medium	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	INTERIOR PATH OF TRAVEL
Date Basis:	3/4/2023	Element:	DRINKING FOUNTAINS

Code Application:

Subclass/Savings:

Project Location:

ADAAG

211, 602

DOJ2 - Access to Goods & Services

Item Only: Floor(s) 2

Description

The single-level drinking fountain on the second floor, should be replaced with a dual-level unit set in and alcove or with a tapered lower cabinet design.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Dual-level drinking fountain	EA	1	\$1,995	\$1,995	\$613	\$613	\$2,608
Alcove construction for drinking fountain	EA	1	\$1,438	\$1,438	\$6,137	\$6,137	\$7,575
Base Material/Labor Costs				\$3,432		\$6,750	
Indexed Material/Labor Costs				\$3,456		\$4,813	\$8,269
Construction Mark Up at 20.0%							\$1,654
Original Construction Cost							\$9,923
Date of Original Estimate:	3/4/2023		Inflation			\$0	
Current Year Construction Cost							\$9,923
Professional Fees at 16.0%							\$1,588
TOTAL PROJECT COST							\$11,511

All costs shown as Present Value

BUILDING ENTRY ACCESSIBILITY UPGRADES			
Project Number:	164AC02	Category Code:	
Priority Sequence:	5	AC2A	
Priority Class:	Medium	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	BUILDING ENTRY
Date Basis:	3/4/2023	Element:	GENERAL

Code Application:

Subclass/Savings:

Project Location:

ADAAG

403.6, 505

DOJ1 - Approach & Entrance

Building-wide: Floor(s) 1

Description

Current accessibility legislation requires that building entrances be wheelchair accessible. To comply with the intent of this legislation, it is recommended that compliant painted metal handrails be installed at all entrances as required.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Freestanding handrails	LF	60	\$149	\$8,965	\$246	\$14,754	\$23,719
Base Material/Labor Costs				\$8,965		\$14,754	
Indexed Material/Labor Costs				\$9,028		\$10,520	\$19,548
Construction Mark Up at 20.0%							\$3,910
Original Construction Cost							\$23,457
Date of Original Estimate:	3/4/2023					Inflation	\$0
Current Year Construction Cost							\$23,457
Professional Fees at 16.0%							\$3,753
TOTAL PROJECT COST							\$27,210

All costs shown as Present Value

STAIR UPGRADES			
Project Number:	164AC03	Category Code:	
Priority Sequence:	6	AC3B	
Priority Class:	Medium	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	INTERIOR PATH OF TRAVEL
Date Basis:	3/5/2023	Element:	STAIRS AND RAILINGS

Code Application:

ADAAG 505

Subclass/Savings:

DOJ2 - Access to Goods & Services

Project Location:

Floor-wide: Floor(s) 1

Description

The stairs are deficient in handrail and guardrail design relative to current standards. Future renovation efforts should include comprehensive stair railing upgrades.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Guardrail system	FLR	1	\$2,128	\$2,128	\$1,336	\$1,336	\$3,464
Stair treads and landings upgrade	FLR	1	\$2,377	\$2,377	\$1,267	\$1,267	\$3,644
Base Material/Labor Costs				\$4,505		\$2,603	
Indexed Material/Labor Costs				\$4,536		\$1,856	\$6,392
Construction Mark Up at 20.0%							\$1,278
Original Construction Cost							\$7,671
Date of Original Estimate:	3/5/2023		Inflation			\$0	
Current Year Construction Cost							\$7,671
Professional Fees at 16.0%							\$1,227
TOTAL PROJECT COST							\$8,898

All costs shown as Present Value

ADD LIGHTNING PROTECTION SYSTEM			
Project Number:	164EL02	Category Code:	
Priority Sequence:	7	EL4E	
Priority Class:	Medium	System:	ELECTRICAL
Project Class:	Plant Adaption	Component:	DEVICES AND FIXTURES
Date Basis:	3/6/2023	Element:	LIGHTNING PROTECTION

Code Application:

NFPA 70, 780

Subclass/Savings:

Not Applicable

Project Location:

Floor-wide: Floor(s) R

Description

This facility would benefit from the addition of lightning protection. Install an appropriately designed system that protects the structure and rooftop structure and equipment.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Cable, connectors, air terminals, grounding rods, specialty fasteners, etc.	SF	28,500	\$0.69	\$19,665	\$0.69	\$19,665	\$39,330
Base Material/Labor Costs				\$19,665		\$19,665	
Indexed Material/Labor Costs				\$19,803		\$14,021	\$33,824
Construction Mark Up at 20.0%							\$6,765
Original Construction Cost							\$40,589
Date of Original Estimate:	3/6/2023					Inflation	\$0
Current Year Construction Cost							\$40,589
Professional Fees at 16.0%							\$6,494
TOTAL PROJECT COST							\$47,083

All costs shown as Present Value

HVAC SYSTEM DISTRIBUTION REPLACEMENT			
Project Number:	164HV01	Category Code:	
Priority Sequence:	8	HV3A	
Priority Class:	Low	System:	HVAC
Project Class:	Plant Adaption	Component:	HEATING/COOLING
Date Basis:	2/8/2023	Element:	SYSTEM RETROFIT/REPLACE

Code Application:

Not Applicable

Subclass/Savings:

Not Applicable

Project Location:

Undefined: Floor(s) 1

Description

The HVAC distribution system has been infiltrated to an unknown extent with mildew and possibly mold. The network at the second floor has been cleaned and repaired but the first floor distribution network is difficult to access. Replacement is recommended.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
HVAC distribution network installation to include ductwork, controls, air distribution specialties, etc.	SF	20,000	\$11.94	\$238,800	\$14.60	\$292,000	\$530,800
Base Material/Labor Costs				\$238,800		\$292,000	
Indexed Material/Labor Costs				\$240,472		\$208,196	\$448,668
Construction Mark Up at 20.0%							\$89,734
Original Construction Cost							\$538,401
Date of Original Estimate:	2/8/2023		Inflation				\$0
Current Year Construction Cost							\$538,401
Professional Fees at 16.0%							\$86,144
TOTAL PROJECT COST							\$624,545

All costs shown as Present Value

REWIRE EMERGENCY POWER NETWORK			
Project Number:	164EL01	Category Code:	
Priority Sequence:	9	EL5A	
Priority Class:	Low	System:	ELECTRICAL
Project Class:	Plant Adaption	Component:	EMERGENCY POWER SYSTEM
Date Basis:	2/8/2023	Element:	GENERATION/DISTRIBUTION

Code Application:

Not Applicable

Subclass/Savings:

Not Applicable

Project Location:

Undefined: Floor(s) 1

Description

The building is equipped with adequate emergency power generation (generators) and UPSs. However, the current configuration does not allow for adequate redundant coverage for all servers. It is recommended that the current power plan be analyzed and modified to provide full redundancy of the emergency power network.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Emergency power network to include power panels, conduit, all connections, and terminations	SF	15,500	\$0.36	\$5,580	\$0.50	\$7,750	\$13,330
Base Material/Labor Costs				\$5,580		\$7,750	
Indexed Material/Labor Costs				\$5,619		\$5,526	\$11,145
Construction Mark Up at 20.0%							\$2,229
Original Construction Cost							\$13,374
Date of Original Estimate:	2/8/2023		Inflation				\$0
Current Year Construction Cost							\$13,374
Professional Fees at 16.0%							\$2,140
TOTAL PROJECT COST							\$15,514

All costs shown as Present Value

SITE PAVING RENEWAL			
Project Number:	164SI01	Category Code:	
Priority Sequence:	10	SI4A	
Priority Class:	Low	System:	SITE
Project Class:	Corrective Action	Component:	GENERAL
Date Basis:	3/6/2023	Element:	OTHER

Code Application:

Not Applicable

Subclass/Savings:

Not Applicable

Project Location:

Undefined: Floor(s) 1

Description

The pedestrian paving systems are in fair to poor condition in various areas and should be crack filled.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Repair cracks and seal paved concrete surfaces	LF	155	\$10.77	\$1,669	\$25.19	\$3,904	\$5,574
Base Material/Labor Costs				\$1,669		\$3,904	
Indexed Material/Labor Costs				\$1,681		\$2,784	\$4,465
Construction Mark Up at 20.0%							\$893
Original Construction Cost							\$5,358
Date of Original Estimate:	3/6/2023					Inflation	\$0
Current Year Construction Cost							\$5,358
Professional Fees at 16.0%							\$857
TOTAL PROJECT COST							\$6,215

FACILITY CONDITION ASSESSMENT

SECTION 4

LIFECYCLE COMPONENT
INVENTORY

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
EW03	WALL, EXTERIOR, SIDING, METAL CORRUGATED, V-BEAM, OR RIBBED	PT ON SIDING		EXTERIOR	1,600	SF	1.12	\$27,153	1980	30	12	DR
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	SINGLE PANE METAL FRAME		EXTERIOR	1,780	SF	1.12	\$367,366	1988	40		2028
DR08	DOOR AND FRAME, EXTERIOR, SWINGING, HOLLOW METAL	PT ON METAL		EXTERIOR	9	LEAF	1.00	\$22,004	2002	40		2042
DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	METAL AND GLASS		EXTERIOR	4	LEAF	1.00	\$18,057	2002	25		2027
DR28	DOOR OPERATOR, POWER-ASSIST			EXTERIOR	4	EA	1.00	\$42,034	2002	20		DR
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	FLAT MOD BIT		ROOF	15,400	SF	1.26	\$157,973	2003	20		2023
RR10	ROOF - PANEL, ALUMINUM OR GALVANIZED, STANDING SEAM	PT ON METAL		ROOF	1,160	SF	1.35	\$37,236	2003	40		2043
IW14	TOILET PARTITION WITH ACCESSORIES			RESTROOMS	8	SYS	1.00	\$25,086	2002	20		DR
IW15	URINAL PARTITION WITH ACCESSORIES			RESTROOM	1	EA	1.00	\$585	2002	20		DR
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED	PT ON WOOD		FLRS 1-2	94	LEAF	1.00	\$423,072	2002	40		2042
DR24	DOOR LOCK, COMMERCIAL-GRADE			FLRS 1-2	94	EA	1.00	\$84,264	2002	20		DR
DR26	DOOR PANIC HARDWARE			METAL DRS	9	EA	1.00	\$13,200	2002	20		DR
DR26	DOOR PANIC HARDWARE			METAL & GLASS DRS	4	EA	1.00	\$5,866	2002	20		DR
CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	LAMINATE		BREAK ROOM	44	LF	1.00	\$28,564	2002	20		DR
IW01	WALL FINISH - PAINT, STANDARD	PT ON DRYWALL		FLRS 1-2	58,680	SF	1.00	\$158,093	2018	12		2030

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTR DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
IW03	WALL FINISH - TILE, CERAMIC / STONE, STANDARD	CERAMIC		RESTROOM	3,090	SF	1.00	\$142,752	1988	30	4	DR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM		FLRS 1-2	20,980	SF	1.00	\$309,266	2018	12		2030
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	VCT		CORRIDORS	2,750	SF	1.00	\$21,216	2002	20		DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	RAISED VINYL		DATA ROOMS	1,180	SF	1.00	\$9,104	2002	20		DR
IF06	FLOORING - TILE, CERAMIC / STONE / QUARRY STANDARD	CERAMIC		RESTROOM	1,310	SF	1.00	\$50,149	2002	30		2032
IC01	CEILING FINISH - SUSPENDED ACOUSTICAL TILE, STANDARD	2X2 GRID		FLRS 1-2	23,600	SF	1.00	\$286,710	2018	30		2048
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PT ON DRYWALL		FLRS 1-2	2,620	SF	1.00	\$7,059	2018	24		2042
VT03	ELEVATOR MODERNIZATION - HYDRAULIC	EL 1	14818	ELEV 219	1	EA	1.00	\$363,640	2002	25	6	2033
VT03	ELEVATOR MODERNIZATION - HYDRAULIC	LOAD DOCK LIFT	14819	EAST SIDE LOAD DOCK	1	EA	0.10	\$36,364	2002	25	6	2033
VT04	ELEVATOR CAB RENOVATION - PASSENGER	EL 1	14818	ELEV 1 CAB	1	EA	1.00	\$64,123	2002	12	13	2027
FX01	PLUMBING FIXTURE - LAVATORY, COUNTER	LAMINATE		RESTROOM	6	EA	1.00	\$9,520	2002	35		2037
FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	PC		RESTROOM	2	EA	1.00	\$3,203	2002	35		2037
FX04	PLUMBING FIXTURE - SINK, KITCHEN	SST		BREAK RM	2	EA	1.00	\$5,200	2002	35		2037
FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	COMPOSITE		JAN CLOSET	2	EA	1.00	\$4,316	2002	35		2037
FX10	PLUMBING FIXTURE - URINAL	PC WALL MOUNT		RESTROOM	2	EA	1.00	\$5,099	2002	35		2037

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	PC LOW FLOW		RESTROOM	12	EA	1.00	\$28,148	2002	35		2037
BF02	BACKFLOW PREVENTER (1-2 INCHES)	DOM		MECH 136A	1	EA	1.00	\$2,816	2009	10	3	DR
BF02	BACKFLOW PREVENTER (1-2 INCHES)	COOLING-1		SOUTH SIDE	1	EA	1.00	\$2,816	2016	10		2026
BF02	BACKFLOW PREVENTER (1-2 INCHES)	COOLING-2		SOUTH SIDE	1	EA	1.00	\$2,816	2016	10		2026
PS14	SUPPLY PIPING SYSTEM - OFFICE	COPPER		THROUGHOUT	29,137	SF	0.97	\$119,587	2002	35		2037
WH12	WATER HEATER - COMMERCIAL, ELECTRIC (30-70 GAL)	DHW		JAN 118	40	GAL	1.00	\$11,709	2014	20		2034
PD14	DRAIN PIPING SYSTEM - OFFICE	CAST IRON		THROUGHOUT	29,137	SF	0.97	\$179,914	2002	40		2042
CH15	CHILLER - SPLIT RECIPROCATING OR SCROLL (75-150 TONS)	TRANE SCROLL CH-1	14800	NORTH SIDE	80	TON	1.00	\$123,283	2018	30		2048
CH15	CHILLER - SPLIT RECIPROCATING OR SCROLL (75-150 TONS)	TRANE SCROLL CH-2	14801	NORTH SIDE	80	TON	1.00	\$123,283	2018	30		2048
HU01	CONDENSER - REFRIGERANT, AIR-COOLED (<=10 TON)	TRANE XR		EAST SIDE	3	TON	0.80	\$6,196	2017	23		2040
HU01	CONDENSER - REFRIGERANT, AIR-COOLED (<=10 TON)	ICP CU-2	14785	SOUTH SIDE	10	TON	0.80	\$20,654	2012	23		2035
HU01	CONDENSER - REFRIGERANT, AIR-COOLED (<=10 TON)	ICP CU-1	14786	SOUTH SIDE	10	TON	0.80	\$20,654	2012	23		2035
HU09	EVAPORATOR UNIT, NO HEAT (>3 TON)	AC-1	14797	ELEC 137	10	TON	0.80	\$14,062	2009	20	4	2033
HU09	EVAPORATOR UNIT, NO HEAT (>3 TON)	AC-2	14798	ELEC 137	10	TON	0.80	\$14,062	2009	20	4	2033
HU11	EVAPORATOR UNIT, ELECTRIC HEAT (5-7.5 KW)	AH-1	14796	MECH 136A	7.50	KW	0.80	\$2,575	2017	20	6	2043

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTR DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
HU17	DUCTLESS DX SPLIT SYSTEM (<=1 TON)	mitsubishi	14784	NORTH SIDE	1	TON	1.00	\$3,333	2012	23		2035
HU17	DUCTLESS DX SPLIT SYSTEM (<=1 TON)	LG		SOUTH SIDE	1	TON	1.00	\$3,333	2007	23		2030
HU18	DUCTLESS DX SPLIT SYSTEM (1-2 TON)	DURASTAR		NORTH SIDE	1.50	TON	1.00	\$4,237	2021	23		2044
HU19	DUCTLESS DX SPLIT SYSTEM (>2 TON)	mitsubishi		NORTH SIDE	3	TON	1.00	\$5,170	2012	23		2035
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-3	14807	ROOF	1	EA	0.60	\$4,627	2002	20		DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-2	14808	ROOF	1	EA	0.60	\$4,627	2002	20		DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-1	14809	ROOF	1	EA	0.60	\$4,627	2002	20		DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	GH-1	14812	ROOF	1	EA	0.60	\$4,627	2002	20		DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-4	14806	ROOF	1	EA	0.60	\$4,627	2002	20		DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-7	14810	ROOF	1	EA	0.60	\$4,627	2002	20		DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-5	14805	ROOF	1	EA	0.60	\$5,743	2002	20		DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-6	14811	ROOF	1	EA	0.60	\$5,743	2002	20		DR
HV14	HVAC DISTRIBUTION NETWORKS - OFFICE	INT INS METAL DUCT		SECOND FLOOR	9,137	SF	0.97	\$276,831	2002	40		2042
PH01	PUMP - ELECTRIC (<=10 HP)	CHW P-3	14840	MECH 136A	3	HP	1.00	\$5,942	2009	25		2034
PH01	PUMP - ELECTRIC (<=10 HP)	CHW P-4	14839	MECH 136A	3	HP	1.00	\$5,942	2009	25		2034

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
PH01	PUMP - ELECTRIC (<=10 HP)	CHW P-1	14837	NORTH SIDE	3	HP	1.00	\$5,942	2009	25		2034
PH01	PUMP - ELECTRIC (<=10 HP)	CHW P-2	14838	NORTH SIDE	3	HP	1.00	\$5,942	2009	25		2034
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-6	14770	TELECOM 145	10	TON	0.32	\$53,427	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-12	14777	TELECOM 145	5	TON	0.32	\$26,714	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-13	14780	SERVER 144	7	TON	0.32	\$37,399	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-14	14782	SERVER 144	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-8	14776	SERVER 140	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-9	14779	SERVER 140	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-11	14774	UNKN	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-5	14787	UNKN	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-15	14788	SERVER 134	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-19	14789	SERVER 134	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-18	14790	SERVER 134	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-20	14791	SERVER 134	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-17	14792	SERVER 134	6	TON	0.32	\$32,056	2002	15	5	DR

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-16	14793	SERVER 134	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-10	14775	CORRIDOR 130	5.50	TON	0.32	\$29,385	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-2	14772	SERVER 135	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-1	14771	SERVER 135	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-4	14778	UNKN	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-3	14781	UNKN	6	TON	0.32	\$32,056	2002	15	5	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-7	14783	UNKN	6	TON	0.32	\$32,056	2002	15	5	DR
AH36	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (3-10 TON)	CRAC-21	14794	TELECOM 145	5	TON	0.32	\$21,398	2008	15		2023
AH36	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (3-10 TON)	CRV-3		SERVER 133	10	TON	0.32	\$42,796	2018	15		2033
AH36	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (3-10 TON)	CRV-2		SERVER 133	10	TON	0.32	\$42,796	2018	15		2033
AH36	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (3-10 TON)	CRV-1		SERVER 133	15	TON	0.32	\$64,194	2018	15		2033
AH38	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (>20 TON)	CH-03		SERVER 133	46	TON	0.32	\$80,593	2002	15	5	DR
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-2		ROOF	4	TON	1.00	\$20,694	2017	15		2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-11		ROOF	4	TON	1.00	\$20,694	2017	15		2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-4		ROOF	4	TON	1.00	\$20,694	2017	15		2032

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-12		ROOF	5	TON	1.00	\$25,867	2022	15		2037
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-3		ROOF	3	TON	1.00	\$15,520	2017	15		2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	CARRIER GP-13		ROOF	4	TON	1.00	\$20,694	2016	15		2031
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-6		ROOF	3	TON	1.00	\$15,520	2017	15		2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	CARRIER GP		ROOF	4	TON	1.00	\$20,694	2016	15		2031
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-7		ROOF	4	TON	1.00	\$20,694	2017	15		2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-1		ROOF	4	TON	1.00	\$20,694	2017	15		2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-5		ROOF	3	TON	1.00	\$15,520	2017	15		2032
HU31	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (5- 9 TON)	TRANE GP-9		ROOF	6	TON	1.00	\$19,114	2017	15		2032
HU31	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (5- 9 TON)	TRANE GP-10		ROOF	5.50	TON	1.00	\$17,521	2017	15		2032
BA03	HVAC CONTROLS - TERMINAL ASSEMBLIES - DATA CENTER	TRANE DDC		SERVER AREAS	5,500	SF	1.00	\$29,866	2016	20		2036
BA14	HVAC CONTROLS - TERMINAL ASSEMBLIES - OFFICE	DIGITAL THERMOSTATS		OFFICES	29,137	SF	0.15	\$13,349	2002	20	13	2035
FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	NOTIFIER-MAIN FACP	14799	ELEC 137	1	EA	0.55	\$25,062	2016	15	2	2033
FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	KIDDE FENWAL FM 200		ELEC 137	1	EA	0.15	\$6,835	2016	15	2	2033
FA02	FIRE ALARM SYSTEM - DEVICES	HRN, STB, SMK, CO2 SENS, MAN PULL	14799	OFFICES	23,637	SF	0.98	\$113,758	2002	18	4	2024

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
FA02	FIRE ALARM SYSTEM - DEVICES	MAN PULL, EMERG STOPS, HRN, STRB		SERVER AREAS	5,500	SF	1.13	\$30,521	2009	18	6	2033
FS02	FM200 OR INERGEN FIRE SUPPRESSION	FM 200	14846	SERVER AREAS 136	42,000	CF	1.00	\$307,585	2009	25		2034
FS02	FM200 OR INERGEN FIRE SUPPRESSION	FM 200	14846	SERVER AREAS 136A	24,000	CF	1.00	\$175,763	2009	25		2034
SE03	ELECTRICAL DISTRIBUTION NETWORK - DATA CENTER	120/208, 277/480 3 PH Y DELTA		THROUGHOUT	2,500	SF	1.18	\$89,268	2016	40		2056
SE14	ELECTRICAL DISTRIBUTION NETWORK - OFFICE	120/208, 277/480 3 PH Y DELTA		OFFICES	26,637	SF	0.97	\$610,594	2002	40		2042
SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	DP		ELEC 137	600	AMP	1.00	\$56,085	2002	20	5	2027
SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	CDP		ELEC 137	600	AMP	1.00	\$56,085	2002	20	5	2027
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	EDP2		ELEC 137	800	AMP	1.00	\$69,152	2002	20	5	2027
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	EDP		ELEC 137	800	AMP	1.00	\$69,152	2002	20	5	2027
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	CDP2		ELEC 137	800	AMP	1.00	\$69,152	2002	20	5	2027
SG05	MAIN SWITCHBOARD W/BREAKERS (1200-1600 AMP)	MDP		ELEC 137	1,600	AMP	1.00	\$154,861	2002	20	5	2027
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-1 VFD		SERVER 144	3	HP	1.00	\$2,530	2011	12	3	2026
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-2 VFD		SERVER 144	3	HP	1.00	\$2,530	2011	12	3	2026
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-3 VFD		MECH 136A	3	HP	1.00	\$2,530	2011	12	3	2026
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-4 VFD		MECH 136A	3	HP	1.00	\$2,530	2011	12	3	2026

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
LE06	LIGHTING - EXTERIOR, STANCHION LUMINAIRE, 30-FOOT	20 FOOT AERIALS WITH LED		SOUTH SIDE	4	EA	1.00	\$27,440	2020	15		2035
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	LED WALL PACKS		ALL ELEVATIONS	17	EA	1.00	\$20,228	2020	15		2035
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	HID WALL PACK		SOUTH ELEVATION	1	EA	1.00	\$1,190	2009	15	9	2033
LI03	LIGHTING SYSTEM, INTERIOR - DATA CENTER	T-8 FLUOR		SERVER AREAS	5,500	SF	1.13	\$76,426	2005	20		2025
LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	T-8 FLUOR		OFFICES	23,637	SF	0.98	\$329,704	2005	20		2025
GN05	GENERATOR - DIESEL (>500 KW)	GEN-2 DETROIT DIESEL	14820	EAST SIDE	515	KW	1.00	\$374,042	2009	25		2034
GN05	GENERATOR - DIESEL (>500 KW)	GEN-1 DETROIT DIESEL	14821	EAST SIDE	505	KW	1.00	\$366,779	2002	25	6	2033
GN15	SWITCH - AUTO TRANSFER, 480 V (100-400 AMP)	ATS-E		ELEC 137	150	AMP	1.00	\$7,424	2002	25		2027
GN16	SWITCH - AUTO TRANSFER, 480 V (>400 AMP)	ATS-C		ELEC 137	800	AMP	1.00	\$27,908	2002	25	6	2033
GN16	SWITCH - AUTO TRANSFER, 480 V (>400 AMP)	ATS-B		ELEC 137	800	AMP	1.00	\$27,908	2009	25		2034
UP02	UNINTERRUPTIBLE POWER SUPPLY - 277/480 VOLTS	UPS-1		SERVER 133	1	EA	1.00	\$121,078	2021	15		2036
UP02	UNINTERRUPTIBLE POWER SUPPLY - 277/480 VOLTS	UPS-2		ELEC 137	1	EA	1.00	\$121,078	2015	15		2030
SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE			PKG LOTS	1,273	SY	1.00	\$5,537	2002	7	13	DR
TK09	FUEL OIL DAY TANK (101-150 GAL)	EMERGENCY GENERATOR #2 DAY TANK		EAST SIDE	1	EA	1.00	\$4,735	2009	25		2034
TK09	FUEL OIL DAY TANK (101-150 GAL)	GENERATOR #1 DAY TANK		EAST SIDE	1	EA	1.00	\$4,735	2002	25	6	2033

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR	
Grand Total:								\$8,325,712					

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

DEFERRED RENEWAL									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
EW03	WALL, EXTERIOR, SIDING, METAL CORRUGATED, V-BEAM, OR RIBBED	PT ON SIDING		EXTERIOR	B2010	1,600	SF	\$27,153	DR
DR28	DOOR OPERATOR, POWER-ASSIST			EXTERIOR	B2030	4	EA	\$42,034	DR
IW14	TOILET PARTITION WITH ACCESSORIES			RESTROOMS	C1010	8	SYS	\$25,086	DR
IW15	URINAL PARTITION WITH ACCESSORIES			RESTROOM	C1010	1	EA	\$585	DR
DR26	DOOR PANIC HARDWARE			METAL & GLASS DRS	C1020	4	EA	\$5,866	DR
DR26	DOOR PANIC HARDWARE			METAL DRS	C1020	9	EA	\$13,200	DR
DR24	DOOR LOCK, COMMERCIAL-GRADE			FLRS 1-2	C1020	94	EA	\$84,264	DR
CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	LAMINATE		BREAK ROOM	C1030	44	LF	\$28,564	DR
IW03	WALL FINISH - TILE, CERAMIC / STONE, STANDARD	CERAMIC		RESTROOM	C3010	3,090	SF	\$142,752	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	VCT		CORRIDORS	C3020	2,750	SF	\$21,216	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	RAISED VINYL		DATA ROOMS	C3020	1,180	SF	\$9,104	DR
BF02	BACKFLOW PREVENTER (1-2 INCHES)	DOM		MECH 136A	D2020	1	EA	\$2,816	DR

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-3	14807	ROOF	D3040	1	EA	\$4,627	DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-2	14808	ROOF	D3040	1	EA	\$4,627	DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-1	14809	ROOF	D3040	1	EA	\$4,627	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-5	14805	ROOF	D3040	1	EA	\$5,743	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-6	14811	ROOF	D3040	1	EA	\$5,743	DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	GH-1	14812	ROOF	D3040	1	EA	\$4,627	DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-4	14806	ROOF	D3040	1	EA	\$4,627	DR
FN19	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (20"-22" DIAMETER)	EF-7	14810	ROOF	D3040	1	EA	\$4,627	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-6	14770	TELECOM 145	D3050	10	TON	\$53,427	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-12	14777	TELECOM 145	D3050	5	TON	\$26,714	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-13	14780	SERVER 144	D3050	7	TON	\$37,399	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-14	14782	SERVER 144	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-8	14776	SERVER 140	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-9	14779	SERVER 140	D3050	6	TON	\$32,056	DR

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-10	14775	CORRIDOR 130	D3050	5.50	TON	\$29,385	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-2	14772	SERVER 135	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-1	14771	SERVER 135	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-4	14778	UNKN	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-3	14781	UNKN	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-7	14783	UNKN	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-15	14788	SERVER 134	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-19	14789	SERVER 134	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-18	14790	SERVER 134	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-20	14791	SERVER 134	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-17	14792	SERVER 134	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-16	14793	SERVER 134	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-11	14774	UNKN	D3050	6	TON	\$32,056	DR
AH34	COMPUTER ROOM AC UNIT - GLYCOL, EXCL. HEAT REJECTION	CR-5	14787	UNKN	D3050	6	TON	\$32,056	DR

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

AH38	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (>20 TON)	CH-03		SERVER 133	D3050	46	TON	\$80,593	DR
SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE			PKG LOTS	G2020	1,273	SY	\$5,537	DR
TOTAL DEFERRED RENEWAL COST								\$1,187,845	

2023									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	FLAT MOD BIT		ROOF	B3010	15,400	SF	\$157,973	2023
AH36	COMPUTER ROOM AC UNIT - REFRIGERANT, EXCL. HEAT REJECTION (3-10 TON)	CRAC-21	14794	TELECOM 145	D3050	5	TON	\$21,398	2023
2023 PROJECTED COMPONENT REPLACEMENT COST								\$179,371	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2024									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
FA02	FIRE ALARM SYSTEM - DEVICES	HRN, STB, SMK, C02 SENS, MAN PULL	14799	OFFICES	D4030	23,637	SF	\$117,170	2024
2024 PROJECTED COMPONENT REPLACEMENT COST								\$117,170	

2025									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	T-8 FLUOR		OFFICES	D5020	23,637	SF	\$349,783	2025
LI03	LIGHTING SYSTEM, INTERIOR - DATA CENTER	T-8 FLUOR		SERVER AREAS	D5020	5,500	SF	\$81,080	2025
2025 PROJECTED COMPONENT REPLACEMENT COST								\$430,864	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2026									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
BF02	BACKFLOW PREVENTER (1-2 INCHES)	COOLING-1		SOUTH SIDE	D2020	1	EA	\$3,077	2026
BF02	BACKFLOW PREVENTER (1-2 INCHES)	COOLING-2		SOUTH SIDE	D2020	1	EA	\$3,077	2026
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-1 VFD		SERVER 144	D5010	3	HP	\$2,765	2026
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-2 VFD		SERVER 144	D5010	3	HP	\$2,765	2026
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-3 VFD		MECH 136A	D5010	3	HP	\$2,765	2026
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	WEG CHWP-4 VFD		MECH 136A	D5010	3	HP	\$2,765	2026
2026 PROJECTED COMPONENT REPLACEMENT COST								\$17,213	

2027									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	METAL AND GLASS		EXTERIOR	B2030	4	LEAF	\$20,323	2027

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

VT04	ELEVATOR CAB RENOVATION - PASSENGER	EL 1	14818	ELEV 1 CAB	D1010	1	EA	\$72,171	2027
SG05	MAIN SWITCHBOARD W/BREAKERS (1200-1600 AMP)	MDP		ELEC 137	D5010	1,600	AMP	\$174,298	2027
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	EDP2		ELEC 137	D5010	800	AMP	\$77,831	2027
SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	DP		ELEC 137	D5010	600	AMP	\$63,124	2027
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	EDP		ELEC 137	D5010	800	AMP	\$77,831	2027
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	CDP2		ELEC 137	D5010	800	AMP	\$77,831	2027
SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	CDP		ELEC 137	D5010	600	AMP	\$63,124	2027
GN15	SWITCH - AUTO TRANSFER, 480 V (100-400 AMP)	ATS-E		ELEC 137	D5090	150	AMP	\$8,356	2027
2027 PROJECTED COMPONENT REPLACEMENT COST								\$634,889	

2028									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	SINGLE PANE METAL FRAME		EXTERIOR	B2010	1,780	SF	\$425,878	2028
2028 PROJECTED COMPONENT REPLACEMENT COST								\$425,878	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

No Projected Component Replacement Cost for Asset No. 164 for 2029

2030									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IW01	WALL FINISH - PAINT, STANDARD	PT ON DRYWALL		FLRS 1-2	C3010	58,680	SF	\$194,435	2030
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM		FLRS 1-2	C3020	20,980	SF	\$380,358	2030
HU17	DUCTLESS DX SPLIT SYSTEM (<=1 TON)	LG		SOUTH SIDE	D3030	1	TON	\$4,099	2030
UP02	UNINTERRUPTIBLE POWER SUPPLY - 277/480 VOLTS	UPS-2		ELEC 137	D5090	1	EA	\$148,910	2030
2030 PROJECTED COMPONENT REPLACEMENT COST								\$727,802	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2031									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	CARRIER GP-13		ROOF	D3050	4	TON	\$26,214	2031
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	CARRIER GP		ROOF	D3050	4	TON	\$26,214	2031
2031 PROJECTED COMPONENT REPLACEMENT COST								\$52,428	

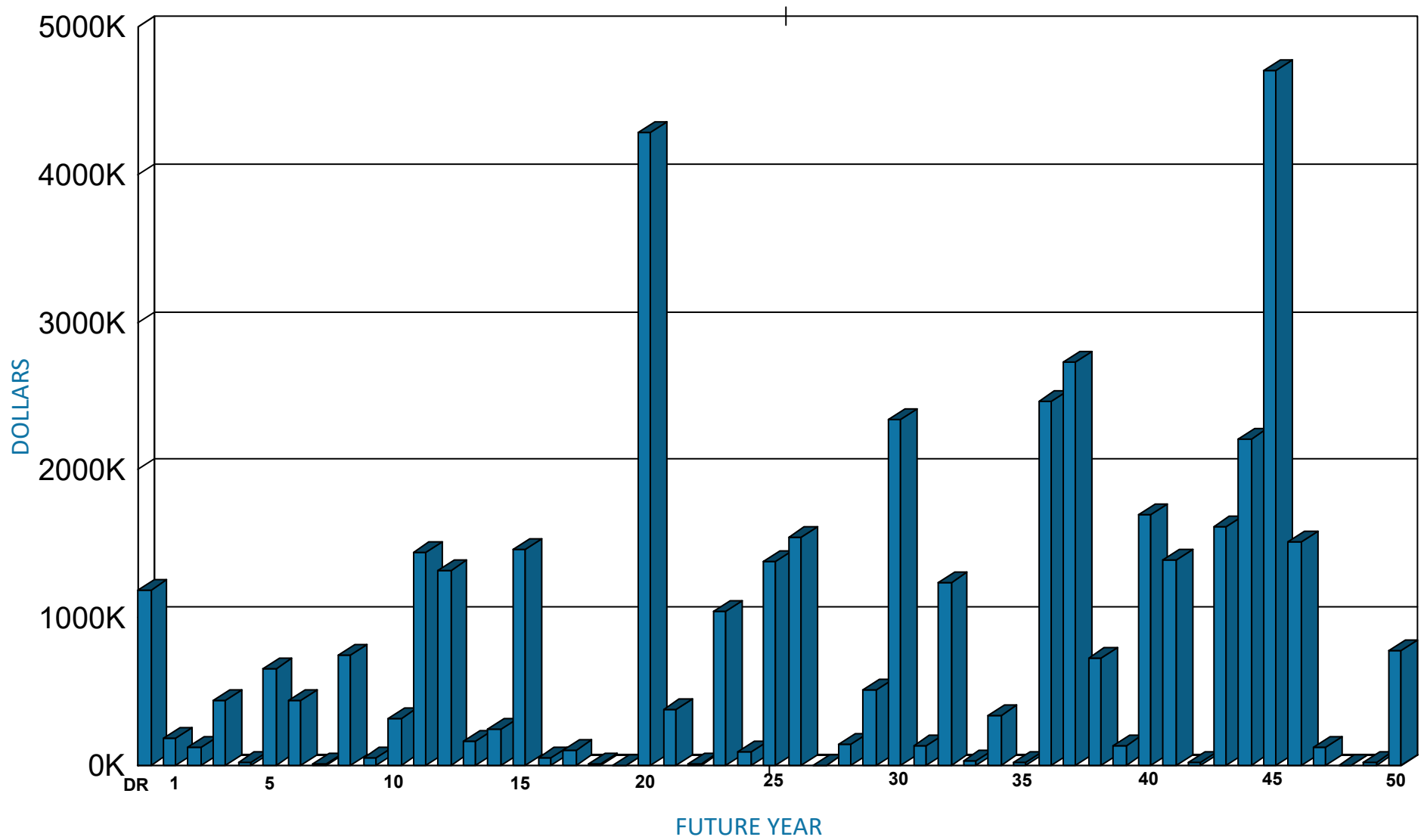
2032									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IF06	FLOORING - TILE, CERAMIC / STONE / QUARRY STANDARD	CERAMIC		RESTROOM	C3020	1,310	SF	\$65,433	2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-2		ROOF	D3050	4	TON	\$27,001	2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-11		ROOF	D3050	4	TON	\$27,001	2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-4		ROOF	D3050	4	TON	\$27,001	2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-3		ROOF	D3050	3	TON	\$20,250	2032

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-6		ROOF	D3050	3	TON	\$20,250	2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-7		ROOF	D3050	4	TON	\$27,001	2032
HU31	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (5- 9 TON)	TRANE GP-9		ROOF	D3050	6	TON	\$24,940	2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-1		ROOF	D3050	4	TON	\$27,001	2032
HU31	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (5- 9 TON)	TRANE GP-10		ROOF	D3050	5.50	TON	\$22,861	2032
HU30	PACKAGE HVAC UNIT, DX, GAS OR ELECTRIC HEAT, SINGLE-ZONE (<= 5 TON)	TRANE GP-5		ROOF	D3050	3	TON	\$20,250	2032
2032 PROJECTED COMPONENT REPLACEMENT COST								\$308,988	

RECURRING COMPONENT EXPENDITURE PROJECTIONS

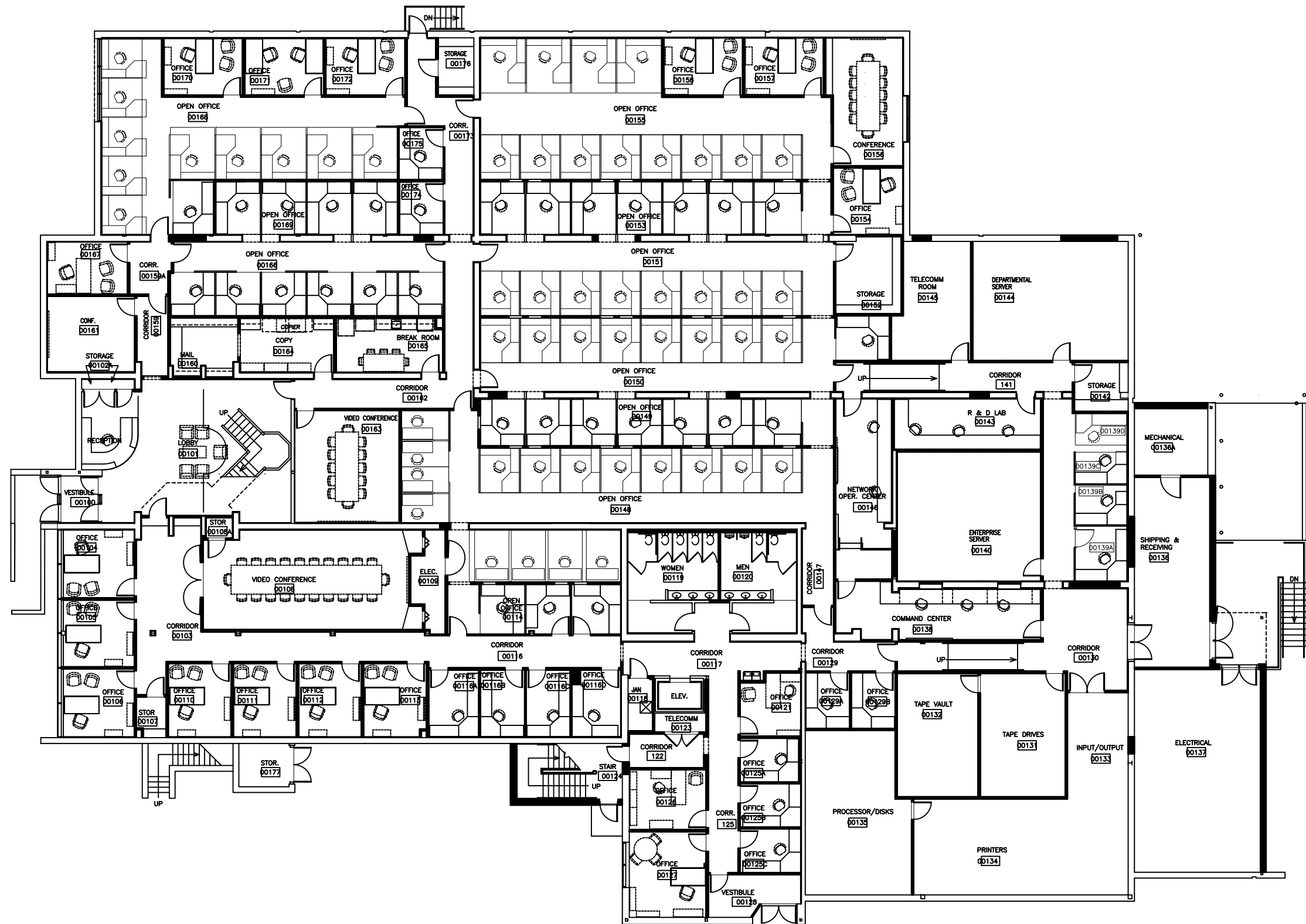


Average Annual Renewal Cost per SF \$13.01

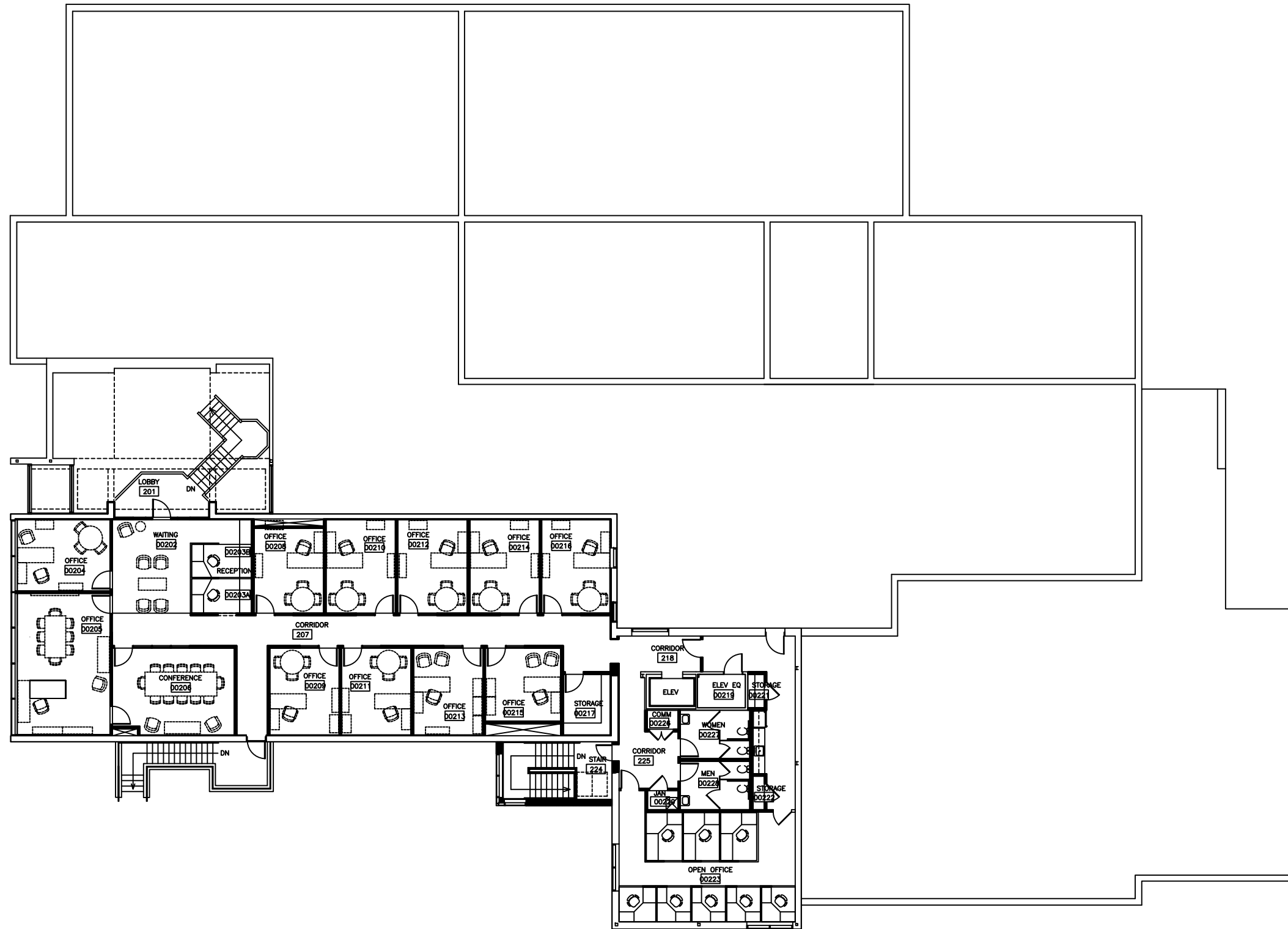
FACILITY CONDITION ASSESSMENT

SECTION 5

DRAWINGS



COTANCHE BUILDING
 FIRST FLOOR PLAN COMPOSITE
 SCALE: 1/8" = 1'-0" UPDATE: 5-10-2013



COTANCHE BUILDING
 SECOND FLOOR PLAN COMPOSITE
 SCALE: 1/8" = 1'-0" UPDATE: 5-10-2013

FACILITY CONDITION ASSESSMENT

SECTION 6

PHOTOGRAPHS



164001a 1/25/2023
Brick and glazing
Entrance



164001e 1/25/2023
Annunciator panel and manual pull station
Lobby 0101



164002a 1/25/2023
Modified bitumen roof
Roof



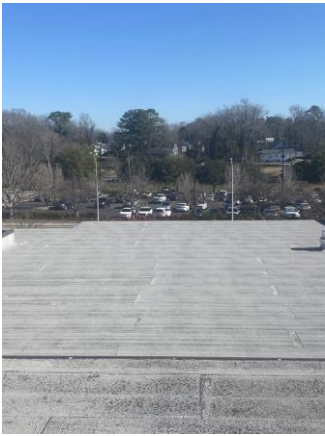
164002e 1/25/2023
Annunciator panel
Lobby 0101



164003a 1/25/2023
Modified bitumen roof
Roof



164003e 1/25/2023
Central HVAC distribution grill (mildew)
Lobby 0101



164004a 1/25/2023
Modified bitumen roof
Roof



164004e 1/25/2023
HVAC digital thermostat
Lobby 0101



164005a 1/25/2023
Modified bitumen roof
Roof



164005e 1/25/2023
Horn/strobe
Lobby 0101



164006a 1/25/2023
Casework with a sink
Break room



164006e 1/25/2023
Open parabolic lay-in fluorescent interior light fixture
Conference 0161



164007a 1/25/2023
Single-level water fountain
Corridor



164007e 1/25/2023
Illuminated emergency exit sign
Corridor 0159



164008a 1/25/2023
Composite utility sink
Custodial room



164008e 1/25/2023
Central HVAC distribution grill (mildew)
Lobby 0101



164009a 1/25/2023
Tile flooring, finished walls, and water closet
Restroom



164009e 1/25/2023
Rooftop package unit GP-2
Roof



164010a 1/25/2023
Tile flooring, finished walls, and accessible water closet
Restroom



164010e 1/25/2023
Rooftop package unit GP-12
Roof



164011a 1/25/2023
Tile flooring, finished walls, and wall-hung lavatory
Restroom



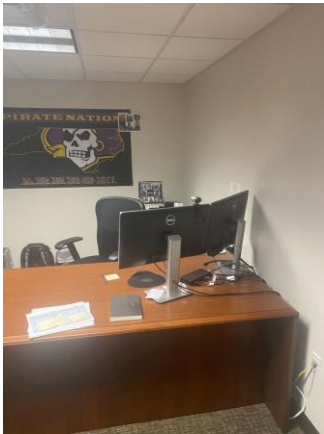
164011e 1/25/2023
Rooftop package unit GP-13
Roof



164012a 1/25/2023
ACT, carpet, and finished walls
Work area



164012e 1/25/2023
Roof exhauster EF-3
Roof



164013a 1/25/2023
ACT, carpet, and finished walls
Office area



164013e 1/25/2023
Condensing racks for computer room ACs
Northeast corner



164014a 1/25/2023
ACT, carpet, and finished walls
Corridor



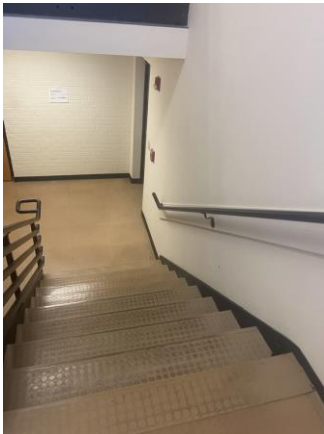
164014e 1/25/2023
Emergency generators
North elevation



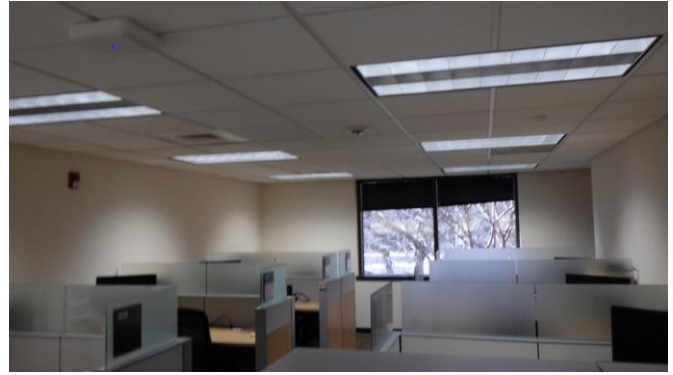
164015a 1/25/2023
Vinyl treads and landings, metal railing, and finished walls
Stairwell



164015e 1/25/2023
HVAC digital thermostat and emergency power kill switch
Open office 0223



164016a 1/25/2023
Vinyl treads and landings, metal railing, finished walls
Stairwell



164016e 1/25/2023
Open parabolic lay-in fluorescent interior light fixture
Open office 0223



164017a 1/25/2023
Tile walls and floor and countertop lavatories
Restroom



164017e 1/25/2023
Central HVAC distribution grill
Open office 0223



164018a 1/25/2023
Tile walls and floor and urinals
Restroom



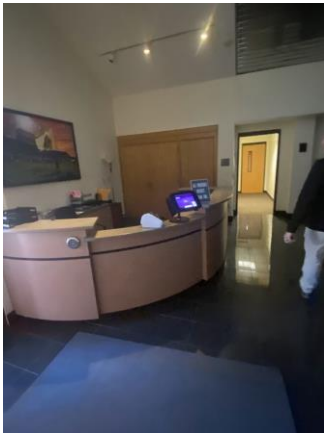
164018e 1/25/2023
Hydraulic elevator machine
Elevator 0219



164019a 1/25/2023
Finished walls, tile ACT, and carpet
Conference room



164019e 1/25/2023
Secondary electrical distribution panel DP3
Corridor 0218



164020a 1/25/2023
Finished walls, tile flooring, and countertop
Reception area



164020e 1/25/2023
Smoke detector
Corridor 0218



164021a 1/25/2023
Penetration
Data room



164021e 1/25/2023
Annunciator panel
Vestibule 0128



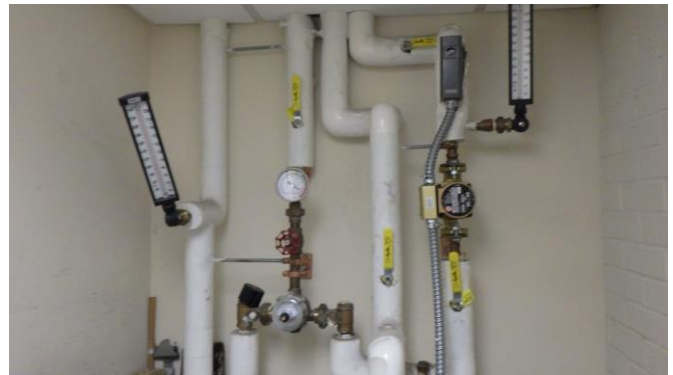
164022a 1/25/2023
Dual-level drinking fountain
Corridor



164022e 1/25/2023
Commercial electric domestic water heater
Janitor 118



164023a 1/25/2023
Broken sidewalk
Exterior



164023e 1/25/2023
Domestic hot water distribution network
Janitor 118



164024a 1/25/2023
Brick exterior
Exterior



164024e 1/25/2023
Open parabolic lay-in fluorescent interior light fixtures
Conference 0108



164025a 1/25/2023
Brick exterior, metal door, and stairs with lack and of wall
handrail and noncompliant handrails
Exterior



164025e 1/25/2023
FM 200 fire suppression warning sign
Telecom 145



164026a 1/25/2023
Brick exterior
Exterior



164026e 1/25/2023
FM 200 fire suppression nozzle
Telecom 145



164027a 1/25/2023
Brick exterior and metal doors
Exterior



164027e 1/25/2023
CRAC unit 21
Telecom 145



164028a 1/25/2023
Brick exterior, metal door, and glazing
Exterior



164028e 1/25/2023
Chilled water pump P-1 and P-2 VFDs
Server 144



164029a 1/25/2023
Brick exterior, glass doors, and glazing
Exterior



164029e 1/25/2023
Manual pull station
Server 140



164030a 1/25/2023
Metal gate
Exterior



164030e 1/25/2023
Split ductless evaporator
Command center 138



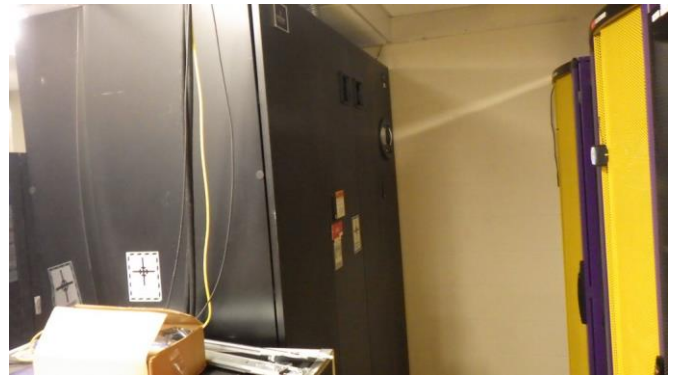
164031a 1/25/2023
Gate system
Exterior



164031e 1/25/2023
UPS-1
Server room 133



164032a 1/25/2023
Ramp lacking handrail
Entrance



164032e 1/25/2023
Chiller 03
Server room 133



164033a 1/25/2023
Steps lacking handrails
Exterior



164033e 1/25/2023
Server rack cooling CRV-3
Server room 133



164034e 1/25/2023
FM 200 fire suppression storage tanks
Shipping and receiving 0136



164035e 1/25/2023
FM 200 fire suppression storage tanks
Shipping and receiving 0136



164036e 1/25/2023
FM 200 fire suppression storage tanks
Mechanical 0136A



164037e 1/25/2023
Chilled water pump P-3 and P-4 VFDs
Mechanical 0136A



164038e 1/25/2023
Chilled water pumps P-3 and P-4
Mechanical 0136A



164039e 1/25/2023
Domestic water backflow preventer
Mechanical 0136A



164040e 1/25/2023
Chilled water distribution network expansion tank
Mechanical 0136A



164041e 1/25/2023
Indoor air handler AH-1
Mechanical 0136A



164042e 1/25/2023
HVAC DDC controls cabinet
Mechanical 0136A



164043e 1/25/2023
HVAC DDC controls
Mechanical 0136A



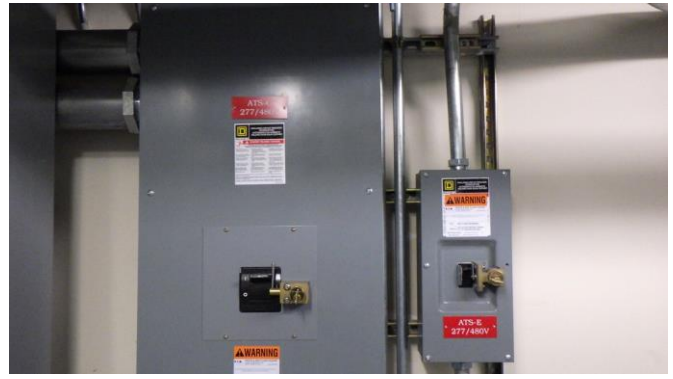
164044e 1/25/2023
AC package unit AC-2
Electrical 137



164045e 1/25/2023
Emergency power ATS-C
Electrical 137



164046e 1/25/2023
Emergency power ATS-B
Electrical 137



164047e 1/25/2023
ATS network safety switches
Electrical 137



164048e 1/25/2023
Main electrical distribution panel MDP
Electrical 137



164049e 1/25/2023
Emergency power ATS-E
Electrical 137



164050e 1/25/2023
Secondary electrical distribution step down transformer
Electrical 137



164051e 1/25/2023
Main fire alarm control panel
Electrical 137



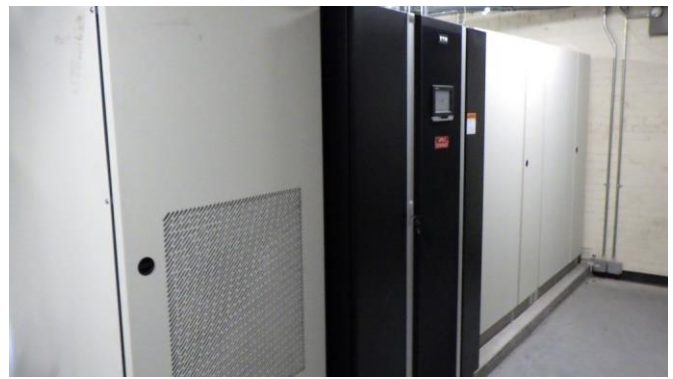
164052e 1/25/2023
Emergency power electrical distribution panel EDP2
Electrical 137



164053e 1/25/2023
Main electrical distribution panel CDP2
Electrical 137



164054e 1/25/2023
HVAC DDC controls
Electrical 137



164055e 1/25/2023
UPS-2
Electrical 137



164056e 1/25/2023
Main electrical distribution panel CDP
Electrical 137



164057e 1/25/2023
Emergency power electrical distribution panel EDP
Electrical 137



164058e 1/25/2023
Main electrical distribution panel DP
Electrical 137



164059e 1/25/2023
Secondary electrical distribution step down transformers
Electrical 137



164060e 1/25/2023
AC package unit AC-1
Electrical 137



164061e 1/25/2023
LED wall pack
East side



164062e 1/25/2023
Split system air-cooled condenser
East side



164063e 1/25/2023
Diesel-fueled emergency generator 2
East side



164064e 1/25/2023
Emergency generator fuel tank fill ports
Generator 2



164065e 1/25/2023
Diesel-fueled emergency generator 1
East side



164066e 1/25/2023
Diesel-fueled emergency generator
Generator 1



164067e 1/25/2023
Air-cooled condensing units
Southeast corner



164068e 1/25/2023
Load dock lift
East elevation



164069e 1/25/2023
Split ductless system air-cooled condensers
North elevation



164070e 1/25/2023
Air-cooled chiller CH-1
North elevation



164071e 1/25/2023
Air-cooled chiller CH-2
North elevation



164072e 1/25/2023
Liebert CRAC unit air-cooled condenser
North elevation



164073e 1/25/2023
Chilled water pumps P-1 and P-2
North elevation



164074e 1/25/2023
Cooling water backflow preventers
South elevation



164075e 1/25/2023
HID wall pack exterior light fixture
South elevation



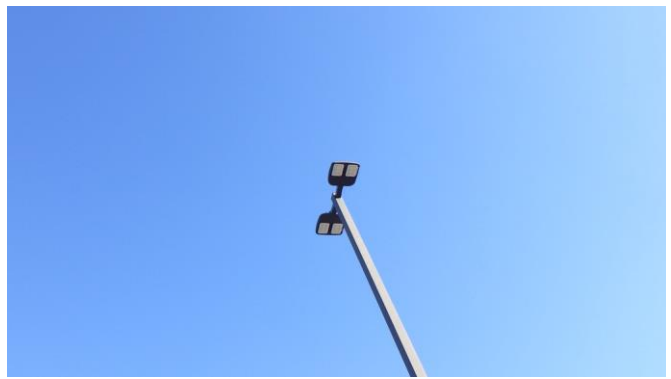
164076e 1/25/2023
Split ductless system air-cooled condenser
South elevation



164077e 1/25/2023
Liebert CRAC unit air-cooled condensers
South elevation



164078e 1/25/2023
Parking lot lighting
South elevation



164079e 1/25/2023
LED pole light fixtures
South elevation

FACILITY CONDITION ASSESSMENT

SECTION 7

PRELIMINARY ENERGY
ASSESSMENT

INTRODUCTION

A Preliminary Energy Assessment (PEA) was conducted to identify energy conservation opportunities. The PEA is intended to be a preliminary energy screening only. The goal is to identify potential energy savings opportunities in a building. It is not equivalent to an American Society of Heating, Refrigeration, or Air Conditioning Engineers (ASHRAE) Level 1, 2, or 3 audit. The PEA has two sections: 1) Benchmarking Data and 2) Energy Conservation Opportunities. Basic building information is provided in **Table 1**.

TABLE 1. BUILDING INFORMATION	
Client	East Carolina University
Asset Number	164
Asset Name	Cotanche Building
Year Built or Last Energy Renovation	2009

BENCHMARKING DATA

The purpose of benchmarking building performance is to determine how well a building performs in comparison to other similar buildings. For this analysis, buildings were assessed based on their primary use (e.g., education, food sales, food service, etc.) and year constructed. Two metrics -- energy use intensity and energy end use -- are presented for the building manager to use to assess how efficiently the building performs compared to similar buildings.

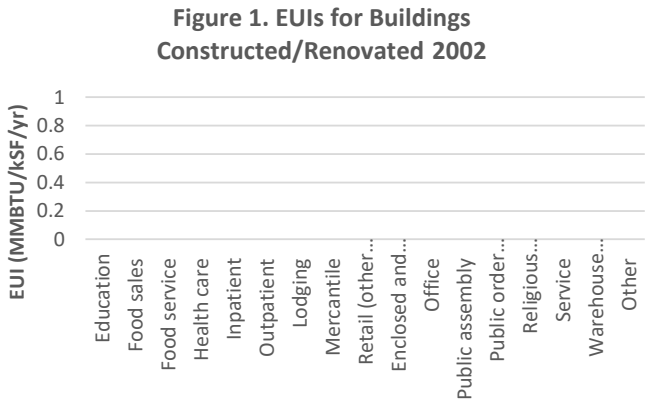
Metric #1: Energy Use Intensity (EUI)

EUI is a measure of energy consumption per square foot of building space per year. The units of measurement are million British thermal units per thousand square foot per year (MMBTU/kSF/yr). The US-DOE EUI can be compared to the actual EUI of the client building to determine how efficient the building is compared to other similar buildings. A building manager can calculate EUI by summing total energy consumption per year (in MMBTU/yr) and dividing it by the building area (in kSF). Benchmarking data from the U.S. Energy Information Administration (EIA) Commercial Building Energy Consumption Survey (CBECS) database was used for this analysis.

Basic information about the building use and the time of the most recent major HVAC or lighting upgrade is provided in **Table 2**. That information is used to determine the Benchmark EUI. The building manager can calculate the Building EUI and compare it to the Benchmark EUI to determine how building efficiency compares to similar buildings (see **Table 3**). In addition, **Figure 1** shows the EUIs of various building types for further comparison.

TABLE 2. BUILDING DETAILS	
FCA Building Type	Data Center
Energy Information Administration Equivalent Building Type	Other
Range of Years Constructed/Last Major Energy Renovation	2002
Benchmark EUI (MMBTU/kSF/yr) =	#N/A
Building EUI to be Calculated by Client (MMBTU/kSF/yr) =	

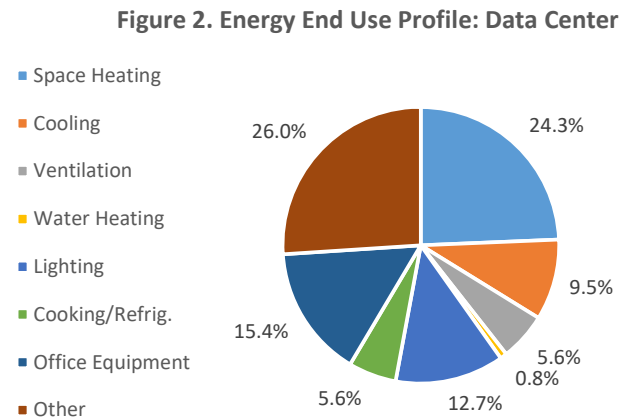
TABLE 3. EUI COMPARISON	
Very Energy Efficient (consumes more than 30% less energy)	#N/A
Energy Efficient (consumes 10% to 30% less energy)	#N/A
Similar (consumes within 10% less or 10% more energy)	#N/A
Energy Inefficient (consumes 10% to 30% more energy)	#N/A
Very Energy Inefficient (consumes more than 30% more energy)	#N/A



Metric #2: Energy End Use

Energy end use data characterizes how energy is used by profiling energy consumption into end use categories such as space heating, cooling, ventilation, lighting, etc. When energy end use data is presented in a pie chart, high energy-consuming activities are readily identified. A building manager can determine the energy end use profile for a building by analyzing trend data from a Building Automation System and/or Energy Management Control System.

TABLE 4. ENERGY END USE PROFILE: DATA CENTER	
Space Heating	24.3%
Cooling	9.5%
Ventilation	5.6%
Water Heating	0.8%
Lighting	12.7%
Cooking/Refrig.	5.6%
Office Equipment	15.4%
Other	26.0%
Total	100.0%



References:

1. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. "Technologies and Products by Category." Efficient Technologies and Products for Federal Facilities. DOE. <http://energy.gov/eere/femp/efficient-technologies-and-products-federal-facilities>. Accessed: June 2016.
2. U.S. Energy Information Administration [EIA]. "2012 CBECS Survey Data." Commercial Building Energy Consumption Survey. EIA. <http://www.eia.gov/consumption/commercial/data/2012/index.cfm?view=consumption#c1-c12>, Accessed: June 2016.

ENERGY CONSERVATION OPPORTUNITIES

This section presents energy conservation measures (ECMs) recommended for further investigation. Recommended ECMs are categorized into one or more cost categories to indicate an approximate level of resources required to implement the ECM. These cost categories are:

Operation and Maintenance Measures (O&M): O&M actions usually (a) can be completed by in-house maintenance personnel and (b) result in an immediate return on investment.

Low-Cost/No-Cost Measures (LC/NC): LC/NC measures typically (a) can be done by in-house personnel, (b) require little to no investment cost, and (c) result in significant energy savings. In other words, LC/NC measures typically have a quick payback period (less than one year).

Capital Improvement Measures (CAP): CAP measures are major capital investments that usually require significant time (i.e., approximately six months to three years) for planning, design, and implementation. Oftentimes, a request for proposal, design/bid/build (D/B/B), and/or design/build (D/B) package is required. The return on investment for CAP projects ranges significantly, varying from a payback period from one to twenty plus years.

ECM CATEGORY	ECM RECOMMENDED FOR FURTHER CONSIDERATION	COST CATEGORY
Lighting - Interior, Controls	INSTALL LIGHTING CONTROLS. Oftentimes, lighting fixtures on switches do not get turned off when a space is unoccupied. Occupancy sensors, photocell sensors, and lighting control systems can help reduce lighting energy consumption. For example, consider installing occupancy sensors in offices, common areas, and other areas that have variable occupancy. In areas where there is natural lighting, consider using photocell sensors to dim or shut off fixtures that aren't needed. Alternatively, install a comprehensive light control system that uses time clock schedules, occupancy sensors, photocell sensors, etc., to monitor and control lighting throughout an entire building.	N/A, Varies
Lighting - Exterior, Controls	INSTALL LIGHTING CONTROLS. Consider using photocell sensors or timeclocks to shut off building/parking lot fixtures during daylight hours.	N/A, Varies
HVAC - Air Dist. Network Insulation	INSULATE DUCTWORK. Insulating HVAC ductwork reduces heat loss and decreases energy consumption.	CAP
HVAC - BAS	INSTALL A BAS. Consider installing a BAS so that there is autonomous control of the building HVAC systems.	CAP
HVAC - EMCS	CONNECT BAS TO EMCS. Consider connecting the BAS to a central EMCS so that the system can be monitored and controlled at a central location.	CAP
HVAC - Building Comfort/Tuning	CONDUCT RETROCOMMISSIONING (RCX). RCx the building to identify and address operating deficiencies, optimize HVAC operations, reduce energy bills, and improve occupant comfort.	CAP
Electrical - VFDs	INSTALL VARIABLE FREQUENCY DRIVES. Install VFDs on motors greater than 5 hp to reduce energy consumption by varying motor speed based on system demand.	O&M; LC/NC; CAP

