

Citywide  
Facility Condition Assessment

Report of  
Facility Condition Assessment

For  
City of Manhattan Beach  
Fire Station #2  
1400 Manhattan Beach Boulevard, Manhattan Beach, CA



*August 23, 2013  
(Rev A)*

Provided By:

**Faithful+Gould, Inc.**

Provided For:



## TABLE OF CONTENTS

<b>SECTION 1 - EXECUTIVE SUMMARY</b>	<b>2</b>
<b>SECTION 2 - A SUBSTRUCTURE</b>	<b>21</b>
<b>SECTION 3 - B SHELL</b>	<b>23</b>
<b>SECTION 4 - C INTERIORS</b>	<b>32</b>
<b>SECTION 5 - D SERVICES</b>	<b>39</b>
<b>SECTION 6 - E EQUIPMENT &amp; FURNISHINGS</b>	<b>55</b>
<b>SECTION 7 - G BUILDING SITEWORK</b>	<b>58</b>

## APPENDICES

<b>APPENDIX A</b>	<b>10-YEAR EXPENDITURE FORECASTS</b>
<b>APPENDIX B</b>	<b>FACILITY PHOTOGRAPHS</b>
<b>APPENDIX C</b>	<b>ASSET INVENTORY</b>
<b>APPENDIX D</b>	<b>DOCUMENT REVIEW AND WARRANTY INFORMATION</b>
<b>APPENDIX E</b>	<b>ENVIRONMENTAL REPORT: ASBESTOS &amp; LEAD-BASED PAINT</b>
<b>APPENDIX F</b>	<b>GLOSSARY OF TERMS</b>

## SECTION 1 - EXECUTIVE SUMMARY

### INTRODUCTION

In accordance with the agreement held between City of Manhattan Beach, dated October 31, 2013 and Faithful+Gould Inc, this completed report provides a comprehensive Facility Condition Assessment of the Fire Station #2 buildings located at 1400 Manhattan Beach Boulevard, Manhattan Beach, CA (The Facility). The facility consisted of the following buildings:

-  Fire Station #2 Station House
-  Fire Station #2 Gymnasium

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 Facility and an expenditure forecast of expenditures anticipated over the next 10 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 either in-house or by direct sub-contract labor. Identified recommended works that are required during the ten-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-5 provides a summary of the anticipated primary expenditures over the 10 year study period. Further details of these expenditures are included within each respective report section and within the 10 year expenditure forecast, in Appendix A.

The report also calculates the Facility Condition Index (FCI) of each building based upon the calculated FCI. Further discussion of the Facility Condition Index is detailed in the sections below. The FCI does not include the general 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 May 16, 2013, Mr. Richard Needler of Faithful+Gould visited the facility to observe and document the condition of each building and their site components. During our site visit, Faithful+Gould was assisted by Mr. Doug Foster, Senior Facilities Maintenance Technician for the City of Manhattan Beach.

Overview of the Buildings at the Facility



— Assumed site boundary

**BUILDING SUMMARY**

**Table EX-1 Facility Details**

<b>BUILDING NAME:</b>	Fire Station #2	<b>LAT/LONG:</b>	33° 53' 13"N / -118° 23' 22"W
<b>ADDRESS:</b>	1400 Manhattan Beach Boulevard, Manhattan Beach, CA 90266	<b>OCCUPANCY STATUS:</b>	
<b>HISTORIC DISTRICT:</b>	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	<b>OCCUPIED</b> <input checked="" type="checkbox"/>	<b>VACANT</b> <input type="checkbox"/> <b>PARTIALLY</b> <input type="checkbox"/>
<b>HISTORIC BUILDING:</b>	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	<b>GROSS SQUARE FOOTAGE OF BUILDING:</b>	3,280
<b>GROSS SQUARE FOOTAGE OF LAND:</b>	14,438 (estimated) Whole Facility	<b>YEAR OF CONSTRUCTION:</b>	1954
<b>CURRENT REPLACEMENT VALUE:</b>	\$846,853	<b>BUILDING EUL:</b>	80 Years
<b>BUILDING USE:</b>	Station House	<b>BUILDING RUL:</b>	21 Years
<b>NUMBER OF STORIES:</b>	1		

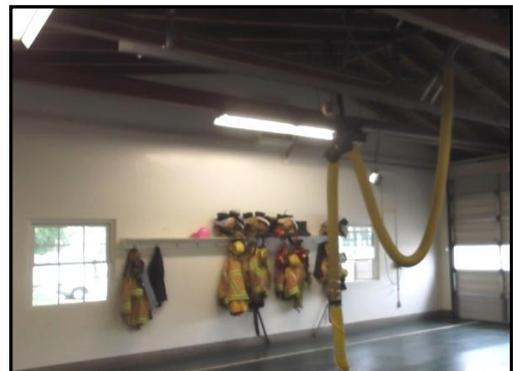
**BUILDING DESCRIPTION**

Fire Station #2 contains the apparatus bays, sleeping quarters, break areas and a communications room. The building is located at 1400 Manhattan Beach Boulevard, Manhattan Beach. The facility was constructed in 1954.

There is some concern over the usable size of the Fire Station and its ability to accommodate modern fire vehicles. It has been suggested that the bays are too small. This has occurred since circa. 2007 as many new fire apparatus vehicles are up to 4" wider, causing clearance problems with narrow bays and door openings. The NFPA does not have a standard for Fire Stations, but does have documents relating to facility and personal safety.

The facility has load bearing concrete masonry structural walls, wood rafter and joist structural roof framing and reinforced concrete floor slabs. The roof covering is multi-tab asphalt-fiberglass shingles. Exterior walls are painted concrete masonry and wood siding. Windows are aluminum-framed, single-hung units with double-pane glazing and doors are solid wood and hollow metal personnel doors and sectional metal overhead doors at the apparatus bays. The interior finishes include carpet and ceramic tile floor coverings, painted plaster and ceramic tile wall finishes and painted plaster and gypsum board suspended ceiling systems.

The heating and cooling for the building is provided by a rooftop package electric cooling and gas-fired heating unit, with supplemental heating in the apparatus bays provided by a gas-fired cabinet heating unit. Domestic hot



water is provided by a 50 US gallon gas-fired water heater.

The main electrical distribution panel, located on the rear exterior wall, is rated at 120/240 volts at 200amps, 1-phase, 4-wire. The interior lighting is provided by surface mounted and suspended fluorescent fixtures, each with T8 32 watt lamps and electronic ballasts. The building does not contain a fire alarm system, fire sprinkler system or intruder security alarm system; however there is an emergency generator present.

**Table EX-2 Facility Details**

<b>BUILDING NAME:</b>	Fire Station #2 Gymnasium	<b>LAT/LONG:</b>	33° 53' 13" N / -118° 23' 21" W
<b>ADDRESS:</b>	1400 Manhattan Beach Boulevard, Manhattan Beach, CA 90266	<b>OCCUPANCY STATUS:</b>	
		<b>OCCUPIED</b> <input checked="" type="checkbox"/>	<b>VACANT</b> <input type="checkbox"/> <b>PARTIALLY</b> <input type="checkbox"/>
<b>HISTORIC DISTRICT:</b>	<b>YES</b> <input type="checkbox"/> <b>NO</b> <input checked="" type="checkbox"/>	<b>HISTORIC BUILDING:</b>	<b>YES</b> <input type="checkbox"/> <b>NO</b> <input checked="" type="checkbox"/>
<b>GROSS SQUARE FOOTAGE OF BUILDING:</b>	536	<b>GROSS SQUARE FOOTAGE OF LAND:</b>	14,438 (estimated) Whole Facility
<b>CURRENT REPLACEMENT VALUE:</b>	\$30,752	<b>YEAR OF CONSTRUCTION:</b>	1967
		<b>BUILDING EUL:</b>	80 Years
		<b>BUILDING RUL:</b>	34 Years
<b>BUILDING USE:</b>	Gymnasium	<b>NUMBER OF STORIES:</b>	1

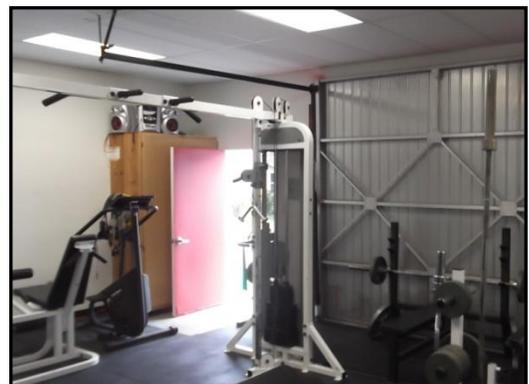
**BUILDING DESCRIPTION**

The facility has conventional wood framed walls, wood rafter and joist structural roof framing and a reinforced concrete floor slab. The roof covering is multi-tab asphalt-fiberglass shingles. Exterior walls are painted wood siding. The window is an aluminum-framed, sliding unit with double-pane glazing and the doors are a solid wood personnel door and a pivoting metal overhead door. The interior finishes include rubber tile floor covering, painted wall finishes and suspended acoustical tile ceiling system.



The heating for the building is provided by a portable electric unit heater. Cooling is not provided to the facility. Domestic water is not provided to the building.

The electrical service, provided from Fire Station #2, is to a distribution panel located adjacent to the personnel door and is rated at 120/240 volts at 60amps, 1-phase, 3-wire. The interior lighting is provided by recessed fluorescent fixtures, each with T8 32 watt lamps and electronic ballasts.



The building does not contain a fire alarm system, fire sprinkler system or intruder security alarm system.

**ENVIRONMENTAL REVIEW**

During the assessment period an inspection and survey to ascertain if Asbestos Containing Materials (ACM) and Lead-Based Paint (LBP) are present at the interior and exteriors of the building. The assessment was undertaken by Andersen Environmental and their full report can be reviewed Appendix E. A summary of results indicate the following:

The following materials were found to contain asbestos and considered ACM:

**Table EX-3 Summary of Asbestos Results**

Material Description	Material Location	Condition	Asbestos Percentage	Estimated Quantity*
White Plaster	Throughout	Good	<1% Chrysotile	2,500
Roofing Materials	Roofs	Good	Presumed	4,500
Transite Cement Vent Pipe	Roof	Good	Presumed	1

\* These quantities are only approximations

Expenditure relating to the removal of the ACM has not been provided within this report. We recommend that the abatement contractor is selected through a bidding process.

Lead-Based Paint was not identified at the building. Through sampling of several paint components the presence of LBP was indicated at or above the action level at the following locations:

- All interior and exterior painted surfaces samples during the inspection tested negative for lead-based paint.

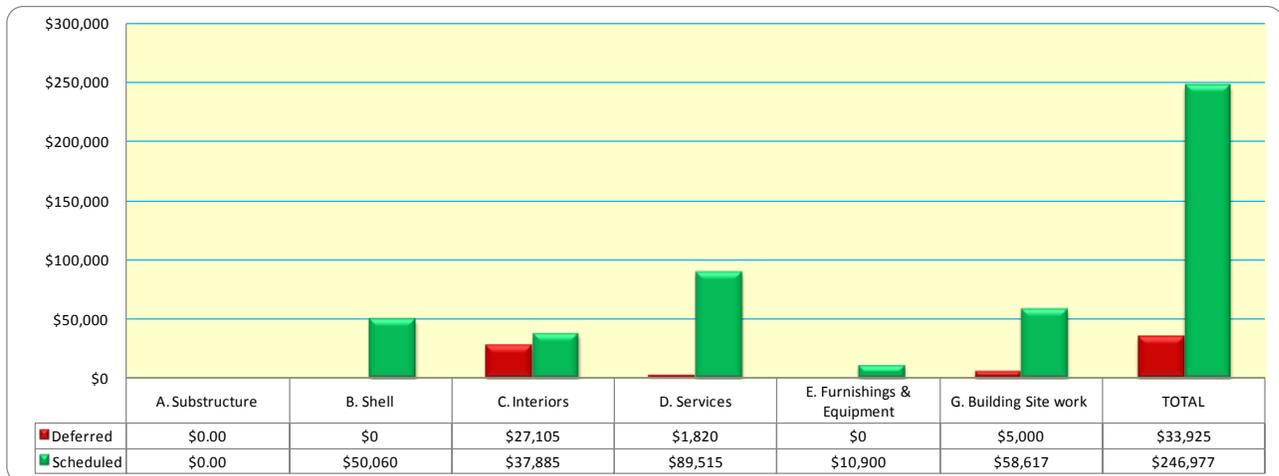
## **BUILDING EXPENDITURE SUMMARY**

The building expenditure summary section provides an executive overview of the findings from the assessments. Charts EX-1 and EX-2 provides a summary of anticipated expenditures over the study period. In addition, we have scheduled key findings highlighting key items of significance 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.

### **Station House**

The results illustrate a total anticipated expenditure over the study period of circa \$280,902.

**Chart EX-1 Building Expenditure Summary <sup>1 & 2</sup>**



## **KEY FINDINGS**

- + B Shell: Repaint exterior walls at an estimated cost of \$22,230 in years 2015 and 2019
- + C Interiors: Repaint the interior walls and ceilings at an estimated cost of \$26,455 in years 2013 and 2019
- + C Interiors: Replace carpet floor coverings at an estimated cost of \$5,856 in year 2020
- + D Services: Replace rooftop package unit equipment at an estimated cost of \$15,050 in year 2017
- + D Services: Renovation of restrooms at an estimated cost of \$30,000 in year 2014
- + E Equipment & Furnishings: Replace kitchen appliances at an estimated cost of \$6,400 in year 2022
- + G Building Sitework: Replace chain-link fencing at an estimated cost of \$8,907 in year 2017
- + G Building Sitework: Replace emergency generator set at an estimated cost of \$36,860 in year 2022

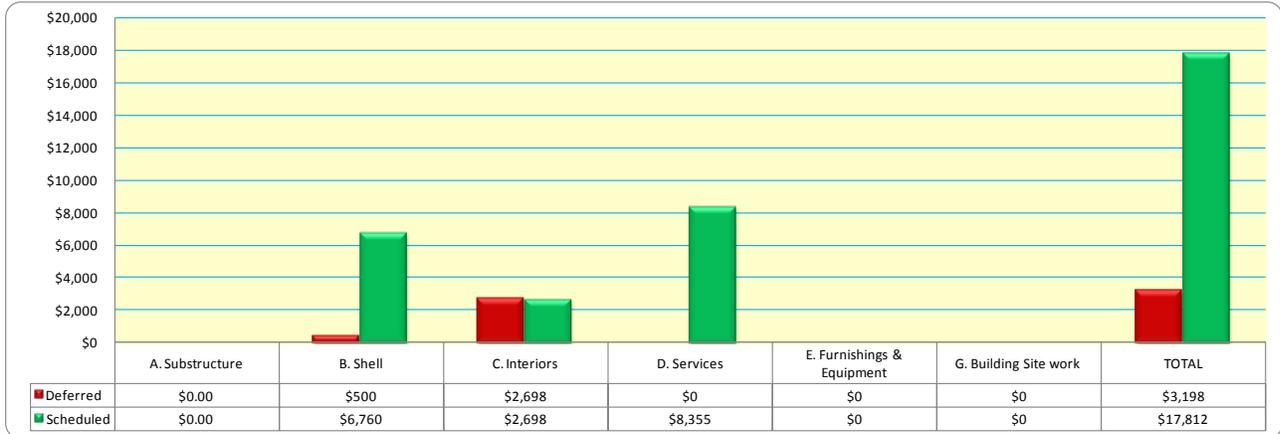
<sup>1</sup> All costs presented in present day values

<sup>2</sup> Costs represent total anticipated values over the 10 year study period

**Gymnasium**

The results illustrate a total anticipated expenditure over the study period of \$21,010.

**Chart EX-2 Building Expenditure Summary <sup>1 & 2</sup>**



**KEY FINDINGS**

- ✚ B Shell: Repaint exterior wall surfaces at an estimated cost of \$3,380 in years 2015 and 2019
- ✚ C Interiors: Repaint interior walls at an estimated cost of \$2,698 in years 2013 and 2019

<sup>1</sup> All costs presented in present day values

<sup>2</sup> Costs represent total anticipated values over the 10 year study period

Chart EX-3 illustrates a summary of yearly anticipated expenditures over the cost study period for each of the Fire Station #2 buildings. A detailed breakdown of anticipated expenditures is contained within Appendix A of this report.

**Chart EX-3 Expenditure Forecast <sup>1 & 2</sup>**



<sup>1</sup> All costs presented in present day values  
<sup>2</sup> Costs represent total anticipated values over the 10 year study period

This chart highlights significant expenditure for the Fire Station #2 buildings within years 2014, 201, 2019 and 2022 primarily due to the following 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 will face.

Station House

Year 2014

- + Renovation of restrooms
- + Installation of a fire suppression system
- + Installation of a fire alarm system

Year 2017

- + Replacement of HVAC equipment

Year 2019

- + Exterior and interior repainting

Gymnasium

Year 2014

- + Installation of a fire suppression system
- + Installation of a fire alarm system

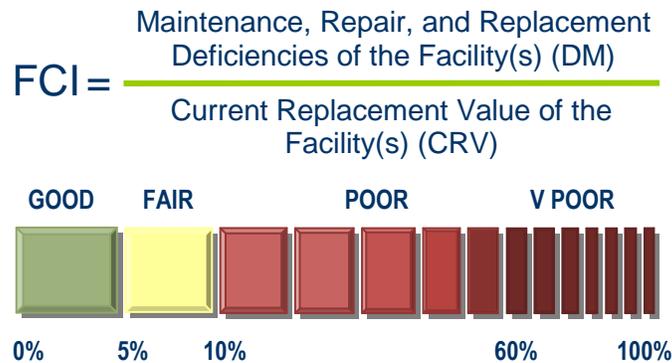
Year 2019

- + Exterior and interior repainting

**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 (0.05 to 0.10 (5% to 10%)), POOR (over 0.10 (over 10%)) and V-POOR (over 0.60 (over 60%)) based on evaluating data from various clients at the time of the publication. Table EX-4 will help interpret the results:

**Table EX-4 FCI Scoring System**

Condition	Definition	Score	Percentage Value
<b>GOOD</b>	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%
<b>FAIR</b>	Subject to wear, and soiling but is still in a serviceable and functioning condition	0.05 to 0.10	5% to 10%
<b>POOR</b>	Subjected to hard or long-term wear. Nearing the end of its useful or serviceable life.	Greater than 0.10	Greater than 10%
<b>V-POOR</b>	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-5 provides calculations of the FCI for the Fire Station #2 buildings; 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 Station House is in a GOOD condition and the Gymnasium is in a POOR condition at this time.

**Table EX-5 Facility Condition Index<sup>1 & 2</sup>**

Building Name	FCI	Gross Square Foot (GSF)	CRV per GSF	Current Replacement Value (CRV)	Deferred Maintenance Value (DM) <small>1 &amp; 2</small>	FCI Ratio	Property Condition Rating
Station House	Current FCI Ratio	3,280	\$258	\$846,853	\$37,123	4.0%	GOOD
Station House	Year 10 FCI Ratio	3,280	\$258	\$846,853	\$280,902	16.2%	POOR
Gymnasium	Current FCI Ratio	536	\$57	\$30,752	\$3,198	10.4%	POOR
Gymnasium	Year 10 FCI Ratio	536	\$57	\$30,752	\$21,010	68.3%	V.POOR

<sup>1</sup> All costs presented in present day values

<sup>2</sup> Costs represent total anticipated values over the 10 year study period

Chart EX-4 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 previously indicated, the buildings have a GOOD and POOR condition rating, however they both return to the GOOD and FAIR condition ratings later in the study period.

**Chart EX-4 Year by Year Effects of FCI over the Study Period**

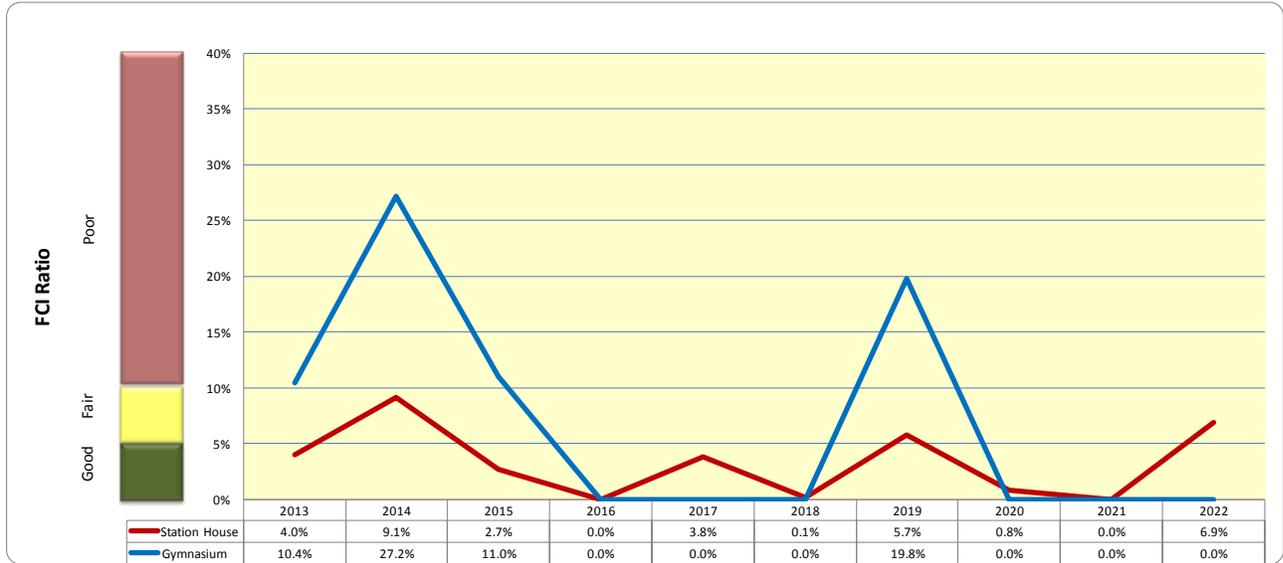
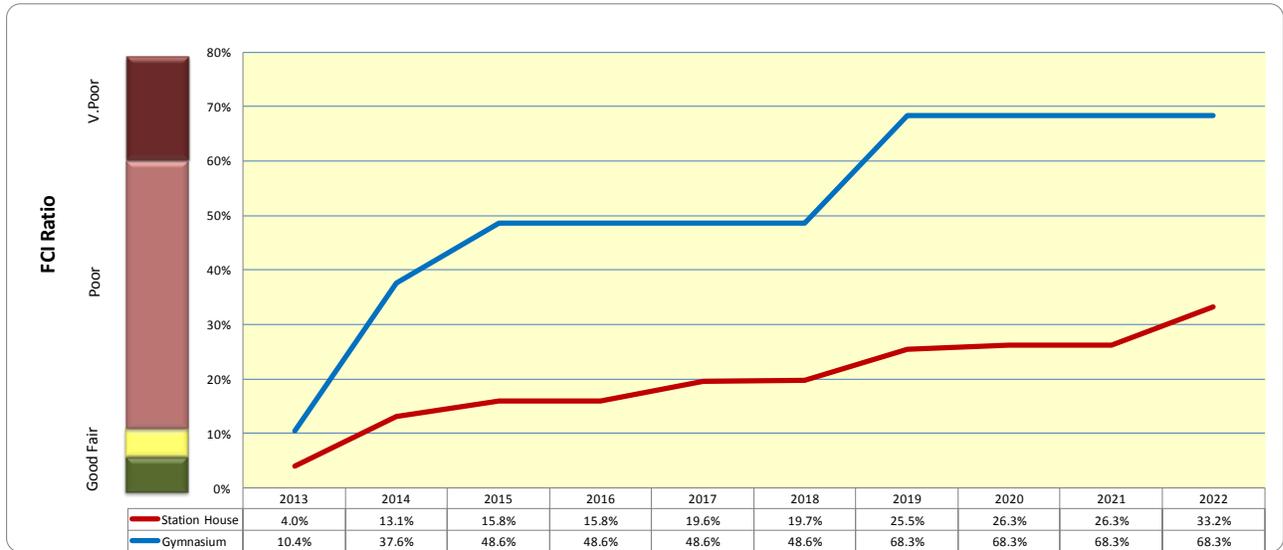


Chart EX-5 indicates the cumulative effects of the FCI ratio over the study period assuming the required funds and expenditures are not provided to address the identified actions and deferred maintenance each year. The results of the study indicate that the Station House and the Gymnasium will fall into the POOR condition rating by early in the study period and the Gymnasium will continue to fall into the V.POOR condition rating by year 2019.

**Chart EX-5 Cumulative Effects of FCI over the Study Period**



**PRIORITIZATION OF WORK**

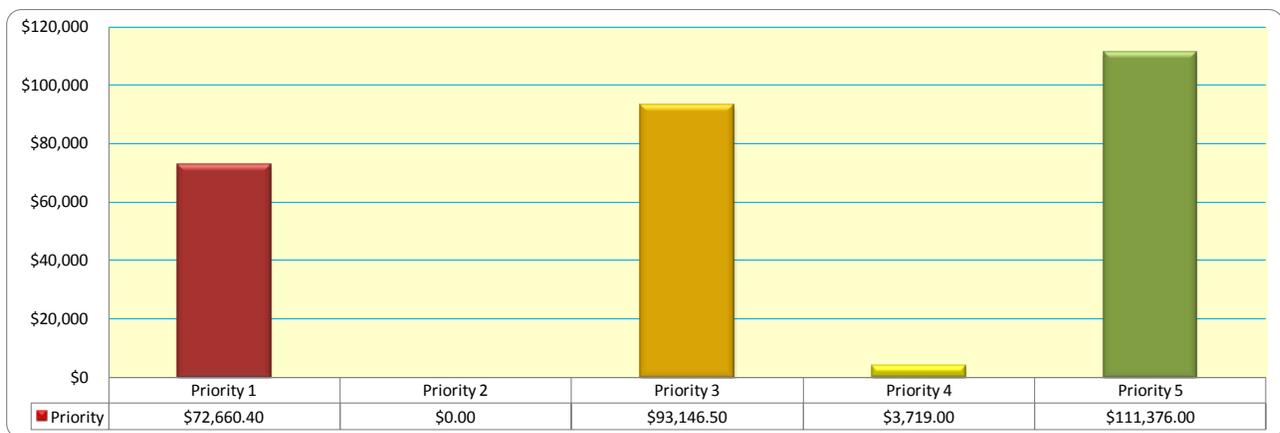
Faithful+Gould has prioritized the identified work in order to assist with analyzing the deficiencies found during the assessments. The following Priorities are shown below:

<b>Priority 1 - Life Safety/ Code Compliance/ADA:</b>	•Compromises staff or public safety or when a system requires to be upgraded to comply with current codes and standards.
<b>Priority 2 – Currently Critical:</b>	•A system or component is inoperable or compromised and requires immediate action
<b>Priority 3 – Necessary / Not Critical:</b>	•Maintain the integrity of the facility or component and replace those items, which have exceeded their expected useful life
<b>Priority 4 – Recommended:</b>	•Necessary for optimal performance of the facility or component
<b>Priority 5 – Appearance:</b>	•Used when a system has degraded and requires refurbishment

Charts EX-6 and EX-7 illustrate the breakdown of expenditure according to the priority coding providing an opportunity to strategically plan and effectively direct funding to the highest priority for each building.

**Station House**

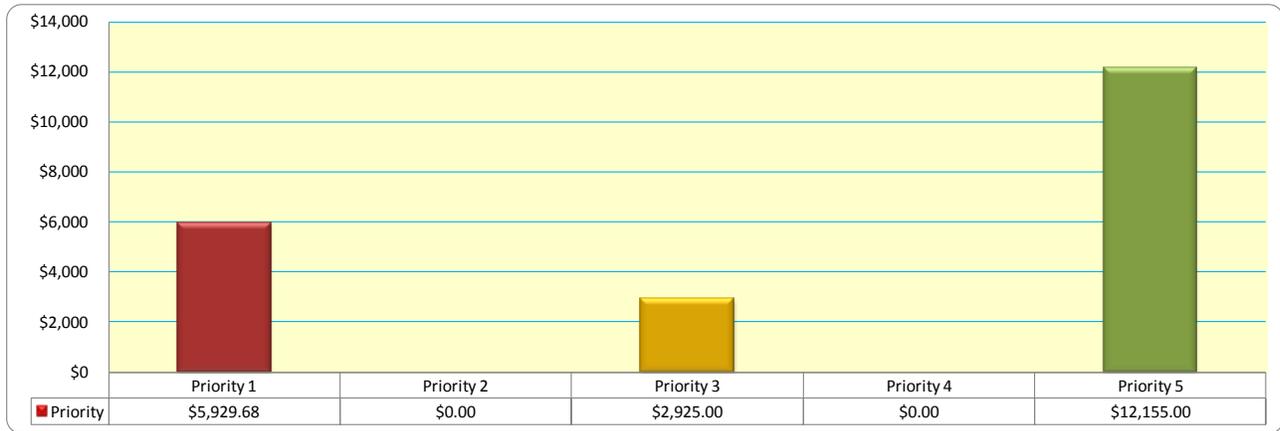
**Chart EX-6 Cumulative Prioritization of Work**



Priority 5 appears to require the greatest expenditure in this study. This category illustrates that the work which needs to be undertaken is associated with the appearance of the building.

**Gymnasium**

**Chart EX-7 Cumulative Prioritization of Work**



Priority 5 appears to require the greatest expenditure in this study. This category illustrates that the work which needs to be undertaken is associated with maintaining the appearance of the building.

Charts EX-8 and EX-9 illustrate the expenditure per priority code, per each year within the 10 year study period.

**Station House**

**Chart EX-8 Year by Year Cumulative Prioritization of Work**

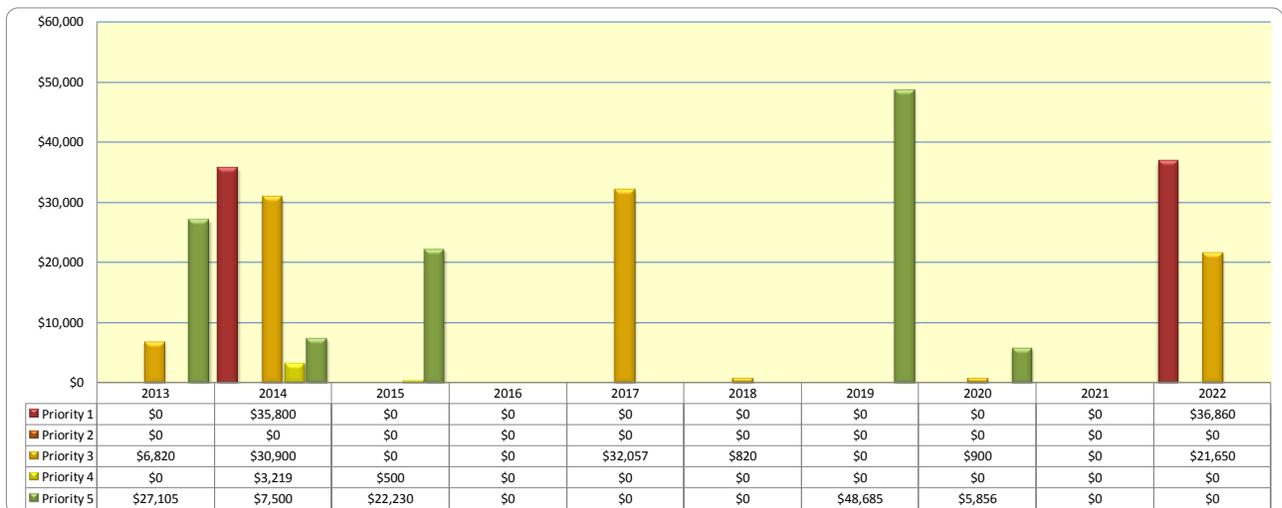


Chart EX-8 illustrates that there are two key years for Priority 3 coding, years 2014 and 2017. Priority 5 has a significant year in 2019.

**Gymnasium**

**Chart EX-9 Year by Year Cumulative Prioritization of Work**

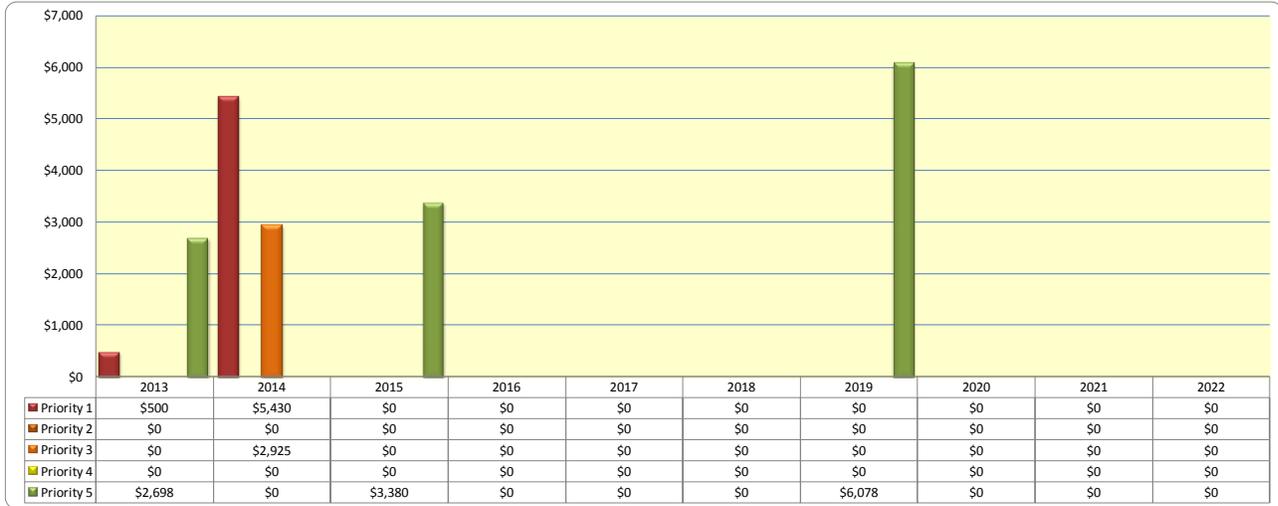


Chart EX-9 illustrates that there are three key years for Priority 5 coding, years 2013, 2015 and 2019.

**PLAN TYPES**

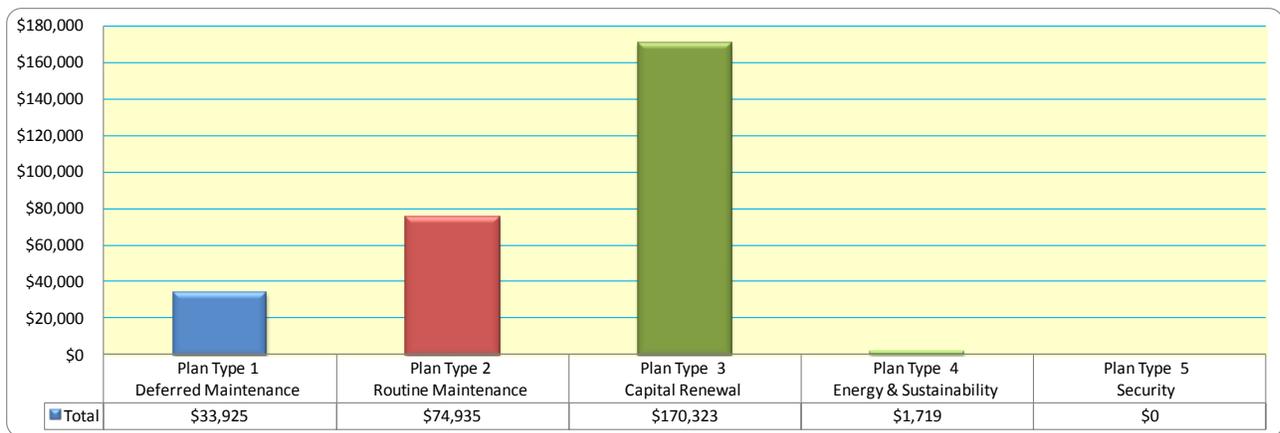
Faithful+Gould has prioritized the identified work according to the Plan Type or deficiency categories in order to assist with analyzing the deficiencies found during the assessments. The following Plan Types are shown below:

<b>Plan Type 1</b> Deferred Maintenance	<ul style="list-style-type: none"> <li>• Maintenance that was not performed when it was scheduled or past its useful life resulting in immediate repair or replacement</li> </ul>
<b>Plan Type 2</b> Routine Maintenance	<ul style="list-style-type: none"> <li>• Maintenance that is planned and performed on a routine basis to maintain and preserve the condition</li> </ul>
<b>Plan Type 3</b> Capital Renewal	<ul style="list-style-type: none"> <li>• Planned replacement of building systems that have reached the end of their useful life</li> </ul>
<b>Plan Type 4</b> Energy & Sustainability	<ul style="list-style-type: none"> <li>• When the repair or replace of equipment or systems are recommended to improve energy and sustainability performance.</li> </ul>
<b>Plan Type 5</b> Security	<ul style="list-style-type: none"> <li>• When a system requires replacement due to a security risk or requirement</li> </ul>

Charts EX-10 and EX-11 illustrate the amount of expenditure, per category within the 10 year study period.

**Station House**

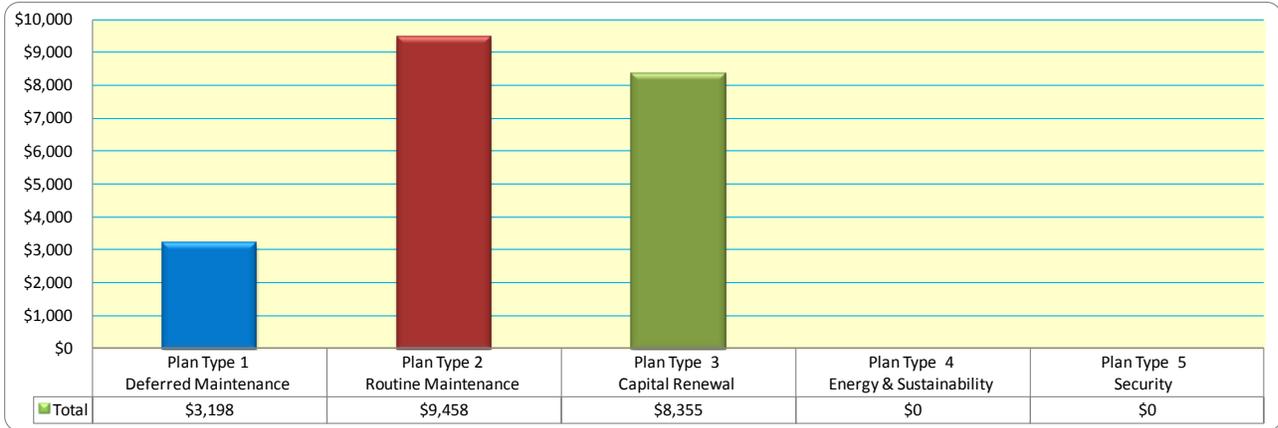
**Chart EX-10 Cumulative Expenditure per Category of Works**



Plan Type 3 – Capital Renewal appears to require the greatest expenditure in this study.

**Gymnasium**

**Chart EX-11 Cumulative Expenditure per Category of Works**



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

Charts EX-12 and EX-13 illustrate the amount of expenditure, per category, each year within the 10 year study period.

**Station House**

**Chart EX-12 Year by Year Cumulative Expenditure per Category of Works**



Chart EX-12 illustrates that there are several expenditure years for Plan Type 3 – Capital Renewal.

**Gymnasium**

**Chart EX-13 Year by Year Cumulative Expenditure per Category of Works**



Chart EX-13 illustrates that there is one key expenditure year for Plan Type 3 – Capital Renewal in year 2014.

## SECTION 2 - A SUBSTRUCTURE

### A10 FOUNDATIONS

#### DESCRIPTION

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

#### A1010 STANDARD FOUNDATIONS

##### Station House & Gymnasium

##### A1011 Wall Foundations

The exterior and interior load-bearing walls are supported by reinforced concrete spread footings. The compressive strength of the concrete is unknown.

#### A1030 SLABS-ON-GRADE

##### Station House & Gymnasium

##### A1031 Standard Slab on Grade

The floors consist of cast-in-place concrete slabs-on-grade, reinforced with welded wire fabric. The drawings indicated that the floor slab is 4" thick, placed over an aggregate base. We are unaware of the designed compressive strength of the concrete.

#### CONDITION

#### A1010 STANDARD FOUNDATIONS

##### Station House & Gymnasium

##### A1011 Wall Foundations

The below grade footings are not visible; however there is no deterioration to the load-bearing walls that they are supporting. Therefore, we assume them to be in good condition and free from defects.

**A1030 SLABS-ON-GRADE**

Station House & Gymnasium

A1031 Standard Slab on Grade

The cast-in-place concrete slabs contain localized cracking, but without settlement, and otherwise appear to be in good condition. We do not anticipate any expenditure during the cost study period, which relates to its significant repair or replacement.

**PROJECTED EXPENDITURES**

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

## SECTION 3 - B SHELL

### B10 SUPERSTRUCTURE

#### DESCRIPTION

The descriptions of the respective structural systems for the buildings are based upon our review of available drawings, and our observation of exposed portions of the building structure. The drawings reviewed and their location can be found in Appendix D.

### B1020 ROOF CONSTRUCTION

#### Station House & Gymnasium

#### B1022 Pitched Roof Construction

The apparatus bay section of the Station House contains sloped solid wood rafter framing that is exposed on the underside, with connections of through-bolts, steel clips and anchor bolts at load-bearing. The sloped rafters run from north to south and are 4" x 8" at 4' on center, with horizontal framing of 4" x 8" joists at 3' - 4" on center walls (reference Photographs 4 and 5 in Appendix B). The drawings indicate that solid wood decking of tongue-and-groove 1' x 6" planks spans diagonally across the roof framing.

The roof's structural framing was not observable in the Gymnasium building and drawings indicating structural framing were not available for reference. However, it is expected that its roof is also wood framed, with 2" x 6" or similar sized joists or with manufactured wood trusses utilizing 2" x 4" members, supported by the perimeter wood-framed walls. Its roof decking is likely to be 1/2" to 5/8" thick plywood sheathing.

### B1030 STRUCTURAL FRAME

#### Station House & Gymnasium

#### B1030 Wall Construction

The Station House has load-bearing exterior and interior concrete masonry walls supporting the roof framing system. The Gymnasium wall construction, although not directly observable, is likely to have conventional wood framed walls of 2" x 4" or 2" x 6" studs supporting the roof framing system.

**CONDITION**

**B1020 ROOF CONSTRUCTION**

Station House & Gymnasium

B1022 Pitched Roof Construction

The pitched roof construction appeared to be in good condition. There were no visible signs of deflection or failure noted. We do not anticipate any expenditure during the cost study period relating to significant repair or replacement of the roofs' structural systems.

**B1030 STRUCTURAL FRAME**

Station House & Gymnasium

B1030 Wall Construction

The load-bearing masonry of the Station House and the exterior wood-stud framed walls of the Gymnasium appeared to be in good condition, with no evidence of settlement or insufficiency noted. We do not anticipate significant repair or replacement of such structural elements during the cost study period.

## B20 EXTERIOR ENCLOSURES

### DESCRIPTION

The description of the respective exterior enclosure systems for the buildings is based upon our review of available drawings, and our observation of the buildings. The drawings reviewed and their location can be found in Appendix D.

## B2010 EXTERIOR WALLS

### Station House

#### B2011 Exterior Wall Construction

The exterior wall construction at the Station House consists of steel-reinforced load bearing concrete masonry units (CMU) (reference Photographs 1 through 3 in Appendix B). They have been placed in a running bond formation and have a painted exterior finished surface and have tooled cement mortar joints. At the gable ends of the building, painted wood lapped siding on wood framing is provided (reference Photographs 1 and 3 in Appendix B).

The exterior wall construction of the Gymnasium building consists of painted wood lapped siding, most likely on plywood sheathing on the wood structural framing (reference Photographs 31 and 32 in Appendix B).

### Station House & Gymnasium

#### B2015 Exterior Soffits

The buildings contained soffits of the painted ends of roof rafters and roof decking at roof overhangs, as well as over a porch at the west side of the Station House (reference Photographs 3 & 8 in Appendix B).

## B2020 EXTERIOR WINDOWS

### Station House & Gymnasium

#### B2021 Windows

Windows in the Station House are aluminum-framed, single-hung units with double-pane glazing and screens. The single window in the Gymnasium is an aluminum-framed, sliding unit with double-pane glazing (reference Photographs 8 and 32 in Appendix B). The joints at the perimeters of the window frames and the exterior wall masonry and siding are sealed with variable thicknesses of urethane sealant.

**B2030 EXTERIOR DOORS**

Station House & Gymnasium

B2034 Overhead Doors

The Station House contains two sectional metal overhead doors at the north elevation, at the apparatus bays for vehicle ingress and egress. The doors, with motorized operators, have aluminum and clear fiberglass panels and run on metal overhead tracks. The Gymnasium also contains a pivoting metal overhead door at the north elevation. The door is manually operated and does not contain vision panels (reference Photographs 7 and 31 in Appendix B).

B2039 Other Doors & Entrances

Both of the buildings contain wood and hollow metal door sets in steel frames, with painted surfaces. The Station House contains a combination of flush and panel single leaf doors, some with vision panels (reference Photographs 1 and 8 in Appendix B). The Gymnasium has a single flush wood door set in a steel frame. Door hardware included lever-type door handles at each building. The joints at the perimeters of the door frames and the exterior wall masonry and siding are sealed with variable thicknesses of urethane sealant.

**CONDITION**

**B2010 EXTERIOR WALLS**

Station House & Gymnasium

B2011 Exterior Wall Construction

The exterior wall systems at each of the buildings appeared to be in good condition, with no major indications of deterioration, water ingress or general failure noted. Localized areas of damaged brick, at locations of electrical component installation, were noted at the Station House (reference Photograph 9 in Appendix B). The exteriors of the Station House and Gymnasium appear to have been recently painted, but based on an EUL of 4 years for exterior paint for this building, we recommend budgeting for repainting in the near-term. In conjunction with the repainting, we recommend repairs be made to the exterior sealants as needed.

Station House & Gymnasium

B2015 Exterior Soffits

The soffits, fascia and exposed rafter tails appeared to be in good condition, with no major signs of deterioration, water ingress or general failure noted. We recommend that they be repainted at the same time as the exterior wall surfaces.



**B2020 EXTERIOR WINDOWS**

Station House & Gymnasium

B2021 Windows

The exterior window units appeared to be in good condition, with no deficiencies found. We assume that the windows are replacement of the original units to the buildings, as the drawings indicate original installation of wood framed windows. Therefore, with a typical EUL of 30 years for windows, we do not anticipate the need for replacement of window units during the study period. The caulking at the window perimeters appeared to be in good to fair condition, generally without cracking or loss of adhesion. With a typical EUL of 15 years for exterior caulking, we do not anticipate the need for its replacement, but repairs are likely to be necessary at the time of exterior repainting.

**B2030 EXTERIOR DOORS**

Station House & Gymnasium

B2034 Overhead Doors

The overhead doors appeared to be in good condition, with no issues reported. Replacement is not anticipated within the study period. However we recommend repainting as needed, at the time of exterior repainting. However, the motorized operators at the apparatus doors, with an EUL of 10 to 15 years, are likely to need replacement in the later term of the study period.

B2039 Other Doors & Entrances

The wood and hollow metal door sets appeared to be in good condition, with no issues reported. Replacement is not anticipated within the study period. However, we recommend repainting as needed at the time of exterior repainting.

The exterior entrance personnel doors of the Station House are typically of disabled accessible width of 36", with their lever-type accessible hardware and thresholds. The entrance to the Gymnasium is also of accessible width, with lever-type hardware, but has an approximately 3" step from pavement to threshold that make it non-accessible. We recommend installation of ramped pavement to improve accessibility to the Gymnasium entrance.

**B30 ROOFING**

**DESCRIPTION**

**B3010 ROOF COVERINGS**

Station House & Gymnasium

B3011 Roof Finishes

The facility contained various moderate- to steep-sloped roof areas on each building, as shown on the following aerial plan:

**Overview of Roof Locations & Configurations**



Roof 1, on the Station House, contains a covering of granular-surfaced, multi-tab asphalt-fiberglass shingles (reference Photograph 6 in Appendix B), including over the apparatus bays, sleeping quarters and hose tower. Rooftop mechanical equipment is enclosed by panels of painted wood siding attached to metal and wood framing. Storm water typically drains to the roof edge, with aluminum gutters provided over some entrances, draining to grade and into an underground stormwater system.

Roof 2, on the Gymnasium, also contains a covering of granular-surfaced, multi-tab asphalt-fiberglass shingles (reference Photograph 32 in Appendix B). Storm water typically drains to the roof edge.

Table B30-1 provides a summary of the roof coverings:

**Table B30-1 Summary of Roof Coverings**

Roof Component	Roof 1 Station House	Roof 2 Gymnasium
Age	3 Years (2010)*	3 Years (2010)*
Roof Area (total / approx. square footage)	3,652 SF	672 SF
Application/ Membrane	Asphalt-Fiberglass Shingles	Asphalt-Fiberglass Shingles
Manufacturer / Model	Unknown	Unknown
Surface	Granular Surfaced	Granular Surfaced
Deck Type	Wood Plank	Plywood
Insulation	Batt Insulation (Thickness Unknown)	None
Cover Board	None	None
Drainage	Roof Edge and Aluminum Gutters / Downspouts	Roof Edge
Overflow Scuppers	None	None
Base Flashings	Galvanized Metal	None
Cap Flashings	None	None
Perimeter Enclosure	None	None
Warranty (Manufacturer)	Unknown	Unknown
Warranty (Contractor)	Unknown	Unknown

\*Actual installation date unknown, age assumed/estimated.

**CONDITION**

**B3010 ROOF COVERINGS**

Station House & Gymnasium

B3011 Roof Finishes

The asphalt-fiberglass shingle roof coverings appeared to be in good condition, with no evidence of leaks or water ingress. Minor issues noted include initial weathering/aging of the shingles and the need for all metal flashing surfaces to be painted for protection from corrosion. Based on the typical EUL of 20 to 25 years for roofing such as this, we do not anticipate replacement will be necessary in the study period. We recommend the equipment enclosure panels be painted at the time of building exterior repainting.

**PROJECTED EXPENDITURES**

Identified recommended works that are required during the 10 year study period are scheduled below. We recommend budgeting for additional project costs of between 25%-30% to allow for professional fees and general contractor overhead/profit and management costs.

Station House

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
B2011	Exterior Wall Construction	Repaint exterior painted surfaces	6,840	SF	\$3.25	\$22,230	2015	5
B2011	Exterior Wall Construction	Repaint exterior painted surfaces	6,840	SF	\$3.25	\$22,230	2019	5
B2034	Overhead Doors	Replace motorized operators	2	EACH	\$2,800	\$5,600	2022	3
Total Anticipated Expenditure for B Shell						\$50,060		



Gymnasium

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
B2011	Exterior Wall Construction	Repaint exterior painted surfaces	1,050	SF	\$3.25	\$3,413	2015	5
B2011	Exterior Wall Construction	Repaint exterior painted surfaces	1,050	SF	\$3.25	\$3,413	2019	5
B2039	Other Doors & Entrances	Install ramped pavement for disable accessible entrance	1	LS	\$500	\$500	2013	1
Total Anticipated Expenditure for B Shell						\$7,260		

## SECTION 4 - C INTERIORS

### C10 INTERIOR CONSTRUCTION

#### DESCRIPTION

### C1010 PARTITIONS

#### Station House & Gymnasium

#### C1011 Fixed Partitions

The Station House contains primarily plaster-coated CMU walls, with some locations of wood-stud framed partitions with gypsum board sheathing. The CMU walls, original construction, are present between the apparatus bays and the living and office areas and have serve as 1-hour fire rated separation, as well as supporting the roof structure. The Gymnasium does not have interior partitions, but is a single, undivided space.

### C1020 INTERIOR DOORS

#### Station House & Gymnasium

#### C1021 Interior Doors

The Station House generally contains single-leaf flush wood and steel doors in hollow metal frames and those that open into the apparatus bays are appear to be 1-hour fire rated. The Gymnasium does not contain interior doors.

#### C1023 Interior Door Hardware

The Station House interior doors have hardware that includes lever-type door handles and overhead closers.

### C1030 FITTINGS SPECIALTIES

#### Station House

#### C1031 Fabricated Toilet Partitions

The men's locker room and restroom contains floor mounted and wall fixed plastic laminate water closet stall partitions and doors (reference Photograph 13 in Appendix B). The ceramic tiled shower stalls contain glazed shower doors in aluminum frames (reference Photograph 15 in Appendix B).

C1033 Storage Shelving & Lockers

The men's locker room contains twelve painted wood lockers and bench with base storage (reference Photograph 11 in Appendix B).

**CONDITION**

**C1010 PARTITIONS**

Station House & Gymnasium

C1011 Fixed Partitions

The interior fixed partitions all appeared to be in good to fair condition. A minor deficiency noted at the base of the walls in the recreation/kitchen area was water damaged plaster, most likely caused by water infiltration from the adjacent men's locker room showers (reference Photograph 16 in Appendix B). We recommend completion of plaster repairs and waterproofing at the time of replacement of the showers.

The layout of the restroom / shower room is not accessible by the disabled, not providing floor clearances at fixtures and lockers or wheelchair maneuvering area. We recommend modifications to the layout of these rooms, in conjunction with replacement of fixtures and accessories, to make them ADA compliant.

**C1020 INTERIOR DOORS**

Station House & Gymnasium

C1021 Interior Doors

The interior doors appeared to be in good condition with no deficiencies noted. We do not anticipate any expenditure in relation to the internal doors during the cost study period. Although a number of the doors contain surface marks and therefore we recommend that they are repainted at the same time as the interior repainting works.

The Station House interior doors are typically of sufficient width and have lever-type door hardware to provide accessibility for the disabled.

C1023 Interior Door Hardware

The hardware at each of the doors appeared satisfactory with no issues of deterioration or failure noted generally throughout the building. The operation of the door handles, locks and hinged swing were noted to be in fair to good condition. We do not anticipate significant expenditure during the study period.



**C1030 FITTINGS SPECIALTIES**

Station House

C1031 Fabricated Toilet Partitions

The fabricated cubicles appeared to be in fair condition and the shower stalls' glazed doors appeared to be in fair condition. However, the stalls' configuration, size and doors do not make them accessible to the disabled. We recommend that one water closet stall of disabled accessible size and configuration, and with all appropriate accessories, be provided as part of the facility accessibility improvements recommended in Section D20 Plumbing.

We have recommended a full upgrade / renovation of the restrooms during the study period which will include full replacement of the fixtures and a major floor plan modification.

C1033 Storage Shelving & Lockers

The lockers and bench appeared to be in good condition, with repainting recommended at the time of interior repainting. However, the locker and bench area is not accessible to the disabled, lacking sufficient clear floor area in front of the lockers. We recommend that an accessible configuration in the locker area be provided as part of the facility accessibility improvements recommended in Section D20 Plumbing.

**C30 INTERIOR FINISHES**

**DESCRIPTION**

**C3010 WALL FINISHES**

Station House & Gymnasium

C3012 Wall Finishes to Interior Walls

Interior walls at each of the buildings generally contained painted plaster or gypsum wall board (reference Photographs 10 through 19, 33 and 34 in Appendix B). The restroom in the Station House, including the shower stalls, contained grouted 4" x 4" ceramic wall tile (reference Photographs 13 through 15 in Appendix B).

**C3020 FLOOR FINISHES**

Station House & Gymnasium

C3024 Flooring

The Station House contains flooring of carpet, ceramic tile and sealed concrete, with the Gymnasium containing rubber tile flooring throughout (reference Photographs 11, 12, 18, 19, 33 and 34 in Appendix B).

**C3030 CEILING FINISHES**

Station House & Gymnasium

C3031 Ceiling Finishes

There was painted plaster and gypsum board ceilings throughout the Station House, with 2' x 4' suspended acoustical tile ceiling in the Gymnasium (reference Photographs 12, 17, 18, 33 and 34 in Appendix B).

**CONDITION**

**C3010 WALL FINISHES**

Station House & Gymnasium

C3012 Wall Finishes

Interior wall finishes appeared to be in good to fair condition generally throughout the buildings, with minor marks and damage observed. Water damage was noted at the base of a wall in the dining area, apparently caused by infiltration through the walls of the adjoining locker room's shower stall. We have recommend plaster repairs in Section C1011 Fixed partitions. The EUL of interior painted walls is 6 years, and the date of last painting was not reported. However, based on

the observed condition, we recommend repainting of all the previously painted walls at both buildings be undertaken early in the study period to maintain their appearance.

The ceramic wall tiles and grout appeared to be in good condition within the restroom and shower stalls, although evidence of water infiltration through the adjoining walls was noted (reference Photograph 16 in Appendix B). We recommend repairs and re-grouting of the basin and wall tile in the showers early in the study period. However we have recommended a full upgrade / renovation of the restrooms during the study period which will include full replacement of the fixtures and a major floor plan modification, therefore this work will be included in this.

The emergency light and power systems require preparatory cleaning then detail painting.

## **C3020 FLOOR FINISHES**

### Station House & Gymnasium

#### C3024 Flooring

The carpet floor coverings appeared to be in good to fair condition within the Station House. The typical EUL of carpet is ten-twelve years; therefore, based on the observed condition, we recommend budgeting for the replacement of carpeting in the mid- to late-term in the study period.

The ceramic floor tile and grout appeared to be in good to fair condition. However, within the restroom's shower stalls, water may be infiltrating the grouted joints and causing plaster damage in the adjoining dining area wall. It is recommended to replace the pan as part of the shower refit, in conjunction with repairs to the wall tile, early in the study period.

The rubber tile flooring covering within the Gymnasium appeared to be in good condition. This material has a typical EUL of eighteen-years or more and therefore, we do not anticipate a requirement for its replacement during the study period.

## **C3030 CEILING FINISHES**

### Station House & Gymnasium

#### C3031 Ceiling Finishes

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

The Gymnasium's suspended acoustical ceiling systems appeared to be in good condition. We do not anticipate a requirement for its replacement during the study period.

**PROJECTED EXPENDITURES**

Identified recommended works that are required during the 10 year study period are scheduled below. We recommend budgeting for additional project costs of between 25%-30% to allow for professional fees and general contractor overhead/profit and management costs.

Station House

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
C1011	Fixed Partitions	Modify the restroom / shower room layout to meet ADA	132	SF	\$19.50	\$2,574	2014	1
C3012	Wall Finishes to Interior Walls	Undertake minor plaster repairs as needed	1	LS	\$650	\$650	2013	5
C3012	Wall Finishes to Interior Walls	Repaint interior wall and ceiling surfaces	8,140	SF	\$3.25	\$26,455	2013	5
C3012	Wall Finishes to Interior Walls	Prep and paint the emergency light and power system	1	LS	\$3,000	\$3,000	2014	5
C3012	Wall Finishes to Interior Walls	Repaint interior wall and ceiling surfaces	8,140	SF	\$3.25	\$26,455	2019	5
C3025	Carpeting	Replace carpet floor coverings throughout the building	122	SY	\$48	\$5,856	2020	5
Total Anticipated Expenditure for C Interiors						\$64,990		

Gymnasium

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
C3012	Wall Finishes to Interior Walls	Repaint interior wall surfaces	830	SF	\$3.25	\$2,698	2013	5
C3012	Wall Finishes to Interior Walls	Repaint interior wall surfaces	830	SF	\$3.25	\$2,698	2019	5
Total Anticipated Expenditure for C Interiors						\$5,395		

## SECTION 5 - D SERVICES

### D20 PLUMBING

#### DESCRIPTION

### D2010 PLUMBING FIXTURES

#### Station House

#### D2011 Water Closets

The Station House contained two floor mounted (tank-less) vitreous china water closets with manual flush-valve controls (reference Photograph 14 in Appendix B).

#### D2012 Urinals

The Station House contained one vitreous china wall hung urinal with manual flush-valve controls.

#### D2013 Lavatories & Sinks

The Station House contains two vanity-recessed vitreous china lavatories in the restroom and an enameled steel double basin sink in the kitchen (reference Photograph 13 in Appendix B). The lavatories have lever-type faucet fittings and the kitchen sink has a swan neck, single-lever control handle.

#### D2017 Showers

The Station House contains two shower stalls with wall mounted shower controls and shower heads. The stalls have ceramic tiled walls and basins aluminum-framed, tempered glass swinging doors (reference Photograph 15 Appendix B).

### D2020 DOMESTIC WATER DISTRIBUTION

#### Station House

#### D2021 Cold Water Service

Cold water piping throughout the Station House consisted of a copper tubing system. We believe the cold water service for the facility is supplied directly from the street pressure, entering the building at the domestic water heater closet at the south side of the building through a 2" diameter pipe. Taps are made to the water line downstream of the meter, located in a ground vault at the east side of the building, and routed to the plumbing fixtures.

D2022 Hot Water Service

Domestic hot water for the Station House is generated via a tank-type domestic water heater with a storage capacity of 50 US gallons (reference Photograph 21 in Appendix B). Cold water makeup for the system is from the domestic water system.

Table D20-1 provides a summary of the water heater:

**Table D20-1 Summary of the Domestic Water Heating Equipment at the Station House**

Location	Manufacturer	Model #	Serial #	Fuel/ Rating	Capacity	Year of Installation
South Equipment Closet	Reliance Sta-Kleen 805	8 50 NACTO C	H94348078	Natural Gas	50 GAL	1995

**D2030 SANITARY WASTE**

Station House

D2031 Waste Piping

Waste piping was not directly inspected at the building, however, based on the age of the building and typical construction methods available at the time of construction, the piping is assumed to be cast iron. We also assume that the building's waste piping is tied to an underground horizontal main that is routed out of the building via gravity lines to a municipal main under the public roadway.

**D2090 OTHER PLUMBING SYSTEMS**

Station House

D2099 Other Piping Systems

The Station House is provided with natural gas service, the meter and pressure regulator at the south side of the building (reference Photograph 20 in Appendix B). Exposed piping is painted steel. Gas service is provided to the domestic water heater, kitchen range and the HVAC system heating equipment.

The Station House also contained one air compressor, which is located within the work room at the east side of the building. The air compressor, manufactured by American Brake Company, serves duty equipment needs; the unit has a motor capacity of approximately 5 horsepower (HP).

## CONDITION

### D2010 PLUMBING FIXTURES

#### Station House

##### D2011 Water Closets

The water closets appeared to be in fair condition. The water closets flushed properly and did not have any cracks in the china. However, the fixtures did not have water saving features, such as low volume flush valves. In addition, the water closets are not disabled accessible types, are not at accessible heights and do have manual controls, nor are they gender neutral for mixed gender service people. We recommend replacement of one water closet with an accessible model fixture, with hands-free, low-flush type controls, as part of an overall restroom / shower room accessibility improvement.

We have recommended a full upgrade / renovation of the restrooms during the study period which will include full replacement of the fixtures and a major floor plan modification.

##### D2012 Urinals

The urinal appeared to be in fair condition. The urinal flushed properly and did not have any cracks in the china. However, the fixture did not have water saving features, such as a low volume flush valve or was not a waterless-type fixture. In addition, the urinal is not of a disabled accessible type, is at an inaccessible height and has manual control. As well as general repair and maintenance to the suite, we recommend reinstallation of the fixture at an accessible height, with hands-free, low-flush type controls, with sufficient floor clearances as part of an overall accessibility improvement project.

We have recommended a full upgrade / renovation of the restrooms during the study period which will include full replacement of the fixtures and a major floor plan modification.

##### D2013 Lavatories & Sinks

The lavatories and sinks appeared to be in fair condition. The fixtures drained properly and did not have noticeable cracking in the china. However, the fixtures did not have water saving features, such as low volume faucets/controls.

In addition, the restroom lavatories and the kitchen sink are not considered disabled accessible, are at inaccessible heights and lack knee clearances for those in wheelchairs. We recommend replacement of the fixtures with those at an accessible height, with hands-free, low-water-volume type controls and with sufficient floor and knee clearances as part of an overall accessibility improvement project.

We have recommended a full upgrade / renovation of the restrooms during the study period which will include full replacement of the fixtures and a major floor plan modification.

D2017 Showers

The shower heads, controls and components within the building appeared to be in fair condition. As noted in section C30 Interior Finishes, water infiltration has damaged plaster walls in the dining area due to leaks from the shower stalls.

The raised curb at the shower entrances, as well as the lack of inaccessible controls, spray heads and benches, makes them inaccessible to the disabled. We recommend modifying one shower stall to provide an enlarged stall with wheelchair roll-in features, as well as a hand-held shower wand and fold-away bench, as part of an overall accessibility improvement project. As part of this replacement consideration, should be given to replacement both shower heads with aerating-type shower heads that mixes air and water, forming a misty spray while reducing water volume. Federal regulations mandate that new shower head water flow rates are not to exceed 2.5 gallons-per-minute (GPM) at water pressure of 80-pounds-per-square-inch (PSI).

We have recommended a full upgrade / renovation of the restrooms during the study period which will include full replacement of the fixtures and a major floor plan modification; this will also include for shower areas and components.

**D2020 DOMESTIC WATER DISTRIBUTION**

Station House

D2021 Cold Water Service

The domestic water systems at the building appeared to be in good condition. No major problems were observed or reported to us that could be attributed to age or deferred maintenance.

D2022 Hot Water Service

The domestic water heater appeared to be in fair condition. It was observed to be functional and operating correctly, however water heaters generally have a typical EUL of ten-years in this location, frequently due to the acidic content in the water supply. The domestic water heater is recommended for replacement early in the study period to maintain its efficiency and operation during the study period.

The hot water distribution pipes, although not observable, are reportedly in fair to good condition for their age. We do not anticipate any expenditure within the cost study period.

**D2030 SANITARY WASTE**

Station House

D2031 Waste Piping

No visually apparent problems with the sanitary waste piping were observed at the building. However we understand that there are severe issues with the cast iron below slab piping. After discussions with the City maintenance personnel we



understand that a number of the City buildings have been having issues with sewer blockages and pipe deterioration, therefore we have been requested to include for camera inspections of the drainage/sewer system at the building.

## **D2090 OTHER PLUMBING SYSTEMS**

### Station House

#### D2099 Other Piping Systems

The exterior gas meter and piping, as well as interior piping where observable, appeared to be in fair condition, with areas of rusting noted. We recommended that all steel gas piping and equipment be repainted as part of the building exterior painting project.

The air compressor appeared to be in fair condition. We anticipate that there will be no actions for replacement of the air compressor during the study period as long as regular maintenance is performed.

**D30 HVAC**

**DESCRIPTION**

The Station House is provided with heating, ventilation and air conditioning (HVAC) systems; however, the Gymnasium is provided only with portable heating equipment as required by the occupants.

**D3010 FUEL ENERGY SUPPLY SYSTEMS**

Station House

D3012 Gas Supply System

As noted in section D2090 Other Plumbing Systems, there is natural gas service provided to the Station House from a utility main under the adjacent public roadway. The gas meter is located at the south elevation, adjacent to the domestic water heater closet. Gas service is routed to the gas-fired water heater, rooftop and apparatus bay heating equipment and the kitchen range.

**D3040 HEAT HVAC DISTRIBUTION SYSTEMS**

Station House

D3041 Air Distribution Systems

The conditioned air is distributed throughout the building via metal and flexible ductwork located above the ceilings and through metal grilles recessed in the ceilings. The ductwork is sheet metal, except for flexible duct connections to ceiling diffusers in suspended ceiling areas.

D3042 Exhaust Ventilation Systems

The building contains rooftop and sidewall-mounted exhaust fans, a kitchen range exhaust hood, and a rooftop apparatus bay vehicle exhaust fan (reference Photographs 24 and 25 in Appendix B). The rooftop mounted exhaust fan, manufactured by Loren Cook, serves the restroom / shower room and is assumed to have a capacity of approximately 100 - 200 cubic feet per minute (CFM).

A side-wall apparatus bay exhaust fan is located on the west side of the building; the equipment was not accessible during the assessment. An exhaust fan with stainless steel hood is provided over the kitchen area's cooking range, vented through the roof (reference Photograph 18 in Appendix B).

The vehicle exhaust system is for the extraction of the vehicle fumes from the company trucks and contains one main exhaust fan unit located within an enclosure on the roof, and positive sealed nozzles which attach to the vehicle exhaust pipes and automatic controlled vehicle release. The capacity of this system is unknown; however we assume it to be approximately 4,000 CFM; however this capacity should be verified.

**D3050 HEAT TRANSFER TERMINAL AND PACKAGED UNITS**

Station House

D3051 Terminal Self-contained Units

The building has one natural gas-fire unit heater that is hung from the roof structure in the apparatus bays (reference Photograph 23 in Appendix B). Refer to the following Table D30-1 for further details of the unit heater.

D3052 Package Units

Primary heating and cooling at the Station House is provided by one rooftop gas-fired package unit. The equipment was manufactured by Bryant (reference Photograph 22 in Appendix B). The unit has an indicated heating capacity of 90,000 BTU/HR and cooling capacity of 5 tons.

Table D30-1 provides a summary of the HVAC equipment:

**Table D30-1 Summary of the HVAC Equipment**

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year
Station House (Rooftop)	Package DX Cooling, Gas-Fired Heating Unit	Bryant	582ANW0 60090NA AG	4500G10240	90,000 BTUH; 5 Tons	Electric Cooling; Natural Gas Heating	2000 (Assumed)
Station House (Apparatus Bays)	Gas-Fired Heating Unit	Dayton	Unknown	Unknown	100,000 BTUH (Assumed)	Natural Gas	2009 (Assumed)

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**

Station House & Gymnasium

D3069 Other Controls & Instrumentation

The building users are able to control the room temperature via wall mounted electronic thermostats.

## CONDITION

### D3010 FUEL ENERGY SUPPLY SYSTEMS

#### Station House

##### D3012 Gas Supply System

As previously indicated, the exterior gas meter and piping, as well as interior piping where observable, appeared to be in fair condition, with areas of rusting noted. We recommended that all steel gas piping and equipment be repainted as part of the building exterior painting project; therefore we believe the supply will be serviceable, through the end of the study period.

### D3040 HEAT HVAC DISTRIBUTION SYSTEMS

#### Station House

##### D3041 Air Distribution Systems

Only a proportion of the ducting in the Station House was observable in the attic space immediately adjacent to the access hatch in the work room, but that portion was noted to be in fair to good condition with no deficiencies. Only a small proportion of the ducting in the building was reviewed but that portion was noted to be in fair to good condition with no deficiencies. We recommend that the duct work is cleaned every 5 years starting at the start of the study period, as it was unclear when they were last cleaned.

##### D3042 Exhaust Ventilation Systems

The wall, rooftop and vehicle exhaust systems were observed to be in fair condition with no reported issues. However, based on observed condition and their expected useful life of 20 years, we recommend budgeting for the replacement of the rooftop restroom exhaust fan and the vehicle exhaust system's rooftop exhaust fan within the mid-term of the study period.

### D3050 HEAT TRANSFER TERMINAL AND PACKAGED UNITS

#### Station House & Gymnasium

##### D3051 Terminal Self-Contained Units

The unit heater within the Station House apparatus bays is a newer unit and with a typical EUL of 15 to 20 years, replacement of the equipment is not anticipated during the study period. However, as an energy-saving measure, we recommend that a control device be placed on the unit so that, when the overhead doors remain open for a pre-determined period of time, the unit is automatically shut down.

Because the Gymnasium lacks installed heating equipment, portable electric unit heaters have been utilized by building occupants. We recommend installation of electric baseboard heating units within the space in the near term of the study period; this installation may require upgrading of the limited electrical service provided to the building.

D3052 Package Units

The Station House's rooftop package unit appeared to be in fair condition. The unit was observed to be functional and operating correctly, but corrosion of the housing had initiated. With a typical EUL of 15 to 20 years, replacement of the equipment will be necessary during the term of study to maintain efficient operation. Therefore we recommend replacement of the unit, installing a more efficient, higher-performing unit, within the mid-term of the study period.

**D3060 HVAC INSTRUMENTATION AND CONTROLS**

Station House

D3069 Other Controls & Instrumentation

The thermostat controls appeared to be in fair to good condition and functional. We are unaware of any issues and therefore we do not anticipate their replacement during the cost study period, other than the installation of automatic shut-down controls at the apparatus bays' unit heater, as recommended above.

**D40 FIRE PROTECTION**

**DESCRIPTION**

**D4010 SPRINKLERS**

D4011 Sprinkler Water Supply

The Station House and Gymnasium do not contain fire sprinkler systems.

**D4030 FIRE PROTECTION SPECIALTIES**

Station House & Gymnasium

D4031 Fire Extinguishers

Portable wall-mounted multipurpose handheld fire extinguishers were provided throughout the buildings.

**CONDITION**

**D4010 SPRINKLERS**

Station House & Gymnasium

D4011 Sprinkler Water Supply

As there are no wet-pipe sprinkler systems present at the building we have included expenditures for the installation of new systems.

**D4030 FIRE PROTECTION SPECIALTIES**

Station House & Gymnasium

D4031 Fire Extinguishers

The fire extinguishers appeared to be in good condition. We understand they are inspected and serviced on a yearly basis. The fire extinguishers were last serviced in 2012; therefore we do not anticipate a requirement to replace any fire extinguishers during the study period.

## D50 ELECTRICAL

### DESCRIPTION

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

## D5010 ELECTRICAL SERVICE & DISTRIBUTION

### Station House & Gymnasium

#### D5012 Low Tension Service & Dist.

The main incoming service for the site is routed from the utility pole-mounted transformer to the meter on the south side of the Station House. Adjacent to the meter, the main distribution panel (MDP), designated panel "A", is also located on the south side of the building within a metal cabinet. This is the service entrance equipment for these buildings. The MDP, manufactured by Crouse-Hinds, is rated at 120/240 volts for 200-amp, 1-phase, and 3-wire service and assumed to use fusible switches. A branch panel (panel "B") is located adjacent to the MDP, as well as other sub-panels within each building, with varying ratings from 100- to 200-amperes (reference Photographs 26 through 28 and 36 in Appendix B). Service to the Gymnasium is provided by a single circuit from the Station House panel "C" in the dormitory area to a 100-amp panel adjacent to the Gymnasium entrance door (panel "D").

In addition to the fusible safety switches used as the service disconnecting means, fusible and non fused type safety switches are also installed near equipment such as air conditioning units and serve as the required local disconnecting means for the equipment.

## D5020 LIGHTING & BRANCH WIRING

### Station House & Gymnasium

#### D5021 Branch Wiring Devices

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

#### D5022 Lighting Equipment

The interior lighting is a mixture of surface-mounted and suspended two- and four-lamp fluorescent fixtures, surface-mounted incandescent lamped fixtures, a ceiling fan with incandescent lamped fixtures and recessed fixtures with Compact Fluorescent Lamps (CFL) within the shower room (reference Photographs 10 through 12 and 18 in Appendix B). The Gymnasium contains ceiling recessed 2' by 4' fixtures with fluorescent lamps (reference Photographs 33 & 34 in Appendix B). All fixtures typically contain T8 32W lamps and electronic ballasts and are controlled via local switching in the respective rooms.



**D5030 COMMUNICATIONS & SECURITY**

Station House & Gymnasium

D5031 Public Address & Music System

The Station House and Gymnasium contain sound systems throughout each room of the building that is linked to the fire department's communications system. The system has ceiling-mounted speakers and wall-mounted sound controls in each room within the buildings.

D5033 Telephone Systems

Telephone service enters the site at the south elevation of the Station House and is mounted in a wall-mounted cabinet. Incoming cables and equipment are reportedly owned and maintained by the service provider. Cabling and equipment within the building is owned and maintained by the City of Manhattan Beach.

The fire department communications equipment is a system consisting of a fire station integration system hub and a local expansion module, located in the office at the northeast corner of the building.

D5037 Fire Alarm Systems

There are no fire alarm systems at the buildings; however, we noted the deployment of individual smoke detectors in what appears to be every room of the facility. We assume these are hard-wire electrically powered, with battery back-up power.

**D5090 OTHER ELECTRICAL SYSTEMS**

Station House

D5092 Emergency Light & Power Systems

Emergency power is provided by a generator located on a concrete pad at the south side of the building. The Onan diesel-fueled generator is assumed to provide emergency power to exit signs, emergency lighting and the communications systems (reference Photographs 26, 29 & 30 in Appendix B). Refer to section G4092 Site Emergency Power Generation for a more complete description of the equipment.

## CONDITION

### D5010 ELECTRICAL SERVICE AND DISTRIBUTION

#### Station House & Gymnasium

##### D5012 Low Tension Service & Dist.

The electrical equipment was noted to be in good to fair condition at both of the buildings. Electrical distribution systems tend to have a EUL of thirty-years, with switches, panelboards, motor starters, and wiring often serviceable for 20 years or more beyond this time if properly maintained, and not subjected to repeated overload or short circuit conditions. There was no indication of overloading, but regular maintenance such as infrared thermal scanning for loosened connections was not reported. Based on the age of the system and observed conditions, we recommend completion of preventive maintenance, to include infrared thermal scanning and tightening of connections on three-year cyclical basis during the study period.

### D5020 LIGHTING & BRANCH WIRING

#### Station House & Gymnasium

##### D5021 Branch Wiring Devices

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

##### D5022 Lighting Equipment

The interior lighting was observed to be in fair to good condition and all fixtures were operating properly, with no broken lenses or deteriorated housings. No major repair or replacement actions are anticipated during the study period, with replacement of lighting fixtures anticipated on an as-needed basis.

### D5030 COMMUNICATIONS & SECURITY

#### Station House & Gymnasium

##### D5031 Public Address & Music System

The sound system appeared to be in good condition, operation at the time of our site visit, and should not require significant repair or replacement within the study period.

##### D5033 Telephone Systems

The data and telephone infrastructure appeared to be in fair to good condition and should not require significant repair or replacement within the study period.

The fire department communications system was in good condition. We recommend regular maintenance and testing of the system as per the manufacturer's guidance.

D5037 Fire Alarm Systems

The smoke detectors appeared to be in fair to good condition, although they were not tested during our assessment. We are unaware of any issues with the system and not significant repairs or replacements are anticipated during the term of study. We recommend the system be upgraded to a standard density system.

**D5090 OTHER ELECTRICAL SYSTEMS**

Station House

D5092 Emergency Light & Power Systems

Emergency generator, transfer switch and distribution system appeared to be in good to fair condition. Refer to section G4092 Site Emergency Power Generation for a more complete description of condition of the equipment. Prep and painting are needed to these systems, detailed in C3012 Wall finishes.

**PROJECTED EXPENDITURES**

Identified recommended works that are required during the 10 year study period are scheduled below. We recommend budgeting for additional project costs of between 25%-30% to allow for professional fees and general contractor overhead/profit and management costs.

Station House

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
D20	Plumbing	Renovation of restrooms	1	LS	\$30,000	\$30,000	2014	3
D2022	Hot Water Service	Replace the domestic water heater	50	GAL	\$34.38	\$1,719	2014	4
D2031	Waste Piping	Undertake camera inspection of sewer lines	1	LS	\$1,000	\$1,000	2013	3
D3041	Air Distribution Systems	Clean ducts	3,280	SF	\$0.25	\$820	2013	3
D3041	Air Distribution Systems	Clean ducts	3,280	SF	\$0.25	\$820	2018	3
D3042	Exhaust Ventilation System	Replace restroom rooftop exhaust fan and vehicle exhaust extraction fan	2	EACH	\$3,600	\$7,200	2017	3
D3051	Terminal Self-Contained Units	Install automatic shut-off controls connected to opening of overhead doors	1	EACH	\$1,500	\$1,500	2014	4
D3052	Package Units	Replace rooftop package unit	5	TON	\$3,010	\$15,050	2017	3
D4011	Sprinklers	Install new wet-pipe sprinkler system	3,280	SF	\$5.13	\$16,826	2014	1
D5037	Fire Alarm System	Install new fire alarm system	3,280	SF	\$5.00	\$16,400	2014	1
Total Anticipated Expenditure for D Services						\$91,355		

Gymnasium

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
D3051	Terminal Self-Contained Units	Install electric baseboard heating units	1	LS	\$2,925	\$2,925	2014	3
D4011	Sprinklers	Install new wet-pipe sprinkler system	536	SF	\$5.13	\$2,750	2014	1
D5037	Fire Alarm System	Install new fire alarm system	536	SF	\$5.00	\$2,680	2014	1
Total Anticipated Expenditure for D Services						\$8,355		

## SECTION 6 - E EQUIPMENT & FURNISHINGS

### E10 EQUIPMENT

#### DESCRIPTION

#### E1090 OTHER EQUIPMENT

##### Station House & Gymnasium

##### E1094 Residential Equipment

The Station House kitchen contains residential kitchen appliances, including gas range/oven, stainless steel exhaust hood, refrigerators/freezers, dishwasher, and laundry washer and dryer (reference Photographs 17 and 18 in Appendix B).

##### E1099 Other Equipment

The Gymnasium contains various types of fitness and exercise equipment, including treadmills, elliptical trainers, multi-station weight training equipment and benches and free weights (reference Photographs 33 and 34 in Appendix B).

#### CONDITION

#### E1090 OTHER EQUIPMENT

##### Station House & Gymnasium

##### E1094 Residential Equipment

The kitchen appliances appeared to be in fair to good condition and suitable for their use. With a typical EUL of 15- to 20-years and based on the observed conditions, replacement of the equipment is anticipated during the mid- to late-term of the study period.

##### E1099 Other Equipment

The fitness equipment appeared to be in good condition. With an EUL of ten to 15 years and based on observed conditions, replacement of equipment is expected to be on an as-needed basis as part of normal operations.

**E20 FURNISHINGS**

**DESCRIPTION**

**E2010 FIXED FURNISHINGS**

Station House

E2012 Fixed Casework

The Station House contains painted wood lockers and a bench within the shower room, cabinets and countertops with plastic laminated surfaces in the dining room/kitchen, a lavatory vanity unit with plastic laminate facing and ceramic tile countertop within the restroom, and painted wood shelving in the work room (reference Photographs 11, 13, 17 & 18 in Appendix B).

**CONDITION**

**E2010 FIXED FURNISHINGS**

Station House

E2012 Fixed Casework

The fixed casework appeared to be in fair to good condition and suitable for their use. With a typical EUL of twenty-years and based on the observed conditions, replacement of the casework is not anticipated during the study period. However, excessive painting of the kitchen cabinets and lockers has resulted in poor operation. We have included for replacement of the fixed cabinets during the study period.

However, the lockers and bench, kitchen cabinets at the sink and the restroom vanity will require modification or replacement in order to make them accessible to the disabled. Replacement of the kitchen sink/cabinet and the restroom vanity with accessible lavatories / sinks has been included in the renovation of the restrooms.

**PROJECTED EXPENDITURES**

Identified recommended works that are required during the 10 year study period are scheduled below. We recommend budgeting for additional project costs of between 25%-30% to allow for professional fees and general contractor overhead/profit and management costs.

Station House

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
E1094	Residential Equipment	Replace the kitchen appliances – one oven/range, four refrigerators, one dishwasher	1	LS	\$6,400	\$6,400	2022	3
E2012	Fixed Casework	Replace fixed floor and wall cabinets, along with counters	1	LS	\$4,500	\$4,500	2014	5
Total Anticipated Expenditure for E Equipment & Furnishings						\$10,900		

**SECTION 7 - G BUILDING SITEWORK**

**G20 SITE IMPROVEMENTS**

**DESCRIPTION**

**G2020 PARKING LOTS**

Station House

G2022 Paving & Surfacing

The site has vehicular access from the public roadway, Manhattan Beach Boulevard, at its north side, allowing for the emergency vehicle ingress and egress to the apparatus bays (reference Photograph 39 in Appendix B) and to a parking lot. The apparatus bay access area is cast-in-place concrete paved. In addition, the parking lot to the east side of the Station House has a concrete-paved entrance apron and short driveway, with asphalt surfaced parking area with white line striping denoting parking stalls (reference Photographs 37 and 38 in Appendix B). The available drawings did not indicate construction specifications or details for the concrete and asphalt paving; the specific concrete and asphalt mix type, classification or thickness and their suitability for the existing use is not known. Table G20-1 provides a summary of the site pavement systems.

**Table G20-1 Schedule of Site Systems**

System Type	System Surface	Location	Measurement	No. of Parking Spaces	No. of Disabled Parking Spaces
Parking Lot	Asphalt	East of Station House	600 SY	8	0
Apparatus Bay Entrance	Concrete	North of Station House	87 SY	0	0
Parking Lot Entrance / Driveway	Concrete	Northeast of Station House	103 SY	1	0

**G2030 PEDESTRIAN PAVING**

Station House

G2031 Paving and Surfacing

Concrete sidewalks are located at the north and west sides of the site, along the public streets Manhattan Beach Boulevard and Rowell Avenue, respectively. Concrete lead walks are also provided to the Station House office entrance at its north side, at the canopy-covered entrance to the dining/kitchen area at its west side and to the work room and tower

entrances at its east side (reference Photographs 1, 2, 39 and 40 in Appendix B). A concrete-paved patio is along the entire south side of the Station House (reference Photographs 3 and 48 in Appendix B).

## **G2040 SITE DEVELOPMENT**

### Station House

#### G2041 Fences & Gates

The east, south and a portion of the west boundaries of the site are enclosed with fencing. Galvanized metal chain-link fencing, approximately 4' in height, is located along the east and south boundaries; wood privacy fencing, approximately 8' in height, is located along a portion of the southwest corner of the site, at the rear patio (reference Photographs 41, 42 and 47 in Appendix B).

Access to the parking area at the east side of the site is controlled by a motorized rolling gate (reference Photographs 44 and 45 in Appendix B). Approximately 18' wide and 6' in height, the gate is controlled by security keypad and was installed in 2012. The Chamberlain controller (model number SL3000UL3) has a ½ horsepower motor, with chain drive.

#### G2042 Retaining Walls

The east and south boundaries of the site have smooth-faced concrete masonry retaining walls, varying in height from 2' to 5', topped with the chain-link fencing. At the north west corner and along the west side of the site is a low retaining wall varying in height from 2' to 3' and constructed of textured concrete masonry, similar to that used for the Station House exterior walls. Along the north side of the parking area, at approximately 6' in height, a painted security wall of textured concrete masonry is provided (reference Photographs 41, 43 and 46 in Appendix B).

#### G2044 Signage

A painted wood sign on a concrete masonry base, approximately 7' wide and 5' in height, is located at the northeast corner of the site, identifying the Station House (reference Photograph 7 in Appendix B).

#### G2048 Flagpoles

A galvanized metal flagpole, approximately 32' in height, is located at the southeast corner of the site, adjacent to the identity sign (reference Photograph 1 in Appendix B).



**G2050 LANDSCAPING**

Station House

G2056 Planters

Landscaping consisted of shrubs; succulents and ground cover, as well as a number of mature trees, in lawn areas at the west side of the site, along the security wall facing Manhattan Beach Boulevard. A screening hedge is located along the south and a portion of the east site boundaries (reference Photographs 1, 2, 41, 46 and 48 in Appendix B)..

G2057 Irrigation Systems

The landscaped areas throughout the property are irrigated via a below grade automatic irrigation system, supplied by water service at the west side of the site. The irrigation system is supplied by below grade PVC piping, with its Irri-Trol controller located on the south wall of the Station House and pop-up type sprinkler heads distributed throughout the site.

**CONDITION**

**G2020 PARKING LOTS**

Station House

G2022 Paving & Surfacing

The concrete paved areas appeared to be in good to fair condition, with open cracking in some locations and evidence of previous patching repairs. The asphalt paved parking lot appeared to be in fair condition, with areas of large cracking, smaller alligator-type cracking and surface erosion (reference Photographs 37 and 38 in Appendix B). We recommend that all areas of the asphalt undergo asphaltic-based seal coating and the re-application of surface markings every three-years to extend the life of the pavements. In the latter part of the study period, based on observed conditions and an EUL of 30 years, budgeting for the surface milling and application of an asphalt overlay in the parking area is recommended.

The parking area does not have designated disabled accessible parking spaces. To meet the Americans with Disabilities Act Accessibilities Guidelines (ADAAG), a parking area with nine parking spaces should have one designated accessible space, with that space being van accessible. We recommend that, as part of pavement seal coating and re-striping, a designated disabled accessible parking space with posted sign be provided in accordance with the ADAAG.



**G2030 PEDESTRIAN PAVING**

Station House

G2031 Paving and Surfacing

The concrete sidewalks and lead walks appeared to be in fair condition, with some locations of cracking and minor settlement. We recommend patching type repairs be completed in the near term to replace deteriorated sections of walkway pavement and to fill open cracking to prevent tripping hazards from occurring. The area is non-compliant with city standards and is slated for replacement, as is the driveway.

**G2040 SITE DEVELOPMENT**

Station House

G2041 Fences & Gates

The chain-link fencing is in fair to poor condition, with the fencing mesh overgrown with the hedges and many of the posts and rails heavily corroded (reference Photograph 42 in Appendix B). The wood fencing is in good condition. We recommend replacement of the chain-link fencing in the mid-term of the study period.

The security gate, recently installed, is in good condition. With an EUL of 10 to 12 years, we recommend budgeting for the replacement of the gate's operator in the later term of the study period.

G2042 Retaining Walls

The retaining walls were typically in good condition, with limited cracking and evidence of minor, rowlock unit displacement, but no evidence of instability noted. We recommend areas of minor masonry unit cracking or displacement be repaired as part of regular site maintenance operations.

G2044 Signage

The sign is in good condition, with no indication of deterioration or weathering.

G2048 Flagpoles

The flagpole appeared to be in good condition.



**G2050 LANDSCAPING**

Station House

G2056 Planters

The planted materials are in good overall condition, but will require routine maintenance and replacement. This maintenance should be addressed on an as-needed basis as part of operational activities and funded as an operational expense.

G2057 Irrigation Systems

The irrigation system at the site is in fair condition and believed to be functional. We expected that over the years the system has been repaired and components replaced with available stock. Any maintenance of the system is expected to be addressed on an as-needed basis as part of operational activities and funded as an operational expense.

**G40 SITE ELECTRICAL UTILITIES**

**DESCRIPTION**

**G4020 SITE LIGHTING**

Station House

G4021 Fixtures & Transformers

Exterior lighting at the Station House consisted of surface-mounted wall-pack high-intensity discharge lights with aluminum housings. The Gymnasium did not have exterior lighting fixtures. Utility service to the site is provided from pole-mounted transformers near the southwest corner of the site.

**G4090 OTHER SITE ELECTRICAL UTILITIES**

Station House

G4092 Site Emergency Power Generation

The Station House office, the emergency lighting, communications system and door controls are all assumed to be backed-up by an Onan 20kW/25kVA diesel-fueled generator located at the south side of the building (reference Photographs 26, 29 and 30 in Appendix B). The Onan-manufactured transfer switch is wall mounted opposite the generator, on the exterior wall of the building. The generator has an approximately 65- to 80-gallon capacity diesel storage tank under the generator set.

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

**Table G40-1 Summary of the Generator Equipment**

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year
South Side of Station House	Emergency Generator	Onan	20DKAE	K9606222 95	20 kW / 20 kVA	Diesel	Assumed 2000



**CONDITION**

**G4020 SITE LIGHTING**

Station House

G4021 Fixtures & Transformers

The exterior light fixtures appeared to be in good condition, with no yellowing lenses or visible deterioration; therefore no major repair or replacement actions are expected during the study period.

**G4090 OTHER SITE ELECTRICAL UTILITIES**

Station House

G4092 Site Emergency Power Generation

Emergency generator, transfer switch and distribution system, installed in approximately 2000, appeared to be in good to fair condition. The metal housing of the generator was noted to have areas of peeling paint and heavy corrosion and we recommend that housing be replaced at the start of the study period. Based on the age of the equipment, the observed condition and an EUL of 20- to 25-years, we recommend budgeting for replacement of generator set in the late-term in the study period.

**PROJECTED EXPENDITURES**

Identified recommended works that are required during the 10 year study period are scheduled below. We recommend budgeting for additional project costs of between 25%-30% to allow for professional fees and general contractor overhead/profit and management costs.

Station House

Element No.	Building Element	Recommendation	Qty	Unit	Rate	Cost	Year	Priority Code
G2022	Paving & Surfacing	Undertake seal coating including re-stripping at the parking lot and roadway areas	600	SY	\$1.50	\$900	2014	3
G2022	Paving & Surfacing	Undertake seal coating including re-stripping at the parking lot and roadway areas	600	SY	\$1.50	\$900	2017	3
G2022	Paving & Surfacing	Undertake seal coating including re-stripping at the parking lot and roadway areas	600	SY	\$1.50	\$900	2020	3
G2022	Paving & Surfacing	Mill and overlay asphalt paving, restripe the parking area	600	SY	\$15	\$9,000	2022	3
G2031	Pedestrian Paving & Surfacing	Repair concrete sidewalks and lead walks	1	LS	\$500	\$500	2015	4
G2041	Fencing & Gates	Replace the chain-link fencing	235	LF	\$37.90	\$8,907	2017	3
G2041	Fencing & Gates	Replace security gate operator	1	LS	\$650	\$650	2022	3
D4092	Site Emergency Power Generation	Replace emergency generator enclosure	1	LS	\$5,000	\$5,000	2013	3
D4092	Site Emergency Power Generation	Replace emergency generator set	20	kW	\$1,843	\$36,860	2022	1
Total Anticipated Expenditure for G Building Sitework						\$63,617		

# Appendix A

Ten-Year  
Expenditure Forecast  
2013 - 2022

10 YEAR EXPENDITURE FORECAST

Fire Station No. 2 Station House  
 1400 Manhattan Beach Boulevard  
 Manhattan Beach, California  
 Rev A



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	Total	Total	Combined Total
						\$			1	2	3	4	5	6	7	8	9	10	Deferred	Scheduled	
<b>A. SUBSTRUCTURE</b>																					
A. SUBSTRUCTURE SUB-TOTALS																					
<b>B. SHELL</b>																					
B2011	Repaint exterior wall surfaces	4	2	6,840.00	SF	\$3.25	Routine Maintenance	5	\$0	\$0	\$22,230	\$0	\$0	\$0	\$22,230	\$0	\$0	\$0	\$0	\$44,460	\$44,460
B2034	Replace motorized operators	15	9	2.00	EACH	\$2,800.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,600	\$0	\$5,600	\$5,600
B. SHELL SUB-TOTALS																					
<b>C. INTERIORS</b>																					
C1011	Modify restroom / shower room layout to meet ADA	15	1	132.00	SF	\$19.50	Capital Renewal	1	\$0	\$2,574	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,574	\$2,574
C3012	Undertake minor plaster repairs as needed	10	0	1.00	LS	\$650.00	Deferred Maintenance	5	\$650	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$650	\$0	\$650
C3012	Repaint interior walls and ceiling surfaces	6	0	8,140.00	SF	\$3.25	Deferred Maintenance	5	\$26,455	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$26,455	\$0	\$26,455
C3012	Repaint interior walls and ceiling surfaces	6	6	8,140.00	SF	\$3.25	Routine Maintenance	5	\$0	\$0	\$0	\$0	\$0	\$0	\$26,455	\$0	\$0	\$0	\$0	\$26,455	\$26,455
C3012	Prep and paint the emergency light and power system	10	1	1.00	LS	\$3,000.00	Capital Renewal	5	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$3,000
C3025	Replace carpet floor coverings through the building	10	7	122.00	SY	\$48.00	Capital Renewal	5	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,856	\$0	\$0	\$0	\$5,856	\$5,856
C. INTERIORS SUB-TOTALS																					
<b>D. SERVICES</b>																					
D20	Renovation of restrooms	15	1	1.00	LS	\$30,000.00	Capital Renewal	3	\$0	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$30,000	\$30,000
D2022	Replace the domestic water heater	10	1	50.00	GAL	\$34.38	Energy & Sustainability	4	\$0	\$1,719	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,719	\$1,719
D2031	Undertake camera inspection of sewer lines	N/A	0	1.00	LS	\$1,000.00	Deferred Maintenance	3	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,000	\$0	\$1,000
D3041	Clean ductwork	5	0	3,280.00	SF	\$0.25	Deferred Maintenance	3	\$820	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$820	\$0	\$820
D3041	Clean ductwork	5	5	3,280.00	SF	\$0.25	Routine Maintenance	3	\$0	\$0	\$0	\$0	\$0	\$820	\$0	\$0	\$0	\$0	\$0	\$820	\$820
D3042	Replace restroom rooftop exhaust fan and vehicle exhaust extraction system	15	4	2.00	EACH	\$3,600.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$7,200	\$0	\$0	\$0	\$0	\$0	\$0	\$7,200	\$7,200
D3051	Install automatic shut-off controls connected to opening of overhead doors	15	1	1.00	EACH	\$1,500.00	Capital Renewal	4	\$0	\$1,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500	\$1,500
D3052	Replace rooftop package unit	15	4	5.00	TONS	\$3,010.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$15,050	\$0	\$0	\$0	\$0	\$0	\$0	\$15,050	\$15,050
D4011	Install new wet-pipe sprinkler system	25	1	3,280.00	SF	\$5.13	Capital Renewal	1	\$0	\$16,826	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$16,826	\$16,826
D5037	Install new fire alarm system	3	1	3,280.00	SF	\$5.00	Capital Renewal	1	\$0	\$16,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$16,400	\$16,400
D. SERVICES SUB-TOTALS																					
<b>E. EQUIPMENT &amp; FURNISHINGS</b>																					
E1094	Replace the kitchen appliances – one oven/range, four refrigerators, one dishwasher	15	9	1	LS	\$6,400.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,400	\$0	\$6,400	\$6,400
E2012	Replace fixed floor and wall cabinets, along with counters	20	1	1	LS	\$4,500.00	Capital Renewal	5	\$0	\$4,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,500	\$4,500
E. EQUIPMENT & FURNISHING SUB-TOTALS																					
<b>F. SPECIAL CONSTRUCTION AND DEMOLITION</b>																					
F. SPECIAL CONSTRUCTION AND DEMOLITION SUB-TOTALS																					
<b>G. BUILDING SITEWORK</b>																					
G2022	Undertake seal coating including re-stripping at the parking lot and roadway areas	3	1	600	SY	\$1.50	Routine Maintenance	3	\$0	\$900	\$0	\$0	\$900	\$0	\$0	\$900	\$0	\$0	\$0	\$2,700	\$2,700
G2022	Mill and overlay asphalt paving, restripe the parking area	20	9	600	SY	\$15.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,000	\$0	\$9,000	\$9,000
G2031	Repair concrete sidewalks and lead walks	20	2	1	LS	\$500.00	Routine Maintenance	4	\$0	\$0	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500	\$500
G2041	Replace chain-link fencing	30	4	235	LF	\$37.90	Capital Renewal	3	\$0	\$0	\$0	\$0	\$8,907	\$0	\$0	\$0	\$0	\$0	\$0	\$8,907	\$8,907
G2041	Replace security gate operator	12	9	1	LS	\$650.00	Capital Renewal	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$650	\$0	\$650	\$650
D4092	Replace emergency generator enclosure	20	0	1	LS	\$5,000.00	Deferred Maintenance	3	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	\$0	\$5,000
G4092	Replace emergency generator set	20	9	20	KW	\$1,843.00	Capital Renewal	1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$36,860	\$0	\$36,860	\$36,860
G. BUILDING SITEWORK SUB-TOTALS																					
<b>Z. GENERAL</b>																					
Z. GENERAL SUB-TOTALS																					
Expenditure Totals per Year									\$33,925	\$77,419	\$22,730	\$0	\$32,057	\$820	\$48,685	\$6,756	\$0	\$58,510	\$33,925	\$246,977	\$280,902
Total Cost (Inflated @ 4% per Yr.)									\$33,925	\$80,516	\$24,585	\$0	\$37,502	\$998	\$61,602	\$8,890	\$0	\$83,278	\$33,925	\$331,296	\$365,221

10 YEAR EXPENDITURE FORECAST

Fire Station No. 2 Gymnasium  
 1400 Manhattan Beach Boulevard  
 Manhattan Beach, California  
 Rev A



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	Total	Total	Combined Total	
						\$			1	2	3	4	5	6	7	8	9	10	Deferred	Scheduled		
<b>A. SUBSTRUCTURE</b>																						
<b>A. SUBSTRUCTURE SUB-TOTALS</b>									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
<b>B. SHELL</b>																						
B2011	Repaint exterior wall surfaces	4	2	1,040.00	SF	\$3.25	Routine Maintenance	5	\$0	\$0	\$3,380	\$0	\$0	\$0	\$3,380	\$0	\$0	\$0	\$0	\$0	\$6,760	\$6,760
B2039	Install ramped pavement for disable accessible entrance	25	1	1.00	LS	\$500.00	Deferred Maintenance	1	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500	\$0	\$500	\$500
<b>B. SHELL SUB-TOTALS</b>									\$500	\$0	\$3,380	\$0	\$0	\$0	\$3,380	\$0	\$0	\$0	\$500			
<b>C. INTERIORS</b>																						
C3012	Repaint interior wall surfaces	6	0	830.00	SF	\$3.25	Deferred Maintenance	5	\$2,698	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,698	\$0	\$2,698	\$2,698
C3012	Repaint interior wall surfaces	6	6	830.00	SF	\$3.25	Routine Maintenance	5	\$0	\$0	\$0	\$0	\$0	\$0	\$2,698	\$0	\$0	\$0	\$0	\$0	\$2,698	\$2,698
<b>C. INTERIORS SUB-TOTALS</b>									\$2,698	\$0	\$0	\$0	\$0	\$0	\$2,698	\$0	\$0	\$0	\$2,698			
<b>D. SERVICES</b>																						
D3051	Install electric baseboard heating units	15	1	1.00	LS	\$2,925.00	Capital Renewal	3	\$0	\$2,925	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,925	\$2,925
D4011	Install new wet-pipe sprinkler system	15	1	536.00	SF	\$5.13	Capital Renewal	1	\$0	\$2,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,750	\$2,750
D5037	Install new fire alarm system	15	1	536.00	SF	\$5.00	Capital Renewal	1	\$0	\$2,680	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,680	\$2,680
<b>D. SERVICES SUB-TOTALS</b>									\$0	\$8,355	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,355			
<b>E. EQUIPMENT &amp; FURNISHING</b>																						
<b>E. EQUIPMENT &amp; FURNISHING SUB-TOTALS</b>									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
<b>F. SPECIAL CONSTRUCTION AND DEMOLITION</b>																						
<b>F. SPECIAL CONSTRUCTION AND DEMOLITION SUB-TOTALS</b>									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
<b>G. BUILDING SITEWORK</b>																						
<b>G. BUILDING SITEWORK SUB-TOTALS</b>									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
<b>Z. GENERAL</b>																						
<b>Z. GENERAL SUB-TOTALS</b>									\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
<b>Expenditure Totals per Year</b>									\$3,198	\$8,355	\$3,380	\$0	\$0	\$0	\$6,078	\$0	\$0	\$0				
<b>Total Cost (Inflated @ 4% per Yr.)</b>									\$3,198	\$8,689	\$3,656	\$0	\$0	\$0	\$7,690	\$0	\$0	\$0				
																			\$3,198	\$23,232	\$26,430	

# Appendix B

## Photographs



**Station House**

**Photograph No. 1**

View of the north façade facing Manhattan Beach Boulevard.



**Photograph No. 2**

View of the west façade facing Rowell Drive.



**Photograph No. 3**

View of the south façade and patio area



**Photograph No. 4**

View of the exposed roof framing in the apparatus bays.



**Photograph No. 5**

View of the roof framing over the living areas at the south side of the building.



**Photograph No. 6**

View of the roof and equipment enclosures



**Photograph No. 7**

View of the north façade and apparatus bay doors.



**Photograph No. 8**

View of the covered entrance at the west side of the building and typical window unit.



**Photograph No. 9**

View of masonry damage caused by electrical installation at the south side of the building.



**Photograph No. 10**

View of the apparatus bays.



**Photograph No. 11**

View of the locker room.



**Photograph No. 12**

View of the dormitory area.



**Photograph No. 13**

View of the restroom



**Photograph Nos. 14 & 15**

View of the showers and restroom fixtures



**Photograph No. 16**

View of water damaged plaster in the dining room, adjacent to the shower stalls.



**Photograph No. 17 & 18**

View of the kitchen.



**Photograph No. 19**

View of the office area.



**Photograph Nos. 20 & 21**

View of the gas service meter and domestic water heater, at the south side of the building.



**Photograph No. 22**

View of the building's primary rooftop package HVAC unit.



**Photograph No. 23**

View of the gas-fire cabinet heater in the apparatus bays.



**Photograph No. 24**

View of the rooftop exhaust fan.



**Photograph No. 25**

View of the vehicle exhaust extraction fan located on the roof.



**Photograph No. 26**

View of the electrical main distribution panel, meter and generator's automatic transfer switch at the south side of the building.



**Photograph No. 27**

View of the secondary service electrical panel on the south side of the building.



**Photograph No. 28**

View of one of the interior electrical sub-panels.



**Photograph No. 29**

View of the emergency power generator at the south side of the building.



**Photograph No. 30**

View of the peeling paint and corrosion on the generator housing.



**Gymnasium**

**Photograph No. 31**

View of the north and east facades of the building.



**Photograph No. 32**

View of the building's roofing.



**Photograph No. 33**

View of the building interior and fitness equipment.



**Photograph No. 34**

View of the building entrance, its interior and fitness equipment.



**Photograph No. 35**

View of the portable heating unit utilized by building occupants.



**Photograph No. 36**

View of the electrical sub-panel located near the entrance door.



**Photograph No. 37**

View of the parking area at the east side of the Station House.



**Photograph No. 38**

View of asphalt pavement deterioration.



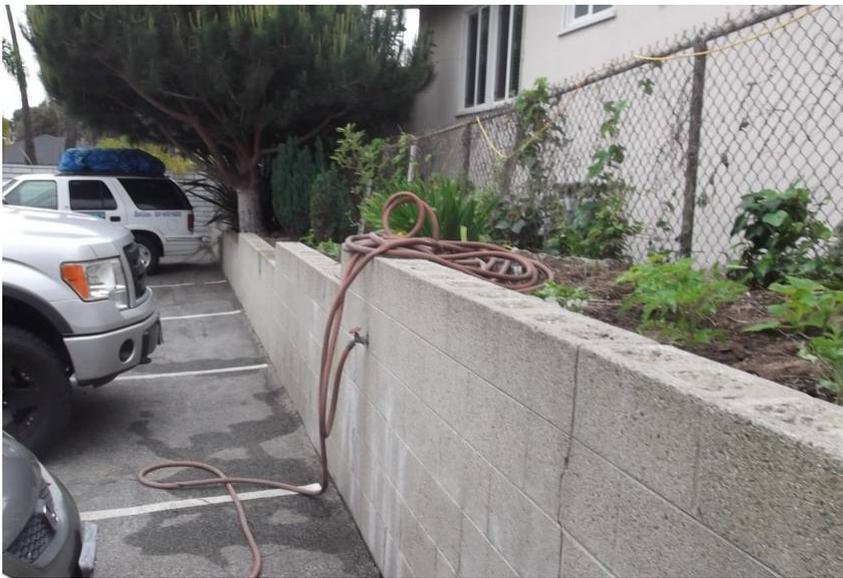
**Photograph No. 39**

View of the sidewalk along Manhattan Beach Boulevard, the apparatus bay entrance apron and lead walks to the building entrances of the Station House.



**Photograph No. 40**

View sidewalk sections with cracking and slight settlement along the south side of the site.



**Photograph No. 41**

View the retaining wall and fencing along the east side of the site.



**Photograph No. 42**

View of corrosion in the chain-link fencing along the south side of the site.



**Photograph No. 43**

View vertical cracking in the retaining wall along the east side of the site.



**Photograph No. 44**

View of the secured parking area's entrance gate.



**Photograph No. 45**

View of the entrance gate's operator.



**Photograph No. 46**

View of the security wall along the north side of the parking area, facing Manhattan Beach Boulevard.



**Photograph No. 47**

View of the wood fencing at the southwest corner of the site.



**Photograph No. 48**

View of the patio area at the south side of the Station House.

# Appendix C

## Asset Inventory

**ASSET INVENTORY**

**Station House**

**D20 PLUMBING**

Location	Manufacturer	Model #	Serial #	Fuel / Rating	Capacity	≈ Year of Installation
South Equipment Closet	Reliance Sta-Kleen 805	8 50 NACTO C	H94348078	Natural Gas	50 US Gallons	1995

**D30 HVAC**

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year of Installation
Station House (Rooftop)	Package DX Cooling, Gas-Fired Heating Unit	Bryant	582ANW06 0090NAAG	4500G 10240	90,000 BTUH; 5 Tons	Electric Cooling; Natural Gas Heating	2000 (Assumed)
Station House (Apparatus Bays)	Gas-Fired Heating Unit	Dayton	Unknown	Unknown	100,000 BTUH (Assumed)	Natural Gas	2009 (Assumed)
Station House (Rooftop)	Exhaust Fan	Loren Cook	Unknown	Unknown	100 – 200 CFM (Assumed)	Electric	1995 (Assumed)
Station House (Rooftop)	Vehicle Exhaust Extractor	Unknown	Unknown	Unknown	4,000 CFM (Assumed)	Electric	2009 (Assumed)
Station House (Apparatus Bays)	Side Wall Exhaust Fan	Unknown	Unknown	Unknown	Unknown	Electric	1990 (Assumed)

**G40 SITE ELECTRICAL UTILITIES**

Location	Equipment Type	Manufacturer	Model No.	Serial No.	Capacity / Rating	Fuel Type	Year
South Side of Station House	Emergency Generator	Onan	20DKAE	K9606222 95	20 kW / 20 kVA	Diesel	Assumed 2000

# 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 Manhattan Beach (where possible), and reviewed the following documentation:

### Station House

Original Construction Drawings (Plans, Elevations & Detail); Davis & Quigley; dated April 1954

Plot, Floor, Remodel, Lighting and Power Plans; Department of Public Works; dated May 7, 1997 – July 18, 2007

Comprehensive Energy Audit; PE Consulting; dated October 13, 2009

Roofing Evaluation Report; Tremco Inc.; dated June 4, 2013

### Gymnasium

Floor Plan, Reflected Ceiling & Lighting Plan, Remodeled Electrical Plan; Department of Public Works; dated May 8, 2001 - August 25, 2006

# Appendix E

Environmental Report:  
Asbestos & Lead-Based Paint





## **LIMITED ASBESTOS & LEAD-BASED PAINT ASSESSMENT REPORT**

### **Presented To:**

Faithful & Gould  
3400 North Central Avenue  
Suite 2400  
Pheonix, AZ 85014

### **Assessment Location:**

Fire Station #2  
1400 Manhattan Beach Blvd.  
Manhattan Beach, CA. 90266

Andersen Environmental Project No. 1304-584

Report Date: June 5, 2013

# TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>PAGE NO.</u>
<b>1.0 INTRODUCTION.....</b>	<b>3</b>
<b>2.0 SCOPE OF WORK.....</b>	<b>3</b>
<b>3.0 PROPERTY DESCRIPTION.....</b>	<b>3</b>
<b>4.0 INSPECTOR'S QUALIFICATIONS .....</b>	<b>4</b>
<b>5.0 TESTING PROTOCOL.....</b>	<b>4</b>
<b>6.0 METHOD OF TESTING.....</b>	<b>5</b>
<b>7.0 SUMMARY OF RESULTS .....</b>	<b>6</b>
<b>8.0 RECOMMENDATIONS.....</b>	<b>7</b>
<b>10.0 INSPECTION LIMITATIONS .....</b>	<b>7</b>

## APPENDICES

APPENDIX A	ASBESTOS ANALYTICAL RESULTS
APPENDIX B	XRF RESULTS
APPENDIX C	INSPECTOR'S CERTIFICATIONS
APPENDIX D	MAPS / FLOOR PLANS
APPENDIX E	DHS FORM 8552

## 1.0 INTRODUCTION

This report presents the results of Andersen Environmental's Limited Asbestos & Lead-Based Paint Assessment of 1400 Manhattan Beach Blvd., Manhattan Beach, CA. 90266 (referred to hereunder as the subject property). This document is prepared for the sole use of The City of Manhattan Beach and any regulatory agencies that are directly involved in this project. No other party should rely on the information contained herein without prior written consent of The City of Manhattan Beach scope of services, inspection methodology, and results are presented below.

## 2.0 SCOPE OF WORK

The purpose of this inspection and survey is to identify the Asbestos Containing Materials (ACM) and Lead-Based Paint (LBP) present within the interiors and exteriors of the subject property building. As the asbestos sampling is destructive in nature, and may void any roof warranties, the roofing materials of the building were not sampled during this assessment.

### Asbestos

The purpose of this assessment was to perform bulk sampling of suspect materials in order to determine the presence or absence of ACM associated with the two buildings at the subject property. The scope of this assessment included reviewing any provided building records and/or previous investigation records, visually identifying homogeneous areas and functional spaces, collecting bulk samples of suspect ACM, interpreting the laboratory results, producing a written report of our findings, recommendations, floor plans and approximations of ACM quantities.

### Lead-Based Paint

The purpose of this assessment was to perform an X-Ray Fluorescence (XRF) survey of the two buildings onsite in order to determine which components may be covered with lead laden coatings. To comply with Title 17, EPA and HUD guidelines, painted and varnished surfaces in every accessible "room equivalent" were sampled for the presence of lead-based paint (LBP) and the condition of the painted surfaces was assessed. The intent was to ascertain the presence of LBP above the Los Angeles County action level using X-Ray Fluorescence. If LBP was found, the inspection would identify individual architectural components and their respective concentrations of lead in such a manner that this report would be used to characterize the presence of LBP at this property. The scope of work also included producing a written report of our findings and recommendations.

## 3.0 PROPERTY DESCRIPTION

The subject property consists of two single story buildings. Currently, the property is a fire station with a small out building that is utilized as a gymnasium. The main Fire Station building is wood framed with a concrete slab foundation, slump block exterior walls with wood siding and a pitched roof covered with asphalt shingles. The modular gymnasium building is wood framed with a concrete slab foundation and a pitched roof covered with asphalt shingles. The interior finishes of both buildings include plaster and drywall walls and plaster ceilings, acoustic ceiling spray, acoustic ceiling tiles with rubber floor mats in the gymnasium and ceramic tile or unfinished concrete floors in the Fire Station.

#### 4.0 INSPECTOR'S QUALIFICATIONS

Andersen Environmental performed the lead inspection at the site using a Niton XRF spectrum analyzer instrument. Freddy Torres has completed an EPA approved curriculum in Lead in Construction Inspector / Risk Assessor Training.

Benjamin Curry and Abraham Donnell of Andersen Environmental performed the asbestos inspection at the site. Benjamin Curry is certified by the State of California Division of Occupational Safety and Health as Certified Asbestos Consultant.

Personnel certificates have been provided in *Appendix C*.

#### 5.0 TESTING PROTOCOL

##### Asbestos

The sampling was performed in accordance with requirements of the following regulations:

- Asbestos Hazard Emergency Response Act (AHERA); 40 CFR 763 Subpart E
- Asbestos School Hazard Abatement Reauthorization Act (ASHARA); Section 206 of the Toxic Substance Control Act
- National Emissions Standards for Hazardous Air Pollutants (NESHAPS); 40 CFR 61 Subpart M.

This report is a record of activities, observations, analytical results and recommendations performed to date.

##### Lead-Based Paint

The sampling was performed in accordance with requirements of the following regulations:

- Chapter 7 of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing<sup>i</sup>.
- Title 17, California Code of Regulations
- EPA Lead Based Paint Program

**XRF Testing:** Testing of the painted surfaces was patterned after the inspection protocol in Chapter 7 of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing<sup>ii</sup>. In every “room equivalent” within the tested property, one representative surface of each “testing combination” was tested. Multiple readings were collected to resolve inconsistencies in the test results.

**Regulatory Compliance:** Several public (government) agencies have a published “regulatory action level” to classify LBP. To further complicate matters, some of the established “levels” are quantified in different units of measurement. Listed below are the current regulatory agencies that have defined LBP, along with the respective action level:

<u>Agency</u> (ppm <sup>iii</sup> )	<u>Ordinance #</u>	<u>Action level (mg / cm<sup>2</sup>)</u>	<u>Action level</u>
<b>HUD / EPA</b>	24 CFR 35.86 & 40 CFR 745.103	1.0 mg / cm <sup>2</sup>	5,000 ppm
<b>L.A. County</b>	Title 11, 11.28.010	0.7 mg / cm <sup>2</sup>	600 ppm <sup>iv</sup>
<b>OSHA / CAL OSHA</b>	29 CFR 1926.62 & Title 8, 1532.1	<i>Not Specified</i>	600 ppm <sup>v</sup>

HUD / EPA have recently issued the following guidance regarding units of measurement for paint samples:

“Report lead paint amounts in mg/cm<sup>2</sup> because this unit of measurement does not depend on the number of layers of non-lead-based paint and can usually be obtained without damaging the painted surface. All measurements of lead in paint should be in mg/cm<sup>2</sup>, unless the surface area cannot be measured or if all paint cannot be removed from the measured surface area. In such cases, concentrations may be reported in weight percent (%) or parts per million by weight (ppm).”<sup>vi</sup>

Furthermore, EPA has previously issued guidance on lead content classification as follows:

“... The rule, at 24 CFR 35.86 and 40 CFR 745.103 states that a lead-based paint free finding must demonstrate that the building is free of ‘paint or other surface coatings that contain lead in excess of 1.0 milligrams per square centimeter (1.0 mg / cm<sup>2</sup>) or 0.5 percent by weight (5000 ppm).’ The State standards are not applicable, whether more or less stringent, since a State cannot amend Federal requirements.”<sup>vii</sup>

In recognition of the various action levels the testing results are classified as follows for this report:

- Painted surfaces with readings at or above 0.7 mg / cm<sup>2</sup> are considered - Positive
- Painted surfaces with readings below 0.7 mg / cm<sup>2</sup> are considered - Negative

***The individual readings have been provided on all field data sheets. Any future change in action levels by one of the regulating agencies may affect the classification of results.***

For purposes of this survey, any material containing any detectable level of lead is subject to OSHA’s Lead Exposure in Construction Rule (29 CFR Part 1926). Any work that disturbs these materials must be performed in accordance with these and any other applicable standards.

## 6.0 METHOD OF TESTING

### Asbestos

All samples were collected using a clean knife, chisel or the appropriate tools. The sample location was first moistened with water in order to limit dust release. Each sample was extracted carefully so as not to disturb adjacent materials while still penetrating through all layers of the material sampled. Each sample was sealed in the appropriate sized plastic zip lock bag and the bag then labeled with a unique identification number. The sample number, description and location was then recorded on a log and plotted on a floor plan of the structure or area. Sampling tools were cleaned after collecting each sample. Any excess dust or debris from the sample location was cleaned using a moistened cloth. Whenever possible, samples were collected from previously damaged portions of the material in order to minimize damage to the material.

A total of twenty one (21) samples were submitted to LA Testing in South Pasadena, California. LA Testing is accredited under the NIST/NVLAP program for asbestos in bulk material by polarized light microscopy and the State of California for asbestos analysis.

The analyses of the samples in this report were performed using polarized light microscopy using the EPA method 600/R-93/116. The phase abundances provided are visually estimated and expressed as

percent area. Total percentage of sample constituents may total greater than 100 due to trace amounts. The limit of detection for this analytical method is less than one percent. In multilayer samples, unless otherwise specified, the asbestos concentration is reported for the layer where asbestos is found. These results lie within the statistical limits of variability calculated for standard reference samples routinely analyzed in the laboratory. On a per sample basis, the accuracy and precision of the results depend on the type of sample and its asbestos content.

### **Lead-Based Paint**

**Paint Testing:** The method employed was X-ray fluorescence (XRF) using a Niton XLP 303A by Thermo Scientific, this unit uses a radioactive source of Cadmium 109. It was calibrated to NIST standard lead concentration samples prior to and after its use. Uncoated surfaces and other bare materials were not tested. The instrument was operated in “Quick Mode,” where the duration for each test result is determined by a combination of:

- The actual reading relative to the designated action level;
- Age of the radioactive source;
- The substrate on which the test was taken.

The instrument’s calibration was verified according to the manufacturer's specifications in compliance with the Performance Characteristic Sheet (PCS) developed for this instrument.

The readings from this instrument produce a 95% confidence level that the “lead” reading accurately reflects the actual level of lead in the tested surfaces, relative to the federal action level.

## **7.0 SUMMARY OF RESULTS**

### **Asbestos**

The following materials were found to contain asbestos and are considered ACM:

<b>Material Description</b>	<b>Material Locations</b>	<b>Condition</b>	<b>Asbestos Percentage</b>	<b>Estimated Quantity*</b>
White Plaster	Throughout	Good	<1% Chrysotile	2,500
Roofing Materials	Roofs	Good	Presumed	4,500
Transite Cement Vent Pipe	Roof	Good	Presumed	1

\* These quantities are only approximations. The exact quantities should be measured by the abatement contractor during the bidding process.

Samples that were found to contain less than one percent (<1%) asbestos by PLM analysis should be further analyzed using the 1000 point count method. This analysis method has a lower detection limit and may if performed yield results lower than the regulatory levels of Cal-OSHA.

All other suspect materials sampled during this assessment tested negative for asbestos.

## **Lead-Based Paint**

**Paint Sampling:** All interior and exterior materials sampled during the inspection tested negative for lead concentrations.

## **8.0 RECOMMENDATIONS**

Given the clients anticipated renovation of the subject property buildings, Andersen Environmental recommends the following:

### **Asbestos**

Samples that were found to contain less than one percent (<1%) asbestos by PLM analysis should be further analyzed using the 1000 point count method. This analysis method has a lower detection limit and may if performed yield results lower than the regulatory levels of Cal-OSHA.

If materials found to contain asbestos and/or presumed to contain asbestos are going to be disturbed or removed; by law, they must first be abated and properly disposed of by a licensed and Cal/OSHA registered asbestos abatement contractor prior to any renovation or demolition activities.

In as such that no destructive investigation has been performed during the survey, the report may not reveal concealed asbestos-containing materials. Subsequently, additional investigation including construction documents review and/or destructive investigation is recommended as a precaution to prevent accidental exposure when construction or demolition is planned for this facility. Any suspect materials that are uncovered during construction activities; that were not sampled during this assessment, should be considered asbestos containing, unless sampled to prove otherwise.

### **Lead-Based Paint**

All analyzed lead paints and glazes are not considered to be lead-based. However, the removal of material containing any detectable level of lead is subject to OSHA's Lead Exposure in Construction Rule (29 CFR part 1926) and Title 8, Section 1542.1 of the California Code of Regulations.

## **9.0 RENOVATION, REPAIR AND PAINTING (RRP) RULE**

Anyone performing renovation, repair and painting projects that disturb painted surfaces in residences, child care facilities, and schools built before 1978 must be EPA RRP certified and follow specific lead safe work practices to prevent lead contamination. The rule applies where more than 6 square feet per room or 20 square feet outside will be "disturbed" by workers(s) being compensated.

## **10.0 INSPECTION LIMITATIONS**

This Assessment was planned, developed, and implemented based on Andersen Environmental previous experience in performing asbestos and lead-based paint assessments. This inspection was patterned after Chapter 7 of the *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1997 Revision)* and NESHAPS; 40 CFR 61 Subpart M. Andersen Environmental utilized state-of-the-art-practices and techniques in accordance with regulatory standards while performing this assessment. Andersen Environmental evaluation of the relative risk of exposure to lead identified during

this inspection/risk assessment is based on conditions observed at the time of the inspection. Andersen Environmental cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology. Andersen Environmental uses only qualified personnel to perform building surveys. Reasonable effort was made to survey accessible suspect materials. Additional suspect materials may be located between walls, in voids, or in other inaccessible areas; caution should be exercised regarding these areas.

Andersen Environmental cannot warrant that these buildings do not contain LBP or ACM in locations other than those identified in this report.

Enclosed are the diagram(s), actual test results, and all relevant certifications and licenses.

Survey and Report by:

Benjamin Curry  
DOSH Certified Asbestos Consultant No. 09-4549  
CDPH Certified Lead Inspector/Assessor/Supervisor No. 20747

- 
- i 1997 Revision
  - ii 1997 Revision
  - iii Parts per million
  - iv Applies to sale and application of LBP.
  - v Applies to construction related activities
  - vi Chapter 7 of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1997 Revision).
  - vii Office of Pollution Prevention and Toxics, (August 20, 1996)

# Appendix F

## 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.