

Citywide
Facility Condition Assessment

Report of
Facility Condition Assessment

For
City of Novato
Maintenance Buildings
(Vehicle Maintenance and Divis & Lockers)
550 Davidson, Novato, CA



March 4, 2013

Provided By:

Faithful+Gould, Inc.

Provided For:



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SECTION 1 - EXECUTIVE SUMMARY

INTRODUCTION

In accordance with the agreement held between City of Novato, dated January 18, 2013 and Faithful+Gould Inc, this completed report provides a comprehensive Facility Condition Assessment of the maintenance buildings located at 550A and 550B Davidson Street, Novato, CA (The Facility). The facility consisted of the following buildings:

-  Vehicle Maintenance (Building A)
-  Divis & Lockers (Buildings B & C)

This report provides a summary of the facility information known to us at the time of the study, the scope of work performed, an equipment inventory, evaluation of the visually apparent condition of the Property and an expenditure forecast of expenditures anticipated over the next 20 years. The expenditure forecast does not account for typical planned maintenance items such as changing filters to fan coil units and only considers deficiencies above a \$500 aggregated value.

Our cost rates to produce life cycle and replacement cost estimates are based on our knowledge of the local regional market rates. Our line item costs assume that the work will be undertaken by either in-house or by direct sub-contract labor. Identified recommended works that are required during the twenty-year study period have been included with an allowance of 25% for professional fees and general contractor overhead/profit and management costs (where applicable).

Charts EX-1 through to EX-3 provides a summary of the anticipated primary expenditures over the 20 year study period. Further details of these expenditures are included within each respective report section and within the 20 year expenditure forecast, in Appendix A.

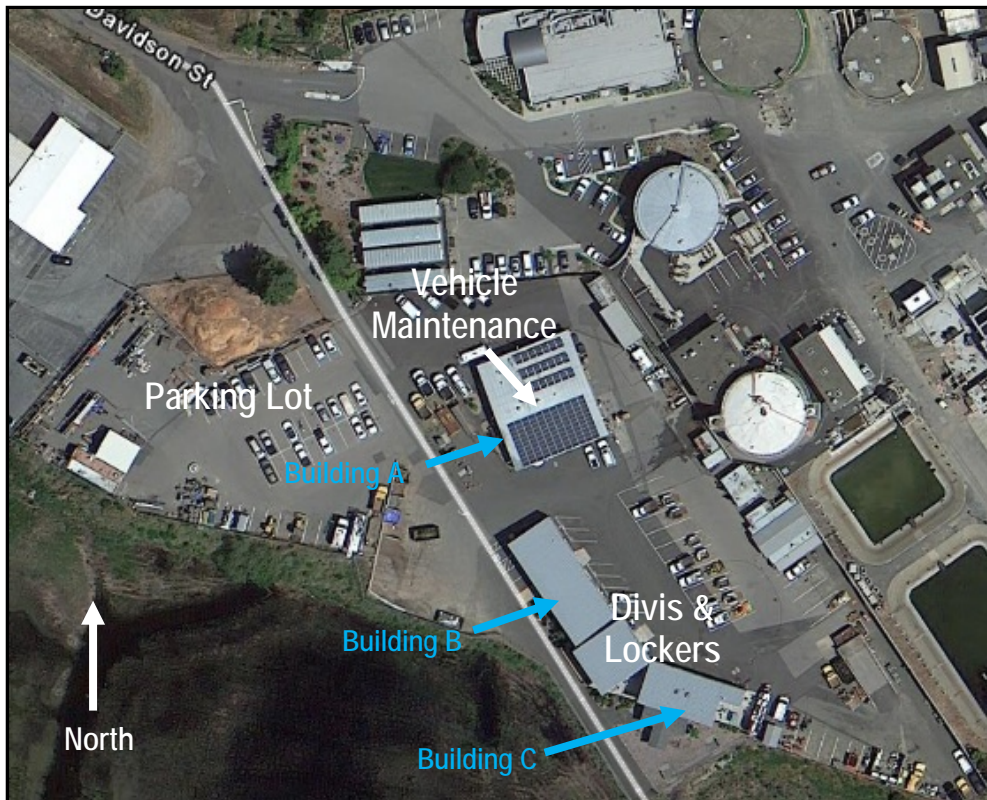
The report also calculates the Facility Condition Index (FCI) of each facility based upon the calculated FCI. Further discussion of the Facility Condition Index is detailed in the sections below. The FCI does not include the site systems, however we have still included repair and replacement costs so that they can be represented in the study.

This report was completed in general accordance with the ASTM E2018-08 Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process.

PROJECT DETAILS

On January 24, 2013 Mr. Andrew McClintock of Faithful+Gould visited the facility to observe and document the condition of the buildings and the site components. During our site visit, Faithful+Gould was assisted by Nick R. Reposo, Custodial Supervisor for the City of Novato.

Overview of the Buildings at the Facility



BUILDING SUMMARY

Table EX-1 Facility Details

BUILDING NAME:	Vehicle Maintenance (Building A)	LAT/LONG:	33°05'59"N / -122°33'14"W
ADDRESS:	550B Davidson Street, Novato, CA 94945	OCCUPANCY STATUS:	
HISTORIC DISTRICT:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	OCCUPIED <input checked="" type="checkbox"/> VACANT <input type="checkbox"/> PARTIALLY <input type="checkbox"/>	
HISTORIC BUILDING:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
GROSS SQUARE FOOTAGE OF BUILDING:	5,525	GROSS SQUARE FOOTAGE OF LAND:	121,376 (estimated)Whole Site
CURRENT REPLACEMENT VALUE:	\$656,500 (Taken from the City PEPIP-CA Property Schedule)	YEAR OF CONSTRUCTION:	1975
BUILDING USE:	Public Works Garage	NUMBER OF STORIES:	1

BUILDING DESCRIPTION

The Vehicle Maintenance building is part of the City Maintenance Facility located at 1560B Davidson Street, Novato CA and was originally built in 1975. The building consists of a repair area with vehicle lifts, offices, break room, drawings office, mezzanine storage areas and workshop. We are unaware of any major improvements at the building since its construction besides the installation of the vehicle lifts and also the solar array PV system. The building is referenced on site as Building A and therefore we have referenced this building in our report with the same designation.



The building has a steel portal frame structure supported by concrete pad footings with corrugated metal wall and roof panels encapsulating the building. The floor consisted of a cast-in-place reinforced slab-on-grade concrete floor slab at the first floor level and a wood frame structure consisting of wood beams and joists at the mezzanine storage areas. Windows consisted of single pane aluminum sliding units and doors consisted of hollow metal and overhead roll up and over doors.



The interior finishes of the building contained painted gypsum walls and ceilings, sealed concrete and carpet floor coverings.

Heating and cooling at the building is provided through one split-system, two natural gas unit heaters and two through window air conditioning units. The main vehicle repair area has no cooling present. Domestic hot water is provided by an electric domestic water heater with a capacity of 40 gallons.

The building has electrical sub-panel boards present, as the main electrical panel is located at Building C. Panel A appears to be the main panel at the building and is rated at 225-amp, 120/240-volts, 1-phase, 3-wire. The interior lighting is provided by hung and surface mounted 4' strip double lamped fixtures with T8 32 watt bulbs and electronic ballasts. The building also has a photovoltaic solar system present with modular panels located at roof level.

The building contains an emergency generator, however there is no fire suppression or alarm systems present.

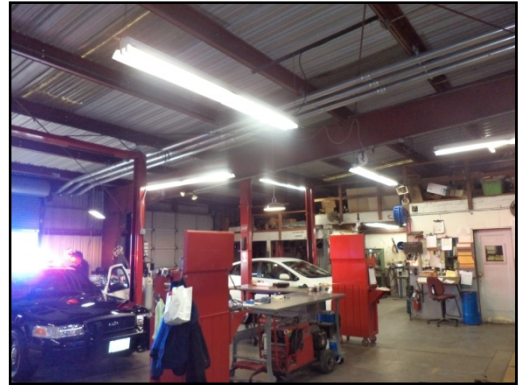


Table EX-2 Facility Details

BUILDING NAME:	Divis & Lockers (Building B & C)	LAT/LONG:	38°05'57"N / -122°33'14"W
ADDRESS:	550A Davidson Street, Novato, CA 94945	OCCUPANCY STATUS:	
HISTORIC DISTRICT:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	OCCUPIED <input checked="" type="checkbox"/> VACANT <input type="checkbox"/> PARTIALLY <input type="checkbox"/>	
GROSS SQUARE FOOTAGE OF BUILDING:	6,000	HISTORIC BUILDING:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
GROSS SQUARE FOOTAGE OF LAND:		GROSS SQUARE FOOTAGE OF LAND:	121,376 (estimated) Whole Site
CURRENT REPLACEMENT VALUE:	\$1,922,630 (Taken from the City PEPIP-CA Property Schedule)	YEAR OF CONSTRUCTION:	2007
BUILDING USE:	Office & Changing Facility	NUMBER OF STORIES:	1

BUILDING DESCRIPTION

The Divis & Lockers consists of two separate buildings that were constructed at the same time and generally have the same construction characteristics. These buildings also form part of the City Maintenance Facility located at 1560A Davidson Street, Novato CA and was originally built in 2007. The building consists of manager office, meeting room, open plan office area, break room, locker rooms and wash areas. We are unaware of any major improvements at the buildings since they were constructed. The buildings are referenced on site as Buildings B & C and therefore we have referenced these buildings in our report with the same designation and they have been classed as one replacement value in the same way the City insurance valuations has been prepared.



The buildings have a steel portal frame structure supported by concrete pad footings with concrete stem walls and footings which are integral with the cast-in-place reinforced concrete slab. The exterior wall constructions consist of corrugated metal wall panels and standing seam metal roof panels encapsulating the building. Windows, curtain walling and storefront systems consisted of insulated aluminum framed units and doors consisted of glazed panel with aluminum frames and hollow metal personnel doors.



The interior finishes of the buildings contained painted gypsum walls and ceilings, ceramic tile walls, sealed concrete and carpet floor coverings, suspended acoustical and perforated metal panel ceiling systems. Building B also contained a raised access floor which permits below floor ducting and HVAC unit placements.

Heating and cooling at the buildings is provided through three ground mounted DX cooling and heating high efficient constant volume package units which provide conditioned air to nine below floor Variable Air Volume (VAV) terminal units which allows individual control in the zones they serve at Building B. Building C's conditioned air is controlled at the unit. Domestic hot water is provided by a natural gas commercial water heater and stand-alone storage tank which has a capacity of 100 gallons.

The Main Distribution Panel is a Siemens unit that is rated at 208Y/120 volts at 600-amps, 3-phase, 4-wire. The interior lighting consisted of pendent type compact fluorescent light fixtures and recessed compact fluorescent 7" round fixtures.

The buildings contain a wet-pipe fire suppression system, fire alarm system and an emergency generator.



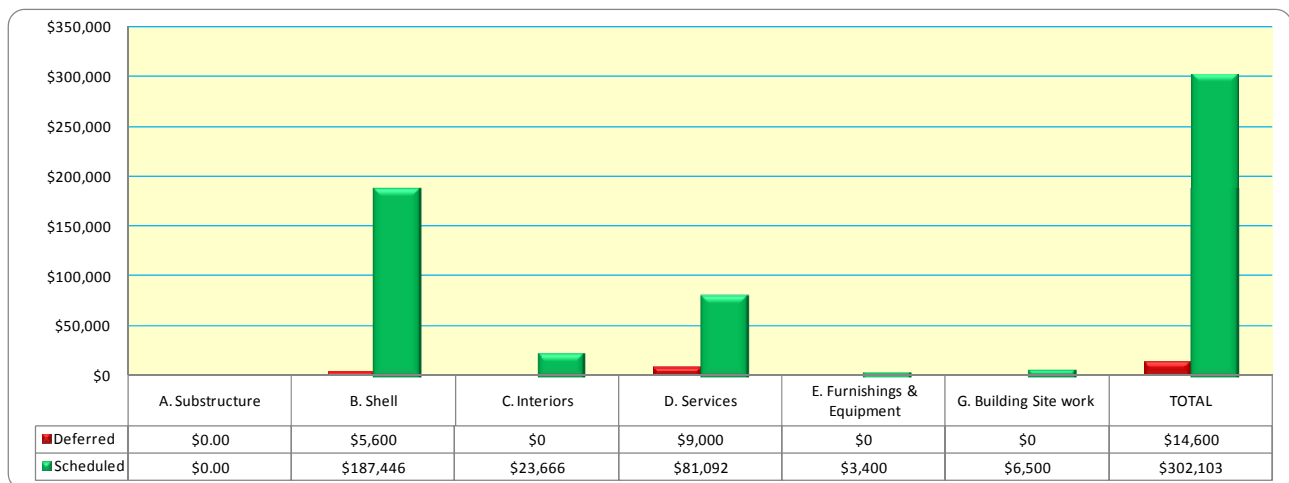
BUILDING EXPENDITURE SUMMARY

The building expenditure summary section provides an executive overview of the findings from the assessments. Charts EX-1 through to EX-2 provides a summary of anticipated expenditures over the study period for each of the buildings at the site. Chart EX-3 provides a cursory review and assessment of the major site assets to further assist the City in understanding the condition of the site over all. We have scheduled key findings highlighting key items of interest and their anticipated failure year. Further details of these expenditures are included within each respective report section and within the expenditure forecast, in Appendix A of this report.

Building A (Vehicle Maintenance)

The results illustrate a total anticipated expenditure over the study period of circa \$316,703.

Chart EX-1 Building Expenditure Summary ^{1, 2, 3 & 4}



KEY FINDINGS

- ✚ B Shell: Repaint exterior wall surfaces at an estimated cost of \$5,828 in years 2015 and 2023
- ✚ B Shell: Replace two overhead doors at an estimated cost of \$5,600 in year 2013
- ✚ B Shell: Replace metal panel roof covering at an estimated cost of \$151,938 in year 2017
- ✚ D Services: Renovate restroom at an estimated cost of \$8,500 in year 2013
- ✚ D Services: Replace rooftop solar modules at an estimated cost of \$57,750 in year 2031
- ✚ G Building Sitework: Replace emergency generator at an estimated cost of \$5,000 in year 2017

¹ All costs presented in present day values

² Costs represent total anticipated values over the 20 year study period

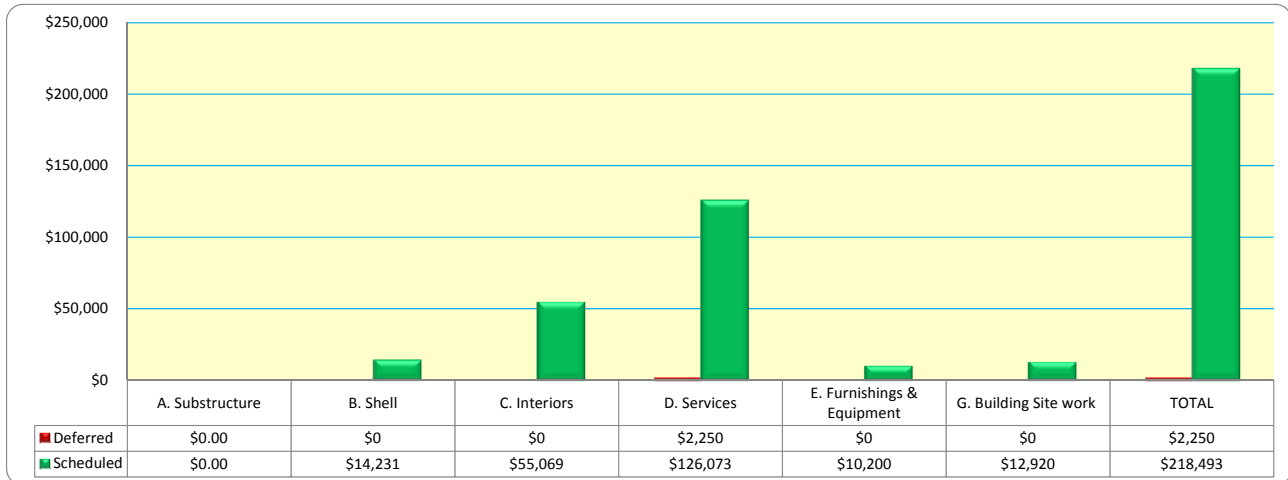
³ An allowance of 25% has been included for professional fees and general contractor overhead/profit and management costs

⁴ ADA Compliance was not examined as part of this project. The costs do not factor in bringing the recommended expenditures into compliance with current ADA rules.





Building B & C (Divis & Lockers)

The results illustrate a total anticipated expenditure over the study period of circa \$220,743.

Chart EX-2 Building Expenditure Summary ^{1, 2, 3 & 4}



KEY FINDINGS

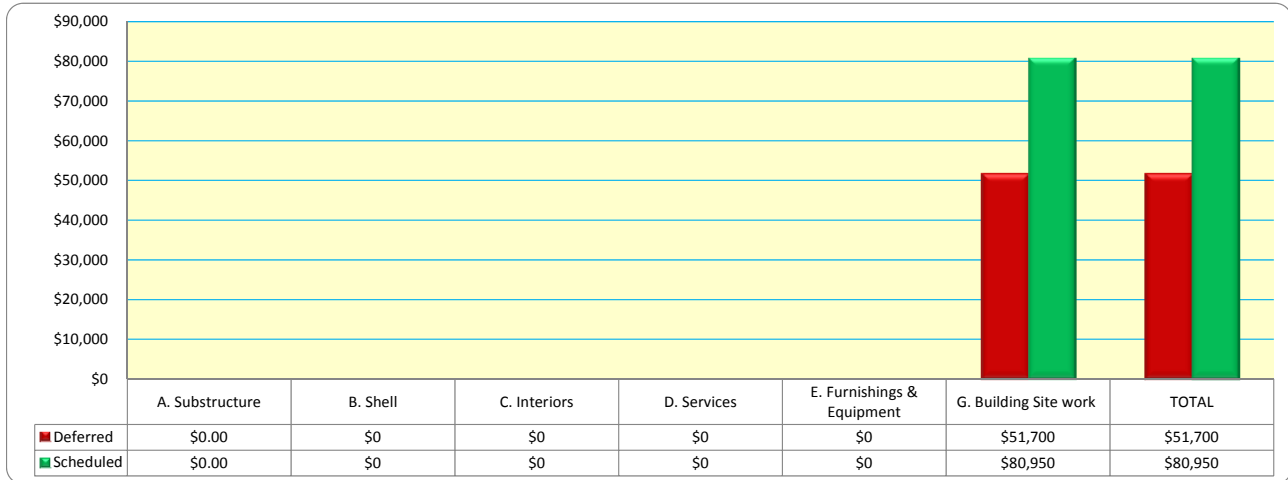
-  D Services: Replace HVAC package units at an estimated cost of \$46,531 in year 2027
-  D Services: Replace sprinkler heads at an estimated cost of \$6,300 in year 2027
-  D Services: Replace fire alarm system at an estimated cost of \$30,000 in year 2022
-  G Building Sitework: Replace emergency generator at an estimated cost of \$10,320 in year 2027

¹ All costs presented in present day values
² Costs represent total anticipated values over the 20 year study period
³ An allowance of 25% has been included for professional fees and general contractor overhead/profit and management costs
⁴ ADA Compliance was not examined as part of this project. The costs do not factor in bringing the recommended expenditures into compliance with current ADA rules.

Site Systems

The results illustrate a total anticipated expenditure over the study period of circa \$132,650.

Chart EX-3 Building Expenditure Summary ^{1, 2, 3 & 4}



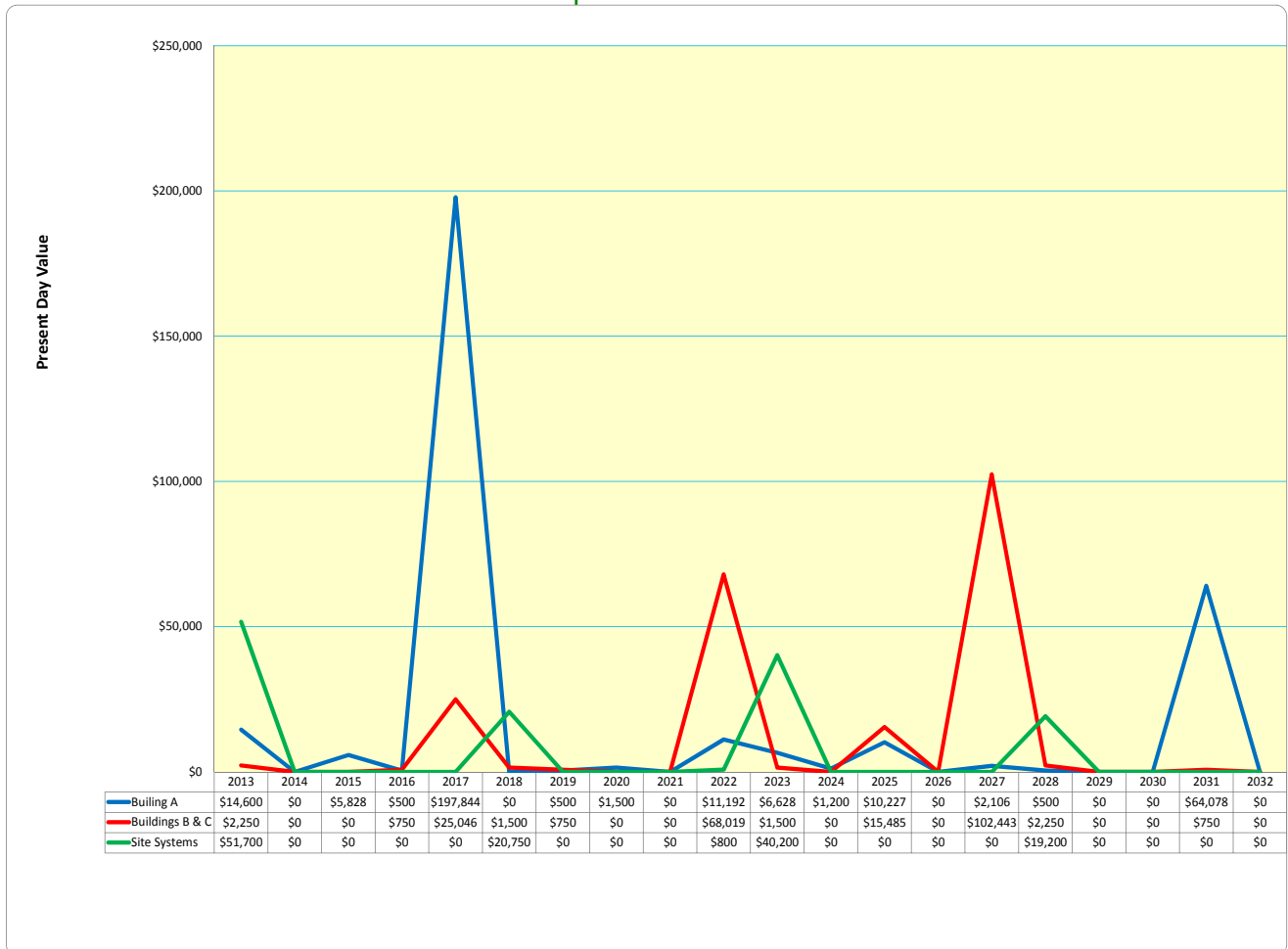
KEY FINDINGS

- ✚ G Building Sitework: Undertake asphalt mill and overlay to damaged areas only at an estimated cost of \$30,000 in year 2013
- ✚ G Building Sitework: Undertake seal coating to surface of parking lot, yard and roadways at an estimated cost of \$19,200 in years 2018, 2023 and 2028

¹ All costs presented in present day values
² Costs represent total anticipated values over the 20 year study period
³ An allowance of 25% has been included for professional fees and general contractor overhead/profit and management costs
⁴ ADA Compliance was not examined as part of this project. The costs do not factor in bringing the recommended expenditures into compliance with current ADA rules.

Chart EX-4 illustrates a summary of yearly anticipated expenditures over the cost study period for each of the maintenance buildings and the site systems. A detailed breakdown of anticipated expenditures is contained within Appendix A of this report.

Chart EX-4 Expenditure Forecast^{1, 2, 3 & 4}



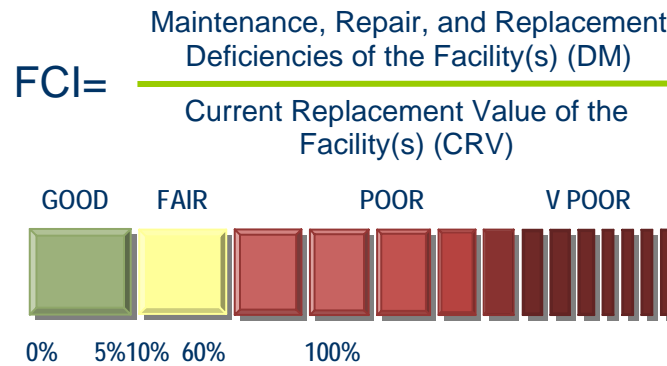
¹ All costs presented in present day values
² Costs represent total anticipated values over the 20 year study period
³ An allowance of 25% has been included for professional fees and general contractor overhead/profit and management costs
⁴ ADA Compliance was not examined as part of this project. The costs do not factor in bringing the recommended expenditures into compliance with current ADA rules.

This chart highlights significant expenditure for Building A towards the start of the study period and Buildings B & C mid-term and also towards the end of the study period primarily due to systems which are expected to reach their Estimated Useful Life (EUL) and therefore due for replacement. The lines represent the total expenditure for each year, and are a useful tool to indicate the magnitude of the impending issues the buildings and site systems will face.

INTERPRETING RESULTS

In this report we have calculated the **Facility Condition Index (FCI)** for the facility; illustrating the likely condition of the systems and equipment should the required funding not be expended over the cost study period. The FCI is used in Facilities Management to provide a benchmark to compare the relative condition of a group of facilities. The FCI is primarily used to support asset management initiatives of federal, state, and local government facilities organizations.

The FCI is the ratio of accumulated Deferred Maintenance (DM) (total sum of required and recommended works) to the Current Replacement Value (CRV) for a constructed asset calculated by dividing DM by CRV. The range is from zero for a newly constructed asset, to one for a constructed asset with a DM value equal to its CRV. Acceptable ranges vary by "Asset Type", but as a general guideline the FCI scoring system is as follows:



The FCI is a relative indicator of condition, and should be tracked over time to maximize its benefit. It is advantageous to define condition ratings based on ranges of the FCI. There are a set of ratings: good (under 0.05 (under 5%)), fair (0.5 to 0.10 (5% to 10%)), and poor (over 0.10 (over 10%)) based on evaluating data from various clients at the time of the publication. Table EX-3 will help interpret the results:

Table EX-3 FCI Scoring System

Condition	Definition	Score	Percentage Value
GOOD	In a new or well maintained condition, with no visual evidence of wear, soiling or other deficiencies	0.00 to 0.05	0% to 5%
FAIR	Subject to wear, and soiling but is still in a serviceable and functioning condition	0.05 to 0.10	5% to 10%
POOR	Subjected to hard or long-term wear. Nearing the end of its useful or serviceable life.	Greater than 0.10	Greater than 10%
V-POOR	Subjected to hard or long-term wear. Has reached the end of its useful or serviceable life. Renewal now necessary	Greater than 0.60	Greater than 60%

If the FCI rating is 60% or greater then replacement of the asset/building should be considered instead of renewal.

Table EX-4 provides calculations of the FCI for each of the maintenance buildings (excluding the site/park system expenditure costs); illustrating both the current condition of the buildings and the likely condition of the buildings should the required funding not be expended over the study period. The results of the study indicate that currently the buildings are all in a GOOD condition rating at this time.

Table EX-4 Facility Condition Index

Building Name	FCI	Gross Square Foot (GSF)	CRV per GSF	Current Replacement Value (CRV)	Deferred Maintenance Value (DM) 1, 2, 3 & 4	FCI Ratio	Property Condition Rating
Building A (Vehicle Maintenance)	Current FCI Ratio	5,525	\$119	\$656,500	\$14,600	2.2%	GOOD
Building A (Vehicle Maintenance)	Year 20 FCI Ratio	5,525	\$119	\$656,500	\$316,703	48.2%	POOR
Building B & C (Divis & Lockers)	Current FCI Ratio	6,000	\$320	\$1,922,630	\$2,250	0.1%	GOOD
Building B & C (Divis & Lockers)	Year 20 FCI Ratio	6,000	\$320	\$1,922,630	\$220,743	11.5%	POOR

¹ All costs presented in present day values
² Costs represent total anticipated values over the 20 year study period
³ An allowance of 25% has been included for professional fees and general contractor overhead/profit and management costs
⁴ ADA Compliance was not examined as part of this project. The costs do not factor in bringing the recommended expenditures into compliance with current ADA rules.

Chart EX-5 indicates the affects of the FCI ratio per year, assuming the required funds and expenditures ARE made to address the identified works and deferred maintenance each year. As explained the buildings are in a GOOD condition rating at the start of the study period, however Building A will fall into the POOR condition rating in 2017 and Buildings B & C in to the FAIR condition rating later in the study period in year 2031.

Chart EX-5 Year by Year Effects of FCI over the Study Period

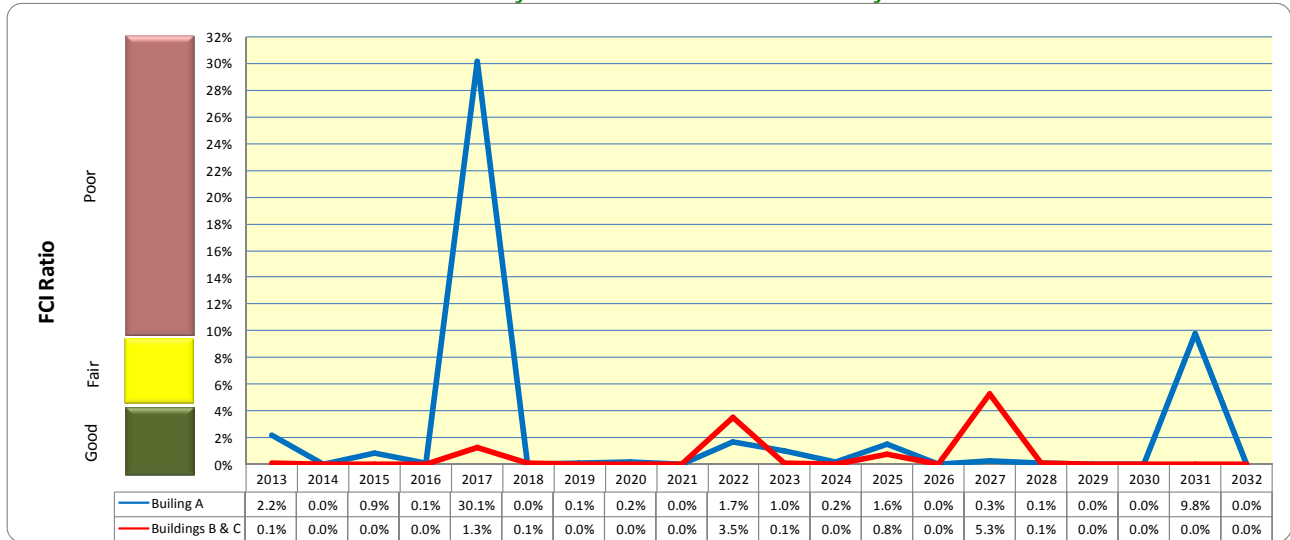
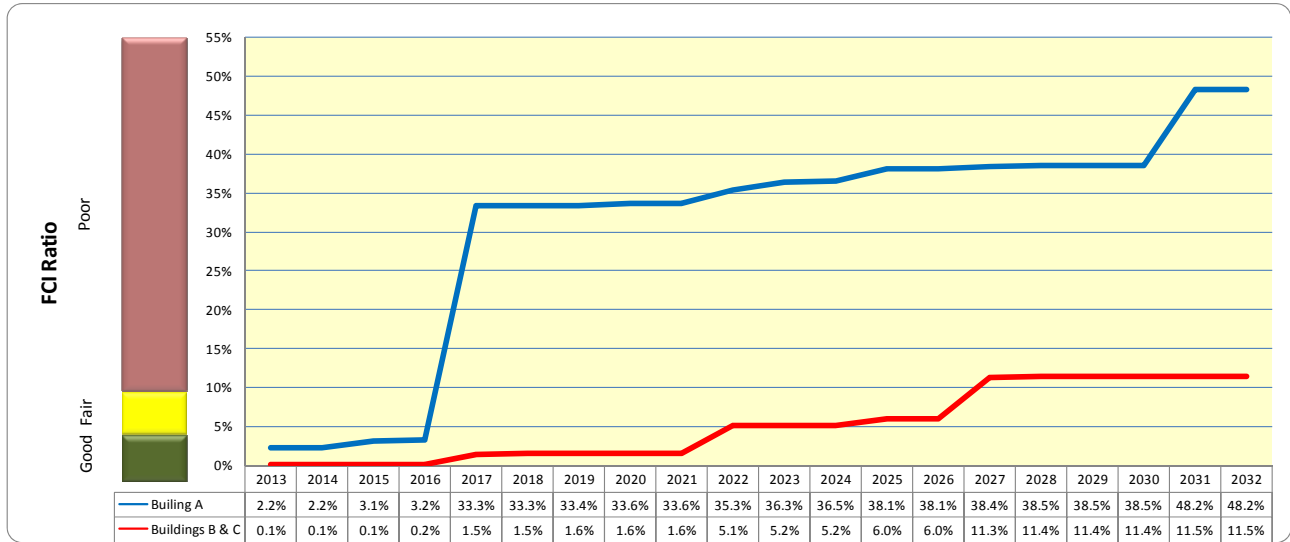


Chart EX-6 indicates the cumulative effects of the FCI ratio over the study period assuming the required funds and expenditures are **NOT** provided to address the identified actions and deferred maintenance each year. The results of the study indicate at this current time the buildings are well maintained, with a facility condition index rating within the GOOD condition; however Building A will fall into the POOR condition rating in 2017; Buildings B & C will fall into the FAIR condition rating in 2022 and POOR condition rating in 2027, where they will remain for the rest of the study period.

Chart EX-6 Cumulative Effects of FCI over the Study Period



PRIORITIZATION OF WORK

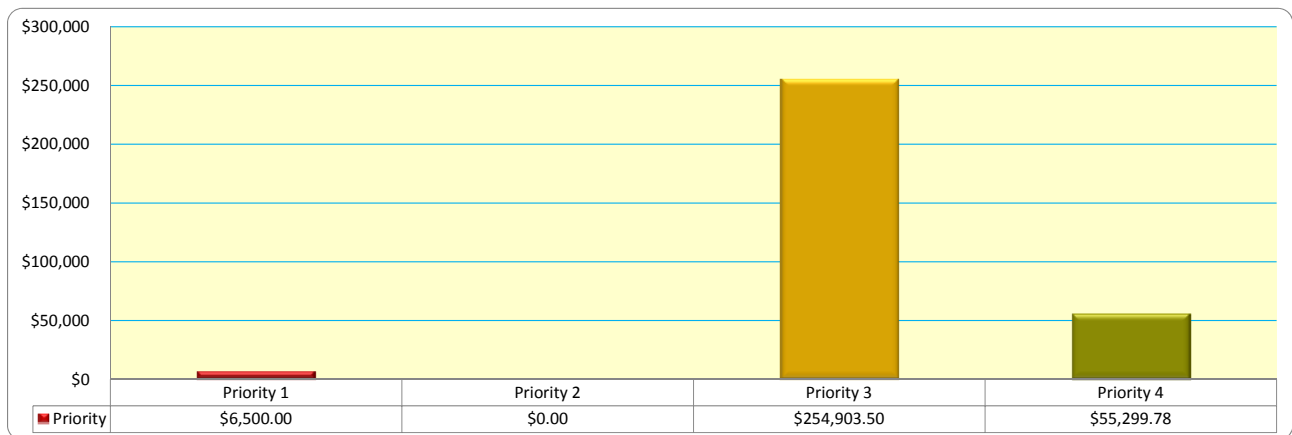
Faithful+Gould has prioritized the identified work in order to assist with analyzing the deficiencies found during the assessments. The following Priorities are shown below:

Priority 1 Life Safety/Code Compliance/ADA:	<ul style="list-style-type: none"> • Compromises staff or public safety or when a system requires to be upgraded to comply with current codes and standards
Priority 2 Currently Critical:	<ul style="list-style-type: none"> • A system or component is inoperable or compromised and requires immediate action
Priority 3 Necessary / Not Critical:	<ul style="list-style-type: none"> • Maintain the integrity of the facility or component and replace those items, which have exceeded their expected useful life
Priority 4 Image/Reputation:	<ul style="list-style-type: none"> • Used to maintain the appearance of a system due to image/reputation

Chart EX-7 through to EX-9 illustrates the breakdown of expenditure according the priority coding providing an opportunity to strategically plan and effectively direct funding to the highest priority for each building and the site/park systems.

Building A - Vehicle Maintenance

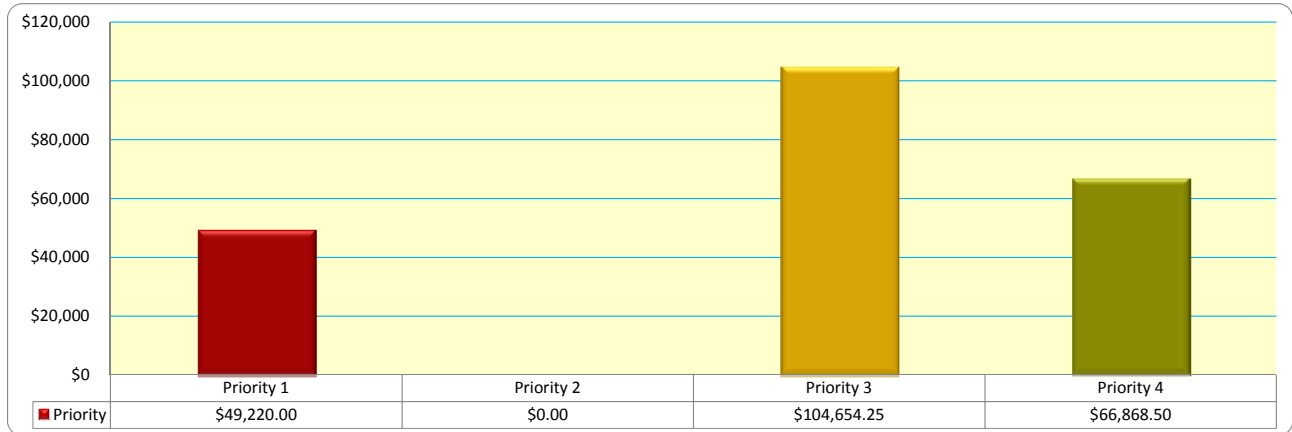
Chart EX-7 Cumulative Prioritization of Work



Priority 3 appears to require the most amount of expenditure in this study. This category illustrates work which needs to be undertaken is associated with necessary works to maintain the integrity of the building and replace equipment that has exceeded their EUL.

Building B & C – Divis & Lockers

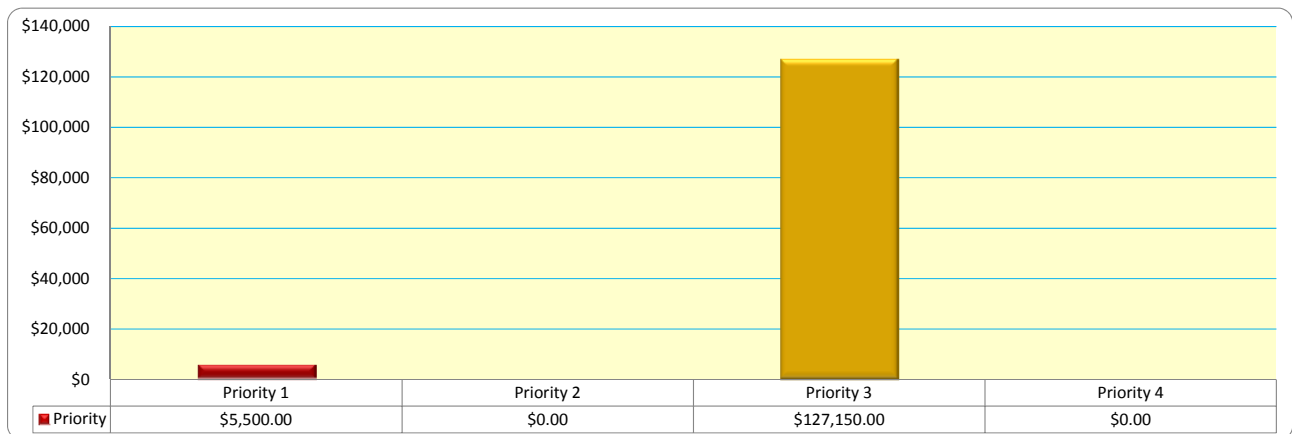
Chart EX-8 Cumulative Prioritization of Work



Priority 3 appears to require the most amount of expenditure in this study. This category illustrates work which needs to be undertaken is associated with necessary works to maintain the integrity of the building and replace equipment that has exceeded their EUL. Priorities 1 and 4 are closely behind and illustrates that there are works required which are associated with both life safety and the appearance of the buildings.

Site Systems

Chart EX-9 Cumulative Prioritization of Work



Priority 3 appears to require the most amount of expenditure in this study. This category illustrates work which needs to be undertaken is associated with necessary works to maintain the integrity and replacement of assets that have exceeded their EUL.

Chart EX-10 through to EX-12 illustrates the expenditure per priority code, per each year within the 20 year study period.

Building A - Vehicle Maintenance

Chart EX-10 Year by Year Cumulative Prioritization of Work

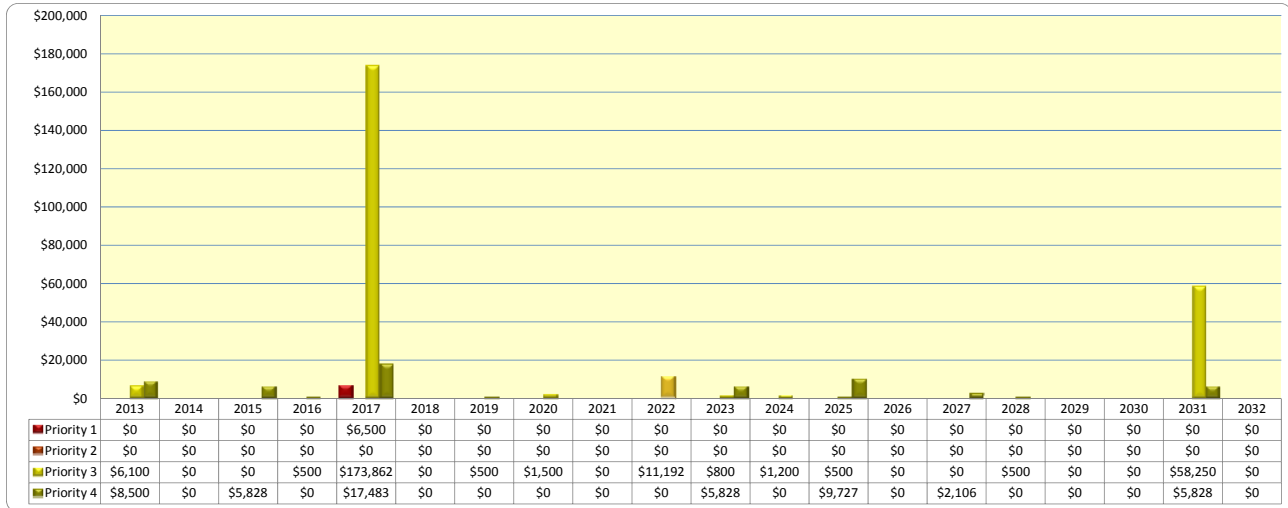


Chart EX-10 illustrates that there is one key year for Priority 3 near-term in the study period.

Building B & C – Divis & Lockers

Chart EX-11 Year by Year Cumulative Prioritization of Work

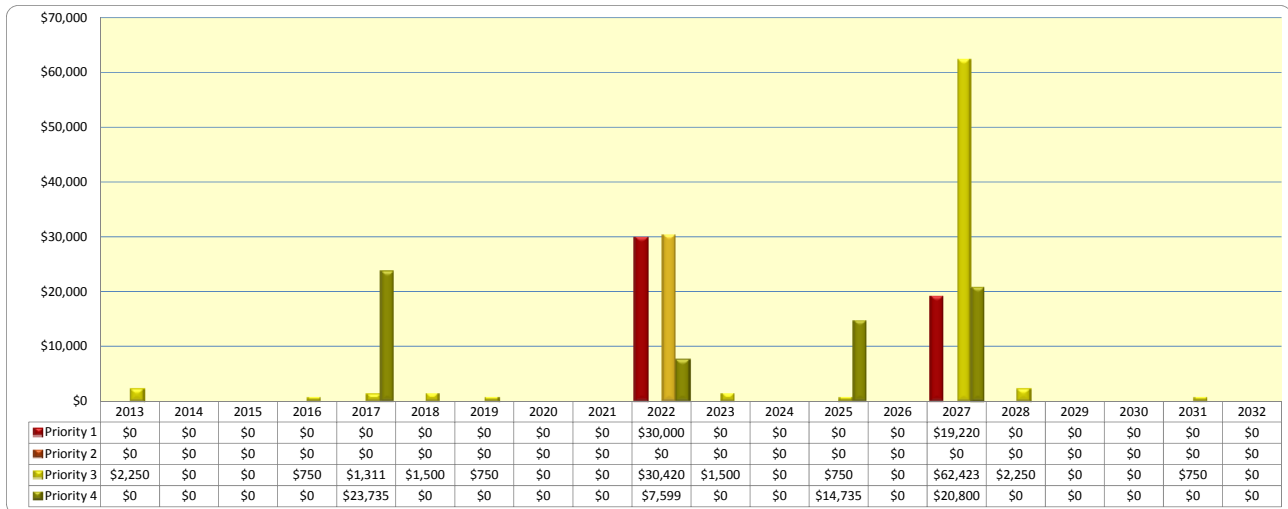


Chart EX-11 illustrates that there are a number of key expenditure year's mid-term in the study period, and one significant later in the study period for Priority 3.

Site Systems

Chart EX-12 Year by Year Cumulative Prioritization of Work

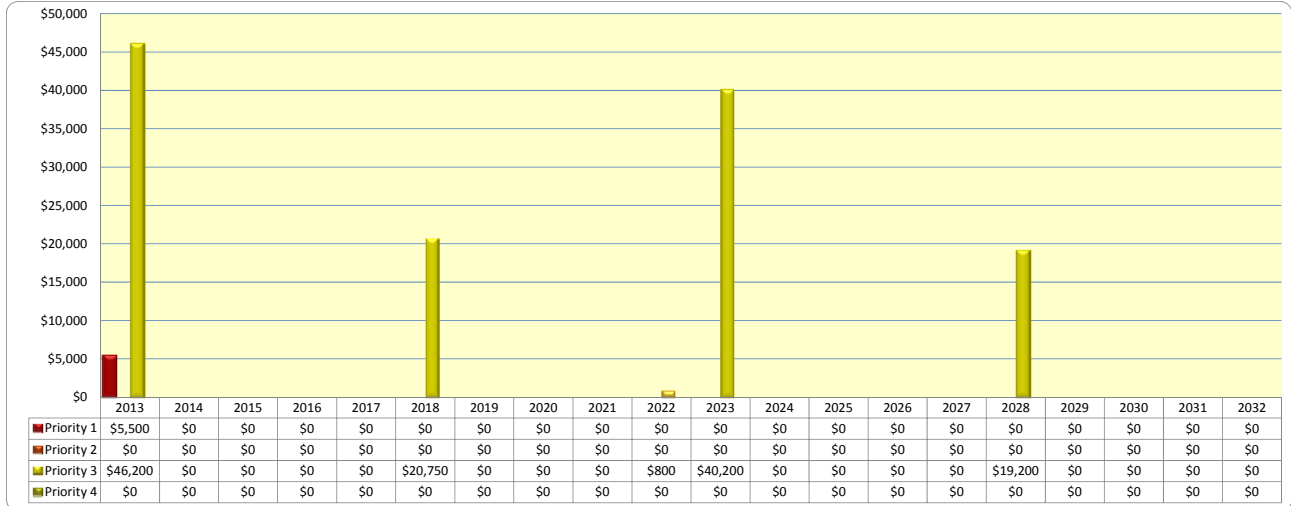


Chart EX-12 illustrates that there are four key expenditure years for Priority 3 coding, throughout the study period.

PLAN TYPES

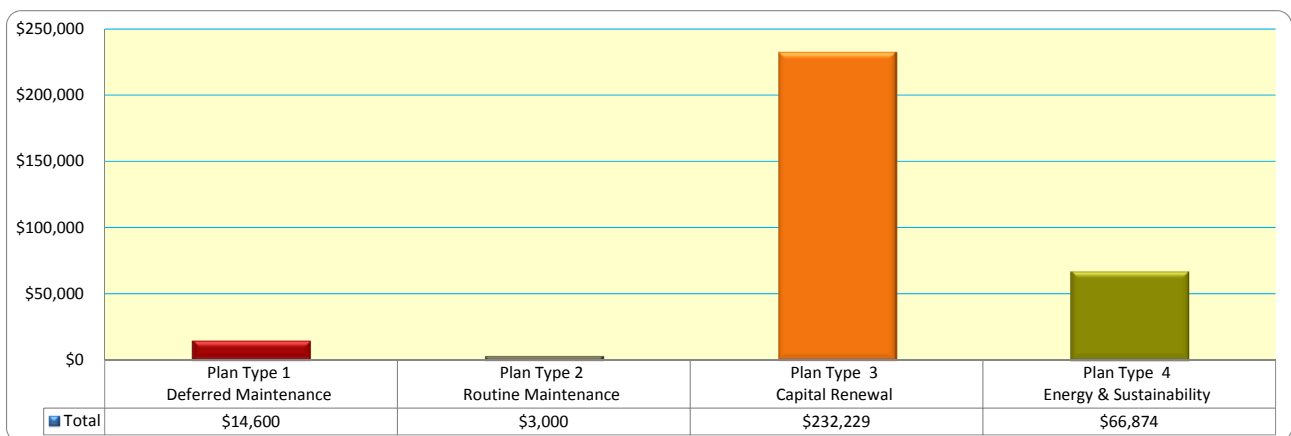
Faithful+Gould has prioritized the identified work according to the Plan Type or deficiency categories in order to assist with analyzing the deficiencies found during the assessments. The following Plan Types are shown below:

Plan Type 1 Deferred Maintenance	<ul style="list-style-type: none"> • Maintenance that was not performed when it was scheduled or past its useful life resulting in immediate repair or replacement
Plan Type 2 Routine Maintenance	<ul style="list-style-type: none"> • Maintenance that is planned and performed on a routine basis to maintain and preserve the condition
Plan Type 3 Capital Renewal	<ul style="list-style-type: none"> • Planned replacement of building systems that have reached the end of their useful life
Plan Type 4 Energy & Sustainability	<ul style="list-style-type: none"> • When the repair or replacement of equipment or systems are recommended to improve energy and sustainability performance

Chart EX-13 through to EX-15 illustrates the amount of expenditure, per category within the 20 year study period. These figures include each of the buildings and the site/park systems.

Building A - Vehicle Maintenance

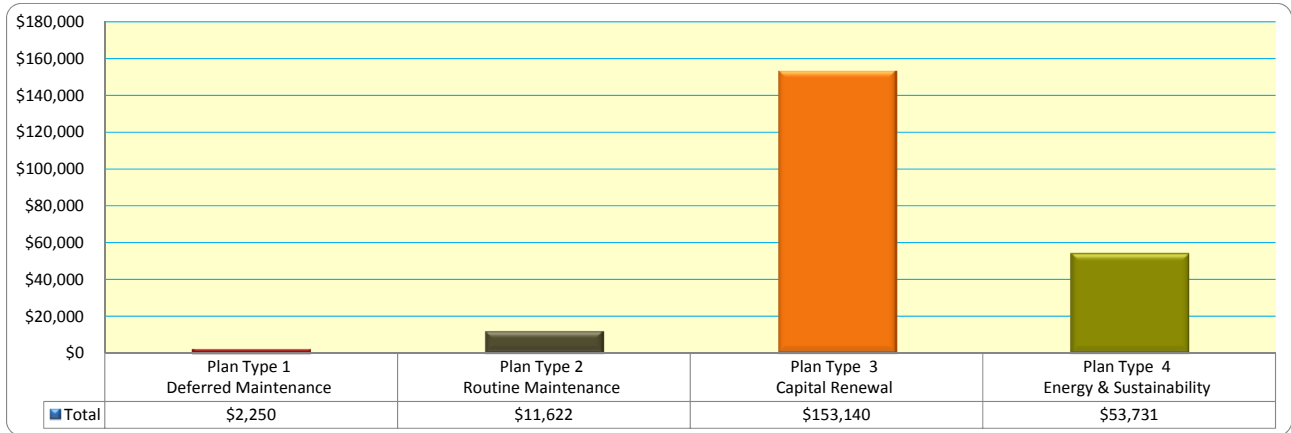
Chart EX-13 Cumulative Expenditure per Category of Works



Plan Type 3 – Capital Renewal appears to require the most amount of expenditure in this study.

Building B & C –Divis & Lockers

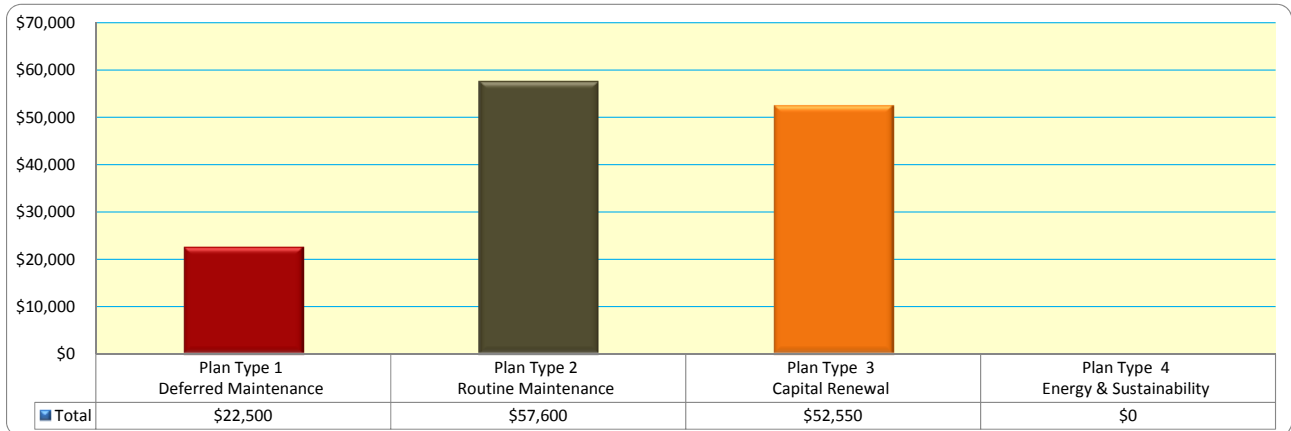
Chart EX-14 Cumulative Expenditure per Category of Works



Plan Type 3 – Capital Renewal appears to require the most amount of expenditure in this study.

Site Systems

Chart EX-15 Cumulative Expenditure per Category of Works



Plan Type 2 – Routine Maintenance appears to require the most amount of expenditure in this study.

Chart EX-16 through to EX-18 illustrates the amount of expenditure, per category, per each year within the 20-year study period.

Building A - Vehicle Maintenance

Chart EX-16 Year by Year Cumulative Expenditure per Category of Works

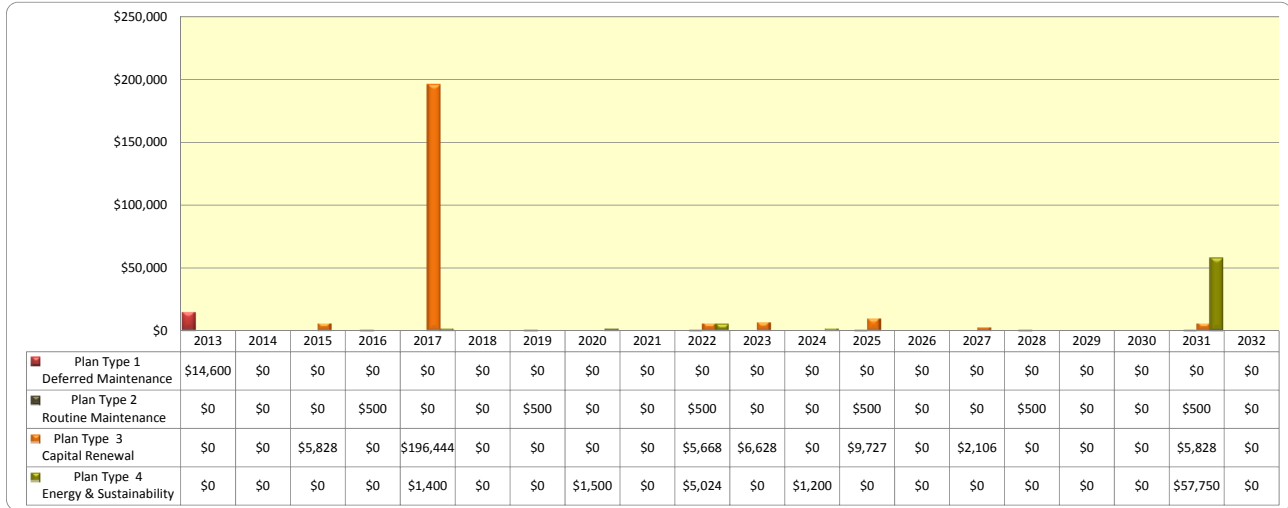


Chart EX-16 illustrates that there is one main expenditure year for Plan Type 3 – Capital Renewal, near-term in the study period.

Building B & C – Divis & Lockers

Chart EX-17 Year by Year Cumulative Expenditure per Category of Works



Chart EX-17 illustrates that there are a number of significant key years for Plan Type 3 – Capital Renewal mid-term and later in the expenditure year.

Site Systems

Chart EX-18 Year by Year Cumulative Expenditure per Category of Works

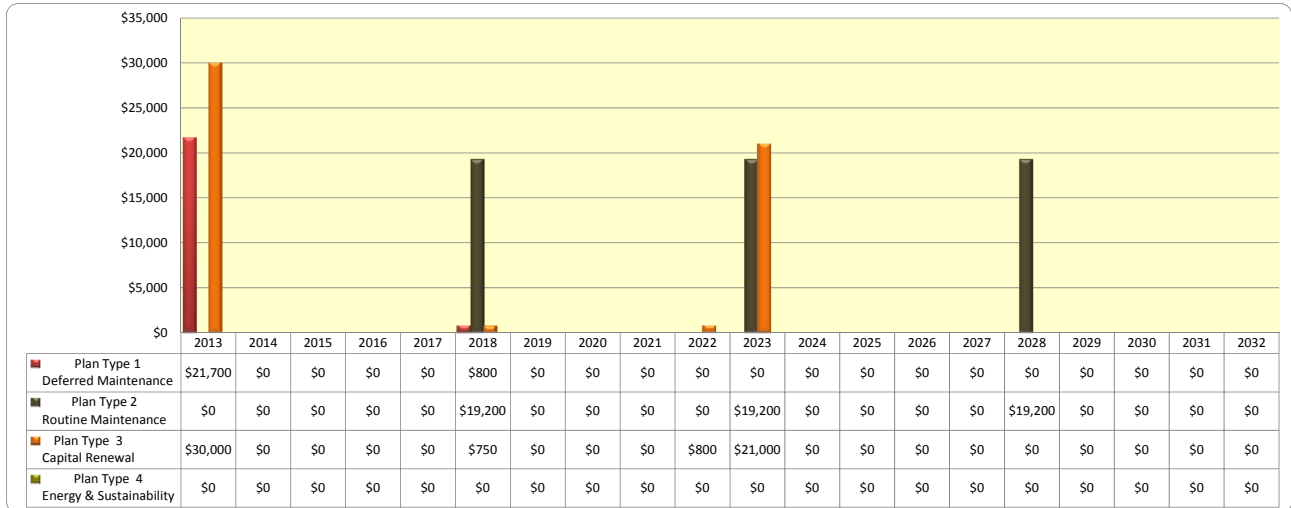


Chart EX-18 illustrates that there are a number of key years for each plan type.

SECTION 2 - A SUBSTRUCTURE

A10 FOUNDATIONS

DESCRIPTION

The description of the respective structural systems for each building are based upon our review of available drawings, and our observation of exposed portions of the building structures. The drawings reviewed can be found in Appendix D.

A1010 STANDARD FOUNDATIONS

Buildings A, B & C

A1011 Wall Foundations

The exterior wall constructions at Building B contained reinforced concrete stem wall footings which range in thickness from 15" to 18" (reference Photograph 74 in Appendix B). Buildings A and C appear to have a strip footing which is integral with the concrete slab and supports the exterior wall. The reviewed drawings indicate that the compressive strength of the concrete stem walls and footings is 3,000 psi at Buildings B & C; the compressive strength of the footings at Building A is unknown.

A1012 Column Foundations and Pile Caps

The steel portal frames of each building appear to be supported by reinforced concrete column foundations.

A1030 SLABS-ON-GRADE

Buildings A, B & C

A1031 Standard Slab on Grade

The first floor level at Buildings B and C consisted of cast-in-place concrete slab-on-grade, reinforced with welded wire fabric. The reviewed drawings indicate that the floor slab was placed over a vapor barrier and compacted gravel fill, with the thickness of the slab being 6" laid over a 2" sand bed 10 mil. vapor barrier and 4" compacted crushed rock. The reviewed drawings indicate that the compressive strength of the concrete slab at this building is 4,000 psi. We assume that the concrete slab at Building A was of a similar construction; however the compressive strength of the floor slab was not available for comment and is unknown (reference Photograph 1 in Appendix B).

CONDITION

A1010 STANDARD FOUNDATIONS

Buildings A, B & C

A1011 Wall Foundations

The concrete stem walls and footings appeared to be in good condition and although not fully visible due to their location below the exterior wall construction there appeared to be no structural issues observed or reported. No actions have been identified.

A1012 Column Foundations and Pile Caps

The column foundations are assumed to be in good condition, as there are no signs of failure throughout the structure which they support or the surrounding concrete floor slab. We do not anticipate any expenditure during the study period.

A1030 SLABS-ON-GRADE

Buildings A, B & C

A1031 Standard Slab on Grade

The slab-on-grade was observed to be in good condition at each of the buildings. We do not anticipate a requirement of any actions during the study period.

PROJECTED EXPENDITURES

No projected expenditures are identified for A Substructure during the study period.

SECTION 3 - B SHELL

B10 SUPERSTRUCTURE

DESCRIPTION

The description of the respective structural systems for each building are based upon our review of available drawings, and our observation of exposed portions of the building structures. The drawings reviewed can be found in Appendix D.

B1010 FLOOR CONSTRUCTION

Building A

B1012 Upper Floors Construction

Building A contained two mezzanine floor levels which are utilized for storage. The structures both consisted of a wood construction with beams supporting joists and wood deck subfloors (reference Photographs 4 and 5 in Appendix B). They have floor loading posted at 90,000 lbs and 15,000 lbs.

B1020 ROOF CONSTRUCTION

Buildings A, B & C

B1021 Flat Roof Construction

The low-sloped roof levels at each building consisted of steel rigid portal frames spanning north-south at Building A and east-west at both Buildings B & C. The steel portal frames support Z-shaped purlins that span in the opposite direction, supporting the roof constructions. The roof coverings can be viewed in the roof finishes section of this report.

B1030 STRUCTURAL FRAME

Buildings A, B & C

B1033 Steel Frame Structure

As explained the buildings contained rigid portal steel frames that span north-south at the Building A and east-west at both Buildings B & C. The steel portal frames at each location support the wall and roof constructions through purlins and channel girders (reference Photographs 2, 3, 42 and 43 in Appendix B). The rigid frames consist of two columns and a beam/girder that are rigidly connected at their joints.

CONDITION

B1010 FLOOR CONSTRUCTION

Building A

B1012 Upper Floors Construction

The mezzanine upper floor constructions appeared to be in fair to good condition with no observed defects of structural issue. We do not anticipate any actions for their replacement during the study period. We do recommend however that the imposed loadings are checked and maintained throughout the study period to prevent any structural issues occurring.

B1020 ROOF CONSTRUCTION

Buildings A, B & C

B1021 Flat Roof Construction

The low-sloped roof constructions appeared to be in good condition. There were no visible signs of failure or deterioration noted. We do not anticipate any expenditure during the cost study period.

B1030 STRUCTURAL FRAME

Buildings A, B & C

B1033 Steel Frame Structure

The steel rigid portal frame structures appeared to be in good condition at each of the buildings. We do not anticipate the replacement of such structural elements during the cost study period.

B20 EXTERIOR ENCLOSURES

DESCRIPTION

The description of the respective exterior enclosure for each building are based upon our review of available drawings, and our observation of exposed portions of the building structures. The drawings reviewed can be found in Appendix D.

B2010 EXTERIOR WALLS

Buildings A, B & C

B2011 Exterior Wall Construction

Building A consisted of corrugated metal wall siding attached to channel girders which span across the steel portal frame structure (reference Photographs 6 through 9 in Appendix B).

Buildings B & C contained a similar construction, however as this building was built in 2007 the construction is relatively newer and therefore consisted of a one-hour rated exterior wall construction with corrugated metal wall siding at the exterior, with siding underlayment on the inner surface, inset mounted girders, R-19 batt insulation, metal studs, 2 ½ metal furring channels and either one or two layers of 5/8" gypsum board type X at the interior (reference Photographs 40, 41 and 43 in Appendix B).

The buildings both contain corrugated metal soffits and fascia's as well as vertical reveal strips at door and window openings.

Building B also contained metal framed sun screens mounted at the south exterior elevation over window openings.

B2020 EXTERIOR WINDOWS

Buildings A, B & C

B2021 Windows

Building A contained sliding metal windows with single pane glazing at the west elevation at the location of the offices (reference Photograph 9 in Appendix B). The window units at Building B consisted of aluminum framed fixed and awning type (with hinges attached at the top of the frame) window units with insulated tempered glazing (reference Photographs 40, 44 and 46 1 in Appendix B). Sealant was present at the junction of the aluminum framing and where it meets the metal siding.

Buildings B & C

B2022 Curtain Walls

The buildings contained aluminum framed curtain walling systems with insulated tempered glazing (reference Photographs 40, 41, 43, 44 and 49 in Appendix B). Sealant was present at the junction of the aluminum framing and where it meets the metal siding.

B2023 Storefront

The entrances at both the east and west elevations of Building B contained aluminum framed storefront type systems incorporating outward swinging double entrance doors with tinted, insulated tempered glazing (reference Photograph 48 in Appendix B). Sealant was present at the junction of the aluminum framing and where it meets the metal siding.

B2030 EXTERIOR DOORS

Building B

B2031 Glazed Doors & Entrances

Glazed entrances are present at the east and west elevations of Building B, housed within the storefront glazed systems which contained double glazed panel aluminum doors; furthermore the curtain walling system at the southern ends of the building also contained single glazed aluminum doors. The doors each contained vertical pull and push bars to allow operation/opening. There is no automatic opening devices present.

Building A

B2034 Overhead Doors

The building contained steel roll-up overhead manual doors at the north, east and south elevations (reference Photographs 10 through 12 in Appendix B). There is a combination of overhead doors which are guided by a track to a position above the door opening and also overhead coiling doors that coil around a drum. The doors contained a combination of steel slatted and panel sections.

Buildings A & C

B2039 Other Doors & Entrances

The buildings contained single hollow metal doors within metal frames, with a painted surface (reference Photographs 9 and 45 in Appendix B). A number of the doors contained louvers at lower level to assist with air movement throughout the building. Door hardware consisted of newer lever door handles at Building C and older knob handles at Building A.

CONDITION

B2010 EXTERIOR WALLS

Buildings A, B & C

B2011 Exterior Wall Construction

The exterior wall constructions appeared to be in poor to fair condition at Building A and good condition at Buildings B & C. There were no major signs of deterioration, water ingress or general failure noted, however the surface of the metal siding at Building A was marked and deflected which we have assumed has been caused by low impact damage which is minor (reference Photograph 7 in Appendix B). We assume that the metal siding at this building is original and therefore with a typical EUL of twenty-five years replacement is due, however we have not included for its replacement as the condition is considered satisfactory for the type and use of the building. We do however recommend that it is repainted as it appears that it has been painted previously.

The metal siding at Buildings B & C are newer and therefore based on EUL will last beyond the study period without replacement necessary. We recommend that the surface of the metal at these two building are power washed periodically to maintain a suitable appearance.

B2020 EXTERIOR WINDOWS

Buildings A, B & C

B2021 Windows

The exterior window units at Building A appeared to be in poor to fair condition, the single-pane design of the window unit's offer limited thermal insulation. We did not find any major deficiencies and no areas of water ingress through the system was observed. We assume that they are original and based on a typical EUL of thirty-years, replacement is due for the single pane window units near-term in the study period based on industry standards. However we have extended their EUL and included for their replacement near to mid-term.

The window units at Building B are newer and therefore based on EUL will last beyond the study period without replacement necessary. Over time the perimeter sealant will eventually start to dry out and shrink, this is typically a result of exposure to moisture, heat and ultraviolet radiation; the sealant will lose its movement capabilities due to loss of plasticizers. The deformed sealant at some point, may allow air and water to enter the building; no signs of moisture penetration at the interior was observed at the time of the assessment. Sealant such as this has a typical EUL of fifteen-years therefore we anticipate it will require replacement with a suitable polyurethane sealant later in the study period to maintain water integrity and prevent any water penetration.

Buildings B & C

B2022 Curtain Walls

The exterior curtain wall systems appeared to be in good condition, no major deficiencies were observed. Based on a typical EUL of fifty-years replacement is not anticipated during the study period, as they will not reach their EUL before the end of the study period. However as with the window unit perimeter sealant, deterioration will eventually occur therefore we recommend that all of the sealant is replaced at the same occasion, and therefore we have included the cost of this work with the cost of the window unit sealant replacement.

Building B

B2023 Storefront

The exterior storefront systems appeared to be in good condition, no major deficiencies were observed. Based on a typical EUL of fifty-years replacement is not anticipated during the study period, as they will not reach their EUL before the end of the study period. However as with the window unit perimeter sealant, deterioration will eventually occur therefore we recommend that all of the sealant is replaced at the same occasion, and therefore we have included the cost of this work with the cost of the window unit sealant replacement.

B2030 EXTERIOR DOORS

Building B

B2031 Glazed Doors & Entrances

The aluminum glazed entrance doors appeared to be in good condition. We do not anticipate a requirement for their replacement during the study period as they are part of the original construction and will last beyond the study period. Minor repair, maintenance and adjustments will be needed during the study period to keep the doors in working order and free from issues.

Building A

B2034 Overhead Doors

The overhead doors generally appeared to be in poor to fair condition, with the exception of the recently replaced coiling overhead door at the south elevation which we have been informed was replaced in 2007. We understand that there are jamming issues with the older overhead panel doors; furthermore the panels are heavily marked with impact damage observed at their exterior surfaces (reference Photographs 10 and 11 in Appendix B). When open, the overhead door opposite the south vehicle repair bay is in a fixed horizontal position, above the door opening and therefore interferes with the raising and lowering of the vehicles when the door is in an open position.

We assume that these older doors are original and therefore based on a typical EUL of thirty-years we recommend that they are replaced with more suitable overhead coiling doors near-term in the study period. The newer coiling door at the

south elevation appeared to be in good condition, we do not anticipate a requirement for its replacement at this time; however we recommend that the door is regularly maintained and serviced.

Buildings A & C

B2039 Other Doors & Entrances

The metal doors appeared to be in fair condition at Building A and good condition at Building C, with no observed issues noted at either of the buildings. The operation of the swing doors were satisfactory and operated without any major difficulty. However based on a typical EUL of thirty-years and assuming that the doors at the Building A are original, replacement is due near-term in the study period based on industry standards. However we have extended their EUL and included for their replacement near to mid-term.

Following replacement we recommend that the surfaces of the doors are repainting along with the exterior metal siding at the Building A in the remaining years of the study.

The doors located at the Building C are in good condition and therefore based on EUL will last beyond the study period without replacement necessary. We also recommend that these doors are painted at the same time as the doors at the other building.

B30 ROOFING

DESCRIPTION

B3010 ROOF COVERINGS

Buildings A, B & C

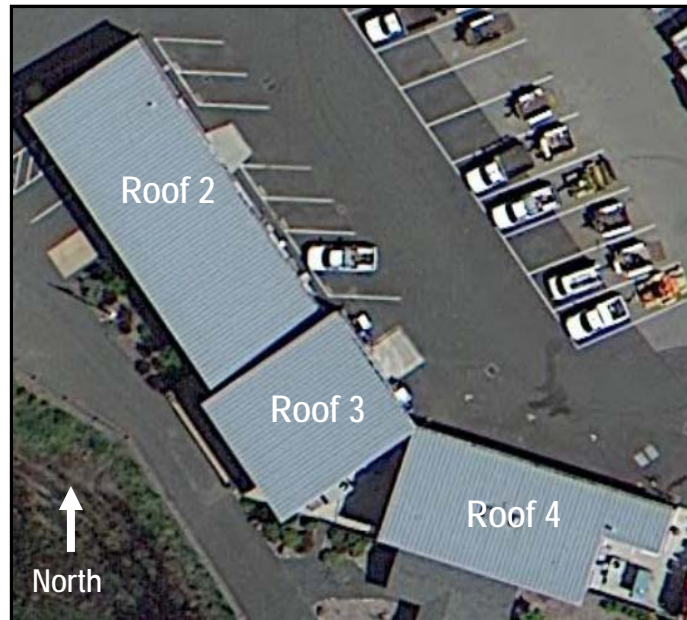
B3011 Roof Finishes

Building A contained one low-sloped roof level and Buildings B & C contained three low-sloped roof areas in total; these roof areas are located at different levels, and are shown on the following aerial plans:

Overview of Building A Roof Levels



Overview of Buildings B & C Roof Levels



The low-sloped roof area 1 contained a preformed corrugated metal roof covering and roof areas 2 through 4 contained standing seam metal roof coverings (reference Photographs 13, 14, 50 and 51 in Appendix B). The reviewed drawings indicate that the standing seam metal roof covering contains R-30 unfaced batt insulation with dual liners at the underside; no insulation was observed at Building A. The roof levels at Buildings B and C contain a sloped gradient of $\frac{1}{4}:12$ running from west-east. Roof area 1 also appears to have a sloped gradient through a shallow ridge at the center of the roof field. The metal roofs at each of the buildings are installed on structural steel purlins with Building A containing screws to secure the panels to the purlins, and Buildings B & C containing concealed clips. The screws used at Building A help to stitch the panels together at the side and end laps.

Storm water drainage consists of perimeter gutters and downspouts at the north and south roof perimeters of roof area 1 and east perimeter of roof levels 2 through 4. The water discharges from the downspouts to the ground level immediately below.

B3020 ROOF OPENINGS

Building A

B3021 Glazed Roof Openings

The building contained rectangle skylights that fitted the profile of the metal roof covering (reference Photograph 22 in Appendix B). The skylights originally assisted with providing natural daylight to the interior spaces below.

CONDITION

B3010 ROOF COVERINGS

Buildings A, B & C

B3011 Roof Finishes

Faithful+Gould walked the entire field of the roofs and observed the condition of the coverings, seams, flashings, roof gutters and rooftop exhaust equipment.

The roof coverings appeared to be in poor to fair condition at Building A and good condition at Buildings B & C. We did not observe any major deficiencies and no areas of water ingress through the system and none current were reported, however we understand that the roof at Building A has previously leaked which has been repaired. Furthermore the roof covering at Building B was understood to have moisture ingress issues following construction; however we believe these were repaired by the contractor that installed the roof originally and there have been no further issues. We assume that corrugated metal roof covering at Building A is original and based on a typical EUL of thirty-years replacement is due near-term in the study period based on industry standards. However we have extended the EUL as there are no current issues present and therefore included for replacement near to mid-term in the study period.

In addition, metal roof coverings more than ten-years old can experience failure via a number of issues; the end and side laps of the metal panels where the original butyl tape or caulk seals are located can age and fail, metal buildings expand and contract as temperature changes, which can often result in enlarged screw fastener holes and damage to fastener seals which allows water into the building.

To properly repair an aging or leaking metal roof, the panels in question should be removed and replaced. All fasteners and flashing should be checked and replaced as necessary. This can be a costly and time-consuming project that can interrupt business. Often, it's more economical to replace the roof. Sometimes it makes sense to retrofit with single-ply membranes, BUR (built-up roofing), coating systems or new metal roof panels. We have provided below a few options for replacement:

- Metal-roof replacement. This involves removing the old metal roof and replacing it with a new metal one. This is the most expensive option and is generally only done in cases where it is not feasible or desirable to recover the existing metal roof. The advantage is that the building owner can start fresh with a new roof. Disadvantages include price, disruption to building users, and the chance that the roof will eventually suffer the same problems as the original.
- Metal-roof recover. Installing a new metal roofing system over an existing one is an option if the building is strong enough to withstand the added weight. While a metal-roof recover offers the same durability and other advantages of the original metal roof, it is also subject to the same problems that made the original roof fail, and can be costly.
- Coatings or liquid-applied systems. The most common coatings or liquid-applied systems are elastomeric. They are typically applied after the roof has been cleaned, damaged panels replaced, and a primer used on rusted areas. Flashing and exposed fasteners are also sealed, and flashing compounds and reinforcing fabrics are applied at laps. The coating is then applied repeatedly until the desired thickness is achieved. This option can be cost-effective and

good at addressing corrosion. Most coatings are white and solar reflecting, resulting in energy savings. Disadvantages are that the coating doesn't "give" much with the expansion and contraction of the metal roof, subjecting it to cracks at joints and seal areas. This may require reapplications of the coating and flashing. In addition, it is not uncommon to recoat a roof every five years of service life, which can be expensive. Performance is also sensitive to surface preparation and weather conditions at the time of application.

- Polyurethane-foam recover. With this option, sprayed polyurethane foam is applied directly to the existing metal roof in a manner similar to the way a coating is applied. After replacing damaged panels and treating surface corrosion, the foam is spray-applied, usually in several passes to achieve a thickness of at least 1 in. Then a special surface coating is applied to protect the foam from ultraviolet damage. Advantages of this option are that it adds R-value to the roof, and does not require reinforcing fabric at the laps and fasteners. Disadvantages are that foam does not accommodate thermal expansion and contraction well, and offers questionable weatherability.
- Single-Ply Recover. This solution involves installing a single-ply membrane, such as a hot-air weldable TPO (thermoplastic polyolefin) over the existing metal roof. Before this system can be installed, damaged metal panels are replaced. Strips of insulation are installed between the ribs or flutes of the existing metal roof surface. A second layer of insulation is then installed over the entire roof to provide a uniform and flat substrate. The insulation adds to the R-value of the roof and provides a solid substrate for the single-ply system. The hot-air weldable membrane is then mechanically fastened or fully adhered directly over the insulation, and the seams are fused together using hot-air. A mechanically fastened system is secured to the structural purlins with fasteners. There are several advantages to the single-ply option. First, membranes are available in white or light colors, which lower cooling costs. TPO membrane is flexible, allowing it to accommodate the movement that is intrinsic in metal roofing as well as any plane changes in the roof. Also, the cost of additional insulation is already built into the total cost of the roof installation, which is usually comparable to the cost of applying coatings. In addition, some single-ply systems installed over metal roofs come with a 20-year warranty. By contrast, roof coatings typically offer a 5- to 10-year maximum warranty period. Lastly, single-ply systems are generally not as sensitive to weather conditions as coatings during the installation process.

As explained we have included for full replacement of the metal roof covering at Building A, however consideration should be taken by the City and discussions with a qualified roofing contractor regarding one of the suggested options above to ascertain if they can be more cost effective and efficient for this particular building and its use.

The roof levels appear to drain well with adequate slope at all areas to allow water to run to the gutter and roof perimeters. The gutters also appear to be free from debris and adequately sized. We recommend periodic cleaning of all gutters to prevent blockages.

Replacement of the metal roof covering will also include for the removal and reinstallation of the solar array modules. We have included an estimated contingency sum for works associated with this; however we recommend that the City obtains accurate costs from the original installers.

B3020 ROOF OPENINGS

Building A

B3021 Glazed Roof Openings

The skylights appeared to be in poor to fair condition, we understand the skylights are original and therefore based on a typical EUL of thirty-years are due for replacement near-term. However we have extended their EUL and included for their replacement mid-term at the time of the roof covering replacement; their replacement cost is included within the roof covering works.

We observed that the natural daylight that they originally and are designed to allow has been reduced as the solar panel installation now covers a number of them, reducing natural daylight exposure and therefore making them less effective. When the roof covering is replaced consideration maybe taken to the removal of these skylights due to them being less effective.

PROJECTED EXPENDITURES

Identified recommended works that are required during the twenty-year study period are detailed below. We have included a 25% allowance for professional fees and general contractor overhead/profit and management costs (where applicable).

Building A

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
B2011	Exterior Wall Construction	Repaint exterior wall surfaces	3,100	SF	\$1.88	\$5,828	2015	4
B2011	Exterior Wall Construction	Repaint exterior wall surfaces	3,100	SF	\$1.88	\$5,828	2023	4
B2011	Exterior Wall Construction	Repaint exterior wall surfaces	3,100	SF	\$1.88	\$5,828	2031	4
B2021	Windows	Replace window units	64	SF	\$78.50	\$5,024	2017	3
B2034	Overhead Doors	Replace overhead doors	2	EACH	\$2,800	\$5,600	2013	3
B2039	Other Doors & Entrances	Replace single hollow metal doors	2	EACH	\$1,500	\$3,000	2017	3
B3011	Roof Finishes	Replace metal panel roof covering	5,525	SF	\$27.50	\$151,938	2017	3
B3011	Roof Finishes	Solar panel removal and reinstall at time of roof covering replacements	1	LS	\$10,000	\$10,000*	2017	3
Total Anticipated Expenditure for B Shell						\$193,046		

* Assumed/contingency lump sum cost, we recommend this expenditure is obtained from the original installers for removal and reinstate

Buildings B & C

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
B2011	Exterior Wall Construction	Replace sealant at the window, curtain walling and storefront systems	1,265	LF	\$11.25	\$14,231	2022	3
Total Anticipated Expenditure for B Shell						\$14,231		

SECTION 4 - C INTERIORS

C10 INTERIOR CONSTRUCTION

DESCRIPTION

C1010 PARTITIONS

Buildings A, B & C

C1011 Fixed Partitions

The buildings generally contained wood stud gypsum board partitions which run from floor to ceiling levels (reference Photographs 17, 18 and 52 in Appendix B). The offices within Building A contained aluminum famed glazed partitions where they face out to the open plan office.

C1020 INTERIOR DOORS

Buildings A, B & C

C1021 Interior Doors

The buildings generally contained single flush wood doors which are housed within wood and metal frames. Furthermore Building B also contained one set of glazed double doors which access into the break room. The doors all appeared to be one directional swing operation (reference Photographs 53 and 54 in Appendix B).

C1023 Interior Door Hardware

The doors contained aluminum hardware consisting of lever door handles at Buildings B & C and knob handles at the Building A (reference Photograph 53 in Appendix B).

C1030 FITTINGS SPECIALTIES

Buildings A & C

C1031 Fabricated Toilet Partitions

The restrooms contained floor and wall mounted wood toilet partitions at Building A and stainless steel partitions at Building C (reference Photographs 19, 20 and 55 in Appendix B).

CONDITION

C1010 PARTITIONS

Buildings A, B & C

C1011 Fixed Partitions

The interior fixed gypsum and glazed partitions all appeared to be in fair to good condition. There were no deficiencies found in relation to the wall/partition structures. The fixed partitions are considered suitable for the current use at both buildings.

C1020 INTERIOR DOORS

Buildings A, B & C

C1021 Interior Doors

The interior doors appeared to be in fair to good condition with no deficiencies noted. We do not anticipate any expenditure in relation to the internal doors during the cost study period. The doors are considered suitable for the current use at the both buildings.

C1023 Interior Door Hardware

The hardware at each of the doors appeared satisfactory with no issues of deterioration or failure noted generally throughout the buildings. The operation of the door handles, locks and hinged swing were noted to be in fair to good condition. However the door knobs at Building A pose issues in relation to ADA as they should be easy to grasp with one hand without tight grasping, pinching, or twisting of the wrist. We recommend that they are considered for replacement with ADA compliant level handles in the future.

C1030 FITTINGS SPECIALTIES

Buildings A & C

C1031 Fabricated Toilet Partitions

The fabricated toilet partitions appeared to be in poor condition at Building A and good condition at Building C. There was no evidence of deteriorated panels or doors which will need immediate replacement, however the restroom at the Vehicle Maintenance building although functional, is assumed to have its original finishes and therefore appeared dated. We recommend that the restroom is renovated prior to mid-term in the study period. The cost for the replacement of these fabricated cubicle partitions have been included in a total replacement cost per restroom and is shown in the plumbing section of this report. There are no anticipated replacement actions for the fabricated toilet partitions at the Lockers section of the building.

C30 INTERIOR FINISHES

DESCRIPTION

C3010 WALL FINISHES

Buildings A, B & C

C3012 Wall Finishes to Interior Walls

The buildings generally contained wood stud gypsum board partitions throughout the buildings with a painted finish. The unisex restroom and wash areas at Buildings B & C contain 2" x 2" ceramic wall tiles (reference Photographs 16 through 18, 52, and 55 through 57 in Appendix B).

C3020 FLOOR FINISHES

Buildings A & C

C3023 Hardeners and Sealers

The vehicle repair, break room, drawings room, one of the west offices, restroom and the electrical/workshop room at Building A and the locker room of Building C contained a clear seal coat which has been applied to the surface of the concrete floor slab (reference Photograph 1 in Appendix B).

Buildings B & C

C3024 Flooring

The buildings contained 18" x 18" ceramic floor tiles within the break area of Building B and 2" x 2" ceramic floor tiles within the unisex restroom of Building B and wash areas of Building C (reference Photographs 55, 59 and 62 in Appendix B).

Buildings A & B

C3025 Carpeting

The buildings contained sheet carpet and tile floor coverings in combination with exposed floor slabs and other types of finishes (reference Photographs 52 and 58 in Appendix B). The sheet carpet is present within the offices at Building A and carpet tile throughout the individual offices, open plan office, reception, lobby and meeting room at Building B.

Building B

C3027 Access Pedestal Flooring

Building B contained a raised access floor which consisted of interchangeable floor panels supported on adjustable pedestals at allow free access to the space beneath. The reviewed drawings indicate that the void between the concrete slab and raised access floor is 2'-0" and was designed to house and conceal the Variable Air Volume (VAV) terminal units and run the conditioned air ventilation ductwork as well as other electrical conduit, junction boxes, computer and communication cabling throughout this building

C3030 CEILING FINISHES

Buildings A & C

C3031 Ceiling Finishes

There was painted gypsum board ceilings within the offices of the Building A and also within the locker room of Building C; there were none observed at Building B.

Building B

C3032 Suspended Ceilings

Building B contained 2' x 4' suspended acoustical tiled ceilings within a white enameled exposed grid within the janitor's room and unisex restroom (reference Photograph61 in Appendix B). The system is supported with wires that are attached to the roof purlin's above. The ceiling panels are generally 5/8" thick mineral board in fissured pattern. The rest of the building contained perforated metal ceiling panels which are also attached to the roof purlin's (reference Photograph 60 in Appendix B).

CONDITION

C3010 WALL FINISHES

Buildings A, B & C

C3012 Wall Finishes to Interior Walls

Interior wall finishes appeared to be in fair to good condition generally throughout the buildings. We assume that the painted walls within Building A were last painted more than ten-years and therefore they are due for repainting near to mid-term in the study period based on the typical EUL of eight-years and observed conditions. The wall surfaces within Building B & C were last painted when these buildings were constructed; therefore they will also be due for repainting as that was six-years ago. Based on current observed conditions we have extended the EUL at these two buildings and recommend repainting prior to mid-term in the study period as their condition suitable.

The ceramic wall tiles and grout had no major issues observed as they are part of the original construction at Buildings B & C. The ceramic tile will last beyond the study period and therefore we have only included for re-grouting the tiles on an as-needed basis to maintain their appearance; this is suggested at the time when the floor tile is re-grouted.

C3020 FLOOR FINISHES

Buildings A & C

C3023 Hardeners and Sealers

The sealed floor coating appeared to be in fair condition at Building A and good condition at Building C. Based on the typical EUL of eight-years we recommend that the floor coating is budgeted for reapplication prior to mid-term at both buildings.

Buildings B & C

C3024 Flooring

The ceramic floor tiles appeared to be in good condition. There were no deficiencies identified which require immediate action, although we do recommend that the tiles within the restrooms are re-grouted during the study period, to maintain their appearance.

Buildings A & B

C3025 Carpeting

The sheet carpet floor coverings appeared to be in fair to good condition. The age of the carpet within Building A is unknown and assumed to be five to ten-years of age. The carpet within Building B was installed as part of the original construction and therefore is six-years old. Both types of carpet floor covering are recommended for replacement during the study period to maintain their appearances and safety.

Building B

C3027 Access Pedestal Flooring

The raised access floor appeared to be in good condition. We had no access below the floor panels; however we could see no issues with the floor level throughout the building which would indicate any issues. We do not anticipate a requirement for any replacement actions during the study period.

C3030 CEILING FINISHES

Buildings A & C

C3031 Ceiling Finishes

The painted gypsum ceilings appeared to be in fair to good condition. Painted surfaces usually have a typical EUL of eight-years; therefore we recommend they are painted at the same time as the wall surfaces.

Building B

C3032 Suspended Ceilings

The suspended ceiling systems appeared to be in good condition. The typical EUL of suspended acoustical ceiling systems such as this is twenty-years therefore they will be due for replacement before the end of the study period. However due to the height of the ceilings, their location and that there is no requirement for access above as there is no equipment located there we have extended the EUL of the acoustical ceiling and therefore no replacement actions have been anticipated. Furthermore the perforated metal ceilings will last beyond the study period with no actions for replacement necessary.

PROJECTED EXPENDITURES

Identified recommended works that are required during the twenty-year study period are detailed below. We have included a 25% allowance for professional fees and general contractor overhead/profit and management costs (where applicable).

Building A

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
C3012	Wall Finishes to Interior Walls	Repaint interior wall and ceiling surfaces	3,578	SF	\$1.88	\$6,727	2017	4
C3012	Wall Finishes to Interior Walls	Repaint interior wall and ceiling surfaces	3,578	SF	\$1.88	\$6,727	2025	4
C3023	Hardeners and Sealers	Reapply seal floor coating	1,200	SF	\$2.50	\$3,000	2017	4
C3023	Hardeners and Sealers	Reapply seal floor coating	1,200	SF	\$2.50	\$3,000	2025	4
C3025	Carpeting	Replace sheet carpet floor covering	25	SY	\$84.25	\$2,106	2017	4
C3025	Carpeting	Replace sheet carpet floor covering	25	SY	\$84.25	\$2,106	2027	4
Total Anticipated Expenditure for C Interiors						\$23,666		

Buildings B & C

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
C3012	Wall Finishes to Interior Walls	Repaint interior wall and ceiling surfaces	7,000	SF	\$1.88	\$13,160	2017	4
C3012	Wall Finishes to Interior Walls	Repaint interior wall and ceiling surfaces	7,000	SF	\$1.88	\$13,160	2025	4
C3023	Hardeners and Sealers	Reapply seal floor coating within the locker room	630	SF	\$2.50	\$1,575	2017	4
C3023	Hardeners and Sealers	Reapply seal floor coating within the locker room	630	SF	\$2.50	\$1,575	2025	4
C3024	Flooring	RegROUT ceramic floor tiles within the breakroom	1,050	SF	\$11.69	\$12,274	2020	4
C3024	Flooring	RegROUT ceramic floor tiles as well as isolated ceramic wall tile areas within the wash areas	500	SF	\$11.69	\$5,845	2020	4
C3025	Carpeting	Replace carpet tile floor covering	160	SY	\$56.25	\$9,000	2017	4
C3025	Carpeting	Replace carpet tile floor covering	160	SY	\$56.25	\$9,000	2027	4
Total Anticipated Expenditure for C Interiors						\$55,069		

SECTION 5 - D SERVICES

D20 PLUMBING

DESCRIPTION

D2010 PLUMBING FIXTURES

Buildings A, B & C

D2011 Water Closets

There are wall mounted vitreous china water closets with manual flush valves within Buildings B & C and a floor mounted vitreous china water closet with tank within Building A (reference Photographs 19, 62 and 63 in Appendix B).

Buildings A & C

D2012 Urinals

The buildings contained vitreous china wall hung urinals with flush valves, within the men's restrooms (reference Photographs 20 and 64 in Appendix B).

Buildings B & C

D2013 Lavatories

The restrooms contained wall mounted vitreous china lavatories with single lever handle non-metered mixing faucets (reference Photograph 62 in Appendix B).

Buildings A, B & C

D2014 Sinks

The wash area within Building C contained a stainless steel floor/wall mounted service sink, incorporating stainless steel metered push button operated faucets (reference Photographs 65 in Appendix B).

Both Buildings A and B contained single stainless steel sinks (reference Photographs 21 and 67 in Appendix B). The sinks contained a combination of single level mixing value non-metering type faucets in the Building B and double knob handle non-metering faucets in the Building A. The stainless steel sinks are self rimming and mounted within counters that consisted of a plastic laminated faced counter tops.

A floor mounted plastic mop sink was present within the vehicle repair area of Building A; the wash area of Building C contained a floor mounted concrete wash sink within the janitor's room (reference Photographs 22 and 66 in Appendix B).

Building A

D2016 Wash Fountains

The building contained one eye wash facility within the restroom (reference Photograph 23 in Appendix B).

Buildings A & C

D2017 Showers

Both buildings contained shower washing facilities; Building A contained a single fiberglass enclosure with shower head and operating knob mounted through the fiberglass enclosure, within the restroom; Building C contained ceramic wall tiled shower areas with the necessary shower components, such as the wall mounted shower controls and shower heads (reference Photographs 24 and 68 in Appendix B). There are shower stalls present, a seat and grab rails for compliance with ADA.

Buildings A & C

D2018 Drinking Fountains and Coolers

Both Buildings A & C contained stainless steel drinking fountains, the one within Building A is floor mounted and the one in Building C contains dual wall mounted units. The water fountains are controlled either by top or front mounted push-button valve (reference Photographs 22 and 69 in Appendix B).

D2020 DOMESTIC WATER DISTRIBUTION

Buildings A, B & C

D2021 Cold Water Service

Cold water piping throughout the buildings consisted of copper system. We believe the cold water service for the facility is supplied directly from the street pressure. Taps are made to the water line downstream of the meter and routed to plumbing fixtures and equipment via copper pipe work.

D2022 Hot Water Service

Domestic hot water was present at each of the buildings. The hot water is generated at Building A via a domestic electric water heater with a capacity of 40 gallons. Building B contained two below counter instantaneous point-of-use water heaters serving the unisex restroom and break room, and Building C contained a standalone commercial water heater and separate storage tank with a capacity of 100 gallons that serves the changing area (reference Photographs 25, 70 through 72 in Appendix B).

Tables D20-1 and D20-2 provides a summary of the water heater equipment:

Table D20-1 Summary of the Domestic Water Heating Equipment at Building A

Location	Manufacturer	Model #	Serial #	Fuel/ Rating	Capacity	≈ Year of Installation
Restroom	Vanguard	3WA68	1007219198	Electric	40 Gallons	2007

Table D20-2 Summary of the Domestic Water Heating Equipment at Buildings B & C

Location	Manufacturer	Model #	Serial #	Fuel/ Rating	Capacity	≈ Year of Installation
Building C Water Heater Room	Lochinvar (WH-1)	EWN300PM	F07H0019882 6	Natural Gas	Input Rating 300,000 BTU/HR	2007
Building C Water Heater Room	Lochinvar (Storage Tank)	Unknown	Unknown	N/A	100 Gallon	2007
Building B Break Room	HOT1 (WH-2)	HOT-1-1	11108735427	Electric	N/A	2007
Building B Restroom	Eemax (WH-3)	EX8208T	Unknown	Electric	N/A	2007

Unknown = Access limited or equipment had no name plates present.

D2030 SANITARY WASTE

Buildings A, B & C

D2031 Waste Piping

Waste piping was not directly inspected, however based on typical construction methods available at the time of construction, the piping is suspected to be cast iron pipe at Building A with newer PVC at Buildings B & C. Floor drains were observed within the concrete floors of Building C, to help remove and discharge the used shower water to the drains.

CONDITION

D2010 PLUMBING FIXTURES

Buildings A, B & C

D2011 Water Closets

The water closets appeared to be in fair condition at Building A and good condition at Buildings B & C. The water closets flushed properly and did not have any cracks in the china. The restroom at Building A overall is in need of upgrading and renovation near-term as we assume it is original to the building and therefore thirty-years old. We have included for its replacement as part of a restroom renovation. As part of this replacement, consideration could be taken to replace the water closet with a more water efficient system.

The water closets at Buildings B & C, we anticipate lasting beyond the study period as they were installed as part of the original construction and have a typical EUL of thirty-five years. We do however recommend that the manual flush valves are rebuilt every fifteen-years to maintain optimal performance; we have included for this expenditure in the study period.

Buildings A & C

D2012 Urinals

The urinals appeared to be in fair condition at Building A and good condition at Building C. The urinals flushed properly and did not have any cracks in the china. The restroom at Building A overall is in need of upgrading and renovation near-term, therefore we have included for its replacement as part of a restroom renovation. As part of this replacement, consideration could be taken to replace the urinals with more efficient waterless units.

The urinals at Building C are anticipated to last beyond the study period as they were installed as part of the original construction and have a typical EUL of thirty-five years. We do however recommend that the manual flush valves are rebuilt every fifteen-years to maintain optimal performance; we have included for this expenditure in the study period.

Buildings B & C

D2013 Lavatories

The lavatories appeared to be in good condition. The sinks drained properly and did not have any cracks in the china, therefore based upon observed conditions and with a typical EUL of thirty-five-years, we anticipate that there will be no requirement for their replacement during the study period. We do however recommend that the faucets are replaced every ten-years to maintain optimal performance; we have included for this expenditure in the study period.

Buildings A, B & C

D2014 Sinks

The stainless steel counter top sinks, wash sink and janitor's floor mounted sink at Building C appeared to be in good condition. Based on typical EUL of thirty-years for the janitor's sink we anticipate that it will last beyond the study period without replacement necessary. The stainless steel sinks have a typical EUL of twenty-years therefore we have included for its replacement later in the study period at the same time as the counter and fixed cabinet replacements.

The stainless steel sink and plastic floor mounted wash sink at Building A appeared to be in poor to fair condition, however observed suitable for their use. We recommend that they are replaced prior to mid-term with other plumbing work and fixed cabinet works (reference Photograph 22 in Appendix B).

Building A

D2016 Wash Fountains

The eye wash facility appeared to be in fair condition. We recommend that it is replaced at the time of the restroom renovation and then every ten-years to maintain optimal performance. During this time this piece of equipment should be regular tested.

Buildings B & C

D2017 Showers

The shower components appeared to be in fair condition and the fiberglass enclosures had no signs of major damage at Building A, however it is assumed to be original and is dated, therefore with a typical EUL of twenty-years for the fiberglass enclosures, shower components (including heads, arms, bypass & stops) and mixing valves, we recommend that they are fully replaced as part of a restroom renovation near-term. The cost for their replacement has been included in a total replacement cost per restroom. As part of this replacement consideration could be taken to replace the shower heads with an Aerating showerhead which mixes air with water, forming a misty spray. Federal regulations mandate that new showerhead flow rates can't exceed more than 2.5 gallons per minute (gpm) at a water pressure of 80 pounds per square inch (psi).

Following replacement we have included for replacement of the mixing valves which typically have a EUL of ten-years, therefore this will fall later in the study period.

The shower components at Building C appeared to be in good condition. Based on the typical EUL of twenty-years, replacement of the components, as well as the mixing valves every ten-years is recommended and included in the study period.

Buildings A & C

D2018 Drinking Fountains and Coolers

The drinking fountain appeared to be in good condition at Building C, however poor condition at Building A. They have a typical EUL of twenty-years; therefore we anticipate that there will be a requirement for their replacement near-term and also later in the study period accordingly.

D2020 DOMESTIC WATER DISTRIBUTION

Buildings A, B & C

D2021 Cold Water Service

The domestic water systems at each of the buildings appeared to be in fair to good condition. No major problems were observed that could be attributed to age and deferred maintenance.

D2022 Hot Water Service

The water heaters appeared to be in fair to good condition at each of the buildings. They were observed to be functional and operating correctly, however instant and domestic type water heaters generally have a typical EUL of fifteen-years and commercial type twenty-years therefore the water heaters will require replacement to maintain efficiency mid-term in the study period. At the time of the commercial water heater replacement we have also included for the storage tank replacement also.

The hot water distribution pipes appeared to be in fair to good condition for their age. We do not anticipate any expenditure within the cost study period.

D2030 SANITARY WASTE

Buildings A, B & C

D2031 Waste Piping

No visually apparent problems with the sanitary waste piping were observed or reported at any of the buildings.

D30 HVAC

DESCRIPTION

D3010 FUEL ENERGY SUPPLY SYSTEMS

Buildings A & C

D3012 Gas Supply System

There is natural gas service to the site. The pressure reducing station and gas meter are located at the west side of Building A (reference Photograph 105 in Appendix B). Gas service is routed to the unit heaters, package units and water heater at the relevant buildings.

D3030 COOLING GENERATING SYSTEMS

Building A

D3032 Direct Expansion Systems

Building A is partially heated and cooled via one split-system, consisting of a fan coil unit with electric heat located on the mezzanine level and an outdoor condensing unit at the north side of the building, mounted on the exterior wall (reference Photograph 28 in Appendix B). The system is manufactured by Amana.

D3040 HEAT HVAC DISTRIBUTION SYSTEMS

Building B & C

D3041 Air Distribution Systems

Building B contained nine Variable Air Volume (VAV) terminal units which are located below the raised access floor. The units are manufactured by Trane with capacities ranging from 240 to 1,800-cfm. This system is used for light commercial applications such as this and is controlled in every zone they serve by Trane's VariTrac system which consists of specialized dampers. It is a pressure dependent airflow damper that controls a zone in a building and used in conjunction with the VariTrac Central Control Panel (CCP); the damper helps to give the building individual zone control with a constant volume package unit.

The conditioned air is distributed throughout the buildings via metal ductwork located below the raised access floor in Building B and above the ceiling in Building C; through metal grills recessed in the floors and ceilings (reference Photographs 76 and 81 in Appendix B).

D3042 Exhaust Ventilation Systems

Building C contains centrifugal roof level exhaust fans and the unisex restroom within Building A contains an inline exhaust fan. They are designed to remove air from specific areas (reference Photographs 79 and 83 in Appendix B). The units are manufactured by Cook, with capacities of 450-cfm at room level and 140-cfm at the unisex restroom.

D3050 HEAT TRANSFER TERMINAL AND PACKAGED UNITS

Building A

D3051 Terminal Self-Contained Units

The office sections of the building contained terminal through window air conditioning units. Manufacturer details were not present, however we assume the units to have a capacity of 1-ton each (reference Photograph 27 in Appendix B).

Building A also contained two roof hung natural gas unit heaters (reference Photographs 29 and 30 in Appendix B). They are manufactured by Dayton and Reznor within the workshop and vehicle repair area.

Buildings B & C

D3052 Package Units

Heating and cooling at the building is supplied via three constant volume DX cooling and natural gas heat high efficient package units that are manufactured by Trane. They have heating and cooling capacities ranging from 3- to 12-tons of cooling and 48,000 to 120,000-btuh of heating provided by natural gas fired burner sections (reference Photographs 74, 75 and 80 in Appendix B). The units are situated at ground level.

Tables D30-1 and D30-2 provide a summary of the HVAC equipment:

Table D30-1 Summary of the HVAC Equipment at Building A

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year
Work Shop	Unit Heater	Dayton	3E3670	896001805	Output 36,450 BTU/HR	Natural Gas	Unknown
Vehicle Repair Area	Unit Heater	Reznor	Unknown	Unknown	Unknown	Natural Gas	Unknown
Office	Through Window A/C Unit	Unknown	Unknown	Unknown	1 Ton	Electric	Unknown
Office	Through Window A/C Unit	Unknown	Unknown	Unknown	1 Ton	Electric	Unknown
North Side	Split-System Compressor (CU-1)	Amana	RCE30C2C	0606080075	Assumed 2 Tons	Electric	Assumed 2006
Mezzanine Level	Split-System Indoor Fan Coil Unit (FC-1)	Unknown	Unknown	Unknown	Unknown	Electric	Assumed 2006

Unknown = Access limited or equipment had no name plates present.

Assumed = Based on size of unit and area it serves / or possible year installed.

Table D30-2 Summary of the HVAC Equipment at Buildings B & C

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year
Below Floor (Serve's Open Office North)	Variable Air Volume Unit (VAV-1)	Trane	VADA	Unknown	920 CFM	Electric	2007
Below Floor (Serve's Open Office South)	Variable Air Volume Unit (VAV-2)	Trane	VADA	Unknown	1,800 CFM	Electric	2007
Below Floor (Serve's Workstations/ Lobby)	Variable Air Volume Unit (VAV-3)	Trane	VADA	Unknown	880 CFM	Electric	2007
Below Floor (Serve's Plotter Room)	Variable Air Volume Unit (VAV-4)	Trane	VADA	Unknown	440 CFM	Electric	2007
Below Floor (Serve's Parks Supervisor Room)	Variable Air Volume Unit (VAV-5)	Trane	VADA	Unknown	240 CFM	Electric	2007
Below Floor (Serve's Streets Supervisor Room)	Variable Air Volume Unit (VAV-6)	Trane	VADA	Unknown	280 CFM	Electric	2007
Below Floor (Serve's Maintenance Supervisor Room)	Variable Air Volume Unit (VAV-7)	Trane	VADA	Unknown	420 CFM	Electric	2007
Below Floor (Serve's Admin/ Emergency Area)	Variable Air Volume Unit (VAV-8)	Trane	VADA	Unknown	450 CFM	Electric	2007

Below Floor (Serve's Conf Room)	Variable Air Volume Unit (VAV-9)	Trane	VADA	Unknown	480 CFM	Electric	2007
Roof Level (Serve's Men's Locker & Restroom)	Exhaust Fan (EF-1)	Cook	135HLC	280S944314	450 CFM	Electric	2007
Roof Level (Serve's Men's Locker & Restroom)	Exhaust Fan (EF-2)	Cook	135HLC	280S959690	450 CFM	Electric	2007
Roof Level (Serve's Unisex Restroom)	Inline Exhaust Fan (EF-3)	Assumed Cook	Assumed GN-140	Unknown	104 CFM	Electric	2007
Below Floor (Serve's Server Room)	Fan Terminal Unit (FPB-1)	Unknown	FDBU-20	Unknown	800 CFM	Electric	2007
Below Floor (Serve's Conf Room)	Fan Terminal Unit (FPB-2)	Unknown	FDBU-20	Unknown	800 CFM	Electric	2007
Between Buildings (Serve's Building B)	Package Unit (ACU-1)	Trane	YHC063A3R LA13H0B0A 1A103B7	717100926L	5 Tons / 48,000 BTU/HR	Electric / Natural Gas	2007
Between Buildings (Serve's Building B)	Package Unit (ACU-2)	Trane	YHC120A3R LA2KG180A 1A10	717100640L	12 Tons / 120,000 BTU/HR	Electric / Natural Gas	2007
South Side Of Building C	Package Unit (ACU-3)	Trane	YSC036A3R LA2J0ZB0A 1A2A287	717100856L	3 Tons / 48,000 BTU/HR	Electric / Natural Gas	2007

Unknown = Access limited or equipment had no name plates present.

Assumed = Based on size of unit and area it serves / or possible year installed.

D3060 HVAC INSTRUMENTATION AND CONTROLS

Buildings A, B & C

D3069 Other Controls & Instrumentation

The buildings HVAC system is controlled by individual wall mounted digital thermostats located in the areas the units serve (reference Photographs 31, 77, 79 and 82 in Appendix B).

CONDITION

D3010 FUEL ENERGY SUPPLY SYSTEMS

Buildings A & C

D3012 Gas Supply System

No visually apparent problems with the gas distribution piping were observed at the facility. No issues have been reported regarding performance; therefore we believe the supply will be serviceable, through the end of the study period.

D3030 COOLING GENERATING SYSTEMS

Building A

D3032 Direct Expansion Systems

The split-system appeared to be in fair condition and assumed to be more than ten-years old. Based on the outdoor units observed condition and the typical EUL of twenty-years for this type of system we have anticipated replacement mid-term in the study period to maintain efficiency.

D3040 HEAT HVAC DISTRIBUTION SYSTEMS

Buildings B & C

D3041 Air Distribution Systems

None of the VAV units could be viewed as they were below the raised access floor, however there were no reported issues and the units are only six-years old and therefore assumed to be in good condition. We understand that they are all operational and there has been no instance of failure as far as we are aware. We do not anticipate any replacement actions during the study period as they tend to have a EUL of twenty-five years and instead of full replacement small units such as these tend to be repaired on an as-needed basis.

Only a small proportion of the ducting in the building has been reviewed but that portion was noted to be in good condition with no deficiencies. We recommend that the duct work is cleaned every five-years starting at the start of the study period, as we assume it has not been cleaned since it was installed.

D3042 Exhaust Ventilation Systems

The exhaust fans were observed to be in good condition, with no reported or observed operating issues. Exhaust fans of this type have a EUL of fifteen-years, therefore based on the current observed condition and the future usage, we recommend replacement of the roof level fans and components are undertaken mid-term in the study period. We anticipate that the inline fan will last beyond the study period with regular maintenance.

D3050 HEAT TRANSFER TERMINAL AND PACKAGED UNITS

Building A

D3051 Terminal Self-Contained Units

The through wall air conditioning appeared to be in poor condition. The air conditioning units are assumed to be at least fifteen-years old and therefore will be due for replacement prior mid-term in the study period based on current observed conditions and the typical EUL of twenty-years.

The unit heaters appeared to be in fair to good condition with no reported operating issues. These types of units have a typical EUL of fifteen to twenty-years therefore we have included for their replacement within the study period based on their assumed and likely age.

Buildings B & C

D3052 Package Units

The package units appeared to be in good condition, we are unaware of any current operating issues with the units. The units are approximately six-year old, therefore based on current observed conditions and the typical EUL of twenty-years we recommend that they are replaced later in the study period to maintain efficient operation.

D3060 HVAC INSTRUMENTATION AND CONTROLS

Buildings A, B & C

D3069 Other Controls & Instruments

The thermostat controls appear to be in fair to good condition, they appear to match the age of the HVAC equipment they serve. We recommend that they are replaced along with the units. Until that time we do not anticipate any related issues.

D40 FIRE PROTECTION

DESCRIPTION

D4010 SPRINKLERS

Buildings B & C

D4011 Sprinkler Water Supply

The buildings are protected with an automatic wet-pipe fire suppression systems utilizing standard pendent and upright commercial sprinkler heads fixed to fire-line pipes which are supported via the upper structures (reference Photograph 61 in Appendix B). The systems are monitored by water flow and tamper switches connected to the main fire alarm system. The sprinkler mains and risers are present within Building B at the north-east corner within the janitor's room and within Building C in the water heater room (reference Photographs 84 and 85 in Appendix B). The water main incoming is a 6" line at the point of service.

D4030 FIRE PROTECTION SPECIALTIES

Buildings A, B & C

D4031 Fire Extinguishers

Multipurpose portable wall mounted handheld fire extinguishers were provided throughout the buildings (reference Photographs 33, 86 and 87 in Appendix B).

CONDITION

D4010 SPRINKLERS

Buildings B & C

D4011 Sprinkler Water Supply

The sprinkler systems were observed to be in good condition. No visible corrosion or leaks were observed however the sprinkler heads have a typical EUL of twenty-years and with time the fire sprinkler heads can decrease in functionality and therefore lessen the efficiency of the entire sprinkler system. We anticipate that there will be a requirement for their replacement after mid-term during the study period.

D4030 FIRE PROTECTION SPECIALTIES

Buildings A, B & C

D4031 Fire Extinguishers

Fire extinguishers appeared to be in fair to good condition. We understand they are maintained on a yearly basis. The fire extinguishers were generally last tested in January of 2013. We do not anticipate a requirement to replace any fire extinguishers during the study period, as we expect that they will be replaced on an as-needed basis.

D50 ELECTRICAL

DESCRIPTION

The following information was obtained through our visual observations of the facility systems. The electrical systems include the service entrance equipment, panel boards, safety switches, lighting fixtures, and security systems.

D5010 ELECTRICAL SERVICE & DISTRIBUTION

Buildings A, B & C

D5012 Low Tension Service & Dist.

Electrical power is supplied by the local utility provider to a dedicated, utility owned pad mounted transformer located at the west side of Building A. The Main Distribution Panel (MDP) is manufactured by Siemens and is rated at 208Y/120 volts at 600-amps and is located within the electrical room at the south end of Building C. We understand that each of the buildings are fed from this MDP which is referenced "MSB". Building A has a 225-amp 120/240 volts electrical panel referenced "Panel A" at the electrical area within the work shop and is manufactured by Sierra. Branch panels are located throughout the buildings and are rated at varying amps (reference Photographs 34 & 88 in Appendix B).

Building A contained a photovoltaic array consisting of roof mounted multipurpose modules and grid-connected PV inverter control units manufactured by Sharp and Satcon respectively. The systems use a PV Inverter PowerGate Plus 50 kW control unit which is located within the work shop (reference Photographs 35 and 36 in Appendix B). The PV panels convert the sun's energy to electricity through the use of light-sensitive, solid state semi-conductor cells.

D5020 LIGHTING & BRANCH WIRING

Buildings A, B & C

D5021 Branch Wiring Devices

The branch wiring devices at each of the buildings included switches, receptacles and other devices that would be generally associated with these types of buildings. Branch wiring was observed to typically be distributed in Electric Metallic Tubing (EMT) and flexible metal conduit.

D5022 Lighting Equipment

The interior lighting within Building A is provided by surface mounted and hung 4' strip double lamped fluorescent fixtures which contain F32 T8 32W lamps and electronic ballasts (reference Photograph 37 in Appendix B). Buildings B and C both contained pendant type compact fluorescent light fixtures with an anodized aluminum housing and diffused glass lens generally though the main office spaces and locker room (reference Photographs 52, 56 and 91 in Appendix B); there were other recessed compact fluorescent 7" round and 4' strip double lamped fluorescent fixtures within the wash areas and electrical rooms respectively. Buildings B & C have a lighting control system present with a control unit within the electrical room of Building C, and generally all of the in-room lighting is controlled via local switching in the respective rooms.

D5030 COMMUNICATIONS & SECURITY

Buildings A & B

D5033 Telephone Systems

A telephone system is mounted on the interior partition within the server room at Building Band provides voice lines to the telephone switch panel and is patched to the structured voice cabling to the various telephone voice plates throughout the building (reference Photograph 93 in Appendix B).

In addition Building A has an older telephone system which is also wall mounted below a desk within one of the west offices.

Buildings B & C

D5037 Fire Alarm Systems

The buildings are protected by digital automatic fire detection alarm system. The Fire Alarm Control Panel (FACP) is located within the electrical room at Building C and is manufactured by Gamewell (reference Photograph 92 in Appendix B). Addressable devices are located throughout the buildings such as smoke detectors, pull stations and sounder.

Building B

D5039 Local Area Network

A data system is present containing a wall mounted rack with voice and data patch panels, routers, switches, modems and structured data cabling to the various data plates located within the server room(reference Photograph 93 in Appendix B).

D5090 OTHER ELECTRICAL SYSTEMS

Buildings B & C

D5092 Emergency Light & Power Systems

Emergency exit signs which we assume are connected to the emergency generator are provided at exit routes from the buildings (reference Photograph 91 in Appendix B).

CONDITION

D5010 ELECTRICAL SERVICE AND DISTRIBUTION

Buildings A, B & C

D5012 Low Tension Service & Dist.

The major electrical equipment items appeared to be in fair to good condition, with the MDP recently installed in 2007 at the time of the original construction of Buildings B & C. There was no indication of damage from short circuit or overload conditions. We were not provided preventative maintenance records for the main electrical equipment, and therefore we do recommend further evaluation of the equipment via an infrared electrical inspection which will highlight if high temperatures, excessive electrical resistance, failing components, ground faults and short circuiting issues exist.

We recommend budgeting for a cyclical allowance above and beyond normal annual electrical maintenance expenditures for cleaning the interiors of all enclosures, and infrared scans of connections, fuses, and breakers in switches, panel boards, and motor starters beginning at the start of the study period and repeated no more than every three-years thereafter. Any items identified as abnormal during the infrared scans should be corrected at that time.

Electrical panel boards generally have a EUL of thirty-years and based on the age of the panel boards present and their observed conditions we anticipate that there will be no requirement for replacement during the study period at any of the buildings.

The solar array system also appeared to be in good condition with no operational issues reported. Based on a typical EUL of twenty to twenty-five years replacement of the rooftop modules is anticipated later in the study period. Warning signs are present at Building A electrical disconnect switches and consist of red background and white letters indicating that the building is supplied with an alternative power source; to comply with Fire Ordinance Code 605.11.2.

When using PV systems it is important not to shade the modules and regular cleaning to remove dust accumulation. Dust accumulation can cause power reduction of up to 10%.

D5020 LIGHTING & BRANCH WIRING

Buildings A, B & C

D5021 Branch Wiring Devices

The general receptacles and wiring appeared to be in fair to good condition within the buildings. We do not anticipate a requirement for their replacement during the cost study period.

D5022 Lighting Equipment

The interior lighting was observed in good condition and all fixtures were operating properly with no broken lenses or deteriorated housings. We understand that all of the light fixtures were at Building A were recently upgraded and therefore apart from re-lamping and replacement of fixtures on an individual basis, no actions are anticipated during the study period at any of the buildings.

D5030 COMMUNICATIONS & SECURITY

Buildings A & B

D5033 Telephone Systems

The existing telephone system equipment was observed to be in good condition. The typical EUL of these systems is fifteen-years, therefore based on changing and innovating technology we have included for replacement mid-term in the study period. There are no reported operating issues at this time which will require immediate action.

Buildings B & C

D5037 Fire Alarm Systems

The fire alarm systems appeared to be in good condition. We are unaware of any operating issues with the systems and we assume they receive regular testing. Fire alarm systems have a typical EUL of fifteen-years therefore we have included for full system replacement mid-term in the study period.

Building B

D5039 Local Area Network

The existing LAN system equipment was observed to be in good condition. The typical EUL of these systems is fifteen-years, therefore based on changing and innovating technology we have included for replacement mid-term in the study period. There are no reported operating issues at this time which will require immediate action.

D5090 OTHER ELECTRICAL SYSTEMS

Buildings B & C

D5092 Emergency Light & Power Systems

Emergency exit signs appeared to be in good condition. We do not anticipate their replacement during the cost study period, apart from replacement of the signs on an individual basis, no actions are recommended during the study period.

PROJECTED EXPENDITURES

Identified recommended works that are required during the twenty-year study period are detailed below. We have included a 25% allowance for professional fees and general contractor overhead/profit and management costs (where applicable).

Building A

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
D20	Plumbing	Renovation of the restroom	1	LS	\$8,500	\$8,500	2013	4
D2014	Sinks	Replace stainless steel counter sinks and faucets	1	EACH	\$1,600	\$1,600	2017	4
D2014	Sinks	Replace plastic sink and faucet in repair area	1	EACH	\$650	\$650	2017	4
D2016	Wash Fountains	Replace eye wash	1	EACH	\$800	\$800	2023	3
D2018	Drinking Fountains and Coolers	Replace drinking fountain	1	EACH	\$2,500	\$2,500	2017	3
D2022	Hot Water Service	Replace water heater	40	GAL	\$35	\$1,400	2022	3
D3032	Direct Expansion Systems	Replace split-systems (complete system)	2	TONS	\$1,812	\$3,624	2022	3
D3051	Terminal Self-Contained Units	Replace through window a/c units	2	EACH	\$700	\$1,400	2017	3
D3051	Terminal Self-Contained Units	Replace Reznor unit heater	1	LS	\$1,500	\$1,500	2019	3
D3051	Terminal Self-Contained Units	Replace Dayton unit heater	1	LS	\$1,200	\$1,200	2025	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$500	\$500	2013	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$500	\$500	2016	3
D5012	Low Tension	Preventative Maintenance of	1	LS	\$500	\$500	2019	3

	Service & Dist	Electrical Equipment						
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$500	\$500	2022	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$500	\$500	2025	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$500	\$500	2028	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$500	\$500	2031	3
D5021	Branch Wiring Devices	Replace safety switch	1	EACH	\$668	\$668	2022	3
D5021	Low Tension Service & Dist.	Replace rooftop solar modules	154	EACH	\$375	\$57,750	2031	3
D5033	Telephone System	Replace telephone system	5,000	SF	\$1.00	\$5,000	2022	3
Total Anticipated Expenditure for D Services						\$90,092		

Buildings B & C

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
D2011	Water Closets	Rebuild flush valves (water closets)	5	EACH	\$238	\$1,190	2022	3
D2012	Urinals	Rebuild flush valves (urinals)	3	EACH	\$238	\$714	2022	3
D2013	Lavatories	Replace faucets (lavatories)	4	EACH	\$225	\$900	2022	3
D2014	Sinks	Replace stainless steel counter sink and faucet	1	EACH	\$1,600	\$1,600	2027	4
D2014	Sinks	Replace wash sink	1	EACH	\$3,000	\$3,000	2027	3
D2017	Showers	Replace mixing valves	3	EACH	\$437	\$1,311	2017	3
D2017	Showers	Replace shower components	3	EACH	\$750	\$2,250	2027	3
D2018	Drinking Fountains and Coolers	Replace drinking fountain	1	EACH	\$3,181	\$3,181	2027	3

D2022	Hot Water Service	Replace commercial water heater	1	LS	\$4,500	\$4,500	2027	3
D2022	Hot Water Service	Replace storage tank	100	GAL	\$4.50	\$450*	2027	3
D2022	Hot Water Service	Replace instant water heater	2	EACH	\$750	\$1,500	2022	3
D3041	Air Distribution Systems	Clean ductwork	6,000	SF	\$0.25	\$1,500	2013	3
D3041	Air Distribution Systems	Clean ductwork	6,000	SF	\$0.25	\$1,500	2018	3
D3041	Air Distribution Systems	Clean ductwork	6,000	SF	\$0.25	\$1,500	2023	3
D3041	Air Distribution Systems	Clean ductwork	6,000	SF	\$0.25	\$1,500	2028	3
D3042	Exhaust Ventilation Systems	Replace rooftop exhaust fans (2no.)	960	CFM	\$1.25	\$1,200	2027	3
D3052	Package Units	Replace package unit ACU-1	5	TONS	\$2,449	\$12,245	2027	3
D3052	Package Units	Replace package unit ACU-2	12	TONS	\$1,800	\$21,600	2027	3
D3052	Package Units	Replace package unit ACU-3	3	TONS	\$2,449	\$7,347	2027	3
D4011	Sprinkler Water Supply	Replace sprinkler heads	6,000	SF	\$1.05	\$6,300	2027	1
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$750	\$750	2013	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$750	\$750	2016	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$750	\$750	2019	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$750	\$750	2019	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$750	\$750	2025	3

D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$750	\$750	2028	3
D5012	Low Tension Service & Dist	Preventative Maintenance of Electrical Equipment	1	LS	\$750	\$750	2031	3
D5033	Telephone System	Replace telephone system	4,800	SF	\$1.00	\$4,800	2022	3
D5037	Fire Alarm System	Replace fire alarm system	6,000	SF	\$5.00	\$30,000	2022	1
D5039	Local Area Network	Replace LAN system	3,500	SF	\$1.81	\$59,520	2022	3
Total Anticipated Expenditure for D Services						\$128,323		

* Replace at time of water heater

SECTION 6 - E EQUIPMENT & FURNISHINGS

E20 FURNISHINGS

DESCRIPTION

E2010 FIXED FURNISHINGS

Buildings A & B

E2012 Fixed Casework

The buildings both contained wood constructed fixed floor and wall mounted casework within the break areas (reference Photographs 21 and 67 in Appendix B). The wood cabinets generally consisted of hardwood frames and plywood panels with wooden door panels. The worktop consisted of a plywood counter.

CONDITION

E2010 FIXED FURNISHINGS

Buildings A & B

E2012 Fixed Casework

The fixed cabinets and counters appeared are in good condition at Building B, however they are in poor to condition an aged at Building A, although still functional. Fixed casework usually has a typical EUL of twenty-years; therefore replacement is anticipated prior to mid-term in the study period at Building A and after mid-term in Building B.

PROJECTED EXPENDITURES

Identified recommended works that are required during the twenty-year study period are detailed below. We have included a 25% allowance for professional fees and general contractor overhead/profit and management costs (where applicable).

Building A

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
E2012	Fixed Casework	Replace floor cabinets (inc countertops)	4	LF	\$600	\$2,400	2017	4
E2012	Fixed Casework	Replace wall mounted cabinets	4	LF	\$250	\$1,000	2017	4
Total Anticipated Expenditure for E Equipment & Furnishings						\$3,400		

Building B

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
E2012	Fixed Casework	Replace floor cabinets (inc countertops)	12	LF	\$600	\$7,200	2027	4
E2012	Fixed Casework	Replace wall mounted cabinets	12	LF	\$250	\$3,000	2027	4
Total Anticipated Expenditure for E Equipment & Furnishings						\$10,200		

SECTION 7 - G BUILDING SITEWORK

G20 SITE IMPROVEMENTS

In addition to the buildings located at the site, we have also undertaken a cursory review and assessment of the major site improvements to further assist the City in understanding the condition of the site over all. The FCI calculations which are located in the Executive Summary do not include any likely cost that has been shown in this section (besides the emergency generators and exterior wall lights attached to the buildings) as they can't necessary be attached to one particular building.

DESCRIPTION

G2020 PARKING LOTS

G2021 Bases and Sub-Bases

The facility has an asphalt paved parking lot, yards and roadways surrounding each of the buildings and is access from Davidson Street. The parking lot area has white line striping denoting areas of parking stalls (reference Photographs 96 through 98 in Appendix B). We were not provided with the original specification details of the paving and therefore cannot comment on the specific asphalt mix type, classification or its suitability for its existing use. Table G20-1 provides a summary of the site systems.

Table G20-1 Schedule of Site Systems

System Type	System Surface	Location	Measurement	No. of Parking Spaces	No. of ADA Parking Spaces
Roadways, Yard & Parking Lot	Asphalt	Site	12,800 SY	40 Standard Vehicle / 25 Large Vehicle	1

G2030 PEDESTRIAN PAVING

G2031 Paving & Surfacing

The building contained cast-in-place concrete pavements at the south side of Building B (reference Photograph 40 in Appendix B).

G2040 SITE DEVELOPMENT

G2041 Fences & Gates

The facility contained a chain link fence and gate surrounding the facility (reference Photograph 100 in Appendix B).

G2049 Miscellaneous Structures

The site contained a storage shed and canopy at the north-east corner of the facility which contained a wood framed and CMU canopy structure and also a metal wall and roof panel building with metal sliding door and window unit, set on a concrete slab (reference Photographs 106 through 113 in Appendix B).

CONDITION

G2020 PARKING LOTS

G2021 Bases and Sub-Bases

The asphalt paved area appeared to be in poor to fair condition. We noted areas of surface cracking and also minor surface alligator cracking within the wearing course (reference Photographs 99 and 100 in Appendix B). Alligator cracking is a series of interconnected cracks caused by fatigue failure of the asphalt surface under repeated heavy vehicle loading which is also indicative of sub-base and sub-grade deterioration. We recommend undertaking asphalt mill and overlay repair followed by restriping in these area of deterioration.

All areas of the asphalt should undergo asphaltic-based seal coat and the re-application of surface markings every five-years to extend the life of the pavements.

G2030 PEDESTRIAN PAVING

G2031 Paving & Surfacing

The cast-in-place concrete paving appeared to be in good condition and will not require replacement during the cost study period.

G2040 SITE DEVELOPMENT

G2041 Fences & Gates

The perimeter fences and swinging gates appeared to be in good condition with no issues observed and no reported instances of disrepair. We do not anticipate a requirement for their replacement during the study period.

G2049 Miscellaneous Structures

The canopy structure and storage shed generally appeared to be in poor to fair condition. The CMU wall at the south side of the canopy structure appeared to be un-stable and could be rocked side to side which is a structural safety issue and is recommended to be rebuilt immediately; the wood frame of the canopy rests on this section of the wall. The wood framed structure generally appeared to be in fair to good condition and adequate for its use. The roof covering at the canopy will reach its EUL during the study period and therefore has been included for replacement mid-term (reference Photographs 106 through 109 in Appendix B).

The exterior metal wall and roof panels are in fair condition; although we observed surface corrosion present. Furthermore the door and window unit are also showing signs of corrosion and therefore we have included for replacement of the wall and roof panels, as well as the window unit and sliding access door prior to mid-term in the study period (reference Photographs 110 through 112 in Appendix B).

G30 SITE MECHANICAL UTILITIES

DESCRIPTION

G3060 FUEL DISTRIBUTION

G3063 Fuel Storage Tanks

The site contained two above ground 50,000 gallon steel storage tanks with integral steel foundations (reference Photographs 102 through 104 in Appendix B). Table G30-1 provides a summary of the fuel storage tanks:

Table G30-1 Summary of the Fuel Storage Tanks

Location	Type of Tank	Type of Construction	Capacity	Type of Fuel	≈ Year of Installation
Above Ground East Side of Site	Fuel Storage Tank	Steel	50,000 Gallons	Diesel	Unknown
Above Ground North Side of Site	Fuel Storage Tank	Steel	50,000 Gallons	Diesel	Unknown

G3064 Fuel Dispensing Stations

A fleet fuel dispensing station is present at both of the storage tanks (reference Photographs 103 and 104 in Appendix B).

CONDITION

G3060 FUEL DISTRIBUTION

G3063 Fuel Storage Tanks

The above ground fuel storage tanks are assumed to be in fair to good condition as we are unaware of any issues such as blockages or leaks reported. Storage tanks of this natural have a typical EUL of twenty to thirty-years; we do not know the age of the tanks, however based on observations of their exteriors we could see no corrosion that is of concern. With regular testing and maintenance we anticipate that they will last beyond the study period without replacement necessary.

G3064 Fuel Dispensing Stations

The fleet fuel dispensing stations appeared to be in good condition. The typical EUL of this type of equipment is twenty-years, therefore we have included for their replacement later in the study period; however we recommend that they are reviewed further at that time to ascertain if replacement will be necessary.

G40 SITE ELECTRICAL UTILITIES

DESCRIPTION

G4020 SITE LIGHTING

Buildings A, B & C

G4021 Fixtures & Transformers

Exterior lighting at the buildings consisted of a combination of surface mounted wall packs with aluminum housing and also wall mounted sconces located at the door openings of Building B (reference Photographs 9, 41, 45 and 101 in Appendix B).

G4090 OTHER SITE ELECTRICAL UTILITIES

Buildings A, B & C

G4092 Site Emergency Power Generation

Each of the buildings are backed-up by emergency generators; Building A has a 10 kW 10 KVA diesel generator which is located at the north side of the building and is manufactured by Generac. Buildings B & C have a 40 kW 50 KVA diesel generator located at the south side of Building C. The transfer switches are located inside the buildings near to the main power distribution boards (reference Photographs 38, 39,94 and 95 in Appendix B).

Table G40-1 provides a summary of the generator equipment:

Table G40-1 Summary of the Generator Equipment at Building A

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year
North Side of Building A	Diesel Generator	Generac	4W1185	1923424	10 kW / 10 KVA	Diesel	Unknown
Work Shop	Transfer Switch	Dayton	4W123A	Unknown	N/A	Electric	Unknown

Table G40-2 Summary of the Generator Equipment at Building B

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year
South Side of Building C	Diesel Generator	Cummins	DGBC-5859793	E070060555	40 kW / 50KVA	Diesel	2007
Electrical Room	Transfer Switch (ATS)	Cummins	Unknown	Unknown	N/A	Electric	2007

CONDITION

G4020 SITE LIGHTING

Buildings A, B & C

G4021 Fixtures & Transformers

The exterior light fixtures appeared to be in good condition, with no yellowing lenses or visible deterioration. We do not anticipate their replacement during the cost study period, apart from replacement of the fixtures on an individual basis, no actions are recommended during the study period.

G4090 OTHER SITE ELECTRICAL UTILITIES

Buildings A, B & C

G4092 Site Emergency Power Generation

The emergency generators and transfer switches each appeared to be in fair condition serving Building A and good condition serving Buildings B & C. Equipment such as this has a typical EUL of twenty-years; therefore based on observed conditions and their RUL we recommend that the generator and transfer switch are replaced near-term at Building B as we assume it is more than fifteen-years old and late-term in the study period for Buildings B & C. We also recommend the continuation of regular maintenance and testing as require.

PROJECTED EXPENDITURES

Identified recommended works that are required during the twenty-year study period are detailed below. We have included a 25% allowance for professional fees and general contractor overhead/profit and management costs (where applicable).

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
G2021	Bases and Sub-Bases	Asphalt mill and overlay to include restriping	2,000	SY	\$15.00	\$30,000	2013	3
G2021	Bases and Sub-Bases	Undertake seal coating including re-striping at the parking lot, yard & roadways	10,800*	SY	\$1.50	\$16,200	2013	3
G2021	Bases and Sub-Bases	Undertake seal coating including re-striping at the parking lot, yard & roadways	12,800	SY	\$1.50	\$19,200	2018	3
G2021	Bases and Sub-Bases	Undertake seal coating including re-striping at the parking lot, yard & roadways	12,800	SY	\$1.50	\$19,200	2023	3
G2021	Bases and Sub-Bases	Undertake seal coating including re-striping at the parking lot, yard & roadways	12,800	SY	\$1.50	\$19,200	2028	3
G2049	Miscellaneous Structures	Replace metal wall and roof panels (including door panels)	800	SF	\$18	\$14,400	2018	3
G2049	Miscellaneous Structures	Replace window unit	1	LS	\$750	\$750	2018	3
G2049	Miscellaneous Structures	Rebuild CMU wall	1	LS	\$5,500	\$5,500	2013	1
G2049	Miscellaneous Structures	Replace mineral cap sheet rolled roof covering	1	LS	\$800	\$800	2022	3
G3064	Fuel Dispensing Stations	Replace fuel dispenser	1	EACH	\$15,000	\$15,000	2023	3
G3064	Fuel Dispensing Stations	Replace fuel dispenser	1	EACH	\$6,000	\$6,000	2023	3
Total Anticipated Expenditure for G Building Sitework						\$132,650		

* Reduced amount as mill and overlay taking place in 2013 also

Building A

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
G4092	Site Emergency Power Generation	Replace emergency generator	10	KW	\$500	\$5,000	2017	1
G4092	Site Emergency Power Generation	Replace emergency transfer switch	1	EACH	\$1,500	\$1,500	2017	1
Total Anticipated Expenditure for G Building Sitework						\$6,500		

Buildings B & C

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
G4092	Site Emergency Power Generation	Replace emergency generator	40	KW	\$258	\$10,320	2027	1
G4092	Site Emergency Power Generation	Replace emergency transfer switch	1	EACH	\$2,600	\$2,600	2027	1
Total Anticipated Expenditure for G Building Sitework						\$12,920		

Appendix A
Twenty-Year
Expenditure Forecast
2013 - 2032

20 YEAR EXPENDITURE FORECAST

Vehicle Maintenance (Building A)
550 A Davidson Street
Novato, CA



Element No.	Component Description	Estimated Useful Life or Replacement Cycle (Yrs)	Remaining Useful Life (Yrs)	Quantity	Unit of Measurement	Unit Cost	Plan Type	Priority	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total	Total	Combined Total							
									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Deferred	Scheduled								
A. SUBSTRUCTURE																																						
A. SUBSTRUCTURE SUB-TOTALS									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0				
B. SHELL																																						
B2011	Repaint exterior wall surfaces	8	2	3,100.00	SF	\$1.88	Capital Renewal	4	\$0	\$0	\$5,828	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,828	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,828	\$0	\$0	\$17,484	\$17,484							
B2021	Replace window units	30	4	64.00	SF	\$78.50	Capital Renewal	3	\$0	\$0	\$0	\$0	\$5,024	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,024	\$5,024							
B2034	Replace overhead doors	30	0	2.00	EACH	\$2,800.00	Deferred Maintenance	3	\$5,600	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,600	\$0	\$5,600							
B2039	Replace single hollow metal doors	30	4	2.00	SF	\$1,500.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$3,000							
B3011	Replace metal panel roof covering	20	4	5,525.00	EACH	\$27.50	Capital Renewal	3	\$0	\$0	\$0	\$0	\$151,938	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$151,938	\$151,938							
B3011	Solar panel removal and reinstall at time of roof covering replacements	N/A	4	1.00	LS	\$10,000.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000	\$10,000							
B. SHELL SUB-TOTALS									\$5,600	\$0	\$5,828	\$0	\$169,962	\$0	\$0	\$0	\$0	\$5,828	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,828	\$0	\$5,600	\$187,446	\$193,046				
C. INTERIORS																																						
C3012	Repaint interior wall and ceiling surfaces	8	4	3,578.00	SF	\$1.88	Capital Renewal	4	\$0	\$0	\$0	\$0	\$6,727	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,727	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$13,453	\$13,453							
C3023	Reapply seal floor coating	8	4	1,200.00	SF	\$2.50	Capital Renewal	4	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$6,000							
C3025	Replace sheet carpet floor covering	10	4	25.00	SY	\$84.25	Capital Renewal	4	\$0	\$0	\$0	\$0	\$2,106	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,106	\$0	\$0	\$0	\$0	\$4,213	\$4,213								
C. INTERIORS SUB-TOTALS									\$0	\$0	\$0	\$0	\$11,833	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,727	\$0	\$2,106	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23,666	\$23,666			
D. SERVICES																																						
D20	Renovation of the restroom	20	0	1.00	EACH	\$8,500.00	Deferred Maintenance	4	\$8,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,500	\$0	\$8,500							
D2014	Replace stainless steel counter sinks and faucets	20	4	1.00	EACH	\$1,600.00	Capital Renewal	4	\$0	\$0	\$0	\$0	\$1,600	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,600	\$1,600							
D2014	Replace plastic sink and faucet in repair area	20	4	1.00	EACH	\$650.00	Capital Renewal	4	\$0	\$0	\$0	\$0	\$650	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$650	\$650							
D2016	Replace eye wash	10	11	1.00	EACH	\$800.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$800	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$800	\$800							
D2018	Replace drinking fountain	20	4	1.00	EACH	\$2,500.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$2,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,500	\$2,500							
D2022	Replace water heater	15	9	40.00	GAL	\$35.00	Energy & Sustainability	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,400	\$1,400							
D3032	Replace split-systems (complete system)	20	9	2.00	TONS	\$1,812.00	Energy & Sustainability	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,624	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,624	\$3,624							
D3051	Replace through window a/c units	20	4	2.00	EACH	\$700.00	Energy & Sustainability	3	\$0	\$0	\$0	\$0	\$1,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,400	\$1,400							
D3051	Replace Reznor unit heater	20	7	1.00	LS	\$1,500.00	Energy & Sustainability	3	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500	\$1,500								
D3051	Replace Dayton unit heater	20	11	1.00	LS	\$1,200.00	Energy & Sustainability	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,200	\$1,200							
D5012	Preventative Maintenance of Electrical Equipment	3	0	1.00	EACH	\$500.00	Deferred Maintenance	3	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500	\$0	\$500							
D5012	Preventative Maintenance of Electrical Equipment	3	3	1.00	EACH	\$500.00	Routine Maintenance	3	\$0	\$0	\$0	\$500	\$0	\$0	\$500	\$0	\$0	\$500	\$0	\$0	\$0	\$500	\$0	\$0	\$500	\$0	\$0	\$500	\$0	\$0	\$3,000	\$3,000						
D5012	Replace safety switch	30	9	1.00	EACH	\$668.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$668	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$668	\$668							
D5012	Replace rooftop solar modules	20-25	18	154.00	EACH	\$375.00	Energy & Sustainability	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$57,750	\$0	\$0	\$57,750	\$57,750							
D5033	Replace telephone system	20	9	5,000.00	SF	\$1.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	\$5,000							
D. SERVICES SUB-TOTALS									\$9,000	\$0	\$0	\$500	\$6,150	\$0	\$500	\$1,500	\$11,192	\$900	\$1,200	\$500	\$0	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500	\$0	\$58,250	\$0	\$9,000	\$81,092	\$90,092		
E. EQUIPMENT & FURNISHING																																						
E2012	Replace floor cabinets (inc countertops)	20	7	4.00	LF	\$600.00	Capital Renewal	4	\$0	\$0	\$0	\$0	\$2,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,400	\$2,400							
E2012	Replace wall mounted cabinets	20	7	4.00	LF	\$250.00	Capital Renewal	4	\$0	\$0	\$0	\$0	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,000	\$1,000							
E. EQUIPMENT & FURNISHING SUB-TOTALS									\$0	\$0	\$0	\$0	\$3,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,400	\$3,400		
F. SPECIAL CONSTRUCTION AND DEMOLITION																																						
F. SPECIAL CONSTRUCTION AND DEMOLITION SUB-TOTALS									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G. BUILDING SITESWORK																																						
G4092	Replace emergency generator	20	4	10.00	KW	\$500.00	Capital Renewal	1	\$0	\$0	\$0	\$0	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	\$5,000							
G4092	Replace emergency transfer switch	20	4	1.00	EACH	\$1,500.00	Capital Renewal	1	\$0	\$0	\$0	\$0	\$1,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500	\$1,500							
G. BUILDING SITESWORK SUB-TOTALS									\$0	\$0	\$0	\$0	\$6,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,500	\$6,500	
Z. GENERAL																																						
Z. GENERAL SUB-TOTALS									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Expenditure Totals per Year									\$14,600	\$0	\$5,828	\$500	\$197,844	\$0	\$500	\$1,500	\$11,192	\$6,628	\$1,200	\$10,227	\$0	\$2,106	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$14,600	\$302,103	\$316,703
Total Cost (Inflated @ 4% per Yr.)									\$14,600	\$0	\$6,304	\$562	\$231,450	\$0	\$633	\$1,974	\$0	\$15,930	\$9,811	\$1,847	\$16,373	\$0	\$3,647	\$900	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$129,810	\$0	\$14,600	\$419,242	\$433,842

Appendix B

Photographs



Building A (Vehicle Maintenance)

Photograph No. 1

View of the concrete floor with the seal coating finish.



Photograph No. 2

View of the steel portal frame and purlins.



Photograph No. 3

Further view of the steel portal frame.



Photograph No. 4

View of wood joists at the mezzanine levels.



Photograph No. 5

View of one of the load weights for the mezzanine.



Photograph No. 6

View of the exterior metal corrugated siding. Also shows building as "A" and downspout.



Photograph No. 7

View of the damage reveals on the overhead doors.



Photograph No. 8

View of the exterior wall system and gutter.



Photograph No. 9

View of the window units and door sets. Also shows the knob handles and wall pack exterior light fixture.



Photograph No. 10

View of the newer overhead coiling door.



Photograph No. 11

View of one of the original overhead doors at the south elevation.



Photograph No. 12

View of one of the other overhead doors at the north elevation.



Photograph No. 13

View of the metal roof covering and solar modules.



Photograph No. 14

Further view of the metal roof covering and the incorporated skylights.



Photograph No. 15

View of exposed ceiling surfaces within the vehicle repair area.



Photograph No. 16

View of the finishes within the drawing room.



Photograph No. 17

View of the finishes within the office.



Photograph No. 18

View of the finishes within the other office at the north-west corner.



Photograph No. 19

View of the floor mounted water closet.



Photograph No. 20

View of the wall mounted urinals.



Photograph No. 21

View of the stainless steel sink and fixed counter.



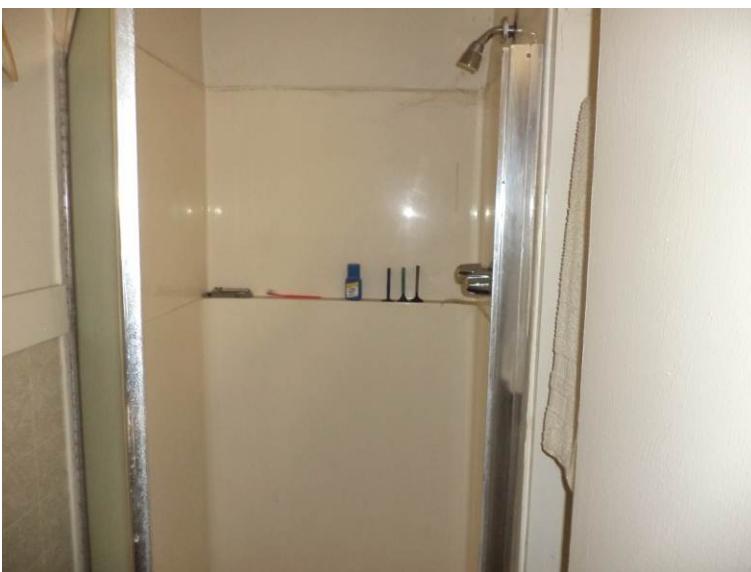
Photograph No. 22

View of the plastic wash sink and also the floor mounted drinking fountain. Also shows the wall mounted fire extinguisher.



Photograph No. 23

View of the eye wash.



Photograph No. 24

View of fiberglass shower enclosure and the shower components.



Photograph No. 25

View of the domestic water heater.



Photograph No. 26

View of the vent pipes and interior stud wall construction with insulation present.



Photograph No. 27

View of the through window a/c unit.



Photograph No. 28

View of exterior condenser unit and safety switch.



Photograph No. 29

View of the Dayton unit heater.



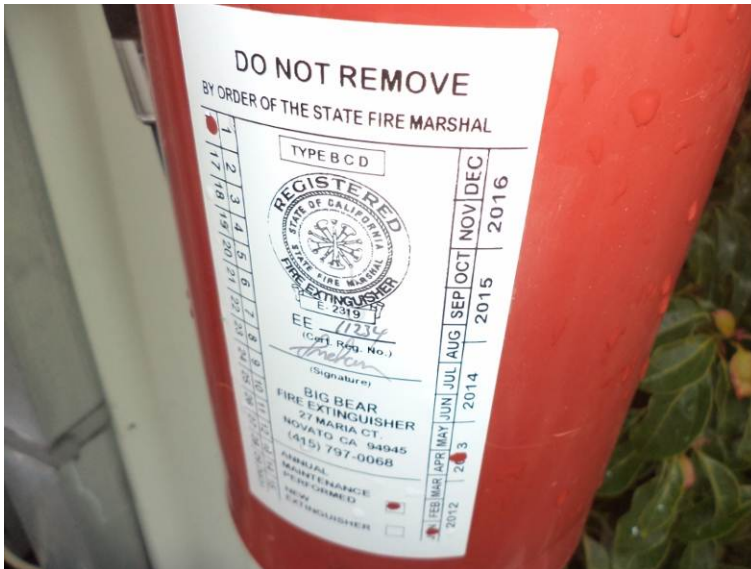
Photograph No. 30

View of the Reznor unit heater.



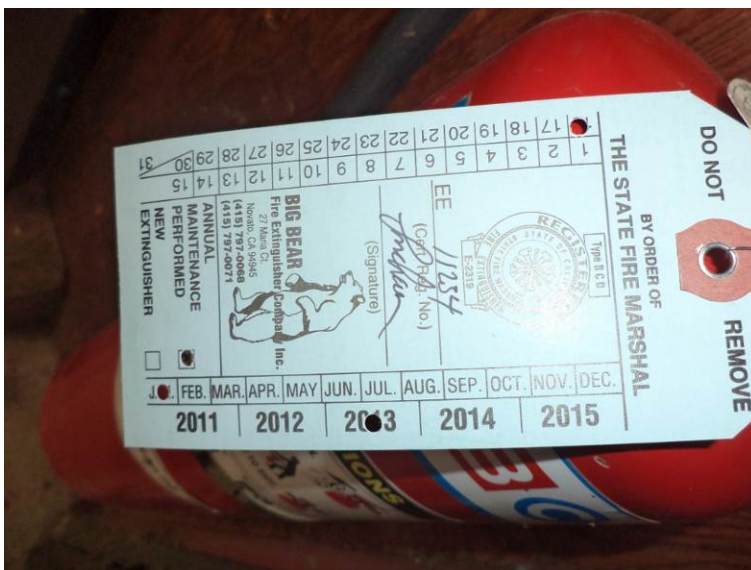
Photograph No. 31

View of the wall mounted thermostat.



Photograph No. 32

View of the tag on the fire extinguisher at the exterior.



Photograph No. 33

View of the in date tag at the interior fire extinguisher.



Photograph No. 34

View of the electrical panel boards at the building.



Photograph No. 35

View of the solar array inverter unit.



Photograph No. 36

View of the rooftop solar array modules.



Photograph No. 37

View of the strip light fixtures at the building.



Photograph No. 38

View of the generator transfer switch.



Photograph No. 39

View of the generator.



Building B & C (Divis & Lockers)

Photograph No. 40

View of Building B's west elevation.



Photograph No. 41

View of the Building C's east elevation.



Photograph No. 42

View of the pad foundation for the steel column at Building B.



Photograph No. 43

View of the portal steel frame and the corrugated metal siding and soffit at Building B.



Photograph No. 44

View of the metal siding and insulated fixed and operable window units at Building B.



Photograph No. 45

View of the hollow metal door at Building C.



Photograph No. 46

View of openable awning type window unit at Building B.



Photograph No. 47

View of the caulking at the window units and reveals of Building B.



Photograph No. 48

View of the glazed storefront system with double glazed doors at Building B.



Photograph No. 49

View of the glazed curtain walling system and single glazed door at Building B.



Photograph No. 50

View of the roof level at Building B.



Photograph No. 51

View of the roof level at Building C.



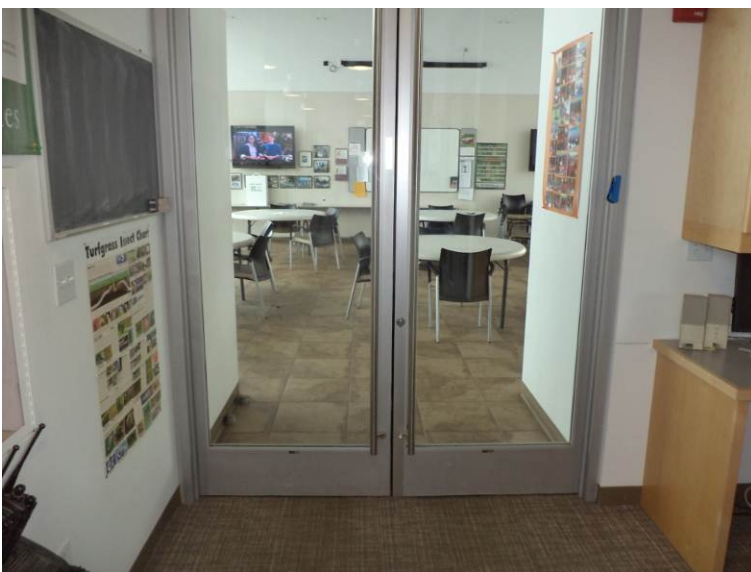
Photograph No. 52

View of the interior stud walls and glazed partitions within Building B. Also shows the carpet floor tilings and painted wall surfaces.



Photograph No. 53

View of the wood interior doors and lever handles in Building B.



Photograph No. 54

View of the glazed interior doors at Building B.



Photograph No. 55

View of the restroom fabricated toilet partitions in Building C.



Photograph No. 56

View of the finishes within the meeting room at Building B.



Photograph No. 57

View of the finishes in the reception area at Building B.



Photograph No. 58

View of the carpet floor tiles in Building B.



Photograph No. 59

View of the break room and the ceramic tile floor covering in Building B.



Photograph No. 60

View of the perforated metal ceiling panels. Also shows the fire detectors and pipe lines for the suppression system in Building B.



Photograph No. 61

View of the suspended ceiling system and sprinkler head in Building B.



Photograph No. 62

View of the unisex restroom in Building B, with ceramic floor and wall tiles, wall mounted lavatory and floor mounted water closet with manual flush valve.



Photograph No. 63

View of the wall mounted water closet at Building C.



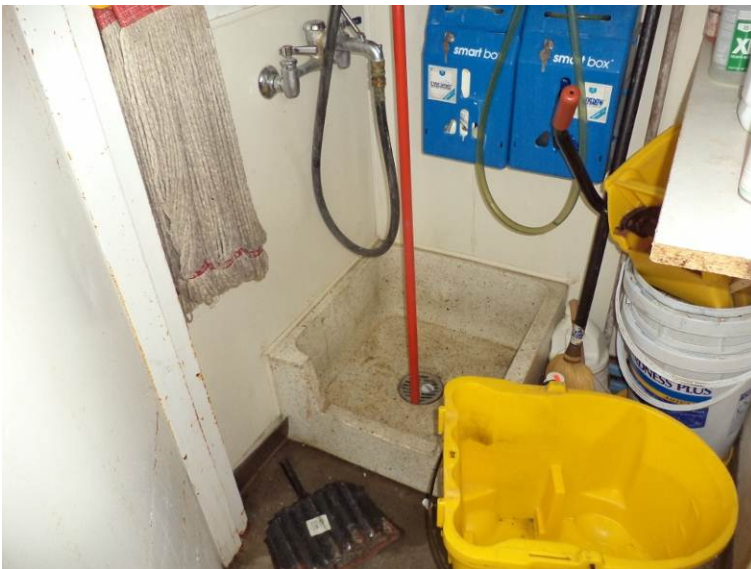
Photograph No. 64

View of the wall mounted urinals at Building C.



Photograph No. 65

View of the stainless steel wash sink at Building C.



Photograph No. 66

View of the floor wash sink at the janitor's room in Building C.



Photograph No. 67

View of the stainless steel sink at Building B.



Photograph No. 68

View of the shower areas at Building C.



Photograph No. 69

View of the wall mounted dual drinking fountains within Building C.



Photograph No. 70

View of the below counter water heater the the break room area in Building B.



Photograph No. 71

View of the instant water heater at the unisex restroom of Building B.



Photograph No. 72

View of the water heater and storage tank that supplies Building C.



Photograph No. 73

View of the water supply and shut off valve at Building C.



Photograph No. 74

View of one of the package units that serve Building B.



Photograph No. 75

View of the other package unit that serves Building B.



Photograph No. 76

View of the ductwork for Building B, entering the building below the raised access floor through the stem wall.



Photograph No. 77

View of the thermostat for VAV 8 at Building B.



Photograph No. 78

View of the thermostat for the fan terminal unit in the server room in Building B.



Photograph No. 79

View of the thermostat for VAV 9 and also the control for the inline exhaust fan for the unisex restroom in Building B.



Photograph No. 80

View of the package unit that serves Building C.



Photograph No. 81

View of the ductwork entering Building C, above the ceiling system.



Photograph No. 82

View of the wall mounted thermostat for Building C.



Photograph No. 83

View of the centrifugal roof level exhaust fans at Building C.



Photograph No. 84

View of the fire riser at Building B.



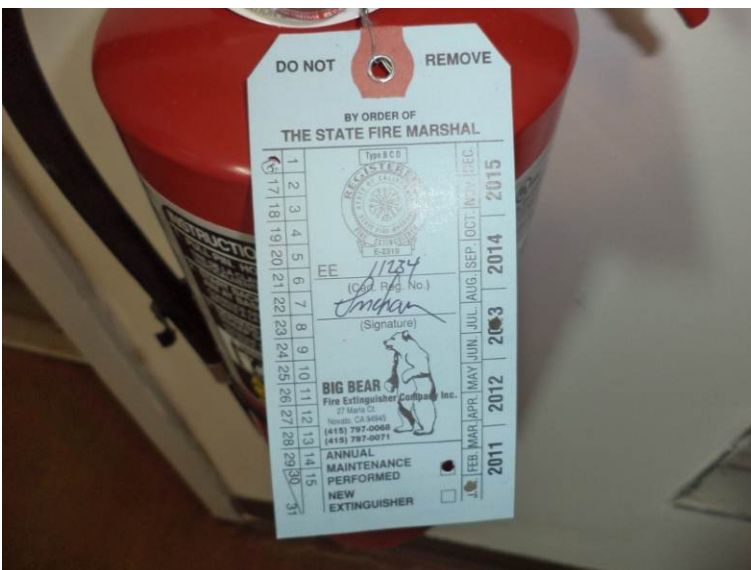
Photograph No. 85

View of the fire riser at Building C.



Photograph No. 86

View of the fire extinguisher and tag at Building B.



Photograph No. 87

View of the fire extinguisher and tag at Building C.



Photograph No. 88

View of the MDP at Building C.



Photograph No. 89

View of the light control panel at Building C.



Photograph No. 90

View of the pendent light fixtures at Building B.



Photograph No. 91

View of the pendant light fixture at Building C. Also shows the exit sign over the exterior door.



Photograph No. 92

View of the fire alarm control panel within Building C. Also serves Building B.



Photograph No. 93

View of the telephone and data system within Building B.



Photograph No. 94

View of the generator transfer switch at Building B.



Photograph No. 95

View of the emergency generator at Building C. Also serves Building B.



Site Systems

Photograph No. 96

View of the yard at the south-west side of the site.



Photograph No. 97

View of the parking lot at the west side of the site.



Photograph No. 98

View of the parking lot at the east side of the site.



Photograph No. 99

View of the cracking within the asphalt.



Photograph No. 100

Further view of the cracking within the asphalt.



Photograph No. 101

View of one of the wall pack light fixtures.



Photograph No. 102

View of the 50,000 gallon storage tank at the north side of the site.



Photograph No. 103

Further view of the fuel storage tank and fuel dispenser.



Photograph No. 104

View of the 50,000 gallon storage tank at the east side of the site.



Photograph No. 105

View of the gas meter for the site.



Photograph No. 106

View of the storage shed and canopy structures.



Photograph No. 107

View of the roof covering at the canopy.



Photograph No. 108

View of the wood roof construction.



Photograph No. 109

View of the supporting CMU wall construction.



Photograph No. 110

View of the metal panel wall and metal sliding door.



Photograph No. 111

View of the metal roof construction.



Photograph No. 112

View of the metal window.



Photograph No. 113

View of the interior shelving.

Appendix C

Asset Inventory

Location	Facility	Location of Asset	Life Cycle Code	Type	Equipment Type	Manufacturer	Model No.	Serial No.	Tag	Fuel Type	Capacity / Rating	Speed (FPM)	No. of Landings	Year Manufacture
Maintenance Buildings	Building A	Restroom	D2022	Hot Water Service	Water Heater	Vanguard	3WA68	1007219198		Electric	40 Gallons			2007
Maintenance Buildings	Building C	Water Heater Room	D2022	Hot Water Service	Water Heater	Lochinvar	EWN300PM	F07H00198826	WH-1	Natural Gas	Input Rating 300,000 BTU / HR			2007
Maintenance Buildings	Building C	Water Heater Room	D2022	Hot Water Service	Storage Tank	Lochinvar	Unknown	Unknown		N / A	100 Gallon			2007
Maintenance Buildings	Building B	Break Room	D2022	Hot Water Service	Water Heater	HOT 1	HOT-1-1	11108735427	WH-2	Electric	N / A			2007
Maintenance Buildings	Building B	Restroom	D2022	Hot Water Service	Water Heater	Eemax	EX8208T	Unknown	WH-3	Electric	N / A			2007
Maintenance Buildings	Building A	Work Shop	D3051	Terminal Self-Contained Units	Unit Heater	Dayton	3E3670	896001805		Natural Gas	Output 36,450 BTU / HR			Unknown
Maintenance Buildings	Building A	Vehicle Repair Area	D3051	Terminal Self-Contained Units	Unit Heater	Reznor	Unknown	Unknown		Natural Gas	Unknown			Unknown
Maintenance Buildings	Building A	Office	D3051	Terminal Self-Contained Units	Through Window AC Unit	Unknown	Unknown	Unknown		Electric	1 Ton			Unknown
Maintenance Buildings	Building A	Office	D3051	Terminal Self-Contained Units	Through Window AC Unit	Unknown	Unknown	Unknown		Electric	1 Ton			Unknown
Maintenance Buildings	Building A	North Side	D3053	Split-Systems	Split-System Compressor	Amana	RCE30C2C	606080075	CU-1	Electric	Assumed 2 Tons			Assumed 2006
Maintenance Buildings	Building A	Mezzanine Level	D3053	Split-Systems	Split-System Indoor Fan Coil Unit	Unknown	Unknown	Unknown	FC-1	Electric	Unknown			Assumed 2006
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Open Office North)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-1	Electric	920 CFM			2007
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Open Office South)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-2	Electric	1800 CFM			2007
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Workstations / Lobby)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-3	Electric	880 CFM			2007
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Plotter Room)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-4	Electric	440 CFM			2007
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Parks Supervisor's Room)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-5	Electric	240 CFM			2007
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Streets Supervisor's Room)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-6	Electric	280 CFM			2007

Location	Facility	Location of Asset	Life Cycle Code	Type	Equipment Type	Manufacturer	Model No.	Serial No.	Tag	Fuel Type	Capacity / Rating	Speed (FPM)	No. of Landings	Year Manufacture
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Maintenance Supervisor's Room)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-7	Electric	420 CFM			2007
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Admin / Emergency Area)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-8	Electric	450 CFM			2007
Maintenance Buildings	Buildings B & C	Below Floor (Serve's Conf Room)	D3041	Air Distribution Systems	Variable Air Volume Unit	Trane	VADA	Unknown	VAV-9	Electric	480 CFM			2007
Maintenance Buildings	Buildings B & C	Roof Level (Serve's Men's Locker & Restroom)	D3042	Exhaust Ventilation Systems	Exhaust Fan	Cook	135HLC	280S944314	EF-1	Electric	450 CFM			2007
Maintenance Buildings	Buildings B & C	Roof Level (Serve's Men's Locker & Restroom)	D3042	Exhaust Ventilation Systems	Exhaust Fan	Cook	135HLC	280S959690	EF-2	Electric	450 CFM			2007
Maintenance Buildings	Buildings B & C	Roof Level (Serve's Unisex Restroom)	D3042	Exhaust Ventilation Systems	Inline Exhaust Fan	Cook	GN-140	Unknown	EF-3	Electric	104 CFM			2007
Maintenance Buildings	Buildings B & C	Roof Level (Serve's Server Room)	D3051	Terminal Self-Contained Units	Fan Terminal Unit	Unknown	FDBU-20	Unknown	FPB-1	Electric	800 CFM			2007
Maintenance Buildings	Buildings B & C	Roof Level (Serve's Conf Room)	D3051	Terminal Self-Contained Units	Fan Terminal Unit	Unknown	FDBU-20	Unknown	FPB-2	Electric	800 CFM			2007
Maintenance Buildings, Davidson Street	Buildings B & C	Between Buildings (Serve's Building B)	D3051	Package Units	Package Unit	Trane	YHC063A3RLA13H0B0A1A103B7	717100926L	ACU-1	Electric / Natural Gas	5 Tons / 48,000 BTU / HR			2007
Maintenance Buildings, Davidson Street	Buildings B & C	Between Buildings (Serve's Building B)	D3051	Package Units	Package Unit	Trane	YHC120A3RLA2KG180A1A10	717100640L	ACU-2	Electric / Natural Gas	12 Tons / 120,000 BTU / HR			2007
Maintenance Buildings, Davidson Street	Buildings B & C	South Side of Building C	D3051	Package Units	Package Unit	Trane	YSC036A3RLA2J0ZB0A1A2A287	717100856L	ACU-3	Electric / Natural Gas	3 Tons / 48,000 BTU / HR			2007

Location	Facility	Location of Asset	Life Cycle Code	Type	Equipment Type	Manufacturer	Model No.	Serial No.	Tag	Fuel Type	Capacity / Rating	Speed (FPM)	No. of Landings	Year Manufacture
Maintenance Buildings, Davidson Street	Site Systems	Above Ground East Side of Site	G3063	Fuel Storage Tanks	Fuel Storage Tank					Diesel	50,000 Gallons			Unknown
Maintenance Buildings, Davidson Street	Site Systems	Above Ground North Side of Site	G3063	Fuel Storage Tanks	Fuel Storage Tank					Diesel	50,000 Gallons			Unknown
Maintenance Buildings, Davidson Street	Site Systems	North Side of Building A	G4092	Site Emergency Power Generation	Diesel Generator	Generac	4W1185	1923424		Diesel	10 kW / 10 KVA			Unknown
Maintenance Buildings, Davidson Street	Site Systems	Work Shop	G4092	Site Emergency Power Generation	Transfer Switch	Dayton	4W123A	Unknown		Electric	N / A			Unknown
Maintenance Buildings, Davidson Street	Site Systems	South Side of Building C	G4092	Site Emergency Power Generation	Diesel Generator	Cummins	DGBC-5859793	E070060555		Diesel	40 kW / 50 KVA			2007
Maintenance Buildings, Davidson Street	Site Systems	Electrical Room	G4092	Site Emergency Power Generation	Transfer Switch	Cummins	Unknown	Unknown		Electric	N / A			2007

Appendix D

Document Review and Warranty Information

DOCUMENT REVIEW & WARRANTY INFORMATION

In addition to the completion of our visual evaluation, Faithful+Gould interviewed the various representatives from the City of Novato (where possible), and reviewed the following documentation:

Original Construction Drawings Margaret Todd Senior Center:

Architectural Drawings A-1.1 through A-9.3, dated September 1990 by Roland Miller Associates

Structural Drawings S-1 through S-7, dated September 1990 by Dennis Fagent Associates

Mechanical Drawings M-1 through M-3, dated September 1990 by O'Mahony & Myer

Plumbing Drawings P-1 and P-2, dated September 1990 by O'Mahony & Myer

Electrical Drawings E-1 through E-7, dated September 1990 by O'Mahony & Myer

Hill Gymnasium Addition:

Architectural Drawings A1 through A9, dated March 1994 by Wilkinson & Hartman Architects

Structural Drawings S1 through S5, dated March 1994 by R.B. Gould

Mechanical Drawings M1 through M3, dated March 1994 by Hansen & Slaughter, Inc.

Electrical Drawings E1 through E2, dated March 1994 by Hansen & Slaughter, Inc.

Appendix E

Glossary of Terms

Acronyms & Glossary of Terms

CMU	Concrete Masonry Unit
BUR	Built-Up Roof
EIFS	Exterior Insulation and Finish System
EPDM	Ethylene Propylene Diene Monomer
SC	Solid Core Doors
HM	Hollow Metal Doors
MH	Man Holes
ABC	Aggregate Base Course
EMT	Electrical Metallic Conduit
EUL	Estimated Useful Life
RUL	Recommended Useful Life
EOL	End of Life
FCI	Facility Condition Index
CRV	Current Replacement Value
DM	Deferred Maintenance
SF	Square Foot
SY	Square Yards
PSF	Pounds-Per-Square-Foot
PSI	Pounds-Per-Square-Inch
NFPA	National Fire Protection Association
FACP	Fire Alarm Control Panel
NAC	Notification Appliance Circuit
FCC	Fire Command Center
HVAC	Heating Ventilating and Air conditioning
VAV	Variable Air Volume
AHU	Main Air Handling Units
HP	Horse Power
FSS	Fuel Supply System
MDP	Main Distribution Panel
SES	Service Entrance Switchboard's
NEMA	National Electrical Manufactures Association
HID	Intensity Discharge
EMT	Electrical Metallic Tubing
KVA	kilovolt-ampere
RO	Reverse Osmosis
BTU/HR	British Thermal Units per Hour
KW	Kilowatt
FPM	Feet per Minute (Elevator Speed)
Amp	Amperage

Acronyms & Glossary of Terms

BTU – British Thermal Unit; the energy required to raise the temperature of one pound of water by one degree.

Building Envelope - The enclosure of the building that protects the building's interior from the outside elements, namely the exterior walls, roof and soffit areas.

Building Systems – Interacting or independent components or assemblies, which from single integrated units, that comprise a building and its site work, such as, pavement and flatwork, structural frame, roofing, exterior walls, plumbing, HVAC, electrical, etc.

Caulking – Soft, putty-like material used to fill joints, seams, and cracks.

Codes – See building codes.

Component – A fully functional portion of a building system, piece of equipment, or building element.

Deferred Maintenance – Physical deficiencies that cannot be remedied with routine maintenance, normal operating maintenance, etc., excluding de minimis conditions that generally do not present a material physical deficiency to the subject property.

Expected Useful Life (EUL) – The average amount of time in years that an item, component or system is estimated to function when installed new and assuming routine maintenance is practiced.

Facility – All or any portion of buildings, structures, site improvements, complexes, equipment, roads, walks, passageways, parking lots, or other real or personal property located on site.

Flashing – A thin, impervious sheet of material placed in construction to prevent water penetration or to direct the flow of water. Flashing is used especially at roof hips and valleys, roof penetrations, joints between a roof and a vertical wall, and in masonry walls to direct the flow of water and moisture.

Remaining Useful Life (RUL) – A subjective estimate based upon observations, or average estimates of similar items, components, or systems, or a combination thereof, of a number of remaining years that an item, component, or system is established to be able to function in accordance with its intended purpose before warranting replacement. Such period of time is affected by the initial quality of an item, component, or system, the quality of the initial installation, the quality and amount of preventative maintenance exercised, climatic conditions, extent of use, etc.

Thermal Resistance (R) – A unit used to measure a material's resistance to heat transfer. The formula for thermal resistance is: $R = \text{Thickness(in inches)}/K$

Structural Frame – The components or building systems that support the building's nonvariable forces or weights (dead loads) and variable forces or weights (live loads).

Warranty – Legally enforceable assurance of quality or performance of a product or work, or of the duration of satisfactory performance. Warranty guarantee and guaranty are substantially identical in meaning; nevertheless, confusion frequently arises from supposed distinctions attributed to guarantee (or guaranty) being exclusively indicative of duration of satisfactory performance or of a legally enforceable assurance furnished by a manufacturer or other third party. The uniform commercial code provisions on sales (effective in all states except Louisiana) use warranty but recognize the continuation of the use of guarantee and guaranty.