



2020 Corporate Strategic Asset Management Plan

Appendix E Condition Assessment Framework Part 1 Introduction

Cowichan Valley Regional District – Facility Condition Assessment Report

Prepared for:

Cowichan Valley Regional District
175 Ingram Street
Duncan, BC



FINAL REPORT – September 28, 2018



EXECUTIVE SUMMARY

Morrison Hershfield Limited (MH) was retained by the Cowichan Valley Regional District (CVRD) to conduct Facility Condition Assessments of various buildings, water utility sites, marine docks and parks and trails bridges/staircase throughout the Cowichan Valley Regional District. Contract Terms of Reference are identified under Contract RFP No. ES-020-17 and MH's proposal dated May 8, 2017.

Condition Assessments are a critical component of the CVRD's Asset Management Plan.

The purpose of this project is to:

- Refresh asset inventories in a format compatible with the CVRD's Asset Management Software System;
- Help develop present and future budgets;
- Provide the CVRD with a comprehensive plan to strategically and efficiently reduce the current backlog of deferred maintenance and necessary physical improvement projects;
- Enhance facility planning capabilities; and
- Improve Return on Investment when deciding capital and maintenance priorities.

The following infrastructure was included in this project:

- Buildings (Recreations Centers, Community Centers, Fire halls, Administration, and Parks).
- Waste Management Sites
- Parks and Trails - Marine Infrastructure
- Parks and Trails – bridges and wooden structures
- Water and Sewer Utilities

The Condition Assessment that was completed for this portfolio of buildings was subject to the limitations identified in Section 1.3 of this report and addressed the following scope of work:

- A visual evaluation of the facilities was conducted based on a review of provided plans and documentation, and a visual non-destructive review of a sampling of the following elements:
 - Structure
 - Building Envelope
 - Fire Safety
 - Mechanical Systems
 - Plumbing
 - Electrical Systems
 - Interior Finishes
 - Civil Elements (for the marine docks and parks and trails bridges/staircase)
- An interview of CVRD staff and site personnel regarding maintenance history and concerns; and
- A compilation of findings into individual tabular reports for each facility.

For each of the major components addressed, we identified a condition rating, typical life expectancy, age (actual or assumed), estimated remaining life and our recommendation for capital repairs and replacements (over the \$3,000 threshold) that should be budgeted for over the next 10 years.

Capital repairs and requirements have been categorized as follows:

- 1) *Immediate: items that require immediate repair or replacement because of either a Code deficiency or a safety concern.*
 - 2a) *Restore Functionality: items that currently show signs of failure, requiring repair or replacement to restore functionality in the near future.*
 - 2b) *Exceeded Service Life: items that are functioning, but have passed their expected service life, and could fail at any time.*
 - 3) *Future Renewal: items that will require future repair or replacement to maintain functionality (life cycle replacement).*
 - 4a) *Discretionary Renewal (Upgrade): Upgrade replacement items where the timing and scope of work is at the CVRD's discretion.*
 - 4b) *Discretionary Renewal (Aesthetic): Aesthetic items where the timing and scope of work is at the CVRD's discretion.*
- Not Applicable: items related to further Professional Studies.*

For the water and sewer system assessments, a modified methodology to address the lack of a standardized hierarchy for naming system components and unique operational requirements. In addition, since the operation and performance of the water and wastewater systems required additional attention, the categories for capital improvements also included operational tasks to further define future system improvements which is summarized in this report.

The report is a dynamic document that will change over time as repairs/renewals are carried out. The repairs and renewals we have forecasted do not represent a fixed schedule; repairs or renewals may be required sooner or later than we have anticipated. Similarly, the opinions of probable cost we have presented can vary due to a number of reasons including changing market conditions, availability of newer materials and systems, and increased or decreased scope of work than we have identified. As such, regular updates to this report are necessary to re-assess the buildings' conditions and financial information.

TABLE *of* CONTENTS

	Page
EXECUTIVE SUMMARY	I
1. INTRODUCTION	1
1.1 Objectives	1
1.2 Terms of Reference	1
1.3 Limitations and Assumptions	2
1.3.1 Information Used	3
1.3.2 Visual Review	3
1.3.3 Seismic Review	4
1.3.4 Building Code Review	4
1.3.5 Accessibility Review	5
1.3.6 Opinions of Probable Cost	5
2. METHODOLOGY	6
2.1 Visual Review	6
2.2 Report Format	6
2.2.1 Condition Assessment and Capital Plan	6
3. CLOSURE	12

APPENDICES

APPENDIX A: Building Assessment Reports

APPENDIX B: Marine Assessment Reports

APPENDIX C: Utilities Assessment Reports

APPENDIX D: Waste Site Assessment Reports

APPENDIX E: Parks Site Bridge and Staircase Reports

APPENDIX F: Glossary of Terms



1. INTRODUCTION

Morrison Hershfield Limited (MH) was retained by the Cowichan Valley Regional District (CVRD) to conduct Facility Condition Assessments of various buildings, water and sewer systems, waste management sites, parks marine infrastructure and parks and trails bridges/staircase throughout the Cowichan Valley Regional District. Contract Terms of Reference are identified under Contract RFP No. ES-020-17 and MH's proposal dated May 8, 2017.

We understand that the CVRD will rely on the report in regards to the defined objectives stated herein.

1.1 Objectives

The purpose of this report is to:

- Refresh asset inventories in a format compatible with the CVRD's Asset Management Software System;
- Help develop present and future budgets;
- Provide the CVRD with a comprehensive plan to strategically and efficiently reduce the current backlog of deferred maintenance and necessary physical improvement projects;
- Enhance facility planning capabilities; and
- Improve Return on Investment when deciding capital and maintenance priorities.

1.2 Terms of Reference

The Condition Assessment was subject to the limitations presented in Section 1.3 and addressed the following scope of work:

- A visual evaluation of the facilities was conducted based on a review of provided plans and documentation, and a visual non-destructive review of a sampling of the following elements:
 - Structure
 - Building Envelope
 - Fire Safety
 - Mechanical Systems
 - Plumbing
 - Electrical Systems
 - Interior Finishes
 - Civil Elements (for the marine docks and parks and trails bridges/staircase)
- An interview of CVRD staff and site personnel regarding maintenance history and concepts.
- Photographs of all applicable elements.
- Provision of a replacement cost for each element. This value was derived based on a *Replacement Cost New* cost estimate. A *Replacement Cost New* cost estimate is defined as



the cost to replace an entire building with one of “equal quality and utility.” Replacement costs assume that modern materials and current methods, designs and layouts will be used to replace the building. All of the estimates exclude: design and permit fees, demolition costs, abatement cost allowances, site work and tenant fit out.

- Identify remedial tasks and additional studies required within the defined period (10 years) and provision of probable cost and time frame for implementation. At the request of the CVRD, the time frame was extended to 20 years for the marine sites.
- Compilation of findings into individual tabular reports for each facility. For each major component and system, document the following information was documented in tabular form:
 - Component ID per ASTM Unifomat E1557-09
 - Description, Age, History and Condition Rating
 - Typical Life Cycle and Estimated Remaining Life
 - Recommendations for renewals, coded by type and priority
 - Recommended Budget for items within the next 10 years

For the Buildings included in Appendix A, the following information was provided:

- Current FCI (Facility Condition Index) information.
 - $FCI = \$ \text{Deferred Maintenance Costs (divided by)} \$ \text{Asset Replacement Value}$
Current FCI includes all Priority 1, 2 & 2b items and all 2017 & 2018 Priority 3 items.
Current FCI do not include Priority 4 and/or N/A items.
- For each building provide a plan to achieve the CVRD supplied target FCI's over a 5 year period and a 10 year period. In instances where the current FCI meets or exceeds the desired FCI, a negative value is generated (representing the surplus), this value shows as outstanding work in the future years.

1.3 Limitations and Assumptions

This Condition Assessment Report provides an assessment of the current conditions at the reviewed facilities and is based on the specific Scope of Service developed to support the specific objectives identified previously.

Our scope of work specifically excluded:

- Seismic assessments (unless specifically included at the request of CVRD).
- Environmental assessments
- Detailed Energy Audits/Assessments (i.e. energy savings calculations and/or detailed studies)
- Material sampling and testing
- Verifying operation of systems
- Inspection of concealed elements, intrusive openings, or opening of system components for internal inspection
- Inspection of tenant equipment (i.e. fixtures, furnishings and equipment)
- Engineering design/analysis

This report was prepared for the exclusive use of the CVRD, and may not be reproduced in whole or in part, or used or relied upon by any other party. MH accepts no responsibility for any damages suffered by any third party as a result of decisions made or actions taken based on this report.

Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions presented. Like all professional persons rendering advice, we do not act as insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions. No other warranties, either expressed or implied, are made.

The report is a dynamic document that will change over time as repairs/renewals are undertaken. The repairs and renewals we have forecasted do not represent a fixed schedule for renewals. Repairs or renewals may be required sooner or later than we have anticipated. Similarly, the opinions of probable cost we have presented can vary due to a number of reasons including changing market conditions, availability of newer materials and systems, and increased or decreased scope of work than we have identified. As such, regular updates to this report are necessary to re-assess the buildings conditions and financial information.

1.3.1 Information Used

The assessment is based, in part, on information provided by others. Unless specifically noted, we have assumed that this information was correct and have relied on it in developing our conclusions. Documents provided by the CVRD and used by MH during the course of this assessment are summarized in each of the individual reports.

It is possible that unexpected conditions may be encountered at the buildings/facilities that have not been explored within the scope of this report. Should such an event occur, MH should be notified in order that we may determine if modifications to our conclusions are necessary.

1.3.2 Visual Review

Conclusions are based on a visual review of a sampling of building elements for the purpose of identifying major deficiencies within the building and building elements. Observations were made only of those areas that were readily accessible during our review. The general findings reported may not be extended to portions of the facility that were unavailable for direct observation at the time of the MH visit.

No testing, detailed analysis or design calculations were conducted.

Detailed discussions of the existing elements and required repairs / replacements, and reporting on minor repairs or preventive maintenance requirements, were beyond the scope of this assessment.



1.3.3 Seismic Review (Appendix A Buildings)

As requested by the CVRD, seismic screening reviews were completed on two properties:

- 1) Malahat Fire Hall located at 935 Whittaker Rd, Malahat, BC
- 2) Sahtlam Fire Hall located at 4384 Cowichan Lake Rd, Duncan, BC

These assessments were completed using a non-invasive screening method according to the “NRC-CNCR Manual for Screening of Buildings for Seismic Investigation”. Detailed reports and recommendations are included in Appendix A.

Seismic screening reviews were not completed on other facilities. For the remainder of the buildings reviewed, MH recommends the following:

- If a building was completed post-1998, it is assumed to meet the seismic requirements contained within this Building Code. A seismic review is recommended to be completed as part of any significant renovation and/or if the occupancy of the building is increased or changed.
- If a building was completed prior to 1998, it is recommended that consideration be given to completing a seismic review.
- If the building was completed post-1998 but is a post-disaster facility, consideration should be given to completing a seismic review.

1.3.4 Building Code Review (Appendix A Buildings Assessment Reports)

A visual review was completed to assess for safety related code issues. A detailed building code review was not completed as part of this report. Observations were made only of those areas that were readily accessible during our review. Where issues are reported, similar locations should be reviewed and confirmed.

It is assumed all buildings were constructed in conformance with the Building Code at the time of construction.

It is recommended that a full code evaluation be completed as part of any significant renovation and/or if the occupancy of the building is increased or changed. Costing for these studies have not been included.

1.3.5 Accessibility Review (Appendix A Buildings Assessment Reports)

The visual accessibility review was limited to wheelchair access and the following scope:

- Access into the building.
- Access throughout the building.
- Access to the washroom.
- Recommendations for further studies.

For all projects, it is recommended that an accessibility study be completed as part of any significant renovation and/or if the occupancy of the building is increased or changed. Costing for these studies have not been included.

1.3.6 Opinions of Probable Cost

Opinions of probable cost are provided only as an indication of possible cost of remedial work. Opinions of probable are typically defined as a preliminary estimate which indicates the approximate magnitude of cost of the proposed project, based on various factors. Generally the accuracy of these estimates are $\pm 50\%$ and are used to develop long term capital plans and for preliminary discussion of proposed capital projects. These cost estimates are based on costs of past repairs at the building (or similar buildings) as well as RS Means, or our professional judgement. More precise cost estimates would require more detailed investigation to define the scope of work.

All costs are identified in 2018 Canadian dollars, and include allowances for consulting fees, contingencies, and applicable taxes where appropriate.

All opinions of probable cost assume that regular annual maintenance and repairs will be performed to all elements at the facility. For all projects, it is recommended that an updated cost estimate be completed prior to work proceeding.

2. METHODOLOGY

2.1 Visual Review

Our evaluation of each facility, and the associated systems and components, was based on a visual review of areas that were accessible at the time of our visit. No destructive openings or testing were conducted in completing our evaluation. Shop drawings for the various systems were not reviewed by MH. No commissioning or site testing of systems were completed.

2.2 Report Format

This report consists of a narrative cover report that describes terms of reference, methodology, and definitions applicable to the portfolio. Appendices to the cover report are included for each of the buildings, each of which contains:

- A brief description of building and site, site review team, any limitations of the review on the date of the visit, and documents reviewed.
- Estimated building costs.
- A summary of immediate priority items.
- A summary of all items over \$10,000 anticipated over the next 5 years.
- A summary of funding scenarios required to achieve the target FCI's over the next 5 years and 10 years.
- Condition Assessment – includes the information as identified below in Section 2.2.1
- Capital Plan – identifies anticipated capital costs over the \$3,000 threshold for the next 10 years
- Photographs of each element (as applicable).

For the buildings included in Appendix A the following information was provided:

- Current FCI information.
- Target FCI information (as provided by the CVRD).

In addition to this narrative report, Excel spreadsheets for each of the properties have been provided.

The water and wastewater system reports followed a similar report format, however, the ongoing system operational requirements was an important to capture in the reporting. Through discussions with the CVRD, the format for the water and wastewater system reports were tailored to consider the operational requirements of each system. Refer to Appendix C for further information related to the water and wastewater system reporting format and approach and user guide for updating the reports and spreadsheets.

2.2.1 Condition Assessment and Capital Plan

Condition Assessment spreadsheets are included in the Appendices. An electronic format of the spreadsheet has also been submitted with this report. These spreadsheets show our opinion of the probable cost to carry out the recommendations during the planning horizon.



The repairs and renewals we have forecasted do not represent a fixed schedule for replacements; repairs or renewals may be required sooner or later than we have anticipated, or may not be required at all during the term of the report.

A detailed description of the spreadsheets, abbreviations and our approach to assigning ratings is described below:

TABLE 2.2.1 – CONDITION ASSESSMENT AND CAPITAL PLAN SPREADSHEET

CELL	DESCRIPTION
Building Name	Building name, as provided by the CVRD.
Location and Address	Building civic address.
Component	The component number, as per the Unifomat II hierarchy.
Location/Type	Locations and type of component/work.
Photo	Photo reference where applicable.
Description & History	A brief description of the component, deficiencies observed by MH (if any), and problems reported by site staff.
Condition and/or Performance (as provided by the CVRD)	<p>5 – Excelent Structure – Sound structure. External – Constructed with sound materials, true to line and level. No evidence of deterioration or discolouration. Internal - Constructed with sound materials, true to line and level. No evidence of deterioration or discolouration. Services - All components operable and well maintained. Fittings – Well secured and operations, sound of function and appearance.</p> <p>4 - Good Structure - Functionally sound structure. External - Showing minor wear and tear and minor deterioration of surfaces. Internal - Showing minor wear and tear and minor deterioration of surfaces. Services - All components operable. Fittings – Operational and functional, minor wear and tear.</p> <p>3 - Fair Structure - Adequate structure, some evidence of foundation movement, minor cracking External - Appearance affected by minor cracking, staining, or minor leakage. Indications of breaches of weatherproofing. Minor damage to coatings. Internal - Appearance affected by minor cracking, staining, or minor leakage, some dampness or mildew. Minor damage to wall/ceiling</p>



CELL	DESCRIPTION
	<p>finishes Services - Occasional outages, breakdowns or blockages. Increased maintenance required. Fitting - Generally operational. Minor breakage.</p> <p>2 - Poor Structure - Structure functioning but with problems due foundation movement. Some significant cracking. External - Damaged, weakened or displaced. Appearance affected by cracking, staining, overflows, or breakages. Breaches of weatherproofing evident. Coatings in need of heavy maintenance or renewal. Internal - Damaged, weakened or displaced. Appearance affected by cracking, staining, dampness, leakage, or breakages. Breaches of waterproofing evident. Finishes of poor quality and in need of replacement. Services - Failures of plumbing electrical and mechanical components common place. Fitting – Fittings of poor quality and appearance, often inoperable and damaged.</p> <p>1 - Very Poor Structure – Structure has serious problems and concern is held for the integrity of the structure Externall - Badly damaged or weakened. Appearance affected by cracking, staining, overflows, leakage, or damage. Breaches of waterproofing. Coatings badly damaged. Internal - Badly damaged or weakened. Appearance affected by cracking, staining, leakage, or wilful damage. Breaches of waterproofing. Finishes badly damaged, marked and in need of replacement. Services - Plumbing electrical and mechanical components are unsafe or inoperable. Fitting - Most are inoperable or damaged</p>
Year New of Last Major Action	This is assigned based on available data from drawings or reports, readily accessible nameplate information on equipment, or interviews with site staff. Where the year is not known, MH provides an estimate based on observed condition.
Assessment Date	Assessment Date
Assessed By	Assessed By
Age	The age at the time of the assessment (Year 2017 or 2018). Where the exact age is unknown, MH provides an estimate based on observed conditions.



CELL	DESCRIPTION
Typical Lifecycle or Action	Industry standard lifespan, assuming normal maintenance. A piece of equipment may have a typical lifespan for complete replacement, as well as a typical lifespan for a recommended repair with a much shorter frequency.
Estimated Time Remaining to EOL or Major Action	Remaining life of component, not necessarily to the next major repairs. Based on Age subtracted from Typical Lifespan. An adjustment may be applied by MH depending on observed condition (which can effectively increase or decrease the Typical Lifespan). A negative time remaining will be adjusted by MH to greater than or equal to 0.
Recommendation	<p>Based on MH's assessment.</p> <p>If there are no anticipated repairs, replacements, studies over the planning horizon, there will be no recommendation. A single component can have multiple recommendations.</p>
Type	<p>Replacement – Replace like with like, allowing for changing contemporary standards.</p> <p>Repair Allowance – Preliminary allowance for repairs where the scope is not yet identified.</p> <p>Contingency – For repairs likely to be required where the timing and scope cannot be assessed without additional study, or where failure is unpredictable.</p> <p>Study – Further study is required to assign more accurate repair/replacement costs or timing for a Contingency Item.</p> <p>New – New item such as those required under new legislation.</p> <p>Upgrade – Replace to a higher standard (more efficient, higher quality, etc.).</p> <p>Note: as time passes, items should be reviewed to determine if the Type rating needs to change.</p>
Priority Rating	<p>1 Immediate: items that require immediate repair or replacement because of either a code deficiency or a safety concern.</p> <p>2 - Restore Functionality: items that currently show signs of failure, requiring repair or replacement to restore functionality in the near future.</p> <p>2b - Exceeded Service Life: items that are functioning, but past their expected service life, and could fail at any time.</p>



CELL	DESCRIPTION
	<p>3 - Future Renewal: items that will require future repair or replacement to maintain functionality (life cycle replacement).</p> <p>4b - Discretionary Renewal (Aesthetic): Aesthetic recommendations (e.g. interior finish replacement) items where the timing and scope of work is at the CVRD's discretion.</p> <p>5 – Not Applicable – typically reserved for recommendations regarding further Professional Studies.</p> <p>Note: as time passes, items should be reviewed to note if the Priority rating needs to change. Items that are now considered Discretionary may change to Restore Functionality or Exceeded Service Life</p>
<p>Can this work be phased over multiple years?</p>	<p><i>Yes or No</i></p> <p>Where directed by the CVRD, MH phased work over a number of years. Many of the recommended projects listed can be phased. If work is phased, a review should be completed around potential implications (e.g. costs, design, warranty, etc.)</p>
<p>If the recommended work is not completed can the rate of deterioration be expected to increase?</p>	<p><i>Yes or No</i></p> <p>MH identified locations where, if the recommended work is not completed the rate of deterioration can be expected to increase at an accelerated rate. This is intended to assist the CVRD by providing a further priority rating metric.</p>
<p>Will a failure in this system lead to a loss of use of the facility?</p>	<p><i>Yes or No</i></p> <p>MH identified projects where, situations exist that, if the recommended work is not completed, there is a risk that the facility will not be able to operate as intended. An example of this is if the heating system breaks down. This is intended to help provide the CVRD with a further priority rating metric.</p>
<p>Can the current condition adversely affect the building security or safety?</p>	<p><i>Yes or No</i></p> <p>MH identified items where the current condition(s) adversely affects the building security or safety. An example of this would be loose or delaminating materials that could pose a hazard of falling. This is intended to assist the CVRD by providing a further priority rating metric.</p>



CELL	DESCRIPTION
Opinion of Probable Cost	<p>Identifies approximate quantities for capital budgeting purposes, and applies applicable unit rates, contingencies, consulting fees as appropriate.</p> <p>Individual pieces of equipment are identified where the replacement cost is greater than the capital threshold, and are grouped where their individual cost is lower than the threshold.</p>

3. CLOSURE

Morrison Hershfield Limited has reviewed the subject properties in accordance with the Scope of Services and Limitations outlined in Section 1 of this report.

The report is a dynamic document that will change over time as repairs/renewals are carried out. The repairs and renewals we have forecasted do not represent a fixed schedule; repairs or renewals may be required sooner or later than we have anticipated. Similarly, the opinions of probable cost we have presented can vary due to a number of reasons including changing market conditions, availability of newer materials and systems, and increased or decreased scope of work than we have identified. As such, regular updates to this report, every three-five years and potentially more frequently as components age, are necessary to re-assess the buildings conditions and financial information.

If you have any questions regarding the information contained herein, please feel free to contact our office at any time.

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