



Warren-Alquist State Energy Building (008)

1516 9th Street, Sacramento, CA 95814

Facility Condition Assessment

June 2015

Prepared for the State of California Department of General Services



TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	2
BACKGROUND	2
OBJECTIVE	2
SCOPE OF ASSESSMENT	3
SURVEY FINDINGS.....	3
INTRODUCTION	6
BUILDING BACKGROUND.....	6
BUILDING DESCRIPTION	6
FACILITY CONDITION ASSESSMENT.....	8
SCOPE OF ASSESSMENT	10
PRIORITY RANKING	11
CURRENT REPLACEMENT VALUE.....	15
FACILITY CONDITION INDEX.....	15
APPENDICES.....	18
APPENDIX A: ACCESSIBILITY ISSUES	18
APPENDIX B: GENERAL ASSESSMENT INFORMATION	20
APPENDIX C: CERTIFICATION.....	66
APPENDIX D: PHOTOS.....	68
APPENDIX E: TERMINOLOGY AND ABBREVIATIONS.....	88
APPENDIX F: BUILDING FACT SHEET	94
APPENDIX G: COST TABLES.....	96
APPENDIX H: SUPPORTING DOCUMENTATION.....	100
APPENDIX I: PRE-SURVEY QUESTIONNAIRE.....	110
APPENDIX J: ELEVATOR REPORT	112

THIS PAGE INTENTIONALLY BLANK

EXECUTIVE SUMMARY

BACKGROUND

This Facility Condition Assessment (FCA), prepared by EMG Corporation (EMG) in collaboration with the Department of General Services (DGS) Real Estate Services Division (RESA) and the consulting team of Hellmuth, Obata & Kassabaum, Inc. (HOK), is a component of a comprehensive long-range strategic asset management plan for DGS's portfolio of general-purpose office buildings. The goal is to determine the best course of action to address DGS's general-purpose office buildings' infrastructure deficiencies and space needs with a focus on controlling long-term costs.

The DGS portfolio comprises nearly 17 million gross square feet (GSF) of state-owned office facilities statewide, contained within 54 general-purpose state-owned office building sites. The FCA inventories and evaluates each of the DGS general purpose office buildings to benchmark current condition and establish a replacement value. This FCA assesses the infrastructure conditions for the Warren-Alquist State Energy Building (008).

The assessment methodology identifies infrastructure systems and components requiring immediate repair or replacement based on their useful life expectancy. In addition, the FCA projects the capital funding needs over a ten-year lifecycle horizon period of 2015 to 2024. The assessments evaluate envelope, structure, plumbing, heating, air conditioning, energy and lighting controls, electrical, data/communications, elevators, fire protection and suppression, security, and utility capacity and systems. The replacement value is determined by multiplying the existing building square footage (SF) by the cost per SF to construct a new, similar building on a similar site.

OBJECTIVE

The objective of the FCA is to identify the capital reserves for infrastructure lifecycle repair/replacement needs over the ten-year lifecycle. The FCA projections will become the basis for the Facility Condition Index (FCI). The FCI is the ratio of immediate repair costs or capital reserve needs to the current replacement value of the existing building. The FCI is a key performance indicator that is used to objectively quantify and evaluate the current condition of a building and can be used to compare the relative condition of the subject building with other buildings within the same portfolio and as a trending matrix for infrastructure "health" over time.

The Warren-Alquist State Energy Building (008) FCI ratio will be incorporated as a comparative factor in the overall DGS portfolio analysis, enabling DGS to accurately rank and prioritize building repair/replacement needs in the long-range strategic plan.

SCOPE OF ASSESSMENT

The EMG evaluation team, comprised of engineers and architects, visited the Warren-Alquist State Energy Building (008) on February 13, 2015. The evaluation team reviewed available engineering studies and construction documents to familiarize themselves with the physical conditions. The evaluation team conducted a walk-through of the building to observe building systems and components, identify physical deficiencies, and formulate recommendations to remedy any deficiencies.

SURVEY FINDINGS

One of the major goals of the FCA is to calculate the FCI, which gives an indication of a building’s overall condition. Two FCI ratios are calculated and presented – Current Year and Ten-Year. The Current Year FCI is the ratio of Immediate Repair Costs to the building’s Current Replacement Value. Similarly, the Ten-Year FCI is the ratio of anticipated Capital Reserve Needs over the next ten years to the Current Replacement Value.

The values are based on a scale from 0-100 percent. A lower FCI ratio indicates that the building’s infrastructure is in “Good” condition. Based on industry standards, a “Good” condition building will have an FCI ratio at or below five percent. A “Fair” condition building will have an FCI ratio between five and ten percent. A “Poor” condition building will have an FCI ratio between 10 and 65 percent. A building with an FCI ratio exceeding 65 percent is considered “Very Poor” and is a candidate for replacement or divestment.

The table below represents summary-level findings for the FCA. The deficiencies identified in this assessment can be combined with potential new construction requirements to develop an overall strategy that can serve as the basis for a portfolio-wide capital improvement funding strategy. Key findings from the assessment include:

Key Finding	Metric
Current Replacement Value	\$50,910,957
Immediate Repair Costs (12 months)	\$4,049,906
1-5 Year Capital Needs	\$3,753,809
6-10 Year Capital Needs	\$227,481
Total 10-Year Capital Reserve Needs	\$8,031,196

$$FCI = \frac{\text{Immediate Repair Costs or Ten-Year Capital Reserve Needs}}{\text{Current Replacement Value of Building}}$$

Current Year FCI

$$\text{Current FCI} = \frac{\$4,049,906}{\$50,910,957}$$

Ten-Year FCI

$$\text{Ten-Year FCI} = \frac{\$8,031,196}{\$50,910,957}$$

Current Year FCI	Ten-Year FCI
7.95 % = <i>Fair Condition</i>	15.77 % = <i>Poor Condition</i>

The major issues contributing to the Immediate Repair Costs and the Current Year FCI ratio are summarized below:

- There are areas on the roof with ponding water and the membrane is old. Roof replacement is recommended.
- Installation of a fire sprinkler system is recommended.
- The existing heating and cooling system controls are a pneumatic system. The controls are antiquated, and should be replaced with a direct digital control (DDC) system.

Further detail on the specific costs that make up the Immediate Repair Costs can be found in the cost tables in the appendices.

THIS PAGE INTENTIONALLY BLANK

INTRODUCTION

BUILDING BACKGROUND

The Warren-Alquist State Energy Building (008) was designed by Nacht and Lewis Architects of Sacramento. Construction was completed in 1982. The building was a product of Governor Jerry Brown's newly initiated building program, aimed at consolidating state offices into government-owned facilities within Sacramento's capitol area neighborhood. In honor of the Energy Commission's 40th Anniversary in January 2015, Governor Brown's office approved renaming the Energy Commission Building to the Warren-Alquist State Energy Building. The new name honors the passage and signing into law of the Warren-Alquist State Energy Resources Conservation and Development Act (Public Resources Code 25000 et seq.), commonly called the Warren-Alquist Act. It was authored by Charles Warren and Alfred Alquist and signed into law by Governor Ronald Reagan.

In 1976, Governor Brown appointed Sim Van der Ryn to the position of State Architect and tasked him with the development of a new Capitol Area Plan. A primary objective of the plan was to reduce the apparent scale of the large office buildings and thereby create a more humane, user-oriented environment. The plan also set out to create positive examples of state office buildings as models of energy efficiency and humane working environments. Four buildings, EDD Annex (Solar – Subterranean Building) (013), Gregory Bateson Building (011), Paul Bonderson Building (016), and Warren-Alquist State Energy Building (008), were completed under the Brown administration Capitol Area Plan. In Honor of the Energy Commission's 40th Anniversary in January 2015, Governor Brown's office approved renaming the Energy Commission Building to the Warren-Alquist State Energy Building. The new name honors the passage and signing into law of the Warren-Alquist State Energy Resources Conservation and Development Act (Public Resources Code 25000 et seq.), commonly called the Warren Alquist Act. It was authored by Charles Warren and Alfred Alquist and signed into law by Governor Ronald Reagan.

Housing the California Energy Commission, the Warren-Alquist State Energy Building is a four-story concrete structure at 1516 Ninth Street, Sacramento. Amenities include a large atrium and 125-person hearing room. The gross building area is 143,162 SF with a net usable area of 124,457 SF. The ratio of net usable to gross building area is 86.9 percent. The occupant capacity is 668. The building does not have on-site parking.

BUILDING DESCRIPTION

The building foundation consists of reinforced concrete slab-on-grade. The building structural system is reinforced concrete with concrete waffle slabs. The roof structure is flat with a single-ply membrane. The roof over the atrium has a metal frame skylight structure with polycarbonate panels. The exterior walls are finished with painted stucco and unfinished concrete.

The building interior has painted drywall walls. The floor finishes consist of ceramic tiles, commercial carpet tiles, sealed concrete, and vinyl composition tiles. The interior ceilings are finished with acoustic ceiling tiles and open structure.

The facility is served by two traction passenger elevators. There is one hydraulic freight elevator that serves the basement through the fourth floor. All elevators are original to the building.

Heating and cooling are provided by steam and chilled water supplied by the DGS Central Utility Plant. The steam is stepped down for low-pressure facility use and a shell-and-tube heat exchanger. This is located in the mechanical room of the basement and is used for heating and domestic hot water. The hot and chilled water are looped around the building to all air handling units on the roof and first floor. The heating and cooling pumps all run based on the energy management system.

Domestic hot water is provided by tank type electric water heaters and a domestic hot water heat exchanger located in the basement, with a storage tank located in the mechanical room. The water is distributed to the building by small inline recirculation pumps.

The majority of the building is protected by a dry sprinkler system. The basement has a wet sprinkler system. There are also fire extinguishers and fire hoses at various locations in the building.

The building covers nearly the entire site. Landscaping consists of perimeter planters, trees, and shrubs. Landscaped areas are irrigated by an in-ground overhead spray sprinkler system.

The parking areas are paved with asphalt. Based on a parking count, parking is provided for six cars. All of the parking stalls are located in open lots. The sidewalks throughout the property are constructed of cast-in-place concrete.

Project Statistics

Item	Description
Project Name	Warren-Alquist State Energy Building
Building ID	008
Property Type	Administration
Year Built	1982
Number of Stories	4
Occupied	Yes
Land Area (acres)	1.55
Gross Square Feet (GSF)	143,162

FACILITY CONDITION ASSESSMENT

The goal of the FCA is to gather the data necessary to understand the existing building's condition, identify strategies to meet the building's lifecycle needs, and create the foundation for a long-range strategic plan.

COMPONENTS OF THE FCA

Current conditions analysis

The current condition analysis identifies the existing building's immediate requirements, including deferred maintenance, recommended discretionary improvements, and code non-compliance issues.

Anticipated building reserve analysis

The anticipated building reserve analysis projects the ongoing degradation of the building's components and costs associated with the reserve or replacement of these components as they reach the end of their useful lives.

Funding needs analysis

The funding needs analysis results in a summary report of deferred maintenance and systems reserve funding needs.

CALCULATION OF FUNDING NEEDS

Calculating probable funding needs involves identifying and quantifying the building's infrastructure systems or components that require immediate or future action over their lifecycle horizon. Funding needs are segregated into two categories, Immediate Repair Costs and Capital Reserve Needs. A Replacement Value is calculated and a Remaining Useful Life Estimate is determined as well as Opinions of Probable Cost in order to establish the FCI. The terms are defined as follows:

Immediate Repair Costs

Immediate Repair Costs are Opinions of Probable Cost that require immediate action as a result of: (1) material existing or potentially unsafe conditions, (2) material building or fire code violations, or (3) conditions that, if left un-remedied, have the potential to result in, or contribute to, critical element or system failure within **one year** that will likely result in a significant escalation of its remedial cost. Immediate Repair Costs are items which require action within year one.

Capital Reserve Needs

Capital Reserve Needs are recurring probable expenditures, which are not considered operation or maintenance expenses, that should be budgeted annually. In general, Capital Reserve Needs are reasonably predictable both in terms of frequency and cost. However, Capital Reserve Needs may also include components or systems that have an indeterminable life but nonetheless have a potential liability for failure within a ten-year period. The Capital Reserve Needs presented in the FCA represent average industry costs as of 2015, without inflation. The Ten-Year Expenditure Forecast table in Appendix G includes inflation by assuming a five percent annual inflation rate on Total Capital Needs by year.

Current Replacement Value

Current Replacement Value is determined by multiplying the existing building's SF by the Cost per SF to construct a new, similar building on a similar site. Current Replacement Value is not an appraised or market value for the purposes of a property sale. To estimate the cost per SF, EMG referenced Marshall & Swift's *Marshall Valuation Service*. This building cost data index is an industry standard, adjusted annually, and relied upon by the insurance industry, as well as other agencies and organizations. Cost per SF is calculated by adjusting Marshall & Swift's unit cost for a Government Office Building to account for factors related to building systems, class of construction, and location to reflect the estimated cost of construction at the subject building site.

Remaining Useful Life

Remaining Useful Life (RUL) estimate is based upon site observations, research, and judgment, along with reference to Expected Useful Life (EUL) tables from various industry sources. A sample copy of the EUL table is included in the appendices. EMG estimates when a system or component will likely need replacement based on a visual review of the current condition and the RUL estimate. Exposure to the elements, quality of installation, extent of use, and quality and amount of preventive maintenance exercised are factors that impact the effective age of a system or component. As a result, a system or component might have an effective age that is greater or less than its actual chronological age. The RUL of a system or component equals the EUL less its effective age.

Opinions of Probable Cost

Opinions of Probable Cost are estimates for individual repair or replacement and are a key consideration of this engagement. These estimates may be based on invoice or bid documents provided by the owner or building manager, cost estimates developed by construction resources (such as R.S. Means), or EMG's experience with similar properties, city cost indexes, and projections of economic conditions. Where quantities cannot be derived from building plans, lump sum costs or allowances are utilized.

Opinions of Probable Cost should only be construed as preliminary, order-of-magnitude budgets. Actual costs will likely vary from EMG's estimates depending on type and design of suggested remedy, quality of materials and installation, manufacturer and type of equipment or system selected, field conditions, whether a physical deficiency is repaired or replaced in whole, phasing of the work (if applicable), quality of contractor, market conditions, and whether competitive pricing is solicited. ASTM E2018-08¹ recognizes that certain Opinions of Probable Cost cannot be developed within the scope of an FCA without further study. Instances where a visual inspection is not possible and further study is recommended, EMG provides a cost estimate of the additional study in the FCA.

Facility Condition Index

The FCI gives an indication of a building's overall state of condition. The values are based on a 0-100 percent scale. The Current Year FCI is the ratio of Immediate Repair Costs to Current Replacement Value. The Ten-Year FCI is the ratio of Capital Reserve Needs (2015 – 2024) to Current Replacement Value. The Ten-Year FCI is calculated using uninflated 2015 dollars because the year of project implementation is likely unknown or subject to change. Since both the repair/replacement costs and Current Replacement Value will increase at the same inflation rate, the impacts of inflation do not significantly affect the FCI ratio.

SCOPE OF ASSESSMENT

The evaluation team conducted a walk-through survey of Warren-Alquist State Energy Building (008) on February 13, 2015. The survey included analysis and observation of the building's interior and exterior, including the roofs. The evaluation team interviewed the building maintenance staff to inquire about the subject property's previous repairs and replacements and their costs, level of preventive maintenance exercised, pending repairs and improvements, and frequency of repairs and replacements. Opinions were developed based on the site evaluation, interviews with relevant maintenance providers and facilities managers, and previous experience with comparable properties. The evaluation team questioned those knowledgeable of the subject property's physical condition and operation (or knowledgeable of similar systems) to gain comparative information to use in evaluation of the subject property. In addition, the building staff provided documents and information to the evaluation team that were relevant to the subject property's physical improvements, extent, and type of use and assisted the team in identifying potential discrepancies between reported information and observed conditions.

¹ ASTM 2018-08 is the national guideline for preparing a Facility Condition Assessment published by the American Society for the Testing of Materials.

The evaluation team made a visual assessment for compliance with the American with Disabilities Act (ADA) Accessibility Guidelines and the California Title 24 disabled access requirements. Items determined to be out of compliance are included in the repair/replacement costs. The assessments did not include detailed measurements to determine compliance under the regulations.

The data collected in the FCA are the basis of the projected ten-year Capital Reserve Needs. The goals of the FCA are:

- Benchmark current building condition with recommended corrections for deficiencies to establish the Immediate Repair Costs.
- Estimate life expectancy of various building systems and components to establish the Capital Reserve Needs for infrastructure lifecycle repair/replacement for the ten-year assessment period from 2015 to 2024.
- Provide estimates for corrections for Immediate Repairs Costs and projections for Capital Reserve Needs for lifecycle component replacement within the ten-year projection timeframe.
- Serve as a guide for future replacement, repairs, and improvements and assist DGS in prioritizing its capital budget and expenditures across its real estate portfolio.

PRIORITY RANKING

The recorded existing conditions, identified problems and deficiencies, documented corrective action, and quantities of recommended repairs and/or replacements are documented during the assessment process. Data are collected and entered directly into the assessment and capital planning database using tablet computers. Based on the discussions with the client and industry standards, a Priority Ranking is calculated for each cost observation. The Priority Ranking calculation is a function of four key categories.

PRIORITY RANKING CATEGORIES

Building Mission Ranking

A building can be ranked on a scale of one to ten based on conversations with the client regarding the importance of each building to the overall mission of the building. The properties reviewed during this assessment are all general-purpose office buildings and for the purposes of this study are all ranked the same for Building Mission.

Remaining Useful Life Ranking

The EUL projection of the component is calibrated against the RUL as estimated by the field assessor. This ratio is then utilized as a factor in the priority ranking. An RUL of zero years is given the highest priority and always results in ranking the component as Priority 1.

Asset Component Category

Each material or system (asset) evaluated is assigned a unique Unifomat code. The Unifomat designation is then associated with a ranking based on the overall importance to the operation of the building. An asset that is related to the building envelope, e.g. roof, window, or exterior siding, is assigned a higher ranking than a component such a flooring, carpeting, or other finish material.

Functional Asset Categories

The cost associated with each asset or component evaluated is assigned to a category to include: Code Compliance, Facility Operations, Environmental Factors, Facility Functionality, and Integrity of the Facility. The Asset Categories are given a ranking based on their relative importance. For example, Code Compliance is ranked higher than Maintenance.

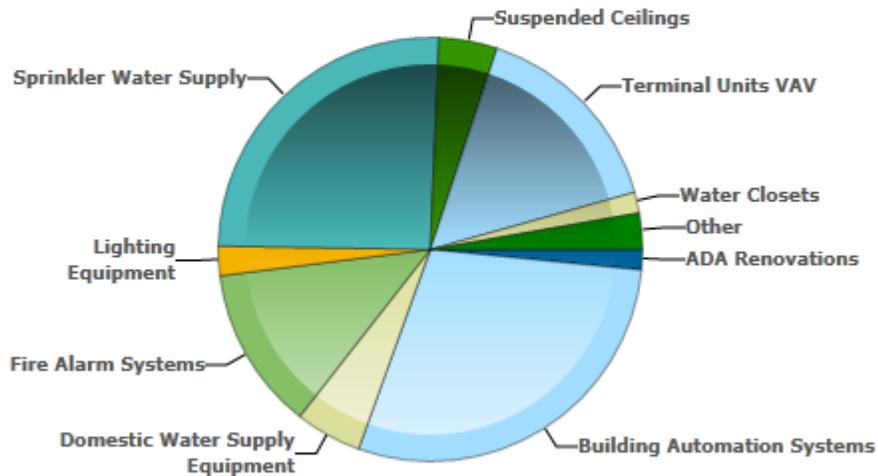
PRIORITY RATIO

The four categories above are assigned a numerical value and the values are multiplied together for each cost observation. The resulting number is then assigned a priority by the capital planning software with the lower range assigned Priority 1 and the higher range of numbers assigned among Priority 2, Priority 3, and Priority 4. Priority 5 is reserved for code issues that were permitted by the code at the time of construction but would be required only if a major renovation or code compliance project were to be undertaken.

The physical condition of building systems and related components are typically defined as being in one of four conditions: Good, Fair, Poor, or Very Poor, or a combination thereof. For the purposes of this report, the following definitions are used:

Condition	Definition
Good	In new or well-maintained condition, with no visual evidence of wear, soiling, or other deficiencies.
Fair	Subjected to wear and soiling but is still in a serviceable and functioning condition.
Poor	Subjected to hard or long-term wear. Nearing the end of its useful or serviceable life.
Very Poor	Subjected to hard or long-term wear. Has reached the end of its useful or serviceable life. Renewal is now necessary.

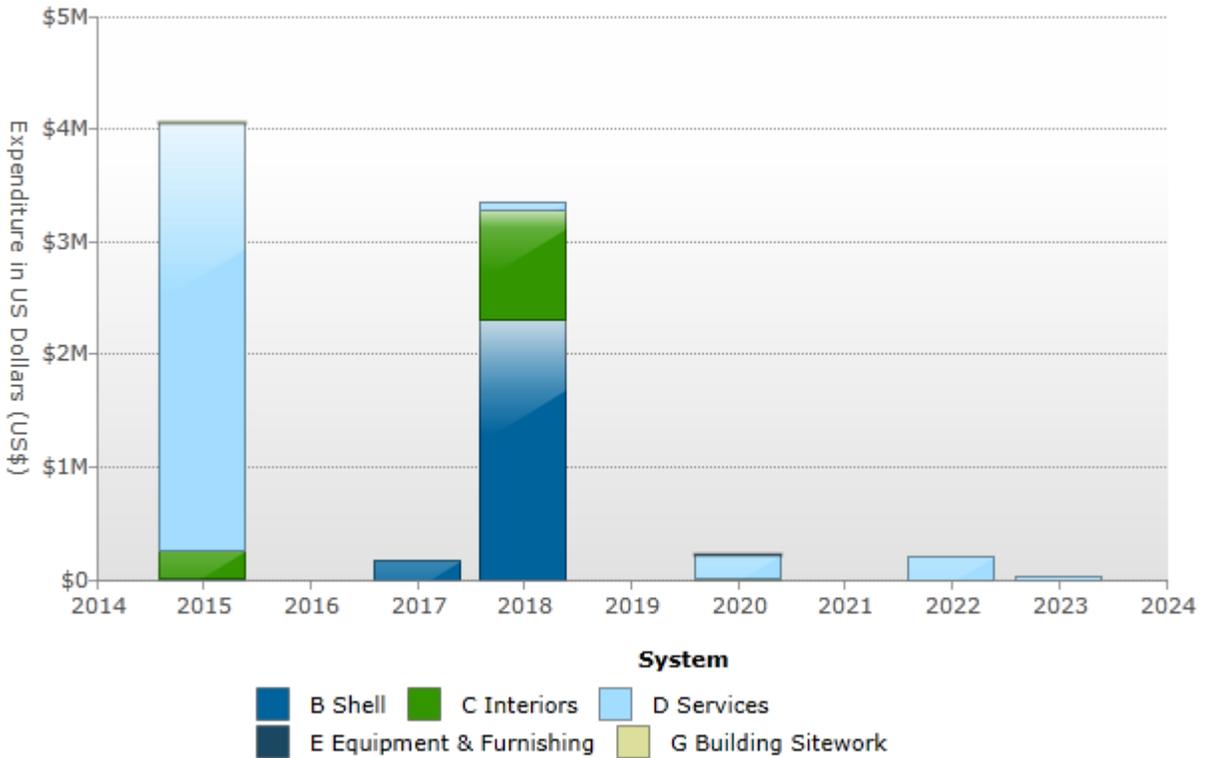
Distribution of Immediate Needs by Building System



Level	Building System	Estimated Cost
B2023	Storefronts	\$12,084
C1035	Identifying Devices	\$992
C3005	ADA Renovations	\$62,744
C3032	Suspended Ceilings	\$180,234
D1011	Passenger Elevators	\$21,500
D1012	Freight Elevators	\$7,500
D2011	Water Closets	\$64,421
D2023	Domestic Water Supply Equipment	\$205,504
D3023	Auxiliary Equipment	\$40,275
D3041	Terminal Units VAV	\$630,139
D3043	Steam Distribution Systems	\$26,135
D3068	Building Automation Systems	\$1,172,284
D4011	Sprinkler Water Supply	\$1,028,015
D5022	Lighting Equipment	\$90,863
D5037	Fire Alarm Systems	\$504,018

Level	Building System	Estimated Cost
G2041	Fences & Gates	\$3,200
	Total	\$4,049,906

Total Capital Needs By System and Year



Year	Building System							Total
	A Sub-Structure	B Shell	C Interiors	D Services	E Equip. & Furnishings	F Spec. Const. & Demolition	G Bldg. Site Work	
2015	\$0	\$12,084	\$243,970	\$3,790,652	\$0	\$0	\$3,200	\$4,049,906
2017	\$0	\$169,781	\$0	\$0	\$0	\$0	\$0	\$169,781
2018	\$0	\$2,308,022	\$961,226	\$85,766	\$0	\$0	\$0	\$3,355,014
2020	\$0	\$0	\$15,094	\$207,850	\$6,071	\$0	\$0	\$229,014
2022	\$0	\$0	\$0	\$198,270	\$0	\$0	\$0	\$198,270
2023	\$0	\$0	\$0	\$29,211	\$0	\$0	\$0	\$29,211
Total	\$0	\$2,489,887	\$1,220,289	\$4,311,749	\$6,071	\$0	\$3,200	\$8,031,196

CURRENT REPLACEMENT VALUE

The Current Replacement Value has been determined as \$50,910,957 for the Warren-Alquist State Energy Building Building (008). The Current Replacement Value is the existing building SF multiplied by the Cost per SF to construct a new, similar building. As noted previously, the basis of the Cost per SF amount is the Marshall & Swift Cost Valuation system. A copy of the cost calculation is included in Appendix H of this report.

Building Area	Cost/SF	Current Replacement Value
143,162 GSF	\$356	\$50,910,957

FACILITY CONDITION INDEX

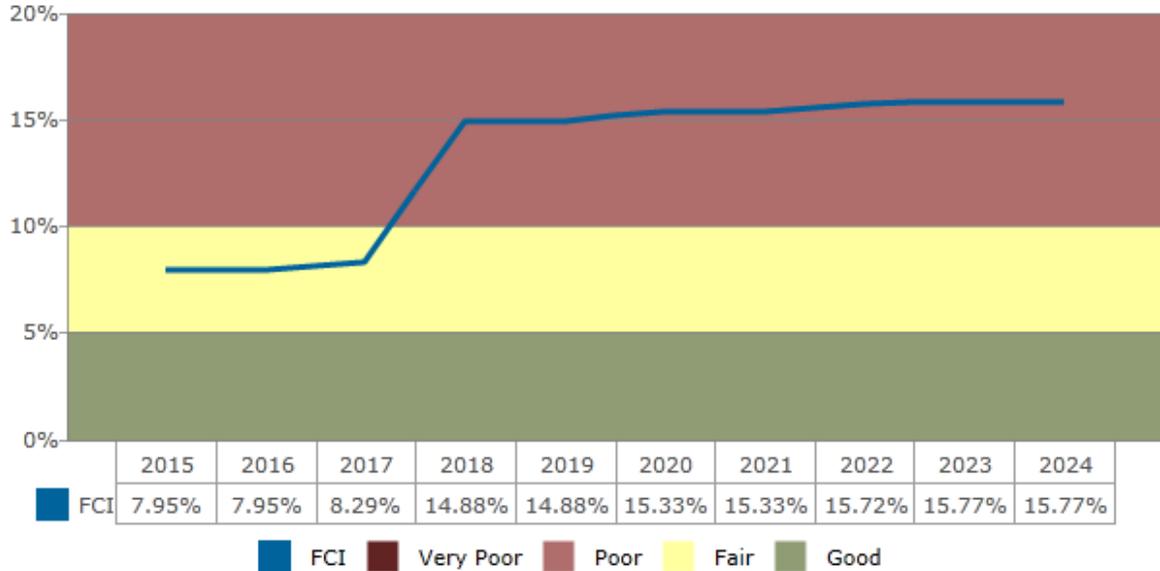
The FCI¹ is an indication of a building’s current and future overall condition. According to industry standards an FCI ratio of 65 percent, or the “rule of two-thirds,” is the threshold for identifying potential candidates for replacement or divestment.² Once the FCI ratio reaches 65 percent, or roughly two-thirds of the Current Replacement Value of the estimated cost to replace a building, it may not be prudent to continue to fund repairs. In cases where aggressive facilities planning is expected to be necessary, this threshold may be adjusted to address more pressing needs.

Condition	Definition	Value
Good	In new or well-maintained condition, with no visual evidence of wear, soiling or other deficiencies.	0% to 5%
Fair	Subjected to wear and soiling but is still in a serviceable and functioning condition.	Greater than 5% to 10%
Poor	Subjected to hard or long-term wear. Nearing the end of its useful or serviceable life.	Greater than 10% to 65%
Very Poor	Subjected to hard or long-term wear. Has reached the end of its useful or serviceable life. Renewal is now necessary.	Greater than 65%

² Sean C. Rush (1991). *Managing the Facilities Portfolio: a Practical Approach to Institutional Facility Renewal and Deferred Maintenance*. National Association of College and University Business Officers. pp. 26–66. ISBN 978-0-915164-59-2.

The chart below indicates the cumulative effects of the FCI ratio over the ten-year study period assuming the required funds are NOT provided to address the identified repairs and replacements for each year.

Cumulative Effects of FCI over the Study Period



THIS PAGE INTENTIONALLY BLANK

APPENDICES

APPENDIX A: ACCESSIBILITY ISSUES

Item	Description
C1035 Identifying Devices	C1035 Restroom Signage
Condition	Fair
Qty / UOM	8 / EA
RUL (years)	0
Location	Throughout building

Item	Description
C3005 ADA Renovations	C1011 ADA Compliant Toilet Partitions
Condition	Fair
Qty / UOM	2 / EA
RUL (years)	0
Location	Restrooms

Recommendations:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
C1035	Replace C1035 Restroom Signage	8.0 - EA	124.0	CC - Accessibility	Priority 1	2015	992
C3005	Replace C1011 ADA Compliant Toilet Partitions	2.0 - EA	31372.0	CC - Accessibility	Priority 1	2015	62,744
D1011	D1011 Emergency intercom requires hands free operation	2.0 - EA	250.0	CC - Accessibility	Priority 1	2015	500
D2011	D2011 Make ADA wheelchair accessible water closet area	8.0 - EA	3120.0	CC - Accessibility	Priority 1	2015	24,960

Cost Summary:

Year	Total Expenditures
2015	\$89,196

APPENDIX B: GENERAL ASSESSMENT INFORMATION

A Substructure Systems

A10 FOUNDATIONS

Item	Description
A1031 Standard Slab on Grade	A1031 Standard Slab on Grade
Condition	Good
Qty / UOM	40000 / SF
RUL (years)	25
Location	Throughout

OBSERVATIONS/COMMENTS:

No further action is required at this time.

B Shell Systems

B10 SUPERSTRUCTURE

Item	Description
B1032 Concrete frame Structure	B1032 Cast-in-Place Reinforced Concrete Structural Frame with Waffle Slab
Condition	Good
Qty / UOM	142378 / SF
RUL (years)	37
Location	Throughout building

OBSERVATIONS/COMMENTS:

No further action is required at this time.

B20 EXTERIOR ENCLOSURE

Item	Description
B2011 Exterior Wall Construction	B2011 - Stucco paint
Condition	Fair - Good
Qty / UOM	14000 / SF
RUL (years)	2
Location	Exteriors

OBSERVATIONS/COMMENTS:

Based on RUL, repainting of the stucco exterior is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
B2011	Replace B2011 - Stucco paint	14,000.0 - SF	3.5	IN - Appearance	Priority 2	2017	48,955

Item	Description
B2011 Exterior Wall Construction	B2011 Unfinished Concrete
Condition	Fair - Good
Qty / UOM	28000 / SF
RUL (years)	2
Location	Exteriors
Exterior Wall Construction	Finished Concrete

OBSERVATIONS/COMMENTS:

Building exterior concrete is stained by storm water. Small amounts of moss are present. Based on the condition, exterior power washing is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
B2011	Replace B2011 Unfinished Concrete	28,000.0 - SF	4.3	IN - Appearance	Priority 2	2017	120,826

Item	Description
B2023 Storefronts	B2020- Storefronts
Condition	Good
Qty / UOM	250 / LF
RUL (years)	0
Location	Exteriors
Window Type	Fixed
Windows Material	Aluminum

OBSERVATIONS/COMMENTS:

Isolated window leaks have been reported. Based on RUL, gasket replacement is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
B2023	Replace B2020-Storefronts	250.0 - LF	48.3	IN - Beyond Rated Life	Priority 1	2015	12,084

COST SUMMARY:

Type	Year	Total Expenditures
B20 Exterior Enclosure	2015	\$12,084
B20 Exterior Enclosure	2017	\$169,781

B30 ROOFING

Item	Description
B3011 Roof Finishes	B3011 Single Ply Epdm with Insulation, Fully Adhered 45 Mills, Including Demo
Condition	Fair
Qty / UOM	400 / SQ
RUL (years)	3
Location	Roof
Roof Drainage	Internal Building Piping

OBSERVATIONS/COMMENTS:

Based on RUL, roofing replacement is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
B3011	Replace B3011 Single Ply Epdm with Insulation, Fully Adhered 45 Mills, Including Demo	400.0 - SQ	1784.3	IN - Beyond Rated Life	Priority 2	2018	713,704

Item	Description
B3011 Roof Finishes	B3011 Polycarbonate panels
Condition	Fair
Qty / UOM	9000 / SF
RUL (years)	3
Location	Roof

OBSERVATIONS/COMMENTS:

Skylights are comprised of polycarbonate panels, which are leaking, fading, and discoloring. Based on RUL, polycarbonate panel replacement is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
B3011	Replace B3011 Polycarbonate panels	9,000.0 - SF	177.1	IN - Beyond Rated Life	Priority 2	2018	1,594,318

COST SUMMARY:

Type	Year	Total Expenditures
B30 Roofing	2018	\$2,308,022

C Interiors Systems

C10 INTERIOR CONSTRUCTION

Item	Description
C1035 Identifying Devices	C1035 Restroom Signage
Condition	Fair
Qty / UOM	8 / EA
RUL (years)	0
Location	Throughout building

OBSERVATIONS/COMMENTS:

Restrooms did not have required signage on side of wall near entrance doors. Installation of signage is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
C1035	Replace C1035 Restroom Signage	8.0 - EA	124.0	CC - Accessibility	Priority 1	2015	992

COST SUMMARY:

Type	Year	Total Expenditures
C10 Interior Construction	2015	\$992

C30 INTERIOR FINISHES

Item	Description
C3005 ADA Renovations	C1011 ADA Compliant Toilet Partitions
Condition	Fair
Qty / UOM	2 / EA
RUL (years)	0
Location	Restrooms

OBSERVATIONS/COMMENTS:

There are no accessible toilet stalls with 60-inch turning radius. These should be provided, but will require reconfiguration of the restrooms.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
C3005	Replace C1011 ADA Compliant Toilet Partitions	2.0 - EA	31372.0	CC - Accessibility	Priority 1	2015	62,744

Item	Description
C3024 Flooring	C3024 Vinyl Tile
Condition	Good
Qty / UOM	120 / SY
RUL (years)	5
Location	Throughout building

OBSERVATIONS/COMMENTS:

Building had only small amounts of vinyl tile. Based on RUL, replacement is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
C3024	Replace	120.0 - SY	125.8	IN - Appearance	Priority 4	2020	15,094

Item	Description
C3025 Carpeting	C3025 Carpet Tiles - Standard
Condition	Good
Qty / UOM	9950 / SY
RUL (years)	3
Location	Throughout building

OBSERVATIONS/COMMENTS:

Based on the remaining useful life (RUL), carpet replacement is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
C3025	Replace	9,950.0 - SY	96.6	IN - Appearance	Priority 3	2018	961,226

Item	Description
C3032 Suspended Ceilings	C3032 Acoustical Ceiling Tiles - Partial
Condition	Poor - Fair
Qty / UOM	150 / CSF
RUL (years)	0
Location	Throughout building

OBSERVATIONS/COMMENTS:

Some ceilings have an exposed concrete waffle structure, with a smaller acoustic ceiling tile within the individual ceiling. Remaining ceiling tiles are standard suspended acoustic tiles. Isolated tiles are worn or stained. Based on RUL, as-needed acoustic tile replacement is recommended during the assessment period.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
C3032	Replace	150.0 - CSF	1201.6	IN - Appearance	Priority 2	2015	180,234

COST SUMMARY:

Type	Year	Total Expenditures
C30 Interior Finishes	2015	\$242,978
C30 Interior Finishes	2018	\$961,226
C30 Interior Finishes	2020	\$15,094

D Services Systems

D10 CONVEYING SYSTEMS

Item	Description
D1011 Passenger Elevators	D1011 Traction Geared Elevator - Low rise 4000 lbs
Condition	Good
Qty / UOM	2 / EA
RUL (years)	5
Location	Passenger Elevator Room -Roof
Elevator Style	Passenger
Elevator Type	Traction
Certificate of Inspection Expired	No

OBSERVATIONS/COMMENTS:

Two passenger elevators service all four floors. Both elevators originate on the first floor, with a capacity of 4000 lbs. each, with 20-hp motors. Reference the consultant's full report as a separate document.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D1011	D1011 Emergency intercom requires hands free operation	2.0 - EA	250.0	CC - Accessibility	Priority 1	2015	500
D1011	D1011 Install raised buttons in the cars and halls to comply with section T24.	30.0 - EA	100.0	CC - Building Code	Priority 1	2015	3,000
D1011	D1011 Add floor passing chime to both elevators.	2.0 - EA	1500.0	CC - Building Code	Priority 1	2015	3,000

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D1011	D1011 Perform five year full load tests on both traction cars.	2.0 - EA	3000.0	CC - Building Code	Priority 1	2015	6,000
D1011	D1011 Adjust cars for optimal performance.	2.0 - EA	1500.0	OP - Maintenance	Priority 2	2015	3,000
D1011	D1011 Install door restrictors on both cars.	2.0 - EA	3000.0	CC - Building Code	Priority 1	2015	6,000

Item	Description
D1012 Freight Elevators	D1012 Hydraulic freight elevator
Condition	Good
Qty / UOM	1 / EACH
RUL (years)	5
Location	Freight elevator room
Elevator Style	Freight
Elevator Type	Traction
Machinery Location	Penthouse At The Top Of The Shaft
Elevator Cab Finishes	Vinyl-Tile
Elevator Doors	Electronic Safety Stops
Elevator Light Fixtures	Recessed Ceiling
Certificate of Inspection Location	Elevator Cab

OBSERVATIONS/COMMENTS:

Freight elevator has a capacity of 4000 lbs.; the motor is 50-hp. Reference the full report completed as a separate document.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D1012	D1011 Install a 21" car apron on the hydraulic elevator.	1.0 - EA	1500.0	CC - Building Code	Priority 1	2015	1,500
D1012	D1011 Add floor passing chime to elevator.	1.0 - EA	1500.0	CC - Building Code	Priority 1	2015	1,500
D1012	D1011 Install door restrictors on car.	1.0 - EA	3000.0	CC - Building Code	Priority 1	2015	3,000

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D1012	D1011 Adjust car for optimal performance	1.0 - EA	1500.0	OP - Maintenance	Priority 2	2015	1,500

COST SUMMARY:

Type	Year	Total Expenditures
D10 Conveying Systems	2015	\$29,000

D20 PLUMBING

Item	Description
D2011 Water Closets	D2011 Water Closet 1.6 Gpf
Condition	Fair
Qty / UOM	32 / EA
RUL (years)	0
Location	Throughout facility

OBSERVATIONS/COMMENTS:

The toilets are functional and have been fitted with automatic flush valves. Long term life cycle replacements are budgeted. Eight water closets require ADA accessibility upgrades.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2011	Replace D2011 Water Closet 1.6 Gpf	32.0 - EA	1233.1	IN - Beyond Rated Life	Priority 1	2015	39,461
D2011	D2011 Make ADA wheelchair accessible water closet area	8.0 - EA	3120.0	CC - Accessibility	Priority 1	2015	24,960

Item	Description
D2012 Urinals	D2012 Urinals with sensors
Condition	Good
Qty / UOM	16 / EA
RUL (years)	5
Location	Throughout facility

OBSERVATIONS/COMMENTS:

The urinals are functional and have been fitted with automatic flush valves. Long term life cycle replacements are budgeted.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2012	Replace D2012 Urinals with sensors	16.0 - EA	2250.7	IN - Beyond Rated Life	Priority 3	2020	36,012

Item	Description
D2013 Lavatories	D2013 Restroom Sink and Faucet
Condition	Good
Qty / UOM	32 / EA
RUL (years)	5
Location	Throughout facility

OBSERVATIONS/COMMENTS:

The restroom sinks are fitted with automatic faucets. They were in good working condition, but due to age, will require life cycle replacement.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2013	Replace D2013 Restroom Sink and Faucet	32.0 - EA	1667.8	IN - Beyond Rated Life	Priority 3	2020	53,371

Item	Description
D2018 Drinking Fountains and Coolers	D2010 Drinking Fountains
Condition	Good
Qty / UOM	6 / EA
RUL (years)	8
Location	Throughout facility

OBSERVATIONS/COMMENTS:

Drinking fountains are near rest room areas. They were upgraded in 2014 with automatic bottle fillers. Replacement within the term is anticipated.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2018	Replace D2010 Drinking Fountains	6.0 - EA	2874.9	IN - Beyond Rated Life	Priority 4	2023	17,250

Item	Description
D2023 Domestic Water Supply Equipment	D2023 Solar collectors for DHW
Condition	Poor
Qty / UOM	15 /
RUL (years)	0
Location	Roof

OBSERVATIONS/COMMENTS:

Solar water collectors on the roof are original to the building. They have been disconnected from the system, and should be removed.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2023	Replace D2023 Solar collectors for DHW	15.0 -	2539.4	FN - Obsolescence	Priority 1	2015	38,090

Item	Description
D2023 Domestic Water Supply Equipment	D2023 DHW Mixing valve
Condition	Poor
Qty / UOM	1 / EA
RUL (years)	0
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

The mixing valve mixes the heat exchanger DHW with cold water, and supplies it to the building at 110 degrees Fahrenheit. There was an issue of water never reaching the restrooms at 110 degrees Fahrenheit, due to heat loss within building. This requires increasing the temperature of the loop; increasing the size of recirculation pump is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2023	Replace D2023 DHW Mixing valve	1.0 - EA	8260.0	EN - Air/ Water Quality	Priority 1	2015	8,260

Item	Description
D2023 Domestic Water Supply Equipment	D2023 Solar Water Storage Tank 100 Gal
Condition	Fair
Qty / UOM	4 / EA
RUL (years)	0
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

There are four unused hot water tanks for solar, original to building. They should be removed.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2023	Replace D2023 Solar Water Storage Tank 100 Gal	4.0 - EA	8377.1	FN - Obsolescence	Priority 1	2015	33,508

Item	Description
D2023 Domestic Water Supply Equipment	D2023 Chilled Water Pumps (30 hp) water
Condition	Poor
Qty / UOM	2 / EA
RUL (years)	0
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

Chilled water booster pumps, each 30-hp, supply the chilled water to the air handlers located on the roof. Replacement of pumps and the addition of a coordinated VFD are recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2023	Replace D2023 Chilled Water Pumps (30 hp) water	2.0 - EA	45977.5	OP - Energy	Priority 1	2015	91,955
D2023	D2023 New VFD Drive	2.0 - ea	12375.0	OP - Energy	Priority 2	2015	24,750

Item	Description
D2023 Domestic Water Supply Equipment	D2023 Electric Hot Water Heater
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	Cafeteria

OBSERVATIONS/COMMENTS:

Replacement of small electric water heater for the cafeteria area is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2023	Replace D2023 Electric Hot Water Heater	1.0 - EA	2575.7	IN - Beyond Rated Life	Priority 3	2020	2,576

Item	Description
D2023 Domestic Water Supply Equipment	D2023 CW Booster Pumps
Condition	Poor - Fair
Qty / UOM	3 / EA
RUL (years)	0
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

Chilled water booster pumps supply the cold water to the cold section of DHW supply. There are frequent leaks occurring, according to building staff. Replacement is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2023	Replace D2023 CW Booster Pumps	3.0 - EA	2980.1	FN - Modernization	Priority 1	2015	8,940

Item	Description
D2023 Domestic Water Supply Equipment	D2023 Air Separator
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

Air separator was in good working condition. Life cycle cost is added.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2023	Replace D2023 Air Separator	1.0 - EA	20461.2	IN - Beyond Rated Life	Priority 3	2020	20,461

Item	Description
D2034 Sanitary Waste Equipment	D2034 Sump Pump 1/4 hp
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	5
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

The sump pump is for the mechanical room. It is beyond rated life, and recommended to be replaced.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D2034	Replace D2034 Sump Pump 1/4 hp	1.0 - EA	1238.5	IN - Beyond Rated Life	Priority 3	2020	1,239

COST SUMMARY:

Type	Year	Total Expenditures
D20 Plumbing	2015	\$269,925
D20 Plumbing	2020	\$113,658
D20 Plumbing	2023	\$17,250

D30 HVAC

Energy Supply	
Item	Description
Fuel Oil Type	N/A
Fuel Gas Type	N/A
Solid Fuel Type	N/A
District Heat Type	District Steam
District Cooling Type	District Chilled Water
Solar Thermal	N/A
Fuel Tank Type	N/A
Fuel Tank Size (gallons)	N/A
Fuel Tank Location	N/A
Gas Meter Location	N/A
Electrical Meter Location	main electrical room
Water Meter Location	near loading dock

Item	Description
D3022.1 Circulating Pumps	D3022.1 Pumps HW distribution 5hp no VFD
Condition	Good
Qty / UOM	2 / EA
RUL (years)	3
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

There are two 5-hp hot water distribution pumps for the building. They circulate hot water to the air handlers on the roof. VFD is recommended for greater energy savings. Life cycle cost of pump is also added.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3022	Replace D3022.1 Pumps HW distribution 5hp no VFD	2.0 - EA	26054.9	OP - Energy	Priority 3	2018	52,110
D3022	D3022 New VFD drives	2.0 - ea	12375.0	OP - Energy	Priority 3	2018	24,750

Item	Description
D3023 Auxiliary Equipment	D3023 Steam pressure reducer system
Condition	Fair - Good
Qty / UOM	1 / EA
RUL (years)	0
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

The existing steam pressure reduction system is nearing the end of its life. Currently the steam reduction system drops the district steam from 250 psi to 15 psi to the hot water heat exchanger, in order to exchange heat with the hot water circulation system. Recommend fully modernizing with digital controls and upgrading piping and valve system.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3023	Replace D3023 Steam pressure reducer system	1.0 - EA	20901.3	FN - Modernization	Priority 1	2015	20,901

Item	Description
D3023 Auxiliary Equipment	D3023 Diesel Fuel Oil Pump Set, 25 Gpm
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

The diesel pump supplies diesel from the outdoor diesel tank to the generator tank on the roof. Life cycle replacement cost added.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3023	Replace D3023 Diesel Fuel Oil Pump Set, 25 Gpm	1.0 - EA	2972.3	IN - Beyond Rated Life	Priority 3	2020	2,972

Item	Description
D3023 Auxiliary Equipment	D3023 240 Gallon Expansion Tank
Condition	Poor
Qty / UOM	1 / EA
RUL (years)	0
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

Expansion tanks for the domestic hot water system closed loop, designed to protect it from excessive pressure, were present in the mechanical room. One tank was in good condition and working adequately. The other was not functioning, and needs to be replaced.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3023	Replace D3023 240 Gallon Expansion Tank	1.0 - EA	19373.8	IN - Beyond Rated Life	Priority 1	2015	19,374

Item	Description
D3023 Auxiliary Equipment	D3023 Expansion Tank 158 Gal
Condition	Good
Qty / UOM	1 / EA
RUL (years)	8
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

Expansion tanks for the domestic hot water system closed loop, designed to protect it from excessive pressure, were present in the mechanical room. Based on their RUL, replacement is anticipated during the term.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3023	Replace D3023 Expansion Tank 158 Gal	1.0 - EA	11961.0	IN - Beyond Rated Life	Priority 4	2023	11,961

Item	Description
D3041.1 Air Handling Units	D3041.1 Fan Coil Unit 3 Ton,
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	Cafeteria

OBSERVATIONS/COMMENTS:

Fan coil units provide conditioned air to the cafeteria. All rooms are maintained at 76 degrees Fahrenheit. The fan coil units are ceiling-mounted and hidden behind acoustic ceiling tiles. According to building staff, they are working adequately and repaired on as-needed basis. They supply conditioned air to multiple diffusers. Motor replacement is recommended for better energy savings.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041 New motor	1.0 - ea	831.0	OP - Energy	Priority 3	2020	831

Item	Description
D3041.1 Air Handling Units	D3041 AHU IT room 5000 CFM Motors
Condition	Fair
Qty / UOM	2 / EA
RUL (years)	10
Location	IT Room

OBSERVATIONS/COMMENTS:

Multiple air handlers supply the VAV boxes located in office areas with desired air temperature based on the call for heating or cooling from the zonal temperature sensors. All AHUs are equipped with two-pipe HWS or CWS loop for heating or cooling. Dampers on the air handlers are pneumatic, controlled by EMS. There are VFDs for all supply and return AHU motors, also controlled by EMS. The equipment was working adequately, and only life cycle replacement beyond rated life is recommended for the motors.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041.1 Air Handling Units	2.0 - ea	831.0	OP - Energy	Priority 3	2020	1,662

Item	Description
D3041.1 Air Handling Units	D3041 AHU 5000 CFM Motors
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	Auditorium

OBSERVATIONS/COMMENTS:

Multiple air handlers supply the VAV boxes located in the auditorium with desired air temperature, based on the call from the zonal temperature sensors. All AHUs are equipped with two-pipe HWS or CWS loop for heating or cooling. Dampers on the air handlers are pneumatic, controlled by EMS. There are VFDs for all supply and return AHU motors, also controlled by EMS. The equipment was working adequately and only life cycle replacement beyond rated life is recommended for the motors.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041.1 Air Handling Units	1.0 - ea	938.0	OP - Energy	Priority 3	2020	938

Item	Description
D3041.1 Air Handling Units	D3041 Air handler 2400 cfm with cooling.
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

Multiple air handlers supply VAV boxes located in office areas with desired air temperature, based on the call from zonal temperature sensors. All AHUs are equipped with two-pipe HWS or CWS loops for heating or cooling. Dampers on the air handlers are pneumatic, controlled by EMS. There are VFDs for all supply and return AHU motors, also controlled by EMS. The equipment was working adequately, and only life cycle replacement beyond rated life is recommended for the motors.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041 Motor replacement 1.5 hp	1.0 - ea	831.0	OP - Energy	Priority 3	2020	831

Item	Description
D3041.1 Air Handling Units	D3041 AHU 27000 CFM - External
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	South Penthouse-Roof

OBSERVATIONS/COMMENTS:

One variable air volume air (VAV) handler on the south side roof of the building supplies approximately 27,000 CFM to all floors on the south side. The motor is rated to be 25-hp, and is controlled by a variable frequency drive (VFD). The dampers for the air handler are controlled by pneumatic controls, which open and close based on the call from zonal thermostats. Replacement of existing motor is recommended, due to being beyond rated life.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041 New Motor	1.0 - ea	2723.0	OP - Energy	Priority 3	2020	2,723

Item	Description
D3041.1 Air Handling Units	D3041 AHU 55,000 CFM - Internal
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	South Penthouse-Roof

OBSERVATIONS/COMMENTS:

Multiple air handlers supply the VAV boxes located in internal office areas with desired air temperature, based on the call from the zonal temperature sensors. All AHUs are equipped with two-pipe HWS or CWS loop for heating or cooling. Dampers on the air handlers are pneumatic, controlled by EMS. There are VFDs for all supply and return AHU motors, also controlled by EMS. The equipment was working adequately, and only life cycle replacement is recommended for the motors.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041 Motor replacement 75hp	1.0 - ea	9713.0	OP - Energy	Priority 3	2020	9,713

Item	Description
D3041.1 Air Handling Units	D3041 AHU 27000 CFM - External
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	North Penthouse Room- Roof

OBSERVATIONS/COMMENTS:

One VAV handler on the north side on the roof of the building supplies approximately 27,000 CFM to all floors on north side of the building. The motor is rated to be 25-hp and is controlled by VFD. The dampers for the air handler are controlled by pneumatic controls, which open and close based on the call from zonal thermostats. Replacement of existing motor is recommended, due to beyond rated life status.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041 New Motor	1.0 - ea	2723.0	OP - Energy	Priority 3	2020	2,723

Item	Description
D3041.1 Air Handling Units	D3041 AHU 55,000 CFM - Internal
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	North Penthouse Room- Roof

OBSERVATIONS/COMMENTS:

Multiple air handlers supply the VAV boxes located in internal office areas with desired air temperature, based on the call from the zonal temperature sensors. All AHUs are equipped with two-pipe HWS or CWS loop for heating or cooling. Dampers on the air handlers are pneumatic, controlled by EMS. There are VFDs for all supply and return AHU motors, also controlled by EMS. The equipment was working adequately. Replacement of existing motors is recommended, due to beyond rated life

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	D3041 New Motor 75hp	1.0 - ea	9713.0	OP - Energy	Priority 3	2020	9,713

Item	Description
D3041.2 Terminal Units VAV	D3041.2 VAV Boxes- interior
Condition	Poor - Fair
Qty / UOM	180 / EA
RUL (years)	0
Location	Throughout facility

OBSERVATIONS/COMMENTS:

The facility is heated and cooled by VAV supplied with conditioned air from the central system air handlers. Most are original to the building and are replaced as needed. The interior VAVs have return ducts. The exterior VAV is supplied directly from AHU and has no flow control. Even though both can be adjusted to the same set point, there are significant temperature swings on mild days. A further study is recommended to provide better control of interior and perimeter spaces. Based on the age of the units, lifecycle replacement is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3041	Replace D3041.2 VAV Boxes- interior	180.0 - EA	3460.5	OP - Energy	Priority 1	2015	622,889
D3041	D3041 Further HVAC study for temperature control for interior and exterior VAVs	1.0 - ea	7250.0	OP - Energy	Priority 1	2015	7,250

Item	Description
D3042 Exhaust Ventilation Systems	D3042 Return fans 4600 cfm
Condition	Fair - Good
Qty / UOM	1 / EA
RUL (years)	10
Location	Auditorium

OBSERVATIONS/COMMENTS:

There is one 5-hp return fan for the auditorium, which serves as exhaust for the auditorium. The motor on the exhaust fan is at the end of its life cycle, and replacement is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3042	D3042 New motor	1.0 - ea	938.0	OP - Energy	Priority 3	2020	938

Item	Description
D3042 Exhaust Ventilation Systems	D3042 Exhaust fan restroom 5500 CFM
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	7
Location	North Penthouse Room- Roof
Ventilation Fan Manufacturer	Aladdin

OBSERVATIONS/COMMENTS:

Exhaust fan is connected to all the restrooms in the building. The total capacity of the unit is 5500 CFM, 1.5-hp motor with constant operation. Due to the beyond rated lifetime of the motor, replacement is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3042	D3042 New motor 1.5 hp	1.0 - ea	831.0	OP - Energy	Priority 4	2022	831

Item	Description
D3042 Exhaust Ventilation Systems	D3042 Return fans 46000 cfm
Condition	Fair - Good
Qty / UOM	1 / EA
RUL (years)	10
Location	North Penthouse Room- Roof

OBSERVATIONS/COMMENTS:

Return air handlers are connected to multiple return ducts within the building and work in tandem with the supply fans. The equipment was working adequately, and only life cycle replacement beyond rated life is recommended for the motors.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3042	D3042 New motor 30 hp	1.0 - ea	3166.0	OP - Energy	Priority 3	2020	3,166

Item	Description
D3042 Exhaust Ventilation Systems	D3042 Return fans 46000 cfm
Condition	Fair - Good
Qty / UOM	1 / EA
RUL (years)	10
Location	South Penthouse-Roof

OBSERVATIONS/COMMENTS:

Return air handlers are connected to the multiple return ducts within the building. It works in tandem with the supply fans. The equipment was working adequately, and only life cycle replacement beyond rated life is recommended for the motors.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3042	D3042 Motor replacement 30hp	1.0 - ea	3166.0	OP - Energy	Priority 3	2020	3,166

Item	Description
D3042 Exhaust Ventilation Systems	D3042 Exhaust fan restroom 6010 CFM
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	7
Location	South Penthouse-Roof
Ventilation Fan Manufacturer	Aladdin

OBSERVATIONS/COMMENTS:

Exhaust fan is connected to all the restrooms in the building. The total capacity of the unit is 43000 CFM, with a 15-hp motor with constant operation. Replacement of the motor is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3042	D3042 Motor replacement 1.5 hp	1.0 - ea	831.0	OP - Energy	Priority 4	2022	831

Item	Description
D3043 Steam Distribution Systems	D3043 Heat Exchanger for Heating
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	0
Location	Mechanical Room- Basement
Heat Exchangers Purpose	Space Heating
Heat Exchanger Process	Steam To Liquid

OBSERVATIONS/COMMENTS:

There are shell-and-tube steam-to-hot water heat exchangers for hot water heating to the building. Low pressure steam enters the heat exchangers, and exchanges heat with the circulating hot water. There is an ongoing gasket issue with the heat exchangers, original to the building. Life cycle replacement is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3043	Replace D3043 Heat Exchanger for Heating	1.0 - EA	5818.1	IN - Beyond Rated Life	Priority 1	2015	5,818

Item	Description
D3043 Steam Distribution Systems	D3043 Heat Exchanger for DHW
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	13
Location	Mechanical Room- Basement
Heat Exchangers Purpose	Domestic Hot Water Production
Heat Exchanger Process	Steam To Liquid

OBSERVATIONS/COMMENTS:

This is a shell-and-tube steam-to-hot water heat exchanger for domestic hot water (DHW) to the building. It includes a 400 gallon tank. Low pressure steam enters the heat exchanger, and exchanges heat with the circulating hot water. The unit was replaced in 2008 and is in good condition. No further action is required.

Item	Description
D3043 Steam Distribution Systems	D3043 Duplex Condensate Return System, Two 3/4 HP
Condition	Poor
Qty / UOM	1 / EA
RUL (years)	0
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

The condensate return pump system requires replacement.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3043	Replace D3043 Duplex Condensate Return System, Two 3/4 HP	1.0 - EA	20316.5	IN - Beyond Rated Life	Priority 1	2015	20,316

Item	Description
D3052 Package Units	D3052 AC Dx Package (Liebert) 5-Ton
Condition	Good
Qty / UOM	2 / EA
RUL (years)	5
Location	IT Room

OBSERVATIONS/COMMENTS:

Liebert chilled DX units are installed on the ceiling, and provide cooling for the computer and IT rooms. They contain R-22 refrigerant. They are original to the building, and replacement with higher efficiency units is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3052	Replace D3052 AC Dx Package (Liebert) 5-Ton	2.0 - EA	18440.8	FN - Modernization	Priority 3	2020	36,882

Item	Description
D3052 Package Units	D3052 Wall mounted Cooling Unit 1.5 Ton
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	Passenger Elevator Room -Roof

OBSERVATIONS/COMMENTS:

Life cycle replacement is anticipated.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3052	Replace D3052 Wall mounted Cooling Unit 1.5 Ton	1.0 - EA	7677.3	IN - Beyond Rated Life	Priority 3	2020	7,677

Item	Description
D3052 Package Units	D3052 Dx Cooling Unit 1.5 Ton
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	Passenger Elevator Room -Roof

OBSERVATIONS/COMMENTS:

Life cycle replacement added.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3052	Replace D3052 Dx Cooling Unit 1.5 Ton	1.0 - EA	2673.8	IN - Beyond Rated Life	Priority 3	2020	2,674

Item	Description
D3068 Building Automation Systems	D3068 Upgrade to Digital (DDC) from Pneumatic System
Condition	Fair
Qty / UOM	142378 / SF
RUL (years)	0
Location	Throughout facility

OBSERVATIONS/COMMENTS:

The building controls are pneumatic and work based on air pressure supplied by the central utility plant. All thermostats and damper controls are controlled via pneumatics for the building. The controls are original to the building. Pneumatic systems are prone to leakage and maintenance issues. Configuring variable speed controls to work with existing pneumatic system is problematic. A full replacement of the pneumatic system and conversion to a web-based electronic DDC platform is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D3068	Replace D3068 Upgrade to Digital (DDC) from Pneumatic System	142,378.0 - SF	8.2	FN - Modernization	Priority 1	2015	1,172,284

COST SUMMARY:

Type	Year	Total Expenditures
D30 HVAC	2015	\$1,868,832
D30 HVAC	2018	\$76,860
D30 HVAC	2020	\$86,609
D30 HVAC	2022	\$1,662
D30 HVAC	2023	\$11,961

D40 FIRE PROTECTION SYSTEMS

Fire and Life Safety System	
Item	Description
Fire Alarm System Components Present	
Smoke detectors	Yes
Pull stations	Yes
Audible alarms	Yes
Strobe lights	Yes
Central fire alarm panel	Yes
Annunciator panel	N/A
Smoke Detectors Power Supply	N/A
Carbon Monoxide Detectors	N/A
Heat Detector	N/A
Central Fire Alarm Panel Location	N/A
Annunciator Panel Location	N/A
Fire Extinguishers	Yes
Fire Extinguisher Inspection Date	January 28, 2014
Distance to Nearest Fire Hydrant (ft)	20
Illuminated Exit Signs	N/A
Kitchen Suppression Systems	N/A
Halon Gas Systems	N/A
Smoke Evacuation Systems	N/A
Fire-rated Stairwells	Yes
Fire-rated Stairwell Finish	Drywall
Stairwell Discharge	N/A
Stairwell Pressurized	N/A
Fire-Rated Doors Observed	N/A
Location of Fire-Rated Doors	Stairwells
Fire Alarm Service Company	N/A
Date of Last Fire Alarm Service	N/A
Are the individual office unit fire alarm systems monitored?	N/A
Are the common area fire alarm systems monitored?	N/A
Types of Common Areas Monitored	N/A
Fire Alarm Monitoring Company	N/A

Item	Description
D4011 Sprinkler Water Supply	D4011 Wet- Pipe Sprinkler system
Condition	Poor
Qty / UOM	124457 / SF
RUL (years)	0
Location	Throughout facility

OBSERVATIONS/COMMENTS:

The entire facility lacks a fire suppression overhead sprinkler system, except the basement. It is recommended that a facility-wide fire suppression retrofit be performed as a life safety improvement.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D4011	Replace D4011 Wet-Pipe Sprinkler system	124,457.0 - SF	8.3	CC - Life Safety	Priority 1	2015	1,028,015

Item	Description
D4024 Fire Hose Equipment	D4024 Fire hoses
Condition	Good
Qty / UOM	16 / EA
RUL (years)	15
Location	Throughout facility

OBSERVATIONS/COMMENTS:

No further action required.

COST SUMMARY:

Type	Year	Total Expenditures
D40 Fire Protection Systems	2015	\$1,028,015

D50 ELECTRICAL SYSTEMS

Item	Description
D5012 Low Tension Service & Dist.	D5012 Breaker Panel <225 amps
Condition	Fair
Qty / UOM	25 / EA
RUL (years)	7
Location	Electrical Rooms

OBSERVATIONS/COMMENTS:

The breaker panels in all electrical rooms are 1982 Gould ITE equipment. The electrical service is reportedly adequate for the facility's needs, and the panels are in working condition. Due to the age of the components, long-term lifecycle replacement is anticipated.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D5012	Replace D5012 Breaker Panel <225 amps	25.0 - EA	7864.3	IN - Beyond Rated Life	Priority 4	2022	196,608

Item	Description
D5012 Low Tension Service & Dist.	D5010 Emergency Switchboard 2400 Amps
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	Main Electrical Room-Basement

OBSERVATIONS/COMMENTS:

The main emergency switchgear is 1982 General Electric equipment. The electrical service is reportedly adequate for the facility's needs, and the switchgear is in working condition. No further action is required.

Item	Description
D5012 Low Tension Service & Dist.	D5010 Switchgear Service and Distribution 1600 Amps
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	Main Electrical Room-Basement

OBSERVATIONS/COMMENTS:

The main switchgear is original 1982 General Electric equipment. The electrical service is reportedly adequate for the facility's needs, and the switchgear is in working condition. No further action is required.

Item	Description
D5012 Low Tension Service & Dist.	D5012 Dry Transformer 45 kVA
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	Main Electrical Room-Basement

OBSERVATIONS/COMMENTS:

The secondary transformers in all electrical rooms are original to 1982. The electrical service is reportedly adequate for the facility's needs, and the panels are in working condition. No further action is required.

Item	Description
D5012 Low Tension Service & Dist.	D5012 Dry Transformer 45 KVA
Condition	Fair
Qty / UOM	4 / EA
RUL (years)	10
Location	Electrical Rooms

OBSERVATIONS/COMMENTS:

The secondary transformers in all electrical rooms are original to 1982. The electrical service is reportedly adequate for the facility's needs, and the panels are in working condition. No further action is required.

Item	Description
D5012 Low Tension Service & Dist.	D5012 Dry Transformer 75 kVA
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	Main Electrical Room-Basement

OBSERVATIONS/COMMENTS:

The secondary transformers in all electrical rooms are original to 1982. The electrical service is reportedly adequate for the facility's needs, and the panels are in working condition. No further action is required.

Item	Description
D5012 Low Tension Service & Dist.	D5012 Dry Transformer 75 KVA
Condition	Fair
Qty / UOM	1 / EA
RUL (years)	10
Location	Electrical Rooms

OBSERVATIONS/COMMENTS:

The secondary transformers in all electrical rooms are original 1982. The electrical service is reportedly adequate for the facility's needs, and the panels are in working condition. No further action is required.

Item	Description
D5012 Low Tension Service & Dist.	D5012 Dry Transformer 30 kVA
Condition	Fair
Qty / UOM	4 / EA
RUL (years)	10
Location	Electrical Rooms

OBSERVATIONS/COMMENTS:

The secondary transformers in all electrical rooms are original to 1982. The electrical service is reportedly adequate for the facility's needs, and the panels are in working condition. No further action is required.

Item	Description
D5012 Low Tension Service & Dist.	D5012 Electrical Distribution Panel, 400 Amp
Condition	Fair
Qty / UOM	2 / EA
RUL (years)	10
Location	North Penthouse Room- Roof
Service Size (Amperage)	1200
Service Voltage	277/480
Service Voltage Type	Three-Phase Four-Wire Alternating Current (Ac)

OBSERVATIONS/COMMENTS:

The breaker panels in AHU rooms are original 1982 Gould ITE equipment. The electrical service is reportedly adequate for the facility's needs and the panels are in working, functional condition. No further action is required.

Item	Description
D5022 Lighting Equipment	D5022 Circular 100 W HPS Fixtures
Condition	Fair
Qty / UOM	9 / EA
RUL (years)	10
Location	4th Floor

OBSERVATIONS/COMMENTS:

Interior accent lighting has not been in service since 2000, due to energy concerns. No further action required.

Item	Description
D5022 Lighting Equipment	D5022 Light Fixtures at Acoustical Ceilings
Condition	Fair
Qty / UOM	187 / EA
RUL (years)	0
Location	Acoustical Ceiling Areas

OBSERVATIONS/COMMENTS:

Replacement of the light fixtures will need to take place when the ceiling tiles are replaced.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D5022	Replace D5022 Light Fixtures at Acoustical Ceilings	187.0 - EA	401.2	FN - Modernization	Priority 1	2015	75,024

Item	Description
D5022 Lighting Equipment	D5020 Light Fixtures at Open Ceilings
Condition	Good
Qty / UOM	1362 / EA
RUL (years)	10
Location	Throughout Building

OBSERVATIONS/COMMENTS:

The existing light fixtures will require routine maintenance.

Item	Description
D5022 Lighting Equipment	D5022 T8 Lamps upgrade
Condition	Poor
Qty / UOM	40 / EA
RUL (years)	0
Location	North and South Penthouse Room- Roof

OBSERVATIONS/COMMENTS:

The penthouse rooms are inadequately lighted. Cost added for T8 lighting upgrade.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D5022	Replace D5022 T8 Lamps upgrade	40.0 - EA	264.8	CC - Building Code	Priority 1	2015	10,592

Item	Description
D5022 Lighting Equipment	D5022 T10 lamps replace with Induction 65 W canopies
Condition	Fair - Good
Qty / UOM	10 / EA
RUL (years)	3
Location	Loading Dock

OBSERVATIONS/COMMENTS:

Recommended replacing T-10 fixtures with induction 65 watt canopies.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D5022	Replace D5022 T10 lamps replace with Induction 65 W canopies	10.0 - EA	890.7	IN - Beyond Rated Life	Priority 3	2018	8,907

Item	Description
D5022 Lighting Equipment	D5022 100 W HPS Uplighting Fixtures
Condition	Fair
Qty / UOM	11 / EA
RUL (years)	10
Location	4th Floor

OBSERVATIONS/COMMENTS:

The interior accent lighting has not been used since 2000 due to energy concerns. No further action required.

Item	Description
D5022 Lighting Equipment	D5022 Wall Pack 150 Watt HPS
Condition	Fair
Qty / UOM	4 / EA
RUL (years)	0
Location	Exterior

OBSERVATIONS/COMMENTS:

Photo sensor controlled. Due to being beyond useful life, replacement is required.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D5022	Replace D5022 Wall Pack 150 Watt HPS	4.0 - EA	1311.6	IN - Beyond Rated Life	Priority 1	2015	5,247

Item	Description
D5037 Fire Alarm Systems	D5037 Fire Alarm System
Condition	Fair - Good
Qty / UOM	142378 / SF
RUL (years)	0
Location	Throughout Building

OBSERVATIONS/COMMENTS:

The fire alarm system needs to be upgraded. Replacement costs are added to include the entire building.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D5037	Replace D5037 Fire Alarm System	142,378.0 - SF	3.5	CC - Life Safety	Priority 1	2015	504,018

Item	Description
D5092 Emergency Light & Power Systems	D5092 Emergency Generator- 230 KW
Condition	Good
Qty / UOM	1 / EA
RUL (years)	10
Location	North Penthouse Room- Roof

OBSERVATIONS/COMMENTS:

The existing generator is located on the roof and appears to be in working condition. It includes a 56 gallon fuel tank. It provides power for basic emergency lighting for the building only. No further action is required.

Item	Description
D5092 Emergency Light & Power Systems	D5092 UPS Battery Transformer 80 kVA
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	IT Room

OBSERVATIONS/COMMENTS:

The UPS battery provides coverage for the IT and computer room. Life cycle replacement cost is added.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
D5092	Replace D5092 UPS Battery Transformer 80 kVA	1.0 - EA	7582.7	IN - Beyond Rated Life	Priority 3	2020	7,583

COST SUMMARY:

Type	Year	Total Expenditures
D50 Electrical Systems	2015	\$594,881
D50 Electrical Systems	2018	\$8,907
D50 Electrical Systems	2020	\$7,583
D50 Electrical Systems	2022	\$196,608

E Equipment & Furnishing Systems

E10 EQUIPMENT

Item	Description
E1019 Other Commercial Equipment	D3069 Air compressor backup
Condition	Good
Qty / UOM	1 / EA
RUL (years)	5
Location	Mechanical Room- Basement

OBSERVATIONS/COMMENTS:

A 7.5-hp air compressor for pneumatic backup is located in the mechanical room. It is functioning properly, however, replacement is recommended due to beyond-rated life.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
E1019	Replace D3069 Air compressor backup	1.0 - EA	6071.0	IN - Beyond Rated Life	Priority 4	2020	6,071

COST SUMMARY:

Type	Year	Total Expenditures
E10 Equipment	2020	\$6,071

G Building Sitework Systems

G20 SITE IMPROVEMENTS

Site Information	
Item	Description
Main Ingress and Egress	P Street
Access from	W
Additional Entrances	N/A
Access from	N/A
Parking Count: Open lot	6
Parking Count: Sheltered by carports	N/A
Parking Count: Private garages	N/A
Parking Count: Subterranean garage	N/A
Parking Count: Freestanding parking structure	N/A
Number of ADA Compliant Spaces	0
Number of ADA Compliant Spaces for Vans	0
Method of obtaining parking count	Physical count
Property Identification Sign-Primary	Structure mounted
Property Identification Sign- Secondary	N/A
Illuminated Identification Signage	N/A
Building Identification Sign	Yes
Illuminated Sign	No
Location of Property ID Sign	Front elevation of building
Trees Present	Yes
Shrubs Present	Yes
Grasses Present	No
Flower beds Present	No
Decorative Rocks Present	No
Lava Rocks Present	No
Ponds Present	No
Fountains Present	No
Topography	Flat

Item	Description
G2041 Fences & Gates	G2041 Metal Tube Steel Fence
Condition	Poor - Fair
Qty / UOM	20 / LF
RUL (years)	0
Location	Site

OBSERVATIONS/COMMENTS:

Lack of fencing at a small exterior patio on the northwest corner of the building has allowed vegetation and trash to accumulate on the exterior, and enter the building interior. The debris enters through a ventilation opening above a mechanical room. Installation of fencing, or similar solution is recommended.

COST RECOMMENDATIONS:

Type	Component Description	Qty / UOM	Unit Cost (\$)	Plan Type	Priority	Year	Expenditures (\$)
G2041	Install fencing	20.0 - LF	160.0	OP - Maintenance	Priority 2	2015	3,200

COST SUMMARY:

Type	Year	Total Expenditures
G20 Site Improvements	2015	\$3,200

G30 SITE CIVIL/MECHANICAL UTILITIES

Item	Description
G3063 Fuel Storage Tanks	G3063 Diesel Tank,Underground 500 Gallon
Condition	Good
Qty / UOM	1 / EA
RUL (years)	30
Location	Exterior

OBSERVATIONS/COMMENTS:

Pumps from the diesel storage tanks in the mechanical room provide fuel to the rooftop generator. No further action is required.

The weather at the time of the assessment was:

Item	Description
Approximate Outdoor Temperature (degrees F)	60
Weather Conditions	Clear
Snow Covering Ground	No
Wind Conditions	Little to no wind

The documentation provided at the time of the assessment is as:

Item	Description
Site Plan Reviewed	Yes
Floor Plan Reviewed	Yes
Construction Drawings Reviewed	Yes
Termite Inspection Report Reviewed	No
Boiler Certificates Reviewed	No
Document Year Built Information Obtained From	DGS POC

APPENDIX C: CERTIFICATION

EMG has completed a FCA of the subject property listed on the cover page. The FCA was performed at the Client's request using methods and procedures consistent with good commercial and customary practice conforming with ASTM E2018-08, Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process. Within this Property Condition Report (PCR), EMG's reference to the Client follows the ASTM guide's definition of User, that is, the party that retains EMG for the preparation of a baseline FCA of the subject property.

This report is exclusively for the use and benefit of the Client identified on the first page of this report. The purpose for which this report shall be used shall be limited to the use as stated in the contract between the client and EMG.

The opinions EMG expresses in this report were formed utilizing the degree of skill and care ordinarily exercised by any prudent architect or engineer in the same community under similar circumstances. EMG assumes no responsibility or liability for the accuracy of information contained within this report that has been obtained from the Client or the Client's representatives, from other interested parties, or from the public domain. The conclusions presented represent EMG's professional judgment based on information obtained during the course of this assignment. EMG's evaluations, analyses, and opinions are not representations regarding the building design, structural soundness, or actual value of the property. Factual information regarding operations, conditions, and test data provided by the Client or the Client's representative has been assumed to be correct and complete. The conclusions presented within this report are based on the data provided, observations made, and conditions that existed specifically on the date of the assessment. EMG certifies that EMG has no undisclosed interest in the subject property, that EMG's relationship with the Client is at arms-length, and that EMG's employment and compensation are not contingent upon the findings or estimated costs to remedy any noted deficiencies due to deferred maintenance and/or any noted component or system replacements.

EMG's FCA cannot wholly eliminate the uncertainty regarding the presence of physical deficiencies and/or the performance of a subject property's building systems. Preparation of a FCA in accordance with ASTM E2018-08 is intended to reduce, but not eliminate, the uncertainty regarding the potential for component or system failure and to reduce the potential that such component or system failure may not be initially observed. This FCA was prepared recognizing the inherent subjective nature of EMG's opinions as to such issues as workmanship, quality of original installation, and estimating the remaining useful life of any given component or system. It should be understood that EMG's suggested remedy may be determined under time constraints or may be formed without the aid of engineering calculations, testing, exploratory probing, the removal of materials, or design. Furthermore, there may be other alternate or more appropriate schemes or methods to remedy the noted physical deficiencies. EMG's opinions are generally formed without detailed knowledge from individuals familiar with the performance of noted components or systems.

Any questions regarding this report should be directed to the Program Manager.

Prepared By: Timothy Harder, Field Observer

Reviewed By: 
Matt Anderson, Program Manager

APPENDIX D: PHOTOS



B2011 - Stucco paint :- Painted Stucco



B2011 Unfinished Concrete:- Staining



B2020- Storefronts :- Storefront door system



B3011 Single Ply Epdm with Insulation, Fully Adhered 45 Mills, Including Demo:- Single Ply EPDM roof



B3011 Polycarbonate panels :- Polycarbonate panels



C3025 Carpet Tiles - Standard



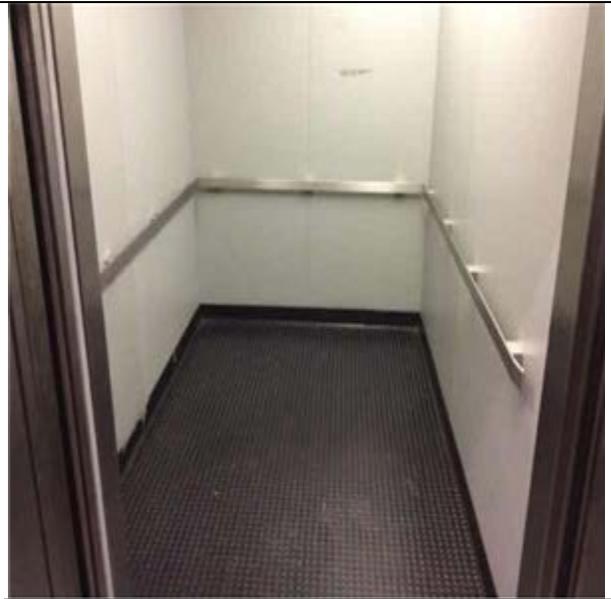
C3032 Acoustical Ceiling Tiles - Partial :- Damaged acoustic ceiling tile



D1011 Traction Geared Elevator - Low rise 4000 lbs



D1012 Hydraulic freight elevator



D1012 Hydraulic freight elevator



D2011 Water Closet 1.6 Gpf



D2012 Urinals with sensors



D2013 Restroom Sink and Faucet



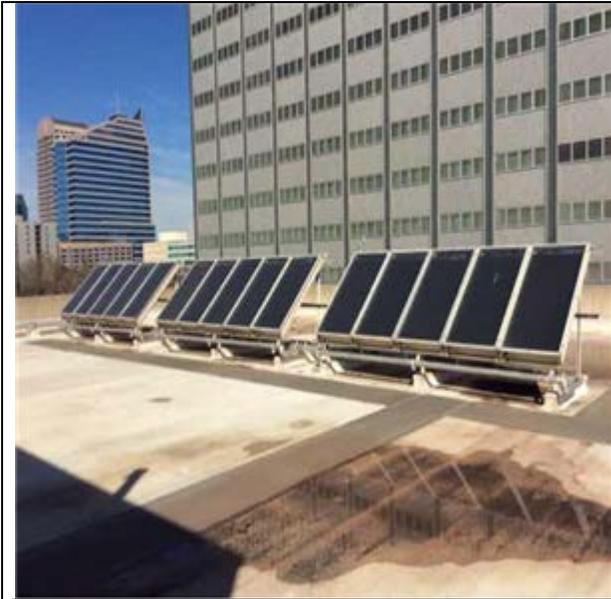
D2010 Drinking Fountains



D2023 Electric Hot Water Heater



D2023 Solar Water Storage Tank 100 Gal



D2023 Solar collectors for DHW



D2023 Chilled Water Pumps (30 hp) water



D2023 Air Separator



D2023 CW Booster Pumps



D2023 DHW Mixing valve



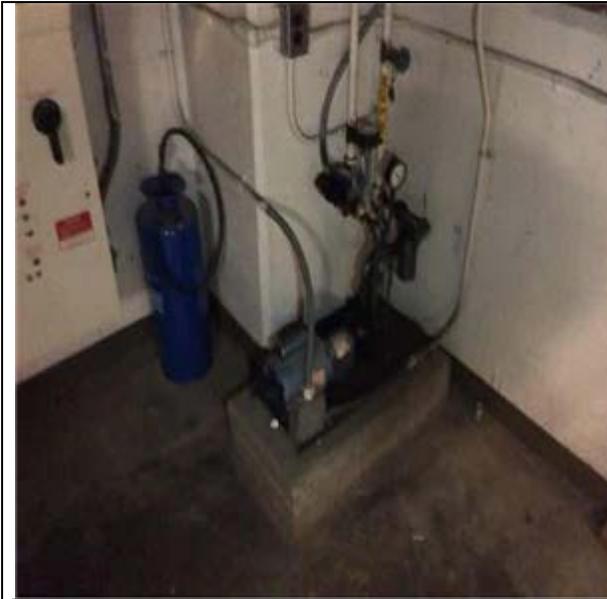
D3022.1 Pumps HW distribution 5hp no VFD



D3023 Expansion Tank 158 Gal



D3023 240 Gallon Expansion Tank



D3023 Diesel Fuel Oil Pump Set, 25 Gpm



D3023 Steam pressure reducer system



D3041 AHU 27000 CFM - External



D3041 AHU 27000 CFM - External



D3041 AHU 55,000 CFM - Internal



D3041 AHU 27000 CFM - External



D3041 AHU 27000 CFM - External



D3041 Air handler 2400 cfm with cooling.



D3041.1 Fan Coil Unit 3 Ton,



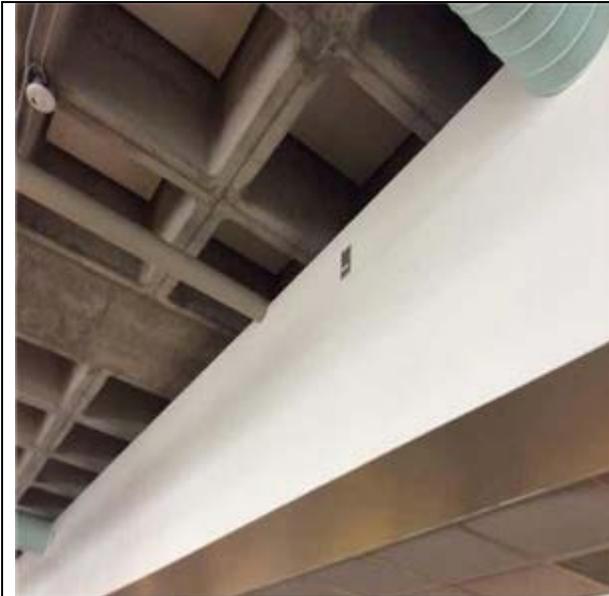
D3041 AHU 55,000 CFM - Internal



D3041 AHU IT room 5000 CFM Motors



D3041 AHU 5000 CFM Motors



D3041.2 VAV Boxes- interior



D3041.2 VAV Boxes- interior



D3042 Return fans 46000 cfm



D3042 Return fans 4600 cfm



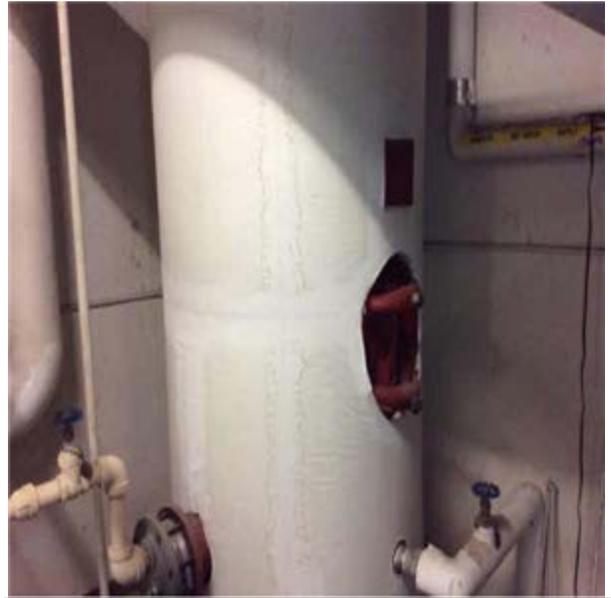
D3042 Exhaust fan restroom 5500 CFM



D3042 Exhaust fan restroom 6010 CFM



D3043 Heat Exchanger for Heating



D3043 Heat Exchanger for DHW



D3043 Duplex Condensate Return System, Two 3/4 HP



D3052 Wall mounted Cooling Unit 1.5 Ton



D3052 Dx Cooling Unit 1.5 Ton



D3052 AC Dx Package (Liebert) 5-Ton



D3052 AC Dx Package (Liebert) 5-Ton



D4011 Wet- Pipe Sprinkler system



D4011 Wet- Pipe Sprinkler system



D4024 Fire hoses



D5012 Breaker Panel <225 amps



D5012 Dry Transformer 75 KVA



D5012 Electrical Distribution Panel, 400 Amp



D5012 Dry Transformer 45 kVA



D5010 Emergency Switchboard 2400 Amps



D5012 Dry Transformer 30 kVA



D5010 Switchgear Service and Distribution 1600 Amps



D5012 Dry Transformer 45 KVA



D5012 Dry Transformer 75 kVA



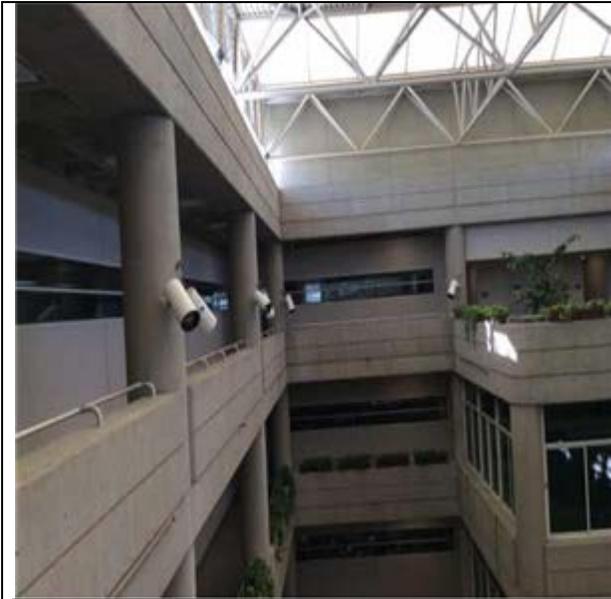
D5022 100 W HPS Uplighting Fixtures



D5022 T10 lamps replace with Induction 65 W canopies



D5022 Wall Pack 150 Watt HPS



D5022 Circular 100 W HPS Fixtures



D5037 Fire Alarm System



D5092 UPS Battery Transformer 80 kVA



D5092 Emergency Generator- 230 KW



D5092 Emergency Generator- 230 KW



D3069 Air compressor backup



G3063 Diesel Tank,Underground 500 Gallon

APPENDIX E: TERMINOLOGY AND ABBREVIATIONS

TERMINOLOGY and ABBREVIATIONS	
Actual Knowledge	Information or observations known first hand by EMG.
ADA	The Americans with Disabilities Act
AHU	Air Handling Unit
Ancillary Structures	Structures that are not the primary improvements of the Property but which may have been constructed to provide support uses.
ASTM	American Society for Testing and Materials
Baseline	A minimum scope level of observation, inquiry, research, documentation review, and cost estimating for conducting a Property Condition Assessment as normally conducted by EMG.
BOMA	Building Owners & Managers Association
Building	Referring to the primary building or buildings on the Property, which are within the scope of the FCA.
Building Codes	A compilation of rules adopted by the municipal, county and/or state governments having jurisdiction over the Property that govern the property's design &/or construction of buildings.
Building Department Records	Information concerning the Property's compliance with applicable Building, Fire and Zoning Codes that is readily available for use by EMG within the time frame required for production of the Property Condition Assessment.
Building Systems	Interacting or interdependent components that comprise a building such as structural, roofing, side wall, plumbing, HVAC, water, sanitary sewer and electrical systems.
BUR	Built Up Roof
CBC	California Building Code
Component	A piece of equipment or element in its entirety that is part of a system.
CFM	Cubic Feet per Minute, usually referring to air flow in a heating or cooling system.
Dangerous or Adverse Conditions	Situations which may pose a threat or possible injury to the Project Manager, or those situations which may require the use of special protective clothing, safety equipment, access equipment, or any precautionary measures.
Deferred Maintenance	Deficiencies that result from postponed maintenance, or repairs that have been put off until a later time and that require repair or replacement to an acceptable condition relative to the age of the system or property.
DHW	Domestic Hot Water
DDC	Direct Digital Controls, for HVAC systems
Dismantle	To take apart; disassemble; tear down any component, device or piece of equipment that is bolted, screwed, secured, or fastened by other means.
DWV	Drainage Waste Ventilation
EPDM	Ethylene propylene diene terpolymer, a single ply roofing material, usually black
EIFS	Exterior Insulation and Finish System
EMS	Energy Management System
Engineering	Analysis or design work requiring extensive formal education, preparation and experience in the use of mathematics, chemistry, physics, and the engineering sciences as provided by a Professional Engineer licensed to practice engineering by any state of the 50 states.
Expected Useful Life (EUL)	The average amount of time in years that a system or component is estimated to function when installed new.

TERMINOLOGY and ABBREVIATIONS	
FEMA	Federal Emergency Management Agency
Fire Department Records	Information generated or acquired by the Fire Department having jurisdiction over the Property, and that is readily available to EMG within the time frame required for production of the FCA.
FIRM	Flood Insurance Rate Maps
FM	Factory Mutual
FRT	Fire Retardant Treated
Guide	A series of options or instructions that do not recommend a specific course of action.
HP	Horse Power, a unit of measure for pumps and motors.
HVAC	Heating, Ventilating & Air Conditioning
IAQ	Indoor Air Quality
Immediate Repairs	Physical deficiencies that require immediate action as a result of: (i) existing or potentially material unsafe conditions, (ii) significant negative conditions impacting tenancy/marketability, (iii) material building code violations, or (iv) poor or deteriorated condition of critical element or system, or (v) a condition that if left “as is”, with an extensive delay in addressing same, has the potential to result in or contribute to critical element or system failure within one (1) year.
Interviews	Interrogatory with those knowledgeable about the Property.
kVA	Kilo Volt Amps, a measurement used for electrical devices where Amps is the plural of Amperage, a measure of electrical force.
kW	One thousand Watts, a measure of electrical output.
Material	Having significant importance or great consequence to the asset’s intended use or physical condition.
MEP	Mechanical, Electrical, and Plumbing
NFPA	National Fire Protection Association
Observations	The results of the Project Manager’s Walk-through Survey.
Observe	The act of conducting a visual, unaided survey of items, systems or conditions that are readily accessible and easily visible on a given day as a result of the Project Manager’s walk-through.
Obvious	That which is plain or evident; a condition that is readily accessible and can be easily seen by the Project Manager as a result of his Walk-through without the removal of materials, moving of chattel, or the aid of any instrument, device, or equipment.
Owner	The entity holding the deed to the Property that is the subject of the FCA.
Physical Deficiency	Patent, conspicuous defects, or significant deferred maintenance of the Property’s material systems, components, or equipment as observed during the Project Manager’s Walk-through Survey. Material systems, components, or equipment that are approaching, have realized, or have exceeded their typical Expected Useful Life (EUL); or, that have exceeded their useful life result of abuse, excessive wear and tear, exposure to the elements, or lack of proper or adequate maintenance. This definition specifically excludes deficiencies that may be remedied with routine maintenance, miscellaneous repairs, normal operating maintenance, and conditions that do not present a material deficiency to the Property.
PVC	Poly Vinyl Chloride

TERMINOLOGY and ABBREVIATIONS	
Practically Reviewable	Information that is practically reviewable means that the information is provided by the source in a manner and form that, upon examination, yields information relevant to the property without the need for extraordinary analysis of irrelevant data.
Practice	A definitive procedure for performing one or more specific operations or functions that does not produce a test result.
Primary Improvements	The site and building improvements that are of fundamental importance with respect to the Property.
Project Manager	The individual Professional Engineer, Contractor, or Registered Architect having a general, well rounded knowledge of all pertinent site and building systems and components that conducts the on site visit and walk-through observation.
Property	The site and building improvements, which are specifically within the scope of the FCA to be prepared in accordance with the agreement between the Client and EMG.
Readily Accessible	Those areas of the Property that are promptly made available for observation by the Project Manager without the removal of materials or chattel, or the aid of any instrument, device, or equipment at the time of the Walk-through Survey.
Reasonably Ascertainable	Information that is publicly available, provided to EMG's offices from either its source or an information research/retrieval concern, practically reviewable, and available at a nominal cost for either retrieval, reproduction or forwarding.
Recreational Facilities	Spas, saunas, steam baths, swimming pools, tennis courts, playground equipment, and other exercise, entertainment, or athletic facilities.
Remaining Useful Life (RUL)	<p>The consultant's professional opinion of the number of years before a system or component will require replacement or reconditioning. The estimate is based upon observation, available maintenance records, and accepted EUL's for similar items or systems.</p> <p>Inclement weather, exposure to the elements, demand on the system, quality of installation, extent of use, and the degree and quality of preventive maintenance exercised are all factors that could impact the RUL of a system or component. As a result, a system or component may have an effective age greater or less than its actual age. The RUL may be greater or less than its Expected Useful Life (EUL) less actual age.</p>
Replacement Costs	Costs to replace the system or component "in kind" based on Invoices or Bid Documents provided by the current owner or the client, construction costs developed by construction resources such as <i>Means</i> and <i>Dodge</i> , EMG's experience with past costs for similar properties, or the current owner's historical incurred costs.
RTU	Rooftop Unit
Shut-Down	Equipment or systems that are not operating at the time of the Project Manager's Walk-through Survey. Equipment or systems may be considered shutdown if it is not in operation as a result of seasonal temperatures.
Significant	Important, material, and/or serious.
Site Visit	The visit to the property by EMG's Project Manager including walk-through visual observations of the Property, interviews of available project personnel and tenants (if appropriate), review of available documents and interviews of available municipal personnel at municipal offices, all in accordance with the agreement for the Property Condition Assessment.

TERMINOLOGY and ABBREVIATIONS	
Specialty Consultants	Practitioners in the fields of engineering, architecture; or, building system mechanics, specialized service personnel or other specialized individuals that have experience in the maintenance and repair of a particular building component, equipment, or system that have acquired detailed, specialized knowledge in the design, assessment, operation, repair, or installation of the particular component, equipment, or system.
Structural Component	A component of the building, which supports non-variable forces or weights (dead loads) and variable forces or weights (live loads).
Suggested Remedy	A preliminary opinion as to a course of action to remedy or repair a physical deficiency. There may be alternate methods that may be more commensurate with the Client's requirements. Further investigation might make other schemes more appropriate or the suggested remedy unworkable. The suggested remedy may be to conduct further research or testing, or to employ Specialty Consultants to gain a better understanding of the cause, extent of a deficiency (whether observed or highly probable), and the appropriate remedy.
Survey	Observations as the result of a walk-through scan or reconnaissance to obtain information by EMG of the Property's readily accessible and easily visible components or systems.
System	A combination of interacting or interdependent components assembled to carry out one or more functions.
Technically Exhaustive	The use of measurements, instruments, testing, calculations, exploratory probing or discover, and/or other means to discover and/or troubleshoot Physical Deficiencies, develop scientific or Engineering findings, conclusions, and recommendations.
Term	Reserve Term: The number of years that Capital Reserves are projected for as specified in the Expenditure Forecast.
TPO	Thermoplastic polyolefin, a white single ply roofing material, usually white
Timely Access	Entry provided to the Project Manager at the time of his site visit.
UST	Underground Storage Tank
Walk-through Survey	The Project Manager's site visit of the Property consisting of his visual reconnaissance and scan of readily accessible and easily visible components and systems. This definition connotes that such a survey should not be considered in depth, and is to be conducted without the aid of special protective clothing, exploratory probing, removal of materials, testing, or the use of special equipment such as ladders, scaffolding, binoculars, moisture meters, air flow meters, or metering/testing equipment or devices of any kind. It is literally the Project Manager's walk of the Property and observations.

APPENDIX F: BUILDING FACT SHEET

ENERGY COMMISSION OFFICE BUILDING FACT SHEET

1516 Ninth Street
Sacramento
Sacramento County

Category 3 - Low Priority - Special Repairs and Maintenance

BUILDING INFORMATION

- Age: 32 years (completed in 1982)
- Size:*
 - 4-story
 - 143,162 GSF 124,457 NUSF 124,457 Assigned SF
 - 1.55 Acre Parcel
 - No parking
 - Capacity - 668 occupants
 - Building includes a hearing room with 125-person seating capacity and state-of-the-art sound system, and a 1,600 sf cafeteria.



- Financial:
 - No Encumbrances
 - BRA Rate - \$1.64/month per SF, FY 2013-14 (DGS Price Book)
 - \$1.69/month per SF, FY 2014-15 (Proposed DGS Price Book)
 - Central Plant rate an additional \$0.60/month per SF
 - LEED Status: Registered for LEED-EB Certification
 - Tenants: The California Energy Commission is the primary occupant with approximately 1,600 SF assigned to the Department of Rehabilitation, and the balance of the space assigned to the DGS for various purposes.
- | | |
|------------------|------|
| SPI Structure #: | 2402 |
| Real Property #: | 681 |
| BPM #: | 008 |

COMPLETED STUDIES AND SIGNIFICANT FINDINGS

A. 2010 American Disability Act Accessibility Compliance Survey

The survey revealed areas of inaccessibility including restrooms (identification signage, doors, toilet facilities), drinking fountains, tactile exit (route, directional), stairway width and handrail extensions, ramps (hearing room), elevators, and alarms.

B. 2012 Access Compliance Conceptual Budget/Evaluation

In follow up to the 2010 American Disability Act Accessibility Compliance Survey this report provides the Conceptual Cost and Path of Travel Plans. ADA upgrades have been proposed for this building as part of DGS's ten year ADA Compliance Upgrades and Deferred Special Repairs Program.

ADDITIONAL BUILDING ISSUES

Some ADA upgrades were already completed in FY 2005-06, but more need to be implemented. Restrooms throughout the building are in need of flooring upgrades.

CURRENT UTILIZATION PROJECTS

No current utilization projects.

RECENTLY COMPLETED PROJECTS

TBD

Cost

ACTIVE PROJECTS

TBD

Cost

PLANNED SPECIAL REPAIRS BY FISCAL YEAR

TBD

Estimated Cost

DGS STRATEGY: This building has been nominated as a Zero Net Energy renovation project. Reevaluate the need for further study for this building. Continue to operate/maintain the building as-is through the special repairs/maintenance process; no capital outlay work is required at this location at this time.

* Source: Statewide Property Inventory

APPENDIX G: COST TABLES

10 YEAR EXPENDITURE FORECAST



Warren-Alquist State Energy Building
1516 Ninth Street
Sacramento, California

Useful Life	Estimated Useful Life	Plan Type	OP: Operations	CC: Code Compliance	Legend
	Remaining Useful Life		EN: Environmental	FN: Functionality	
			IN: Integrity		Deferred
					Scheduled

Element #	Component Description	Asset	Location	Action	EUL (Yrs)	RUL (Yrs)	Qty.	Unit Meas.	Unit Cost	Plan Type	Priority	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total - Deferred	Total - Scheduled										
												Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9												
A. SUBSTRUCTURE																																	
Substructure Subtotal												\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B. SHELL																																	
B20 EXTERIOR ENCLOSURE																																	
B2011	Finished Concrete	B2011 Unfinished Concrete	Exteriors	Replace B2011 Unfinished Concrete	12	2	28,000.00	SF	\$4.32	IN - Appearance	Priority 2	\$0	\$0	\$120,826	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$120,826									
B2011	Stucco and Lath	B2011 - Stucco paint	Exteriors	Replace B2011 - Stucco paint	10	2	14,000.00	SF	\$3.50	IN - Appearance	Priority 2	\$0	\$0	\$48,955	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$48,955									
B2023	B2023 Storefronts	B2020- Storefronts	Exteriors	Replace B2020- Storefronts	30	0	250.00	LF	\$48.34	IN - Beyond Rated Life	Priority 1	\$12,084	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,084									
B30 ROOFING																																	
B3011	Tempered Glass Roofing (DBL GLAZED)	B3011 Polycarbonate panels	Roof	Replace B3011 Polycarbonate panels	40	3	9,000.00	SF	\$177.15	IN - Beyond Rated Life	Priority 2	\$0	\$0	\$0	\$1,594,318	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,594,318									
B3011	Single Ply Epdm with Insulation, Fully Adhered 45 Mills, Including Demo	B3011 Single Ply Epdm with Insulation, Fully Adhered 45 Mills, Including Demo	Roof	Replace B3011 Single Ply Epdm with Insulation, Fully Adhered 45 Mills, Including Demo	20	3	400.00	SQ	\$1,784.26	IN - Beyond Rated Life	Priority 2	\$0	\$0	\$0	\$713,704	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$713,704								
Shell Subtotal												\$12,084	\$0	\$169,781	\$2,308,022	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,084	\$2,477,803	
C. INTERIORS																																	
C10 INTERIOR CONSTRUCTION																																	
C1035	Room Signage	C1035 Restroom Signage	Throughout building	Replace C1035 Restroom Signage	20	0	8.00	EA	\$124.00	CC - Accessibility	Priority 1	\$992	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$992	\$0									
C30 INTERIOR FINISHES																																	
C3005	C3005 ADA Renovations	C1011 ADA Compliant Toilet Partitions	Restrooms	Replace C1011 ADA Compliant Toilet Partitions	20	0	2.00	EA	\$31,372.00	CC - Accessibility	Priority 1	\$62,744	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$62,744	\$0								
C3024	Vinyl Tile	C3024 Vinyl Tile	Throughout building	Replace	18	5	120.00	SY	\$125.78	IN - Appearance	Priority 4	\$0	\$0	\$0	\$0	\$15,094	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,094								
C3025	Carpet Tiles - Standard	C3025 Carpet Tiles - Standard	Throughout building	Replace	10	3	9,950.00	SY	\$96.61	IN - Appearance	Priority 3	\$0	\$0	\$0	\$961,226	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$961,226								
C3032	Acoustical Ceiling Tiles - Partial	C3032 Acoustical Ceiling Tiles - Partial	Throughout building	Replace	15	0	150.00	CSF	\$1,201.56	IN - Appearance	Priority 2	\$180,234	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$180,234	\$0								
Interiors Subtotal												\$243,970	\$0	\$961,226	\$2,308,022	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$243,970	\$976,319
D. SERVICES																																	
D10 CONVEYING SYSTEMS																																	
D1011	Traction Geared Elevator - Low Rise	D1011 Traction Geared Elevator - Low rise 4000 lbs	Passenger Elevator Room - Roof	D1011 Add floor passing chime to both elevators.	20	0	2.00	EA	\$1,500.00	CC - Building Code	Priority 1	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0								
	Traction Geared Elevator - Low Rise	D1011 Traction Geared Elevator - Low rise 4000 lbs	Passenger Elevator Room - Roof	D1011 Adjust cars for optimal performance.	20	0	2.00	EA	\$1,500.00	OP - Maintenance	Priority 2	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0							
	Traction Geared Elevator - Low Rise	D1011 Traction Geared Elevator - Low rise 4000 lbs	Passenger Elevator Room - Roof	D1011 Emergency intercom requires hands free operation	20	0	2.00	EA	\$250.00	CC - Accessibility	Priority 1	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500	\$0							
	Traction Geared Elevator - Low Rise	D1011 Traction Geared Elevator - Low rise 4000 lbs	Passenger Elevator Room - Roof	D1011 Install door restrictors on both cars.	20	0	2.00	EA	\$3,000.00	CC - Building Code	Priority 1	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0							
	Traction Geared Elevator - Low Rise	D1011 Traction Geared Elevator - Low rise 4000 lbs	Passenger Elevator Room - Roof	D1011 Install raised buttons in the cars and halls to comply with section T24.	20	0	30.00	EA	\$100.00	CC - Building Code	Priority 1	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0							
	Traction Geared Elevator - Low Rise	D1011 Traction Geared Elevator - Low rise 4000 lbs	Passenger Elevator Room - Roof	D1011 Perform five year full load tests on both traction cars.	20	0	2.00	EA	\$3,000.00	CC - Building Code	Priority 1	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0							
D1012	Elevator Controls - Motor Controller	D1012 Hydraulic freight elevator	Freight elevator room	D1011 Add floor passing chime to elevator.	20	0	1.00	EA	\$1,500.00	CC - Building Code	Priority 1	\$1,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500	\$0								
	Elevator Controls - Motor Controller	D1012 Hydraulic freight elevator	Freight elevator room	D1011 Adjust car for optimal performance	20	0	1.00	EA	\$1,500.00	OP - Maintenance	Priority 2	\$1,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500	\$0								
	Elevator Controls - Motor Controller	D1012 Hydraulic freight elevator	Freight elevator room	D1011 Install a 21" car apron on the hydraulic elevator.	20	0	1.00	EA	\$1,500.00	CC - Building Code	Priority 1	\$1,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500	\$0								
	Elevator Controls - Motor Controller	D1012 Hydraulic freight elevator	Freight elevator room	D1011 Install door restrictors on car.	20	0	1.00	EA	\$3,000.00	CC - Building Code	Priority 1	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0								
D20 PLUMBING																																	
D2011	Commercial Grade Water Closet With 1.6 Gpf Unit	D2011 Water Closet 1.6 Gpf	Throughout facility	D2011 Make ADA wheelchair accessible water closet area	20	0	8.00	EA	\$3,120.00	CC - Accessibility	Priority 1	\$24,960	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24,960	\$0								
	Commercial Grade Water Closet With 1.6 Gpf Unit	D2011 Water Closet 1.6 Gpf	Throughout facility	Replace D2011 Water Closet 1.6 Gpf	25	0	32.00	EA	\$1,233.15	IN - Beyond Rated Life	Priority 1	\$39,461	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$39,461	\$0							
D2012	Urinal with 1.0 Gpf Model	D2012 Urinals with sensors	Throughout facility	Replace D2012 Urinals with sensors	35	5	16.00	EA	\$2,250.73	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$36,012	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$36,012								
D2013	Counter Top Sink and Faucet	D2013 Restroom Sink and Faucet	Throughout facility	Replace D2013 Restroom Sink and Faucet	35	5	32.00	EA	\$1,667.84	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$53,371	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$53,371								
D2018	Drinking Fountain	D2010 Drinking Fountains	Throughout facility	Replace D2010 Drinking Fountains	10	8	6.00	EA	\$2,874.93	IN - Beyond Rated Life	Priority 4	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,250	\$0	\$0	\$0	\$17,250								
D2023	Air Separator	D2023 Air Separator	Mechanical Room-Basement	Replace D2023 Air Separator	20	5	1.00	EA	\$20,461.20	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$0	\$20,461	\$0	\$0	\$0	\$0	\$0	\$0	\$20,461								
D2023	Water Storage Tank 120 Gallon	D2023 Solar Water Storage Tank 100 Gal	Mechanical Room-Basement	Replace D2023 Solar Water Storage Tank 100 Gal	30	0	4.00	EA	\$8,377.06	FN - Obsolescence	Priority 1	\$33,508	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$33,508								
D2023	Hydronic Circulating Pump, 30 HP	D2023 Chilled Water Pumps (30 hp) water	Mechanical Room-Basement	D2023 New VFD Drive	20	0	2.00	ea	\$12,375.00	OP - Energy	Priority 2	\$24,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24,750								
	Hydronic Circulating Pump, 30 HP	D2023 Chilled Water Pumps (30 hp) water	Mechanical Room-Basement	Replace D2023 Chilled Water Pumps (30 hp) water	20	0	2.00	EA	\$45,977.52	OP - Energy	Priority 1	\$91,955	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$91,955								
D2023	30-Gallon Residential Electric Hot Water Heater	D2023 Electric Hot Water Heater	Cafeteria	Replace D2023 Electric Hot Water Heater	12	5	1.00	EA	\$2,575.70	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,576								
D2023	Booster Pumps	D2023 CW Booster Pumps	Mechanical Room-Basement	Replace D2023 CW Booster Pumps	10	0	3.00	EA	\$2,980.11	FN - Modernization	Priority 1	\$8,940	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,940								
D2023	D2023 Domestic Water Supply Equipment	D2023 DHW Mixing valve	Mechanical Room-Basement	Replace D2023 DHW Mixing valve	15	0	1.00	EA	\$8,260.00	EN - Air/ Water Quality	Priority 1	\$8,260	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,260								
D2023	D2023 Domestic Water Supply Equipment	D2023 Solar collectors for DHW	Roof	Replace D2023 Solar collectors for DHW	20	0	15.00	EA	\$2,539.36	FN - Obsolescence	Priority 1	\$38,090	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$38,090								
D2034	Sump Pump,	D2034 Sump Pump 1/4 hp	Mechanical Room-Basement	Replace D2034 Sump Pump 1/4 hp	20	5	1.00	EA	\$1,238.50	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$1,239	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,239								
D30 HVAC																																	
D3022.1	Circulation Pump 30 HP	D3022.1 Pumps HW distribution 5hp no VFD	Mechanical Room-Basement	D3022 New VFD drives	20	3	2.00	ea	\$12,375.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$24,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24,750								
	Circulation Pump 30 HP	D3022.1 Pumps HW distribution 5hp no VFD	Mechanical Room-Basement	Replace D3022.1 Pumps HW distribution 5hp no VFD	20	3	2.00	EA	\$26,054.88	OP - Energy	Priority 3	\$0	\$0	\$0	\$52,110	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$52,110								
D3023	200 Gallon Expansion Tank	D3023 240 Gallon Expansion Tank	Mechanical Room-Basement	Replace D3023 240 Gallon Expansion Tank	20	0	1.00	EA	\$19,373.76	IN - Beyond Rated Life	Priority 1	\$19,374	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,374								
D3023	200 Gallon Expansion Tank	D3023 Expansion Tank 158 Gal	Mechanical Room-Basement	Replace D3023 Expansion Tank 158 Gal	25	8	1.00	EA	\$11,961.04	IN - Beyond Rated Life	Priority 4	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,961	\$0	\$0	\$11,961								
D3023	Diesel Fuel Oil Pump Set, 25 Gpm	D3023 Diesel Fuel Oil Pump Set, 25 Gpm	Mechanical Room-Basement	Replace D3023 Diesel Fuel Oil Pump Set, 25 Gpm	20	5	1.00	EA	\$2,972.28	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,972								
D3023	Condensate return system (SIMPLEX PUMP, FLOAT SWITCH, 3/4 HP, 15 GPM)	D3023 Steam pressure reducer system	Mechanical Room-Basement	Replace D3023 Steam pressure reducer system	20	0	1.00	EA	\$20,901.30	FN - Modernization	Priority 1	\$20,901	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$20,901								
D3041.1	Central Station Ahu 63000 CFM	D3041 AHU 27000 CFM - External	South Penthouse-Roof	D3041 New Motor	20	5	1.00	ea	\$2,723.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,723								

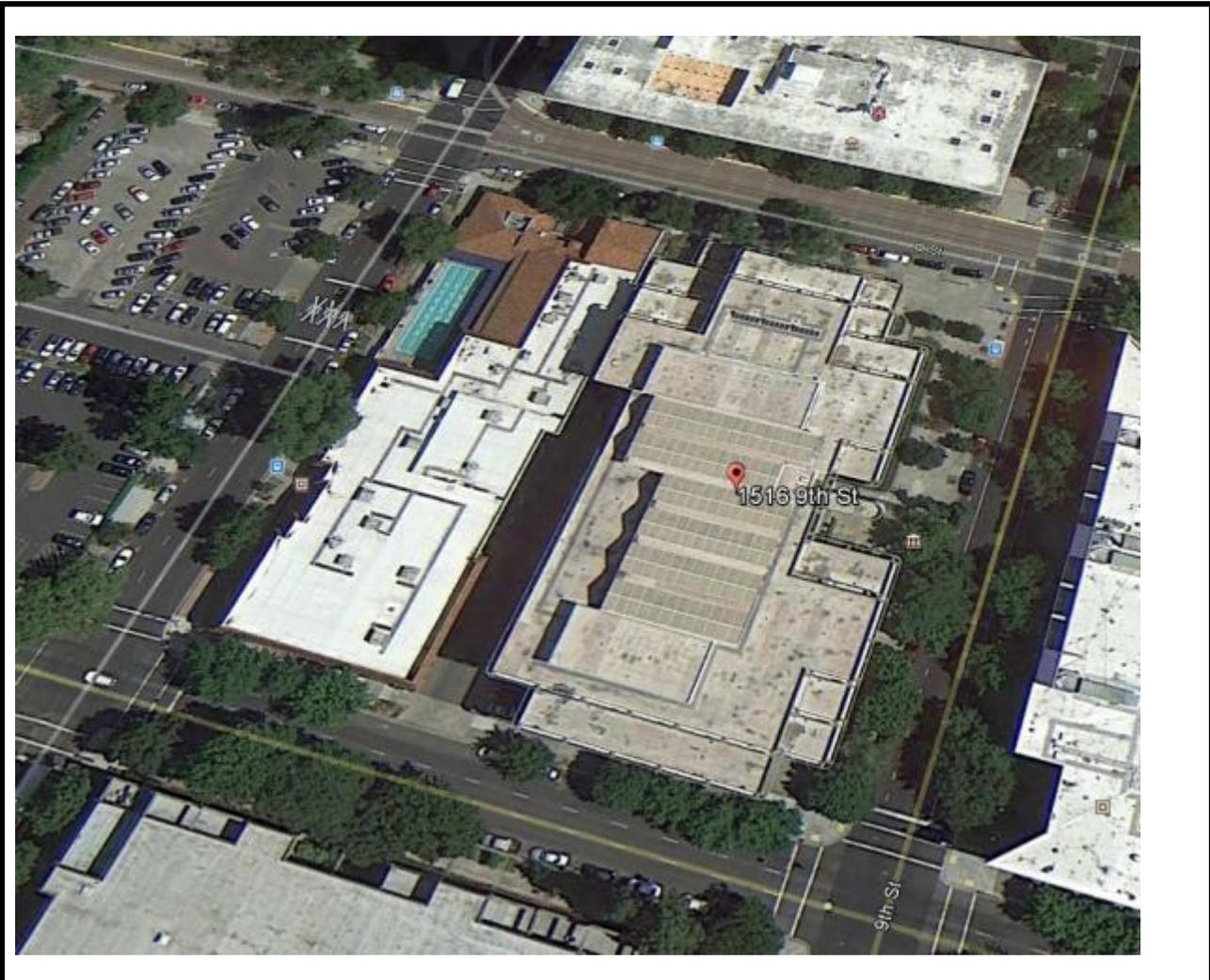
Element #	Component Description	Asset	Location	Action	EUL (Yrs)	RUL (Yrs)	Qty.	Unit of Meas.	Unit Cost	Plan Type	Priority ²	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total - Deferred	Total - Scheduled	
												Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9			
D3041.1	Air Handler 4,000 to 8,000 CFM	D3041 AHU IT room 5000 CFM Motors	IT Room	D3041.1 Air Handling Units	20	5	2.00	ea	\$831.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$1,662	\$0	\$0	\$0	\$0	\$0	\$1,662	
D3041.1	Central Station Ahu 63000 CFM	D3041 AHU 55,000 CFM - Internal	North Penthouse Room-Roof	D3041 New Motor 75hp	20	5	1.00	ea	\$9,713.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$9,713	\$0	\$0	\$0	\$0	\$0	\$9,713	
D3041.1	Central Station Ahu 63000 CFM	D3041 AHU 55,000 CFM - Internal	South Penthouse-Roof	D3041 Motor replacement 75hp	20	5	1.00	ea	\$9,713.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$9,713	\$0	\$0	\$0	\$0	\$0	\$9,713	
D3041.1	Air Handler 4,000 to 8,000 CFM	D3041 AHU 5000 CFM Motors	Auditorium	D3041.1 Air Handling Units	20	5	1.00	ea	\$938.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$938	\$0	\$0	\$0	\$0	\$0	\$938	
D3041.1	Air Handler 2500-3000 CFM	D3041 Air handler 2400 cfm with cooling	Mechanical Room-Basement	D3041 Motor replacement 1.5 hp	20	5	1.00	ea	\$831.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$831	\$0	\$0	\$0	\$0	\$0	\$831	
D3041.1	Fan Coil Unit 3 Ton.	D3041.1 Fan Coil Unit 3 Ton.	Cafeteria	D3041 New motor	20	5	1.00	ea	\$831.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$831	\$0	\$0	\$0	\$0	\$0	\$831	
D3041.1	Central Station Ahu 63000 CFM	D3041 AHU 27000 CFM - External	North Penthouse Room-Roof	D3041 New Motor	20	5	1.00	ea	\$2,723.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$2,723	\$0	\$0	\$0	\$0	\$0	\$2,723	
D3041.2	Vav Box , 270 to 600 CFM	D3041.2 VAV Boxes- interior	Throughout facility	D3041 Further HVAC study for temperature control for interior and exterior VAVs	20	0	1.00	ea	\$7,250.00	OP - Energy	Priority 1	\$7,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,250	
D3041.2	Vav Box , 270 to 600 CFM	D3041.2 VAV Boxes- interior	Throughout facility	Replace D3041.2 VAV Boxes- interior	20	0	180.00	EA	\$3,460.49	OP - Energy	Priority 1	\$622,889	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$622,889	
D3042	Exhaust Fan 8500 CFM	D3042 Exhaust fan restroom 6010 CFM	South Penthouse-Roof	D3042 Motor replacement 1.5 hp	20	7	1.00	ea	\$831.00	OP - Energy	Priority 4	\$0	\$0	\$0	\$0	\$0	\$0	\$831	\$0	\$0	\$0	\$0	\$831	
D3042	Exhaust Fan 8500 CFM	D3042 Exhaust fan restroom 5500 CFM	North Penthouse Room-Roof	D3042 New motor 1.5 hp	20	7	1.00	ea	\$831.00	OP - Energy	Priority 4	\$0	\$0	\$0	\$0	\$0	\$0	\$831	\$0	\$0	\$0	\$0	\$831	
D3042	Exhaust Fan 8500 CFM	D3042 Return fans 4600 cfm	Auditorium	D3042 New motor	20	5	1.00	ea	\$938.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$938	\$0	\$0	\$0	\$0	\$0	\$938	
D3042	Exhaust Fan 8500 CFM	D3042 Return fans 46000 cfm	North Penthouse Room-Roof	D3042 New motor 30 hp	20	5	1.00	ea	\$3,166.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$3,166	\$0	\$0	\$0	\$0	\$0	\$3,166	
D3042	Exhaust Fan 8500 CFM	D3042 Return fans 46000 cfm	South Penthouse-Roof	D3042 Motor replacement 30hp	20	5	1.00	ea	\$3,166.00	OP - Energy	Priority 3	\$0	\$0	\$0	\$0	\$0	\$3,166	\$0	\$0	\$0	\$0	\$0	\$3,166	
D3043	Duplex Condensate Return System, Two 3/4 HP Pumps	D3043 Duplex Condensate Return System, Two 3/4 HP	Mechanical Room-Basement	Replace D3043 Duplex Condensate Return System, Two 3/4 HP	30	0	1.00	EA	\$20,316.46	IN - Beyond Rated Life	Priority 1	\$20,316	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$20,316	
D3043	Heat Exchanger	D3043 Heat Exchanger for Heating	Mechanical Room-Basement	Replace D3043 Heat Exchanger for Heating	30	0	1.00	EA	\$5,818.08	IN - Beyond Rated Life	Priority 1	\$5,818	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,818	
D3052	Air Conditioner, Dx Package (Liebert) 5-Ton	D3052 AC Dx Package (Liebert) 5-Ton	IT Room	Replace D3052 AC Dx Package (Liebert) 5-Ton	20	5	2.00	EA	\$18,440.78	FN - Modernization	Priority 3	\$0	\$0	\$0	\$0	\$0	\$36,882	\$0	\$0	\$0	\$0	\$0	\$36,882	
D3052	2.5-Ton Wall Mounted Condenser Unit.	D3052 Wall mounted Cooling Unit 1.5 Ton	Passenger Elevator Room - Roof	Replace D3052 Wall mounted Cooling Unit 1.5 Ton	15	5	1.00	EA	\$7,677.34	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$7,677	\$0	\$0	\$0	\$0	\$0	\$7,677	
D3052	Dx Cooling Unit 1.5 Ton	D3052 Dx Cooling Unit 1.5 Ton	Passenger Elevator Room - Roof	Replace D3052 Dx Cooling Unit 1.5 Ton	15	5	1.00	EA	\$2,673.79	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$2,674	\$0	\$0	\$0	\$0	\$0	\$2,674	
D3068	Direct Digital Controls (DDC) Pneumatic System	D3068 Upgrade to Digital (DDC) from Pneumatic System	Throughout facility	Replace D3068 Upgrade to Digital (DDC) from Pneumatic System	25	0	142,378.00	SF	\$8.23	FN - Modernization	Priority 1	\$1,172,284	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,172,284	
D40	FIRE PROTECTION SYSTEMS																							
D4011	Sprinkler Head	D4011 Wet- Pipe Sprinkler system	Throughout facility	Replace D4011 Wet- Pipe Sprinkler system	25	0	124,457.00	SF	\$8.26	CC - Life Safety	Priority 1	\$1,028,015	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,028,015	
D50	ELECTRICAL SYSTEMS																							
D5012	Breaker Panel 225 Amps, 30 Circuits	D5012 Breaker Panel <225 amps	Electrical Rooms	Replace D5012 Breaker Panel <225 amps	40	7	25.00	EA	\$7,864.32	IN - Beyond Rated Life	Priority 4	\$0	\$0	\$0	\$0	\$0	\$0	\$196,608	\$0	\$0	\$0	\$0	\$196,608	
D5022	150-Watt Exterior Lamps, with 65-Watt Induction Lamps	D5022 T10 lamps replace with Induction 65 W canopies	Loading Dock	Replace D5022 T10 lamps replace with Induction 65 W canopies	10	3	10.00	EA	\$890.66	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$8,907	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,907	
D5022	D5022 Lighting Equipment	D5022 Light Fixtures at Acoustical Ceilings	Acoustical Ceiling Areas	Replace D5022 Light Fixtures at Acoustical Ceilings	25	0	187.00	EA	\$401.20	FN - Modernization	Priority 1	\$75,024	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$75,024	
D5022	Wall Pack 150 Watt High Pressure Sodium	D5022 Wall Pack 150 Watt HPS	Exterior	Replace D5022 Wall Pack 150 Watt HPS	15	0	4.00	EA	\$1,311.64	IN - Beyond Rated Life	Priority 1	\$5,247	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,247	
D5022	T12 Lamps, with T8 Lamps and Add Instant Start Electronic Ballasts	D5022 T8 Lamps upgrade	North and South Penthouse Room- Roof	Replace D5022 T8 Lamps upgrade	10	0	40.00	EA	\$264.79	CC - Building Code	Priority 1	\$10,592	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10,592	
D5037	Fire Alarm System, Install New	D5037 Fire Alarm System	Throughout Building	Replace D5037 Fire Alarm System	25	0	142,378.00	SF	\$3.54	CC - Life Safety	Priority 1	\$504,018	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$504,018	
D5092	Ups Battery Transformer 1.0 kVA	D5092 UPS Battery Transformer 80 kVA	IT Room	Replace D5092 UPS Battery Transformer 80 kVA	20	5	1.00	EA	\$7,582.68	IN - Beyond Rated Life	Priority 3	\$0	\$0	\$0	\$0	\$0	\$7,583	\$0	\$0	\$0	\$0	\$0	\$7,583	
Services Subtotal												\$3,790,652	\$0	\$0	\$85,766	\$0	\$207,850	\$0	\$198,270	\$29,211	\$0	\$3,790,652	\$521,097	
E. EQUIPMENT & FURNISHING																								
E10	EQUIPMENT																							
E1019	Air Compressor, Tank Mount, 5 HP	D3069 Air compressor backup	Mechanical Room-Basement	Replace D3069 Air compressor backup	15	5	1.00	EA	\$6,071.04	IN - Beyond Rated Life	Priority 4	\$0	\$0	\$0	\$0	\$0	\$6,071	\$0	\$0	\$0	\$0	\$0	\$6,071	
Equipment & Furnishing Subtotal												\$0	\$0	\$0	\$0	\$0	\$0	\$6,071	\$0	\$0	\$0	\$0	\$0	\$6,071
F. SPECIAL CONSTRUCTION AND DEMOLITION																								
Special Construction And Demolition Subtotal												\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G. BUILDING SITEWORK																								
G20	SITE IMPROVEMENTS																							
G2041	Metal Tube Steel Fence	G2041 Metal Tube Steel Fence	Site	Install fencing	20	0	20.00	LF	\$160.01	OP - Maintenance	Priority 2	\$3,200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,200	
Building Sitework Subtotal												\$3,200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,200
Z. GENERAL																								
General Subtotal												\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Expenditure Totals per Year												\$4,049,906	\$0	\$169,781	\$3,355,014	\$0	\$229,014	\$0	\$198,270	\$29,211	\$0	\$4,049,906	\$3,981,290	
Total Cost (Inflated @ 5% per Yr.)												\$4,049,906	\$0	\$187,183	\$3,883,848	\$0	\$292,287	\$0	\$278,986	\$43,157	\$0	Total *	\$8,031,196	
* - Present Value Currency																								

Footnotes

- 1 Detailed descriptions for Useful Life and Plan Type can be found in the Appendices of the Facility Condition
- 2 Detailed Descriptions of the Priorities can be found in the Appendices of the Facility Condition Assessment

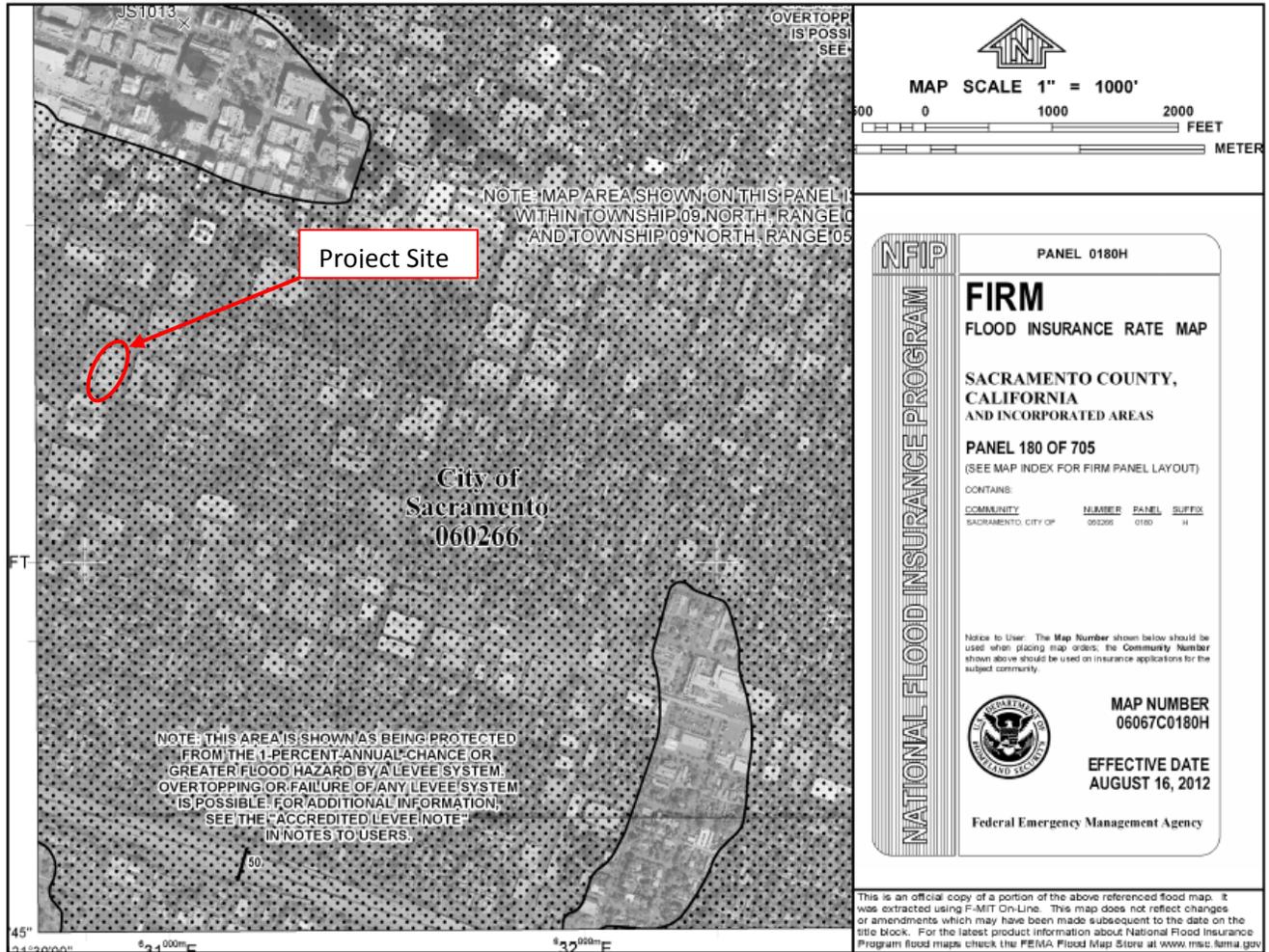
Current Repl.Value \$50,910,957

APPENDIX H: SUPPORTING DOCUMENTATION



	<p>Source:</p> <p>The north arrow indicator is an approximation of 0° North.</p>	<p>Project Number:</p> <p>111326.14R-033.305</p> <p>Project Name:</p> <p>Warren-Alquist State Energy Building</p>
		<p>On-Site Date:</p> <p>February 13, 2015</p>

Flood Map



	SOURCE: FEMA	Project Number: 111326.14R-033.305
		Project Name: Warren-Alquist State Energy Building
Not drawn to scale. The north arrow indicator is an approximation of 0° North.		On-Site Date: January 22, 2015

Estimate of Structures Cost Using Marshall Cost Systems			
Warren-Alquist State Energy Building			
Site Calculation			
Estimate of Unusual Land Improvements Cost (Estimators Data Cost Base):			
Description	Cost	Estimated \$/ SF	Unusual Land Total
			\$0
Total			\$0
Estimate of Unusual Land Improvements Cost (Estimators Cost Data Base):			
Estimate of Structure Cost :			
Building Type	Cost per SF	Number of SF	Building Type Total
Main Building	\$284.49	143,162	\$40,728,766
	\$0.00	0	\$0
	\$0.00	0	\$0
	\$0.00	0	\$0
	\$0.00	0	\$0
Total		143,162	\$40,728,766
Estimate of Adjustments for Fees:			
Description	% increase		
Soft Costs	25.00%		
	0.00%		
	0.00%		
Total Fees/ Interest included in Marshall System			25.00%
Total Structure Estimate:			
Description	Unit	Fee Adjust	Adjusted Totals
Main Building	\$40,728,766	25.00%	\$50,910,957
	\$0	25.00%	\$0
	\$0	25.00%	\$0
	\$0	25.00%	\$0
	\$0	25.00%	\$0
Cost Per SF	\$355.62	Total Estimate	\$50,910,957

Expected Useful Life (EUL) Table	
SITE SYSTEM ITEMS	
ROADWAYS/ PARKING/ WALKWAYS	
Asphalt pavement	25
Asphalt seal coat	5
Concrete pavement	50
Curbing, asphalt	25
Curbing, concrete	50
Parking, stall striping	5
Parking, gravel surfaced	15
Security gate- rolling gate	10
Security gate- lift arm	10
Sidewalk, asphalt	25
Sidewalk, brick paver	30
Sidewalk, concrete	50
STORM SEWER, DRAINAGE AND EROSION CONTROL	
Catch basins, inlets, culverts	50
Earthwork, grading and erosion control	50
Storm drain lines	40
LANDSCAPING, TOPOGRAPHY AND FENCING	
Fencing, chain-link (4' height)	40
Fencing, dumpster enclosure (wood)	12
Fencing, Tennis Court (10' height)-Chain link	40
Fencing, wood privacy (6' height)	15
Fencing, wrought iron (4-6' height and decorative)	50
Fencing, concrete masonry unit (CMU)	30
Irrigation System	30
Retaining walls, 80 lb block type	50
Retaining walls, concrete masonry unit (CMU) with brick face	40
Fencing, PVC (6' height)	25
Retaining walls, timber (railroad tie)	25
SITE SYSTEM ITEMS	
GENERAL SITE IMPROVEMENTS	
Lighting (pole mounted)	25
Mail kiosk	10
Pool deck	15
Pool/ spa plaster liner	8
Signage, monument	20
Signage, roadway/ parking	10
Tennis court / basketball court surface (paint markings)	5

GENERAL SITE IMPROVEMENTS	
Tennis court Surface (acrylic emulsion)	10
Tot-lot (playground equipment)	10
SITE SANITARY AND WATER	
Domestic Hot Water (DHW) - supply / return	30
Lift station	50
Sanitary lines	50
Sanitary treatment	40
Water main	40
Water supply lines	50
Water tower	50
SITE MECHANICAL / ELECTRICAL	
Compactors	15
Dumpsters	10
Electrical distribution center	40
Electric main	40
Emergency Generator	25
Gas lines	40
Gas main	40
Heating supply/ return	40
Power distribution	40
Transformer	30
BUILDING ARCHITECTURAL ITEMS	
Wood Decks	20
Storage Sheds	30
Carports	40
Garages	50
Basement Stairs	50
Building mounted exterior lighting	10
Building mounted High Intensity Discharge (HID) lighting	10
Bulkhead	10
Canopy, concrete	50
Canopy, wood / metal	40
Ceilings, open or exterior	30
Chimney	40
Common area doors, interior (solid wood/ metal clad)	30
Common area floors, ceramic / quarry tile, terrazzo	50+
Common area floors, wood (strip or parquet)	30
Common area floors, resilient tile or sheet	15
Common area floors, carpet	8
Common area floors, concrete	50+

BUILDING ARCHITECTURAL ITEMS	
Common area railing	20
Common area ceiling, concrete	50+
Common area ceiling, acoustic tile (drop ceiling),	15
Common area countertop and sink	20
Common area dishwasher	15
Common area disposal	5
Common area kitchen cabinets, wood	15
Common area wall coverings	15
Caps, copings (aluminum/ terra-cotta) - Parapet	25
Exterior common door, aluminum and glass	30
Exterior common door, solid core wood or metal clad	25
Exterior stairs, wood	15
Exterior stairs, metal pan- concrete filled	30
Exterior stairs, concrete	50
Exterior unit door, solid wood/ metal clad	25
EXTERIOR CLADDING	
Aluminum Siding	40
Brick or block	40
Brownstone or stone veneer	40
Exterior Insulation Finishing Systems (EIFS)	20
Glass block	40
Granite block	40
Metal/ glass curtain wall	30
Precast concrete panel (tilt-up)	40
Vinyl siding	25
Wood shingle/ clapboard/ plywood, stucco, composite wood	20
Cement-board siding (Hardi-plank)/ non integral color	45
Fire Escapes	40
Foundations	50+
Roof hatch	30
Roof skylight	30
Insulation, wall	50+
Interior lighting	15
Interior railings	20
Mail facility, interior	20
Parapet wall,	50+
Penthouse	50
Railing, roof	25

INTERIORS	
Public bathroom accessories	7
Public bathroom fixtures	15
Refrigerator, common area	10
BUILDING ARCHITECTURAL ITEMS	
ROOF COVERINGS	
Built-up roof - Ethylene Propylene Diene Monomer (EPDM) / Thermoplastic Polyolefin (TPO)	20
Asphalt shingle (3-tab)	20
Wood shingles (cedar shake)	25
Slate, clay, concrete tile	40
Metal	40
Roof drainage exterior (gutter/ downspout)	10
Roof drainage interior (drain covers)	30
Roof structure	50+
Slab	50+
Service door	25
Soffits (wood/ stucco)	20
Soffits (aluminum or vinyl)	25
Stair structures	50+
Storm/ screen doors	7
Storm/ screen windows	10
Waterproofing (foundations)	50+
Windows (frames and glazing), vinyl or aluminum	30
Wood floor frame	50+
BOILER ROOM EQUIPMENT	
Blowdown and Water Treatment	25
Boiler Room Pipe Insulation	Included in boiler
Boiler Room Piping	Included in boiler
Boiler Room Valves	15
Boiler Temperature Controls	Included in boiler
Oil-fired, sectional	22
Gas/ dual fuel, sectional	25
Oil/ gas/ dual fired, low MBH	30
BOILERS	
Oil/ gas/ dual fired, high MBH	40
Gas fired atmospheric	25
Electric	20

BUILDING HEATING WATER TEMPERATURE CONTROLS	
Common area	15
Buzzer/Intercom, central panel	20
Central Unit Exhaust, roof mounted	15
Chilled Water Distribution	50+
Chilling Plant	15
Cooling Tower	25
Combustion Air, Duct with fixed louvers	30
Combustion Air, Motor louver and duct	25
CONDENSATE, FEEDWATER, WATER	
Feedwater only (hydronic)	10
Cooling Tower	25
DHW Circulating Pumps	by size
Tank only, dedicated fuel	10
Exchanger in storage tank	15
Exchanger in boiler	15
External tankless	15
Instantaneous (tankless type)	10
Domestic Hot Water Storage Tanks, Small (up to 150 gallons)	15
Domestic Hot Water Storage Tanks, Large (over 150 gallons)	15
Domestic Cold Water Pumps	15
ELECTRICAL & ELEVATOR	
Electrical Switchgear	50+
Electrical Wiring	30
Elevator, Controller, dispatcher	15
Elevator, Cab	15
Elevator, Machinery	30
Elevator, Shaft-way Doors	20
Elevator, Shaft-way Hoist rails, cables, traveling	25
Elevator, Shaft-way Hydraulic piston and leveling	25
EMERGENCY ALARM AND FIRE PROTECTION	
Call station	10
Emergency Generator	25
Emergency Lights	8
Evaporative Cooler	15
Fire Extinguisher	10
Fire Pumps	20
Fire Suppression	50+
Flue Exhaust	w/boiler
Free Standing Chimney	50+
Fuel Oil Storage	25

EMERGENCY ALARM AND FIRE PROTECTION	
Fuel Transfer System	25
Gas Distribution	50+
Heat Sensors	15
Heat Exchanger	35
Heating Risers and Distribution	50+
MECHANICAL – ELECTRIC – PLUMBING ITEMS	
Heating Water Circulating Pumps	by size
Heating Water Controller	15
Hot and Cold Water Distribution	50
HVAC	
Pad/ roof condenser	20
A/C window unit or through wall	10
Fan coil unit, electric	20
Fan coil unit, hydronic	30
Furnace (electric heat with A/C)	20
Furnace (electric heat with A/C)	20
Furnace (gas heat with A/C)	20
Packaged terminal air conditioner (PTAC)	15
Packaged HVAC (roof top units)	20
Heat pump condensing component	20
Heater, electric baseboard	25
Heater, wall mounted electric or gas	20
Hydronic heat/ electric A/C	20
Line Dryers	15
Master TV System	10
Motorized Valves	12
Outdoor Temperature Sensor	10
Pneumatic lines and Controls	30
POWER VENTILATOR	
Purchased Steam Supply Station	50+
Sanitary Waste and Vent System	50+
Sewage Ejectors	50
Smoke and Fire Detection System, central panel	15
Solar Hot Water	20
SUMP PUMP	
Commercial Sump Pump	15
Water Softening and Filtration	15
Water Tower	50+

PLAN TYPE DEFINITION

Within the report text a Plan Type is assigned to the various cost categories. The following is a brief description of the Plan Types that may be used in the report.

Code Compliance (CC)

- **Accessibility:** Conditions that are not in conformance with the American Disabilities Act Accessibility Guidelines
- **Building Code:** Conditions that are not in conformance with the Building codes
- **Life Safety:** Conditions that are not in conformance with the NFPA 101 Life Safety Code

Operations (OP)

- **Energy:** Conditions that adversely affect energy use or will decrease water or energy usage
- **Maintenance:** Components or systems that can usually be accomplished by the current maintenance staff
- **Security:** Conditions that compromise the protection of the asset or its occupants

Environmental (EN)

- **Air/ Water Quality:** Conditions that affect air or water quality
- **Asbestos:** Reported or suspected asbestos-containing material(ACM)
- **Lead:** Reported lead based paint
- **PCB:** Reported PCB containing equipment

Functionality (FN)

- **Mission:** Components which do not meet the mission of the organization
- **Modernization:** Conditions that need to be upgraded in appearance or function
- **Plant Adaptation:** Components or systems that must change to fit a new or adapted use
- **Obsolescence:** Components or systems that are or are becoming obsolete
- **Capacity:** Components or system which cannot meet demand load

Integrity (IN)

- **Appearance:** Problems with the material or system appearance that are not functional in nature
- **Reliability:** Components or systems which cannot be depended on to function as designed
- **Beyond Rated Life:** A component or system that has exceeded its rated life

APPENDIX I: PRE-SURVEY QUESTIONNAIRE

PSQ NOT RETURNED

APPENDIX J: ELEVATOR REPORT



Warren-Alquist State Energy Building
1516 – 9th Street
Sacramento, CA

Due Diligence
Elevator Report

June 7, 2015

Prepared for:

Ms. Karla Rodriquez
EMG Corporation
Hunt Valley, MD 21212

Prepared by:

Mr. Bob Nicholson
President
Architectural Elevator Consulting, LLC
1326 5th Ave., Suite 630
Seattle, WA 98101

TABLE OF CONTENTS

<i>Section I - Executive Summary</i>	_____	
A. Introduction	_____	I.1
B. Elevator Layout	_____	I.1
C. Condition/Components	_____	I.1
D. Maintenance and Performance	_____	I.2
E. Code Review: ADA/Retro-active codes	_____	I.2
F. Recommendation	_____	I.3
<i>Section II Component Review</i>	_____	
A. Machine Room	_____	II.1
B. Hoistway	_____	II.2
C. Car top	_____	II.2
D. Signal Fixtures	_____	II.3
E. Cab Interiors	_____	II.4
<i>Section III – Budget Pricing</i>	_____	<i>III</i>
Appendix A - Americans with Disability Act (ADA) and California T24		
Appendix B - A17.3 Retro-active Code Requirements		
Appendix C – Maintenance and Performance		

Section I: Executive Summary

A. Introduction

On February 11, 2015 Russell Holt of Architectural Elevator Consulting, LLC (AEC) surveyed all the vertical transportation systems at the Warren-Alquist State Energy Building, 1516 -9th Street, Sacramento, CA. There are two (2) geared traction and one (1) hydraulic elevator. The elevators provide vertical transportation to the office floors on levels 1-4. The purpose of the survey was to review the major components, to identify upgrades needed over the next ten years and check for compliance with various codes. In addition to reviewing the major components of the elevators we checked the performance parameters of the equipment and tested safety devices such as door restrictors, electric edges and emergency phones.

All the elevators were manufactured and installed by Dover Elevator during the original building construction in 1982. The elevators have Dover controllers, door operators and Dover signal fixtures.

During our survey we noted that the elevators were being properly maintained by ThyssenKrupp Elevator. Housekeeping in the machine rooms was satisfactory, the car tops were clean and the pits only had minor dirt. Door performance was also noted to be good. The traction elevators were installed under Group II and are not required by the State to have five year full load tests, however, they did have tags indicating they were tested in 2008. We recommend they be tested again soon so they are up-to-date. The hydraulic elevator is required by code to have a five year full load test and it was up-to-date.

B. Elevator Layout

Traction elevators, Cars 1-2, are the main passenger elevators and serve floors 1-4. Hydraulic elevator, Car 3, is the service elevator and goes to the basement and also serves floors 1-4. The service elevator was not identified as Car 3, but in this report we are referring to it as Car 3. Both traction elevators have fast and efficient center opening doors, while the service elevator has side opening doors. The number, speed and size of the elevators appear to be adequate to provide satisfactory service for the building.

Elevator Summary				
Elevator Bank	Elevator Speed	Floors Served	Capacity	Door Type
Cars 1 & 2 (Duplex)	200 FPM	1-4	4,000 lbs.	Center
Car 3	150 FPM	B, 1-4	4,000 lbs.	Side

C. Condition/Components

Most the major components of the elevators were found to be in good condition but showing their age. The traction elevators have controllers that are primarily run by relays with motor generator sets that convert the incoming power from AC to DC. The selectors are horizontal pie-plates that are maintenance intensive and contribute to poor leveling when not properly adjusted. The car and hall signal fixtures meet ADA and were in good condition but the buttons are not raised. The machines, car equipment and door operators are all in good condition. A majority of the equipment is over 30 years old and should be modernized soon, however this equipment is still maintainable. Unlike some newer solid-state elevator controls in other state office buildings most of the parts are still available. In **Section II** of this report

we provide an in-depth review of each of the major components of the elevators with photographs.

D. Maintenance/Performance

The elevators are currently being maintained by ThyssenKrupp Elevator. The level of maintenance was noted to be satisfactory. The performance was observed to be good and the five year test on the hydraulic elevator is current. In *Appendix C* of this report we provide a summary of the performance times for each elevator followed by a maintenance deficiency list. We recommend this list be provided to the elevator service provider so they can correct these items.

E. Code Review:

During our survey we reviewed the elevators for compliance to the following codes; Americans with Disabilities Act (ADA)/California T24, and compliance with the National Elevator Code for Existing Elevators, A17.3.

1. **Americans with Disability Act (ADA)/California T24:** In 1990 the federal government enacted ADA to make public spaces more accessible to disabled persons. California has a few specific accessibility requirements in addition to ADA. All of the elevators meet most ADA and California Title 24 requirements. The sizes of the passenger elevators meet ADA for new and existing elevators. All the cars had proper hall lanterns and gongs. *Appendix A* provides a complete listing of the ADA/T24 requirements. The following is a list of which items need to be corrected to meet ADA:
 - a. **Buttons:** None of the car and hall buttons are raised per California T24.
 - b. **Floor Passing Chime:** None of the elevators have floor passing chimes.

2. **Retro Active Codes for Existing Elevators:** We reviewed the elevators for compliance to A17.3 Code, the national safety code for existing elevators. This code requires all elevators, no matter age or installation date, to meet a minimum level of safety. A17.3 is not adopted in California, thus not required by the State, but highly recommended. A complete check list for this retro-active code is included in *Appendix B* of this report. The following is a list of items that do not comply:
 - a. **Door Restrictors:** None of the cars have door restrictors. These should be added.
 - b. **Car Aprons:** The car apron for the service Car is only 15” long. It should be replaced or extended to 21”.
 - c. **Fire Service:** None of the cars have Phase II fire service. We recommend this be added during the modernization.

3. **Seismic:** The elevators were installed in 1982 under earlier seismic code. They do not have seismic fishplates and brackets, but do have ring and string derailment on the traction elevators. When the elevators are modernized we recommend adding more seismic upgrades. The hydraulic elevator should have a rupture valve added and a seismic switch should be added to the traction cars.

F. Recommendation:

We recommend the elevators be modernized in 4 to 6 years. In the meantime safety features such as adding door restrictors to all the cars and adding an apron to the hydraulic elevator should be performed as soon as possible. Installing raised buttons in the car and adding floor passing chimes should also be installed so the elevators are in full compliance with ADA and California Title 24.

Section II : Component Review

A. MACHINE ROOM:

Traction Controllers:

The controllers for the traction elevators were manufactured and installed by Dover elevator and use relay logic. They are Dover's composite system and old but still maintainable.



Hydraulic Controller:

The controller for the hydraulic elevator was also manufactured and installed by Dover. It is Dover's wired contact relay controller.



Machines:

Traction elevators 1 and 2 have geared machines with DC motors that were manufactured by Dover Elevator. The elevators use motor generator sets to convert the incoming power from AC to DC.



B. HOISTWAY:

Hoistway Construction:

The hoistway (elevator shaft) is the main area where the elevators go up and down. The hoistways were found to be in relatively good condition.

Car Guide Rails:

The car rails are in good condition but do not have seismic fish plates. Upgrading the guide rails to current seismic standards is voluntary.

Pits:

The pits were found to be dry but a little dirty.

C. CAR TOP:

Door Operator:

The door operators are Dover's HD 73 which are known for dependability. When the elevators are modernized they should be upgraded with new closed loop door operators.



Car Roller/Slide Guides:

On both sides of the elevators and on the top and bottom roller guides keep the elevators riding up and down the steel guide rails.



D. SIGNAL FIXTURES:

Car Operating Panels:

All the Car Operating Panels (COP's) are original. The panels are in good condition and meet all ADA but the buttons are not raised so they do not meet T24. Upgrading the buttons to raised caps is relatively easy to do.



Hall Lanterns:

Hall lanterns inform persons waiting in the hall of which direction the elevator is about to travel in next. ADA requires that the hall lanterns illuminate and sound for the waiting passengers. The existing passenger elevators have hall lanterns for each car. The lanterns have the proper gong for up and down.



Hall Call Pushbuttons:

At each floor hall call push buttons are located so that users can call the elevator. The hall call stations are in good condition but do not have raised operation buttons for California Title 24.

E. CAB INTERIOR:

Wall Finish:

The existing cab interiors are in good condition and have the code required handrails, but are dated.



Ceilings:

The passenger elevators have translucent ceiling panels with T frames. The light fixtures could be updated with energy efficient LED's and/or the entire ceiling could be replaced.



Vertical Transportation

Warren-Alquist State Energy Building - 1516 9th Street

Item No.	Recommendation	Rating	Quantity	Unit	Unit Cost	Immediate Code Items	Immediate - Repair	Years 1-3	Years 4-6	Years 7-10	Totals
1	Adjust cars for optimal performance	2	3	EA	\$1,500.00		\$4,500				\$4,500
2	Perform five year full load tests on both traction cars. Elevators were installed under Group II and are not required to have tests, but they were last performed in June of 2008.	1	2	EA	\$3,000.00	\$6,000					\$6,000
3	Modernize traction passenger Cars 1-2	4	2	EA	\$185,000.00				\$370,000		\$370,000
4	Modernizes hydraulic elevator, Car 3	4	1	EA	\$150,000.00				\$150,000		\$150,000
5	Add floor passing chime to all three elevators.	1	3	EA	\$1,500.00	\$4,500					\$4,500
6	Install raised buttons in the car and hall to comply with T24.	1	30	EA	\$100.00	\$3,000					\$3,000
7	Install door restrictors on all three cars.	1	3	EA	\$3,000.00	\$9,000					\$9,000
8	Install a 21" car apron on the hydraulic elevator.	1	1	EA	\$1,500.00	\$1,500					\$1,500
9											\$0
10											\$0
11											
12											
Subtotal						\$24,000	\$4,500	\$0	\$520,000	\$0	\$548,500
		1	\$24,000	Code and Safety							
		2	\$4,500	Deferred Maintenance & Repair							
		3		Capital Expenditure							
		4	\$520,000	Modernization / Improvements							
		5	\$548,500	Total							

Rating:
 1 - Code and Safety
 2 - Repair and Maintenance
 3 - Capital Expenditure
 4 - Modernization / Improvements
 5 - Total

Appendix A
ADA/California T24 ELEVATOR CHECKLIST

ADA	Item	Complies Yes/No/N/A
		Cars 1-3
	GENERAL	
4.10.1	Elevator must comply with ASME A17.1-1990. Freight elevators are not acceptable unless only elevator provided, and is permitted to carry passengers, both public and employees.	Yes
	AUTOMATIC OPERATION	
4.10.2	Elevators must be Automatic.	Yes
4.10.2	Self-leveling to within 1/2 in.	Yes
	HALL CALL BUTTONS	
4.10.3	Buttons centered at 42 in. above the floor.	Yes
4.10.3	Buttons to illuminate when call is entered and extinguish when answered.	Yes
4.10.3	Buttons to be at least 3/4 in. in the smallest dimension.	Yes
4.10.3	Up button located above down button.	Yes
4.10.3	Buttons raised or flushed. (T24 must be raised)	No Not raised
4.10.3	Objects mounted beneath hall buttons not to project into the lobby more than 4 in.	Yes
	HALL or CAR LANTERNS	
4.10.4	Visible and audible signals at each hoistway entrance to indicate which car is responding to the call.	Yes
4.10.4	Audible signals to sound once for up and twice for “down” or may verbal announcement stating “up” “down.”	Yes
4.10.4	Hall directional lantern centered 72 in. above floor.	Yes
4.10.4	Directional lantern visible elements minimum of 2-1/2 in. in the smallest dimension.	Yes
4.10.4	Directional lanterns must be visible from the vicinity of the hall call button.	Yes
4.10.4	In car lanterns, meeting the requirements above are acceptable in lieu of hall directional lanterns.	N/A
	HOISTWAY ENTRANCES	
4.10.5	Raised and Braille floor designations are required on both door jambs. Permanently applied plates are acceptable. (T24 must be to the left)	Yes
4.10.5	Centerline of floor designation characters 60 in. above floor.	Yes
4.30.4	Characters must be 2 in. high, raised 1/32 in. upper sans serif (block letters) or simple serif type.	Yes
4.30.4	Grade II Braille to accompany raised characters.	Yes
	DOOR PROTECTIVE & REOPENING DEVICES	
4.10.6	Doors must open and close automatically.	Yes
4.10.6	Non-contact door reopening device at 5 in. and 29 in. above the floor.	Yes
4.1.6(3)(c)	If safety edges are provided on existing elevators, the non-contact door reopening devices may be omitted.	Yes

Appendix A
ADA/California T24 ELEVATOR CHECKLIST

ADA	Item	Complies Yes/No/N/A
		Cars 1-3
4.10.6	Reopening device to remain operational for at least 20 seconds.	Yes
	DOOR AND SIGNAL TIMING	
4.10.7	Minimum acceptable door open time from notification car is answering a hall call until the car doors begin to close: $T=D/(1.5ft/s)$, where T is the total time in and D is the distance from a point in the lobby or corridor 60 in. directly in front of the farthest button controlling that car to centerline of its hoistway door.	Yes
4.10.7	Minimum acceptable notification time 5.0 seconds.	Yes
	DOOR DELAY FOR CAR CALLS	
4.10.8	Doors to remain open for a minimum of 3.0 seconds in response to car calls.	Yes
	FLOOR PLAN NEW ELEVATOR	
4.10.9	At least 36" wide door. Side Open Door: Cab must be 5'-8" wide x 4'-3" deep Center Open Door: Cab must be 6'-8" wide by 4'-3" deep	Yes
	FLOOR PLAN EXISTING ELEVATOR	
4.1.6	Minimum of 48" x 48"	Yes
4.10.9	Clearance between car platform sill and edge of hoistway landing sill no greater than 1-¼ in.	Yes
	Handrails Circular Square Dia. ____ Top of Handrail ____ Height Side Back (T24 must be 32")	Yes
	FLOOR SURFACES	
4.10.10	Surfaces to be stable, firm and slip resistant.	Yes
4.5.3	Carpeting if installed must have firm cushion, pad or backing, or no cushion or pad. Carpeting must have level loop, textured loop, level pile texture. Carpeting pile thickness not to exceed 1/2 in. Carpeting must have exposed edges fastened to the floor surface. Exposed edges of carpets must be trimmed.	Yes
	ILLUMINATION LEVELS	
4.10.11	Five foot-candles of illumination to be provided at car controls, platform and at sill.	Yes
	CAR CONTROLS	
4.10.12	Buttons to be at least 3/4 in. in their smallest dimension.	Yes
4.10.12	Buttons must be flush or raised. (T24 must be raised)	No Not raised.
4.10.12	Buttons must be designated by raised characters and Braille or symbols complying with ASME A17.1 Rule 210.13.	Yes
4.10.12	Characters must be a minimum of 5/8 in. high, upper case sans (block letters) or simple serif type.	Yes
4.10.12	Grade II Braille to accompany raised character of symbol.	Yes
4.10.12	Raised designations must be to the immediate left of the button to which they apply.	Yes

Appendix A
ADA/California T24 ELEVATOR CHECKLIST

ADA	Item	Complies Yes/No/N/A
		Cars 1-3
4.10.12	Call button illuminates when call is entered and extinguish when answered.	Yes
4.10.12	Floor buttons must be no higher than 48 in. when located in front return. Buttons must be no higher than 54 in. when a side approach provided.	Yes
4.10.12	Emergency controls, including emergency alarm and emergency stop (if provided) must be grouped at the bottom of the panel and have centerlines no less than 35 in. above the finished floor.	Yes
4.10.12	Controls must be on the front return wall with center-opening doors. They may be on the front return or strike jamb sidewall with side doors.	Yes
	CAR POSITION INDICATORS	
4.10.13	Visual car position indicator must be provided above control panel or over door.	Yes
4.10.13	Car position indicator numerals must be a minimum of 1/2 in. high.	Yes
4.10.13	Audible signal to sound as the car passes or stops at a floor and a corresponding floor designation must illuminate. Audible signal must be at least 20 dB with a frequency no higher than 1,500 Hz.	No
4.10.13	A button to activate audible signal only for desired trip may be provided.	N/A
4.10.13	An automatic verbal announcement the floor at which a car stops may be substituted for the audible signal.	N/A
	EMERGENCY COMMUNICATIONS	
4.10.14	If provided, emergency two-way communication systems between the elevator and a point outside the hoistway must comply with ASME A17.1-1990, Rule 211.1.	Yes
4.10.14	The highest operable part must be a maximum of 48 in. from the car floor.	Yes
4.10.14	Emergency communication identification must be provided and located adjacent to the device. Characters must be a minimum of 5/8 in. high raised 1/32 in., upper case serif (block letters) or simple serif type, and accompanied by Grade II Braille.	Yes
4.10.13	If a handset is provided the cord must be at least 29 in. long.	N/A
4.27.4	If located in a closed compartment, the door must be operable with one hand. It must not require tight grasping, pinching or twisting of the wrist. The force required to open the door must not exceed 5 lb/f.	N/A
4.10.13	The system must not require voice communication.	Yes

Appendix “B”
A17.3 Code for Existing Traction Elevators

A17.3	Code Item	Cars: 1-3
2.1	HOISTWAYS	
2.1.1	Hoistway Construction (Enclosed & Fire rated per local code or ANSI/NFPA No. 101)	Yes
2.1.2	Windows in Hoistway Enclosures: (If provided are they guarded properly.)	Yes
2.1.3	Projections in Hoistway (Must be flush and level; Leveling zone +3”./ 60 to 75 deg bevel.)	Yes
2.1.4	Pipes Conveying Gases, Vapors, or Liquids. (If provided must be properly covered & securely fastened.)	Yes
2.1.5	Counterweight Guards (Start at 12” go to 84” above pit floor; not needed with comp rope/chain)	N/A
2.2	MACHINE ROOMS AND MACHINERY SPACES	
2.2.1	Enclosures – Designated Machine Room (No-non elevator equipment- existing can stay)	Yes
2.2.2	Access to Machine Rooms and Machinery Spaces (A permanent means to the machine room- locked door)	Yes
2.2.3	Lighting(Permanent lighting in all machine rooms)	Yes
2.2.4	Ventilation (Natural or mechanical to avoid overheating)	Yes
2.2.5	Pipes Conveying Gases, Vapors, or liquids (Existing pipes allowed if guarded to prevent discharge)	Yes
2.2.6	Protection From Weather	Yes
2.3	PITS	
2.3.1	Access to Pits (Means of access to all pits. If access door provide closer & keys onsite.)	Yes
2.3.2	Drains (Drains connected directly to the sewer are not permitted.)	Yes
2.3.3	Stop Switch (A stop switch shall be provided for every pit. Locate near access, color, etc.)	Yes
2.4	CLEARANCES AND RUNBYS	
2.4.1	Horizontal Car Clearances (Not more then 5” for horizontal doors; 7.5” for vertical doors)	Yes
2.4.2	Bottom Car Clearances (Car shall not strike any equipment when resting on fully compressed buffer.)	Yes
2.4.3	Bottom Car and Counterweight Runby (Shall not exceed 24” for cars; or 36” for cwt.)	Yes
2.4.4	Top Car Clearance (Car does not strike any overhead structure)	Yes
2.4.5	Landing Sill Clearance (At least ½” for side guides; at least ¾” for corner guides. Max cannot exceed 1 ½”.)	Yes
2.5	PROTECTION OF SPACES BELOW HOISTWAYS	
2.5	Counterweight safeties required	N/A
2.6	HOISTWAY ENTRANCES	
2.6.1	Doors or Gates Required (Passenger Elevators – full width/height – no hand latches.) (Freight Elevators – at least 6-0” gate)	Yes
2.6.2	Closing of Hoistway Doors (Door closers required on cars except swinging portion of horizontal door)	Yes
2.6.3	Hoistway Door Vision Panels (Required on manually operated or self closing doors, location, Size, and type of glass)	N/A
2.6.4	Door Hangers (Prevent jumping, and stops, 4 times load)	Yes
2.6.5	Non-Shearing Astragals (For vertical bi-parting doors only)	N/A
2.6.6	Pull Straps (Must not be more than 6’-6” from floor when open)	N/A
2.7	HOISTWAY DOOR LOCKING DEVICES, PARKING, DEVICES, AND ACCESS	
2.7.1	Hoistway Door or Gate Locking Devices (Mechanical and electrical interlocks required)	Yes
2.7.2	Elevator Parking Device (For cars operated from within car only)	N/A
2.7.3	Access to Hoistway (Hoistway door unlocking devices and access switches)	Yes

Appendix “B”
A17.3 Code for Existing Traction Elevators

A17.3	Code Item	Cars: 1-3
2.7.4	Restricted Opening of Hoistway Doors and/or Car Doors on Passenger Elevators (Cannot open more than 4” outside unlocking zone +-18” max.)	No - None
2.7.5	Hoistway Emergency Door Contacts (Positively opened)	N/A
2.8	POWER OPERATION OF DOORS AND GATES	
2.8.1	Kinetic Energy and Force Limitations for Power-operated Horizontal Sliding Doors. (Shall not exceed 7ft/lbs. with re-opening device, without 2.5ft/lbs.; cannot exceed 30 ft/lbs)	Yes, Cars 1 & 3, no Car 2
2.8.2	Reopening Device for Power-Operated Car Doors or Gates (Can be rendered inoperative if less than 2.5ft/lb)	Yes
	Part III	
3.1	Buffers And Bumpers (Car and counterweight buffers are required)	Yes
3.2	Counterweights (The weights shall be protected so that they cannot be dislodged. The rod nuts shall be protected)	Yes
3.3	CAR FRAMES AND PLATFORMS	
3.3.1	Car Platforms(Cover entire area)	Yes
3.3.2	Platform Guards (Aprons) (Vertical face at least 21”, 60-75deg, withstand 150#)	Yes Cars 1-2 No Car 3
3.3.3	Hinged Platform Sills(Must have contacts & prevent operation unless within 2”)	N/A
3.3.4	Floating (Movable) Platforms(Prohibited if car can move when door is not closed)	N/A
3.3.5	Protection of Platforms Against Fire (Must be covered with sheet metal or fire resistant material)	Yes
3.4	CAR ENCLOSURES	
3.4.1	Car Enclosures (Passenger – total enclosed; Frt maybe perforated, but not by the cwt.; Car top must withstand 300lbs on any 2sqft.)	Yes
3.4.2	Car Doors and Gates (Must have gate or door and electric contract)	Yes
3.4.3	Location of Car Doors and Gates (Hor, distance not more than 5 1/2”., Swing door 4” max., space and site guard requirements.)	Yes
3.4.4	Emergency Exits (Cover hinged, single car blind shaft-every 36’, side allowed)	Yes
3.4.5	Car Illumination (At least two lights, 5ftc; frt=2.5ftc; emerg. .2ftc for 4 hrs.)	Yes
3.4.6	Protection of Light Bulbs and Tubes (Guarded or coated to prevent breaks)	Yes
3.5	SAFTIES	
3.5.1	Car Safeties (Every car must have a safety)	Yes
3.5.2	Counterweight Safeties (If occupied space below)	Yes
3.5.3	Safeties to Stop Ascending Cars or Counterweights Prohibited (Cannot be provided)	Yes
3.5.4	Application and Release of Safeties (Must be mechanical can only release if car goes up)	Yes
3.5.5	Max. Permissible Movement of Gov. Rope to Oper. Safety (For type “B” Safties-200ft or less 42in.; 201 to 375fpm – 36in.; Over 375 FPM 30in. Cwt. = 42in all speeds.)	Yes
3.5.6	Rail Lubricants and Lubrication Plate (Plate on cross head stating type of lubricant or none at all.)	Yes
3.5.7	Overall Length of Guide Rails (Extended to prevent disengaging)	Yes
3.6	SPEED GOVERNORS	
3.6.1	Speed Governor Overspeed and Car Safety Mechanism Switches. (A switch shall be provided when speed is over 150FPM. For static control switch shall be for all speeds & both direct.)	Yes
3.6.2	Governor Ropes (Shall be of iron, steel, monel metal, phosphor bronze, or ss. At least 3/8” in diameter Tiller rope not allowed.)	Yes
3.7	CAPACITY AND LOADING	
3.7.1	Minimum Rated Load for Passenger Elevators (per table 3.7.1)	Yes
3.7.2	Use of Partitions for Reducing Inside Net Platform Area (Partitions must be permanent and symmetrical)	N/A
3.7.3	Min. Rated Load for Freight Elevators (Class A = Not more than 1/4 of total cap.; Class B = Motor Veh.; Class C = loading with industrial truck, etc.)	N/A
3.7.4	Capacity Plates (Every car must have one with rated load; Frt : one piece loads, loading and unloading; 1/4” high for pass, 1”	Yes

Appendix “B”
A17.3 Code for Existing Traction Elevators

A17.3	Code Item	Cars: 1-3
	for frt.)	
3.7.5	Signs on Freight Elevators (NOT A PASS ELEV...etc. ½” high letters)	N/A
3.8	DRIVING MACHINES AND SHEAVES	
3.8.1	General Requirements (Must be cast iron or steel, fin. Grooves no set screws)	Yes
3.8.2	Winding Drum Machines (Must have slack rope switch; Chain, belt, or rope-driven mechanisms shall not be used.)	N/A
3.8.3	Indirect-Drive Machines (Must be at least 3 belts, safety factor of 10)	Yes
3.8.4	Brakes (Must be released electrically and have spring or gravity and friction)	Yes
3.9	TERMINAL STOPPING DEVICES	
3.9.1	Normal and Terminal Stopping Devices (Locate at upper and lower terminals. If in machine room provide broken rope, tape or chain switch)	Yes
3.9.2	Final Terminal Stopping Devices (Winding drum machines- on machines and in hoistway; Traction – in the hoistway operated by the car.)	Yes
3.10	OPERATING DEVICES AND CONTROL EQUIPMENT	
3.10.1	Types of Operating Devices (Rope or rod devices shall not be used.)	Yes
3.10.2	Car-Switch Operation Elevators (If provided must return to stop position if released by hand)	Yes
3.10.3	Top-of-Car Operating Devices (Continuous pressure <150FPM; between crosshead & door)	Yes
3.10.4	Electrical Provisions	
	(a) Slack Rope Switch	N/A
	(b) Motor-Generator Running Switch	N/A
	(c) Compensating Rope Sheave Switch	N/A
	(d) Broken rope, tape or chain	Yes
	(e) Stop Switch – Top of Car- marked “stop” & “run”	Yes
	(f) Car-Safety Mechanism Switch	Yes
	(g) Speed Gov. Overspeed Switch	Yes
	(h) Final Terminal Stopping Devices	Yes
	(i) Emergency Terminal Stopping Devices (reduced stroke)	Yes
	(j) Motor Generator Overspeed Protection	N/A
	(k) Motor Field Sensing Means (not required w/ static drive)	Yes
	(m) Buffer Switches for Oil Buffers (type c safety)	N/A
	(n) Hoistway Door Interlocks or Hoistway Door Contacts	Yes
	(p) Car Door or Gate Electric Contacts	Yes
	(q) Normal Terminal Stopping Devices	Yes
	(r) Car Side Emergency Exit Electric Contact	N/A
	(s) Electric Contacts for Hinged Car Platform Sills	N/A
	(t) In-Car Stop Switch (Must be keyed, if provided)	No – Not Keyed
	(u) Emergency Stop Switch (Must be provided for freight cars)	Yes
	(v) Stop Switch in Pit	Yes
	(w) Buffer Switches for Gas Spring Return Oil Buffers	N/A
3.10.5	Power Supply Line Disconnecting Means (Provided w/ overcurrent protection, within site, and numbered)	Yes
3.10.6	Phase Reversal and Failure Protection (Means to prevent starting if out of phase)	Yes
3.10.7	Devices for Making Hoistway Door Interlocks or Electric Contacts, or Car Door or Gate Electric Contacts Inoperative (These devices are prohibited)	Yes
3.10.8	Release and Application of Driving Machine Brakes (If ungrounded or if stop switch is pulled shall release brake)	Yes
3.10.9	Control and Operating Circuit Requirements (The failure of any single magnetically operated switch)	Yes
3.10.10	Absorption of Regenerated Power (Provide means to absorb energy during overhauling)	Yes
3.11	EMERGENCY OPERATION AND SIGNALING DEVICES	

Appendix “B”
A17.3 Code for Existing Traction Elevators

A17.3	Code Item	Cars: 1-3
3.11.1	Car Emergency Signaling Devices (Audible signal, two-way communication, on emerg. power)	Yes
3.11.2	Operations of Elevators Under Standby (Emergency) Power (If provided must be able to absorb regenerative power)	Yes
3.11.3	Firefighters’ Service (A17.1-1987 Rules 211.3 through 211.8- appendix C; phase I and II switches shall be the same in each bldg)	No
3.12	SUSPENSION MEANS AND THEIR CONNECTIONS	
3.12.1	Suspension Means (Must be wire rope made of iron or steel- Elevator ropes only)	Yes
3.12.2	Rope Data Tag	Yes
3.12.3	Factor of Safety ($f = S \times N / W$ or table 3.12.3)	Yes
3.12.4	Minimum Number and Diameter of Suspension Ropes (3 for traction; 2 for drum; minimum diameter = 3/8")	Yes
3.12.5	Suspension Rope Equalizers (When provided shall be of the individual-compression spring type)	Yes
3.12.6	Securing of Suspension Wire Ropes to Winding Drums (rope must be secured by clamps or tapered babbitted sockets.)	N/A
3.12.7	Spare Turns on Winding Drums (Not less then one turn of the rope when car is on buffer)	N/A
3.12.8	Suspension Rope Fastenings (Spliced eyes by return loop may continue in service)	Yes
3.12.9	Auxiliary Rope Fastening Devices	N/A

Appendix “C”

Performance Review and Maintenance Deficiency List

Performance Review:

In this section we provide the results of randomly reviewing 50% or more of the performance of all elevators.

Part A: Definitions

A stopwatch, tachometer, and spring gauge are utilized to measure the performance of each elevator. Original equipment design, national and local codes and other factors govern these times. The following is an explanation of each item that was reviewed.

- Car Door Dwell Time: When an elevator is responding to a car call, the code requires the elevator doors to stay open a minimum of 3.0 seconds. This is to allow ample time for the passengers to exit.
- Hall Call Dwell Time: When an elevator is responding to a hall call, the code requires the elevator doors to stay open a minimum of 5.0 seconds. This is to allow ample time for the passengers to enter the elevator.
- Floor-To-Floor Time: This measures the time that it takes an elevator to go from one floor to the next floor. Door open and close times are calculated into this time to provide a meaningful measurement. The stopwatch is started when the doors start to close and is stopped when the elevator is level at the next floor with the doors $\frac{3}{4}$ open for center opening doors, and $\frac{1}{2}$ open for side opening doors.
- Door Open Time: The door open time is measured when the doors start to open until they are fully open.
- Door Close Time: The door close time is measured when the doors start to close until they are fully closed.
- Full Speed: Full speed of an elevator is measured in the machine room utilizing a tachometer or in the car using an accelerometer.
- Door Closing Pressure: The force required to prevent the doors from closing. This pressure is measured with a spring gauge.
- Ride Quality: Acceleration, deceleration, side-to-side sway and noise level are evaluated in this section.

On the following page the results of the elevators checked are provided.

Appendix “C”

Performance Review and Maintenance Deficiency List

1516-9 th Street							
	PERFORMANCE TIMES	Design 1 & 2	CAR 1	CAR 2	Design 3	CAR 3	
7.1	Door Open Time	1.6	1.8	1.8	2.5	3.2	
7.2	Door Close Time	2.4	1.9	2.4	4.4	3.7	
7.3	Floor to Floor Up	10.0	10.9	11.2	16.5	16.7	
9.6	Floor to Floor Down	10.0	11.5	11.4	16.5	17.7	
7.5	Full Speed Up	200 FPM	230	224	125 FPM	134	
7.6	Full Speed Down	200 FPM	226	217	125 FPM	94	
7.7	Jerk Rate Up	< 7.0	7.4	6.8	< 7.0	8.8	
7.8	Jerk Rate Down	<7.0	7.8	6.8	<7.0	2.8	
7.9	Power Closing of Door (Pressure Gauge)	<30lbs	30 lbs	20 lbs	<30lbs	18 lbs	
7.10	Interrupted Ray	.5sec	1.7	1.6	.5sec	1.7	
7.11	Car Dwell Time	3.0	5.6	5.9	3.0	4.5	
7.12	Hall Call Dwell Time	5.0	6.2	5.6	5.0	5.9	
7.13	Hall/Car Lantern Time	8.0	8.7	9.1	8.0	12.3	
	Nudging	20.0	None	None	20.0	None	
	Test Emergency Phone	Yes	Yes	Yes	Yes	Yes	

Items in Red do not comply and should be adjusted.

Car #	GENERAL MAINTENANCE DEFICIENCIES
	Car 1
1.1	Wire is exposed at bottom of controller.
1.2	Door pressure is over 30 lbs.
1.3	Five year full load tests were last performed in 2008 and now overdue.
1.4	Pit is dirty.
	Car 2
2.1	Wire exposed at bottom of controller.
2.2	3 rd floor car braille is missing.
2.2	Five year full load tests were last performed in 2008 and now overdue.
2.3	Pit is dirty.
	Car 3 (Hydraulic elevator)
3.1	Jamb braille is missing on 1 side at floors 2 and 3.



Prepared by

EMG
222 Schilling Circle, Suite 275
Hunt Valley, Maryland 21031
800.733.0660
410.785.6220 (fax)
www.emgcorp.com

EMG Contact

Matthew Anderson
Program Manager
800.799.0660

EMG Project No.

111326.14R.033.305



Your partner in real estate lifecycle planning and management.
800.733.0660 | emgcorp.com

