CARLETON CONDOMINIUM CORPORATION 15

Reserve Fund Study

MORRISON HERSHFIELD

Comprehensive Reserve Fund Study
Carleton Condominium Corporation No. 15
Chateau Vanier – Tower B

Ottawa, Ontario

Presented to:

The Board of Directors
Carleton Condominium Corporation No. 15

c/o Melanie Pilon
Property Manager
158B McArthur Avenue
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Report No. 2140305.00 May 20, 2015

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1. INTRODUCTION

Morrison Hershfield Limited (Morrison Hershfield) was retained to conduct a Comprehensive Reserve Fund Study of Carleton Condominium Corporation No. 15 (CCC 15) located at 158B McArthur Avenue, Ottawa, Ontario. Authorization to proceed with the study was provided by Anne Makuch, Property Manager, on behalf of the Corporation.

1.1 Objectives

The objective of this Reserve Fund Study is to provide the Board of Directors with sufficient information to enable them to:

a) Set up a schedule for the anticipated repair and replacement of common element items,

b) Set up a special account for major repair items and replacement of common elements and assets of the Corporation,

c) To determine the annual contributions necessary to maintain an adequate balance for the 30 year period of this study, and

d) Satisfy the legislation regarding the *Condominium Act, 1998* and related regulations.

This reserve fund study was conducted as a Comprehensive Reserve Fund Study and is in general compliance with the regulations of Section 94 of the *Condominium Act, 1998* and Part IV, Sections 29 and 30 of O.Reg. 48/01.

1.2 Terms of Reference

This Reserve Fund Study was subject to the limitations of Section 1.7 and addressed the following scope of service as detailed in our proposal dated March 7, 2014.

- A review of available documentations (as outlined in the Act).
- Meeting with representatives of the Board of Directors or Property Manager to discuss the history of problems, repairs, and remedial work undertaken CCC 15 since the last Reserve Fund Study.
- A visual inspection of the common elements of the complex in order to assess the current condition and estimate remaining service life. The review will be conducted from grade, accessed units (five), roof level(s) and balconies, where safely accessible. Observations will be made only of those areas that are readily accessible during a “walk-through” type of review and will not include any concealed elements. Material sampling and testing, and systems performance testing are not included, unless otherwise identified herein.
- Prepare a Reserve Fund Study Report and Form 15. The report will include a physical analysis of each common element, including a description, current observed condition, any observed deficiencies, life expectancy and recommended time frame for repair and/or replacement. The report will also include a financial analysis, indicating the current financial status of the reserve

fund, the estimated repair and/or replacement cost of the common elements, and up to two recommended funding plan scenarios for a minimum of 30 years.

1.3 General Terms

As required by the Condominium Act, the corporation shall conduct periodic studies to determine whether the amount of money in the reserve fund and the amount of contributions collected by the corporation are adequate to provide for the expected costs of major repair and replacement of the common elements and assets of the corporation.

The steps in completing a Reserve Fund Study are as follows:

1. Identify elements to be included in the component inventory (Component Inventory Table of Appendix A).

2. For each item in the component inventory, assess parameters for each component (Component Inventory Table of Appendix A). These parameters include age, life expectancy, estimated years for major repairs and replacements, and opinion of probable cost for major repairs and/or replacements.

3. Based on the information shown in Appendix A, generate a list of annual expected expenditures (30-Year Detailed Cash Flow Plan) and calculate contribution scenarios that may be considered adequate (Appendix C).

1.4 Project Team

This Reserve Fund Study has been prepared and/or reviewed by various personnel within Morrison Hershfield. The following are the reviewers and the respective disciplines for which each was responsible:

- Amanda Prot, addressed the building and site elements and drafted this report, except for the sections noted below;
- Donald Stephen-Dunn, addressed the mechanical systems and drafted these sections of this report,
- Jared Fleming, addressed the electrical systems and drafted these sections of this report, and
- Allison Huffman, P.Eng., reviewed the report for technical content and for general compliance with the Act.

The elevators were addressed by a sub-consultant, Rooney, Irving and Associates Limited (RIA) during a separate site visit; the elevator report is included in Appendix D.

1.5 Report Format

The report is separated into the following sections for the convenience of the reader. Briefly, the contents of each of these sections are:

1. Introduction

A general description of the services provided.

2. Component Inventory

Description and identification of items to be included in the component inventory forming the framework for the Reserve Fund Study.

3. Physical Analysis and Costing

Information regarding the methodology of the site visit and development of anticipated repair costs, and a summary of recommendations for further investigation where there is uncertainty regarding a specific item.

4. Financial Analysis

Methodology of calculating cash-flow plan and examples of contribution plans that may be considered adequate.

5. Conclusion

A summary of the Reserve Fund Study process and the Board's proposed contribution plan.

6. Appendix A – Component Inventory

Includes the Component Inventory Table of the common elements to be addressed by the Reserve Fund.

7. Appendix B – Current Contribution

Includes tables representing the current annual contribution to the reserve fund increased by inflation only.

8. Appendix C – Proposed Contribution Scenarios

Includes tables representing Scenarios 1 and 2 (proposed contribution plans). For Scenarios 1 and 2, the tables provided include a 30-Year Detailed Cash-Flow Plan, Chart, and Table and Contribution Table which outlines the proposed contribution levels.

9. Appendix D – Elevator Report

The elevator report prepared by the sub-consultant, Rooney, Irving and Associates, Limited.

1.6 Reference Documents/Information

A large number of documentation was provided for our review to assist in the preparation for the Reserve Fund Study. The following is a list of relevant documents reviewed but is not a comprehensive list of all documents:

- Reserve Fund Study Update for CCC 15, prepared by Morrison Hershfield, dated December 1, 2011,
- Comprehensive Reserve Fund Study for CCC 15, prepared by Trow Associates Inc., dated July 2008,
- Financial Statements, Year Ended 2013 for CCC 15, prepared by Collins Barrow, dated March 21, 2014,
- Form 15 for CCC No. 15, dated December 2011,
- Declaration for CCC No. 15 dated October 10, 1972,
- By-Law No. 1 for CCC No. 15, dated June 13, 1973,
- By-Law No. 2 for CCC No. 15, dated June 13, 1973,
- By-Law No. 3 for CCC No. 15, dated June 13, 1973,
- By-Law No. 4 for CCC No. 15, dated November 15, 1979,
- By-Law No. 5 for CCC No. 15, dated May 3, 1982,
- By-Law No. 6 for CCC No. 15, dated April 10, 1995,
- By-Law No. 7 for CCC No. 15, dated March 2000,
- By-Law No. 8 for CCC No. 15, dated April 12, 2004,
- By-Law No. 9 for CCC No. 15, dated May 24, 2013,
- By-Law No. 10 for CCC No. 15, dated May 23, 2013,
- By-Law No. 11 for CCC No. 15, dated May 23, 2013,
- By-Law No. 12 for CCC No. 15, dated May 24, 2013,
- By-Law No. 13 for CCC No. 15, dated May 24, 2013,
- Joint Common Element amendment for CCC 12, CCC 15 and CCC 47, dated December 17, 2008.
- Balcony Condition Assessment Report for CCC15, prepared by A. Dagenais & Assoc. Inc., dated August 30, 2013,
- 158 McArthur Avenue, Structural Condition Assessment of Additional Balconies Engineering Report, prepared by A. Dagenais & Assoc. Inc., dated July 31, 2013,

- Balcony NMS Specifications for CCC 15 prepared by A. Dagenais & Assoc. Inc., not dated.
- CCC #15 (Tower B) Roof Maintenance Task Report, prepared by B.J. Millaire Builders Inc., dated July 25, 2011,
- 158 McArthur Avenue – Tower B – Roof Review, prepared by Maddison Construction, dated November 5, 2013,
- 158B McArthur Avenue – Tower B – Roof Anchor Review, prepared by Cleland Jardine Engineering Ltd., dated June 16, 2014.
- Fire Safety Inspection Report for CCC 15, prepared by Ottawa Fire Services, Dated February 22, 2012,
- Emergency Evacuation plans, prepared by Chuck Pougnet,
- Emergency Power Arrangement, prepared by Campbell and Kennedy Electric Limited,
- Architectural drawing A20, prepared by Craig and Kohler, dated August 31, 1972,
- Survey plan prepared by C.W. Fairhall, dated December 1971,
- Site services drawings SG1 to SG3, prepared by A. Dagenais & Assoc. Incl, dated October 10, 2006,
- Site services drawing, SS1, prepared by Clemann Large Patterson Consulting Engineers, dated February 1973,
- Irrigation Plan I-1, prepared by Nutri-Lawn,
- Parking Layout plans dated March 15, 1972,
- Mechanical drawing M1, prepared by C J Fox Engineering Limited, dated September 13, 1996,
- Mechanical drawings M1 and M2, prepared by Smith and Andersen, dated March 3, 1983,
- Mechanical drawings R1 and M11, prepared by Clemann Large Patterson Consulting Engineers, dated September and October 16, 1972,
- Electrical drawings E14 and R2, prepared by Clemann Large Patterson Consulting Engineers, dated October 16 and 20, 1972,
- Structural drawings P1 and S1, prepared by Vanco Structural Services Inc., various dates between May 1983 and July 1991,
- Structural drawings S1 to S3 and S15, prepared by Adjelian and Associates, various dates between December 1971 and June 22, 1981,
- Structural drawings S1 to S8, prepared by Zenix Engineering Ltd., dated March 15, 2005,
- Landscape drawings L1 to L4 for Phase II, prepared by D.W. Graham and Associates Limited, dated June 28 and July 18, 1972,
- Landscape drawing L2 for Towers B and C, prepared by Artistic Landscape Designs Ltd., dated September 2005,

- Architectural drawings A1 to A8 and A10 to A23 for Phase II, prepared by Craig and Kohler, various dates between August 15, 1971 and October 13, 1972,
- Electrical drawings E9 for Phase II, prepared by Clemann Large Patterson Consulting Engineers, dated August 1971,
- Mechanical drawings F1, M5 and M12 for Phase II, prepared by Clemann Large Patterson Consulting Engineers, various dates between August 1971 and March 7, 1972,
- Structural drawing S1 for Phase II, prepared by Cleland Jardine Engineering Limited, dated August 7, 1997, and
- Structural drawings S1 and S3 for Phase II, prepared by Adjelian and Associates, dated February 12 and 21, 1972.

1.7 Limitations and Assumptions

This report is intended for the sole use of CCC 15, and must not be distributed or used by others without our knowledge. It is based on the documents and information provided to us and the findings at the time of our on-site investigation.

It is a basic assumption that any correspondence, material, data, evaluations and reports furnished by others are free of latent deficiencies or inaccuracies except for apparent variances discovered during the completion of this report.

Unless specifically noted in this report, no testing, verification of operation of systems, review of concealed elements, intrusive openings, opening of system components for internal inspection, detailed analysis or design calculations were conducted, nor were they within the scope of this review.

Some of the findings herein are based on a random sampling visual review of the surface conditions, discussions with the Board of Directors and/or their designated representatives, and review of relevant documents. Observations were made only of those areas that were readily accessible during our review. Deficiencies existing but not recorded in this report were not apparent given the level of study undertaken. Components not included have not been reviewed, and if their conditions need to be known, further study will be required. Unless otherwise noted, we have not undertaken a physical review of subsurface conditions or concealed structural systems. In particular, our review of structural components consisted of a visual walk-through survey of a sampling of readily accessible structural components. Structural members were generally not subjected to their full design live loads (including wind and seismic effects), so this type of review is very limited in identifying hidden or latent structural defects.

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

In issuing this report, Morrison Hershfield does not assume any of the duties or liabilities of the designers, builders or owners of the subject property. Owners,

prospective purchasers, tenants or others who use or rely on the contents of this report do so with the understanding as to the limitations of the documents reviewed and the general visual inspection undertaken, and understand that Morrison Hershfield cannot be held liable for damages they may suffer in respect to the purchase, ownership, or use of the subject property.

Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. 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.

2. COMPONENT INVENTORY

O. Reg. 48/01, s. 29 indicates that a Reserve Fund Study shall include a physical analysis. The first step in conducting the physical analysis is identifying the component inventory for your complex, as listed in Appendix A.

2.1 Building Description

CCC 15 is located at 158B McArthur Avenue, in Ottawa Ontario. Construction was completed circa 1973. CCC No. 15 is also known as Tower B of the Chateau Vanier complex. The condominium consists of a 20 storey residential tower with 169 units. Common areas within the tower include the lobby, corridors, stairwells, elevators, service rooms, recycling room, mailboxes, laundry room, hobby room, bike storage room, and superintendent's apartment.

At Chateau Vanier, joint common elements are shared equally by CCC No. 12, CCC No. 15 and CCC No. 47 under a joint agreement. These shared facilities include a 2 storey below grade parking garage, pool building, recreation areas, property management office, interconnected corridors, landscaping, visitor parking and roadways. The pool building houses the indoor swimming pool, associated change rooms and saunas. The recreation areas include an exercise room, party room with kitchen, card room and library. The towers, recreation areas, pool building, management offices and parking garage are interconnected by a shared corridor. Based on the information provided, construction of the joint common elements was completed circa 1972.

The terminology indicated above will be used to define specific areas within the complex throughout the report.

2.2 Definition

O.Reg. 48/01, s. 27 defines a component inventory as "… an inventory, in a reserve fund study of a corporation, of each item of the common elements and assets of the corporation that requires, or is expected to require within at least 30 years of the date of the study, major repair or replacement where the cost of replacement is not less than $500;"

The $500 limit can be interpreted in two ways:

- All common elements that cost at least $500 must be included in the component inventory; OR
- No item costing less than $500 is to be included in the component inventory

It has been our experience that most Boards of Directors choose to cover small capital expenditures out of the operating budget. The Board of Directors for CCC 15 has directed Morrison Hershfield to assume that capital expenses less than $1,000 will be covered out of the operating budget, and expenses greater than that amount be budgeted for in the Reserve Fund.

2.3 Common Elements

Based on our review of the Declaration, and information provided by Anne Makuch, we understand that the following building components are common elements at CCC 15:

- Structural systems (building superstructure such as columns, beams, floor slabs, balconies, roof structure),
- Parking garage,
- Exterior walls, all components up to the unit-side of the interior gypsum wall board,
- Windows,
- Doors (exterior, common, suite),
- Roofing systems,
- Building common areas (lobby, corridors, service rooms, recycling room, mailboxes, laundry room, bike storage room, superintendents apartment)
- Mechanical systems (components that serve more than one unit),
- Electrical systems (components that serve more than one unit), and
- Elevators.

The Board of CCC 15 has reviewed this report and confirmed the list of common elements.

2.3.1 Shared Facilities

A Reciprocal Agreement with CCC No. 12 and CCC No. 47 governs the joint common elements. The joint common elements include the parking garage, garage ramps, pool building (pool, change rooms & saunas), recreation areas (party room with kitchen, exercise room, library, and card room), property management office, interconnected corridors, landscaping, visitor parking and roadways. It is shared equally by the three towers.

All components listed below of the above noted joint common elements are included:

- Structural systems,
- Parking garage,
- Exterior walls,
- Interior walls,
- Windows,
- Doors,
- Roofing systems,

- Interior finishes (walls, floors, ceilings),
- Furnishings and equipment,
- Mechanical systems, and
- Electrical systems.

2.4 Operating Expenses

The reserve fund is to be used only for capital expenditures including major repair and replacement of the common elements. We assume that minor repairs, localized replacement, and maintenance of the common elements is completed on a regular basis out of the operating budget.

3. PHYSICAL ANALYSIS

Once the items to be included in the component inventory are defined, a visual review of each of those elements, along with information provided by and discussions with the Board and/or their designated representatives, is conducted in order to assess the following eight parameters for each component:

1. actual or estimated year of acquisition,
2. present or estimated age,
3. normal expected life,
4. remaining life expectancy,
5. estimated years for major repairs and replacements,
6. opinion of probable cost for major repairs and/or replacements,
7. the percentage of the cost of major repairs and replacement to be covered by the reserve fund, and
8. adjusted cost resulting from the application of that percentage

The above criteria are outlined in the **Component Inventory Table**, which can be found in **Appendix A** of this study.

3.1 Site Review

A visual review of the architectural, structural and site elements was conducted on August 27 & 28, 2014. The mechanical and electrical systems were reviewed on September 16 & 17, 2014. The common elements of the complex and the interiors and balconies of units 404, 809, 1008, 1707 and PH4 of 158B McArthur Avenue, Ottawa, Ontario were reviewed. During our review of the building we were accompanied by Mitch, Superintendent, who has been employed at the building for 3 years.

Our site review consisted of a general visual survey of the complex to review a sampling of readily accessible, exposed components. Our review was conducted from the accessed suites and balconies, from the roof level(s), and from ground level. A review of the design, test openings, and/or physical testing of any of the common elements was not conducted and did not form part of the scope of our services. Physical sampling and/or test openings to assess materials and/or assemblies was not conducted.

3.2 Life Expectancy

In the Component Inventory Table, we have listed the normal life expectancy for each item in the component inventory. The normal life expectancies are based on our experience, manufacturer's recommendations and published industry guidelines.

An adjustment is made to the normal life expectancy when, in our opinion, the maintenance and/or use of an item has been such that the normal life expectancy will be notably affected (either positively or negatively). Unless otherwise noted, we assume that regular annual maintenance and repairs will be performed to all

elements at the facility to ensure the full life expectancy of each component is reached.

The timing of major repairs or replacements is based on the remaining life expectancy. The remaining life expectancy is based, in part, on the current condition of the component determined during the site review. The condition is described as:

- **Good** = Functioning as intended, normal deterioration observed.
- **Fair** = Minor deterioration and distress observed or deficient operation; some maintenance, repairs or replacement required to maintain functionality.
- **Poor** = Not functioning as intended, significant deterioration and distress observed; repairs or replacement required to restore functionality.
- **Varies =** Condition of the components varies throughout the building/complex. Refer to Observations for additional information related to the condition of various elements or locations of the component.
- **NA =** Condition rating for the component or element is not applicable.

3.3 Total Repair or Replacement Cost

Opinions of probable cost are provided only as an indication of possible cost of remedial work. The repair or replacement costs are based on published construction cost data, recent bid prices on similar work, and information provided by the owner. More precise opinions of probable cost would require more detailed investigation to define the scope of work.

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. All opinions of probable cost assume that regular annual maintenance and repairs will be performed to all elements at the facility.

We recommend that costs for consulting services, including design, tendering and construction review, be included in the reserve fund plan. The cost for these services can vary significantly depending on the size, scope and degree of complexity of the project. For the purposes of reserve fund budgeting, we have included an allowance of 7.0 percent for consulting fees where we believe it is appropriate, and 13.0 percent for applicable taxes (HST). All costs in the Component Inventory Table are identified in **2014 Canadian dollars**.

The costs identified in the Component Inventory Table represent the adjusted cost when the percentage of the cost of major repairs and replacement is applied to the complete replacement cost. For most items, 100 percent of the complete replacement cost is provided; exceptions include where complete replacement is not anticipated (such as repair allowances). Where specific common elements are shared with another corporation, we have provided a description under the

Recommendation indicating the percentage (less than 100 percent) of the total cost for which CCC 15 is responsible.

3.4 Significant Capital Expense Forecasts

The following major items should be budgeted for over the next 10 years, which can have a major impact on the Reserve Fund Study.

- Major balcony and railing rehabilitation at the west elevation balconies,
- Repairs to the exterior cladding and concrete,
- Replacement of the remaining original windows and doors and the exposed windows at the outside corners of the tower,
- Replacement of the main tower and mechanical penthouse roofs,
- Replacement of the Penthouse level terrace waterproofing membrane
- Replacement of the corridor carpeting and lobby refurbishment,
- Testing and replacement of the standpipe, sprinkler piping and valves,
- Replacement of the incoming electrical service and main switchboard, distribution panels, common area panels and associated components,
- Replacement of the emergency generator,
- Replacement of the upper podium waterproofing membrane between Buildings A & B and B & C and expansion joint repairs,
- Repairs to the exterior west wall of the garage, and
- Replacement of the garage makeup air units and exhaust fans.

4. FINANCIAL ANALYSIS

A visual survey of the condition of the common elements has been conducted. Based on our experience and limited visual review, an assessment of the remaining life expectancy and replacement costs (in 2014 Canadian dollars) for each of the common element components, is shown in Appendix A.

The Reserve Fund Study is generated based on the information shown in the Component Inventory Table, from CCC 15, and certain assumptions as discussed below.

4.1 Input from CCC 15

In calculating the Reserve Fund Cash-Flow Plan, we have used the following information provided by CCC 15:

- Current Fiscal Year 2014 from January 1, 2014 to December 31, 2014
- Present Annual Contribution to the Reserve Fund (provided by the Condominium) $171,506
- Reserve Fund Balance on December 31, 2014 (from the Audited Financial Statements) $300,000

4.2 Assumptions

4.2.1 Interest and Inflation Rates

The Government of Canada and the Bank of Canada inflation-control policy is aimed at keeping inflations at agreed to target values. At present the target range is 1.0 to 3.0 percent, with the Bank's monetary policy aimed at keeping inflation at the 2.0 percent target midpoint. This policy has continued to be renewed since implementation in 1991, and currently extends to December 31, 2016.

For the preparation of this Reserve Fund Study, we have assumed an Inflation Rate of 2.0 percent (midpoint of target range) and an Interest Rate of 3.0 percent for the duration of this study.

The interest earned on the Reserve Fund for each year is based on a **Mid-Year Interest Calculation**. It is our understanding from previous discussions with clients involved in long-term financial planning that this interest calculation is accepted for long-term financial planning. Over the 30 year period, the calculated interest is lower than calculating Simple Interest; therefore it is a more conservative method for calculating interest.

With the Mid-Year Interest Calculation, the interest earned on the Reserve Fund is calculated at the middle of the fiscal year assuming that half the expenses have been taken out of the Reserve Fund and half the annual

contribution has been deposited into the Reserve Fund. Therefore, Interest is calculated as follows:

$$Interest = Interest\ Rate \times \left(Starting\ Balance - \frac{Expenses}{2} + \frac{Annual\ Contribution}{2} \right)$$

These interest and inflation rates were presented to the current Board of Directors and approved and used in the final report.

4.2.2 Adequate Reserve Fund

The Act indicates that the Reserve Fund must be adequate to provide sufficient funds for the expected costs of major repair and replacement of the common elements and assets of the Corporation. However, "adequate" is not defined by the Act. We interpret adequate to be where the closing balance in every year of the 30-year period of the study is positive.

4.3 Cash-Flow Calculations

The Cash-Flow Calculations shown in the Detailed 30-Year Cash Flow Plan are discussed below. Each of the years shown in the Detailed 30-Year Cash Flow Plan represents the Fiscal Year of the Corporation as indicated in Section 4.1 above.

4.3.1 Starting Balance

The Starting Balance for this Reserve Fund Study has been shown in Section 4.1 above.

4.3.2 Total Expenses

The cost of each item in the Component Inventory Table is projected forward to the appropriate year, inflated annually as indicated in Section 4.2.1, and totaled.

The repairs and replacements we have forecasted in the Detailed 30-Year Cash Flow Plan do not represent a fixed schedule for replacements; repairs or replacements may be required sooner or later than we have anticipated.

Review of the Tables reveals several projects that occur in a single year of the study period. These repairs and replacements may not all take place in one year, or be required at all; however, it is prudent to budget for such projects since failure of some components is unpredictable.

4.3.3 Annual Reserve Contribution

The Annual Reserve Contribution for the first year of this study is indicated in Section 4.1 above. Future annual contributions are calculated based on the

estimates of life expectancy and opinions of probable cost, minimum Reserve Fund balance, and the assumptions for inflation and interest.

4.3.4 Other Contribution

When large expenses are anticipated in the near future and the existing Reserve Fund Balance is relatively low, increases to the annual contribution may not be sufficient. Increasing the annual contribution to an amount that can accommodate the major expenses is typically not considered a suitable funding plan since the Reserve Fund Balance often becomes relatively high for the remainder of the study period. Excess funds in a Reserve Fund cannot be used for any other purpose except for the major repairs and replacements for which they have been budgeted.

In such cases, Other Contributions are considered in the Cash-Flow Plan. These contributions can be in the form of special assessments or surplus funds that the Board has indicated will be available from other sources (i.e. transferred from operating budgets or contingency funds).

4.4 Contribution Scenarios

The actual condominium Corporation's annual contributions to the Reserve Fund Account should be established by the Board of Directors. We recommend you review this Reserve Fund Study with your accountants to ensure it meets the needs of your Reserve Fund. Alternate funding strategies should be reviewed with your solicitor and/or accountant to determine if they meet the intent of the Act.

For condominiums registered before May 5, 2001*:* Subsection 94(8) of the 1998 Condominium Act and O. Reg. 48/01, s.33(2) indicates that the Board shall propose a funding plan for the Reserve Fund so that the Reserve Fund will be adequate within 15 years following the completion of the first Reserve Fund Study conducted after May 5, 2001. Hence, any increases to the Reserve Fund contributions above inflation must take place before the end of the fiscal year in which this date falls. At the next fiscal year and each year thereafter, the planned contribution can be increased by inflation only.

Below we summarize the current contribution and provide two possible funding scenarios for the reserve fund.

4.4.1 Current Contribution

As a result of this study we have verified that there will not be sufficient funds available to meet the anticipated expenditures for the 30-year period addressed by this study at the current contribution rate of $171,506 per year, increased by 2.0 percent inflation only for the next thirty years. The Reserve Fund Balance becomes negative in the year 2015 and never recovers. This is shown in the Cash-Flow Table and Cash-Flow Chart of the **Current Contribution Plan** in **Appendix B**.

Based on our assessment, it is our opinion that the Reserve Fund is severely underfunded for a building of this age. Significant increases in the contribution are necessary to build-up the Reserve Fund to finance the anticipated expenditures. We strongly recommend that significant increases to the contribution be implemented as soon as possible. Components are approaching their typical service life, and failures are already being experienced at the building. Replacing systems when they fail is significantly more costly than planned replacement projects.

The Condominium Act is currently under review; recommendations for revisions to the Act have recently been published. One of the recommendations is to allow increases (above the rate of inflation) within three years of the date of the study. The recommendation states "that the year-over-year percentage change in total contributions to the reserve fund should be no greater than the assumed inflation rate used in the reserve fund study, except for the first three years when total contributions may be greater than the assumed rate". Although the proposed recommendations have not been adopted, we anticipate that this recommendation will be accepted.

4.4.2 Scenario 1: Proposed Contribution 1

In Scenario 1 the annual contribution is increased by 24.0 percent (including 2.0 percent inflation) between fiscal years 2015 and 2017, and is then increased by inflation only from 2018 onwards. In addition, there are special assessments of $405,600 per year in fiscal years 2015, 2016 and 2017. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately $178,665 in 2040. This is represented as **Scenario 1** in the Cash-Flow Plan, Chart and Tables in **Appendix C**.

The average per unit costs and increases for the funding plan represented by Scenario 1 – Proposed Contribution Plan 1 are summarized following.

CCC 15
Comprehensive Reserve Fund Study
Scenario 1 - Final - May 20, 2015

	2014	2015	2016	2017
Annual Reserve Contribution*	$171,506	$212,667	$263,708	$326,997
% Increase	n/a	24.0%	24.0%	24.0%
Average Increase per Unit per Month	n/a	$20.30	$25.17	$31.21
Average Annual Contribution per Unit per Month	$84.57	$104.87	$130.03	$161.24
Total Other Contributions**	n/a	$405,600	$405,600	$405,600
Average Other Contribution per Unit per Month	n/a	$200.00	$200.00	$200.00

* The term "Annual Reserve Contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

** The term "Total Other Contributions" refers to other contributed amounts including special assessments or surplus funds transferred from other sources (i.e. operating budget or contingency fund).

Scenario 2: Proposed Contribution 2

In Scenario 2 the annual contribution is increased by 38.0 percent (including 2.0 percent inflation) between fiscal years 2015 and 2017, and is then increased by inflation only from 2018 onwards. This plan also includes three lump sum contributions of $202,800 in the years 2015, 2016 and 2017. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately $16,789 in 2015. This is represented as **Scenario 2** in the Cash-Flow Plan, Chart and Tables in **Appendix C**.

The average per unit costs and increases for the funding plan represented by Scenario 2 – Proposed Contribution Plan 2 are summarized following.

CCC 15
Comprehensive Reserve Fund Study
Scenario 2 - Final - May 20, 2015

	2014	2015	2016	2017
Annual Reserve Contribution*	$171,506	$236,678	$326,616	$450,730
% Increase	n/a	38.0%	38.0%	38.0%
Average Increase per Unit per Month	n/a	$32.14	$44.35	$61.20
Average Annual Contribution per Unit per Month	$84.57	$116.71	$161.05	$222.25
Total Other Contributions**	n/a	$202,800	$202,800	$202,800
Average Other Contribution per Unit per Month	n/a	$100.00	$100.00	$100.00

* The term "Annual Reserve Contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

** The term "Total Other Contributions" refers to other contributed amounts including special assessments or surplus funds transferred from other sources (i.e. operating budget or contingency fund).

5. SUMMARY

Morrison Hershfield Limited has reviewed and assessed the reserve fund requirements of Carleton Condominium Corporation No. 15 (CCC 15) in accordance with the Scope of Services and Limitations outlined in Section 1 of this report.

In general, the common elements of CCC 15 are in fair to poor condition. A detailed list of components and their condition is included in the Component Inventory Table of Appendix A of this report. The major expenses anticipated over the next ten years include; major balcony and railing rehabilitation, repairs to the exterior cladding and concrete, replacement of the remaining original windows and doors and the exposed windows at the outside corners of the tower, replacement of the main tower and mechanical penthouse roofs, replacement of the Penthouse level terrace waterproofing membrane, replacement of the corridor carpeting, testing and replacement of the domestic water piping, testing and replacement of the standpipe, sprinkler piping and valves, replacement of the incoming electrical service and main switchboard, distribution panels, common area panels and associated components, replacement of the emergency generator, replacement of the remaining areas of the upper podium waterproofing membrane, expansion joint repairs, repairs to the exterior west wall of the garage, replacement of the metal railings and handrails on site, replacement of the garage makeup air units and exhaust fans, and testing and replacement of the sanitary drainage piping.

This Comprehensive Reserve Fund Study presents two possible funding strategies that will provide adequate funding to cover anticipated major repairs and replacements expected in the next 30 years. It has been developed based on the information provided to us by CCC 15 and our review of the site.

- In Scenario 1 – Proposed Contribution Plan 1, the current annual contribution of $171,506 is increased 24.0 percent (including 2.0 percent inflation) for Fiscal years 2015, 2016 and 2017, and then increased by inflation only from fiscal year 2018 onwards. Special assessments of $405,600, are also required in fiscal years 2015, 2016 and 2017. This is shown in the Tables for Scenario 1 in Appendix C of this report.

- In Scenario 2- Proposed Contribution Plan 2, the current annual contribution of $171,506 is increased 38.0 percent (including 2.0 percent inflation) for Fiscal years 2015, 2016 and 2017, and then increased by inflation only from fiscal year 2012 onwards. Special assessments, of $202,800, are also required in fiscal years 2015, 2016 and 2017. This is shown in the Tables for Scenario 2 in Appendix C of this report.

If such funding is not achieved, future condominium owners can expect the need for additional special assessments to address major renewal activities.

The Reserve Fund Study is a dynamic document that will change over time as repairs/replacements are carried out on the common elements and interest/inflation rates change. The repairs and replacements we have forecasted in the Detailed 30-Year Cash Flow Plan do not represent a fixed schedule for replacements; repairs or replacements 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 Reserve Fund Study are necessary to re-assess the needs of your condominium.

CCC 15 is required to complete a Reserve Fund Study Update without Site Inspection within three years of the date of this study, and a Reserve Fund Study Update with Site Inspection within three years of that study (as specified by O.Reg. 48/01, s. 31 (3)). This is the minimum requirement for conducting Reserve Fund Studies. However, the Board should consider an Update with Site Inspection if any significant changes in the condition of the common elements become apparent. Similarly, the Board should consider an Update without Site Inspection at an earlier date (prior to the three-year anniversary of this study) if there are any significant changes to the cash flow due to unforeseen conditions.

If you have any questions regarding the information contained herein, please contact the undersigned.

MORRISON HERSHFIELD LIMITED

LICENSED PROFESSIONAL ENGINEER
A.A. HUFFMAN
May 20/15
PROVINCE OF ONTARIO

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Building and Site Elements

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APPENDIX A

Component Inventory

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Item No.	Component	Description	Observations	Condition
S1	Structure - Foundation	The foundation of the building consists of cast-in-place concrete walls of the parking garage, columns and footings.	Water ingress and repairs to the parking garage walls, slabs and columns are addressed in the parking garage discussion which is included in the joint common elements below.	Good
S2	Superstructure	The tower is constructed of cast-in-place concrete and concrete block masonry with a steel roof deck.	Due to interior finishes, the structure of the building was only visible in the stairwells and service rooms. No signs of excessive movement or distress were observed.	Good
S3a	Balconies - West Elevation Rehabilitation	The balconies consist of cast-in-place concrete slabs with a combination of cast-in-place guardwalls and painted metal railings. Wooden privacy fences with painted metal supports are provided between connected balconies at the north and south elevations. Some of the concrete guardwalls have been painted (this was done by the individual unit owners). We understand that the wood privacy fences are painted on a regular basis and repaired as required out of the operating and maintenance budget.	Balconies at Units 404, 809, 1008 and 1707 were accessed at the time of our site visit. We noted cracks and delamination of both the top surface and soffit of the slabs as wells as cracked and spalled concrete around the anchors for the metal railings. Areas of past repairs were also observed. Sealant was installed at some locations at the joint between the concrete guardwalls and the exterior walls There was carpeting installed on a few of the balconies which should be removed. We were provided with a balcony condition assessment report completed by A.Dagenais & Assoc. Inc. from August 2013 and a specification for comprehensive balcony rehabilitation. Repair work to the west elevation balconies and a other specific balconies was in progress at the time if the site review. The condition assessment report references a preliminary structural condition assessment report for the balconies, dated July 25, 2012. This report was not provided to MH. We understand that the Condominium does not have current plans to complete comprehensive repairs to the remaining elevations, however, based on our review of a sampling of the balconies we recommend that the Condominium plan for a major rehabilitation of all remaining balconies similar to the west elevation. The budget and timing of this phased rehabilitation project should be adjusted based on a detailed condition assessment as noted in item S3d.	Poor
S3b	Balconies - Rehabilitation - North, East & South Elevations			Fair
S3c	Balcony - Railings - Replace		Peeling of the paint and corrosion of the underlying metal railings was observed throughout the balcony railings observed including the metal supports for the wood privacy fences. Removal, stripping and re-finishing of the balcony railings is included within the scope of work for the balcony repairs. We assume that this will be completed at the remaining elevations to coincide with the balcony rehabilitations. With the re-finishing of the railings a full replacement is not expected to be required in the short term. Isolated cleaning and re-painting of the railings should be completed in the short term to ensure no further deterioration of the underlying metal occurs prior to the full remediation.	Poor
S3d	Balcony - Condition Assessment		CCC 15 has indicated that they wish to defer major rehabilitation work at the North, East and South elevation balconies. Based on the observed conditions we recommend that a detailed engineering review of the balconies be completed in the short term in order to address any immediate repairs required and to develop a plan for the future rehabilitation project (including timing and cost estimates).	NA

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Item No.	Component	Recommendations	Typical Life Expectancy	Actual or Estimated Year of Acquisition	Present Age	Time To First Replacement	Time to Subsequent Replacements	Years Over Which Work is Phased	Total Repair or Replacement Costs*
S1	Structure - Foundation	Foundations are expected to last the service life of the building, major repairs or replacements are not anticipated at this time.	50 plus	1973	41				
S2	Superstructure	The concrete structure is expected to last the life of the building, no major repairs are anticipated at this time.	50 plus	1973	41				
S3a	Balconies - West Elevation Rehabilitation	Complete rehabilitation of the concrete balconies at the west elevation and additional isolated balconies. The rehabilitation includes removal and re-finishing of the balcony railings and replacement of the sealant joint between the concrete guardwalls and exterior walls.	10 - 15	1973	41	0	25	1	$132,500
S3b	Balconies - Rehabilitation - North, East & South Elevations	An allowance for comprehensive repairs to the remaining concrete balconies, sidewalls and metal railings.	10 - 15	1973	41	10	25	3	$339,000
S3c	Balcony - Railings - Replace	Replace the railing system of the balconies.	40 - 50	1973	41	35	40	1	$165,000
S3d	Balcony - Condition Assessment	Complete a detailed engineered condition assessment of the North, East and South elevation balconies and an allowance for immediate repairs as required based on the assessment.	30 - 40	1973	41	1	30	1	$45,000

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Item No.	Component	Description	Observations	Condition
BE1a	Sheltered Concrete Panels and Sealant - Repair	The exterior cladding consists primarily of uninsulated, cast-in-place concrete panels. Exterior sealant joints are provided at the concrete panels. There is also sealant installed at each of the concrete panel anchors and at the perimeters of the windows and doors. Based on previous reports, we understand that the concrete panels at the corners of the building have been treated with a clear concrete sealer to protect against water penetration.	There were visible areas of previous crack repair and sealant installations at the concrete panels. We noted some areas of minor cracking in the concrete panels but the majority of the cracks have been repaired/sealed. The concrete panels are expected to last the life of the building but will require continued regular maintenance and repair. No leaks or problems with the exterior cladding were reported or observed at the time of our review. We understand that the a leak occurred in 2013 at Unit 1807 and was repaired. No major failure or deterioration of the sealant joints was noted. We did note that the sealant at the anchors was starting to show signs of aging and deterioration.	Good
BE1b	Exposed Concrete Panels, Repair, Sealer & Sealant			Good
BE1c	Exterior Cladding - Repair	There is pre-finished metal cladding at the exterior walls at the penthouse level and a mixture of stucco, metal, wood and vinyl cladding at the unit balconies which has been revised and changed over the years to coincide with changes to the windows and doors. We understand that metal cladding installed at the outside corners of the penthouse level parapet was installed circa 1999. There is also a cementitious parging at the soffit at the main roof overhang at the penthouse.	We noted areas of damage to the stucco at the intersection of the window and door jambs on the balconies. The stucco was pulling away from the adjacent windows or doors resulting in failure of the sealant and an open gap. In some of these locations the stucco finish was cracked and delaminated. No major damage or issues were noted with the metal cladding at the penthouse walls. Cracking and deterioration at the penthouse soffit was noted. Minor repairs to the siding should be completed at needed out of the operating and maintenance budget.	Fair
BE2a	Exposed Windows - Replace	The exposed windows at the east and west corners of the building have been replaced with aluminum framed windows with casement style operables. We understand that the windows were replaced circa 1988.	No issues with the performance or operation of the windows was noted. CCC 15 indicated that the windows were inspected and necessary repairs to the sealant, hardware, insulating glass units and weatherstripping were completed recently and that	Good
BE2b	Original Sheltered Windows and Balcony Doors - Replace	Windows and balcony doors are located along the elevations at the unit balconies. The original windows consist of wood framed thermopane units with horizontal sliding vents. The original doors consist of a wood door in a wood frame with a glazed lite and a also have an aluminum storm door. Over the years windows and doors at the balconies have been replaced by the Condominium and/or Owners. CCC 15 has indicated that there are approximately 15 units that still have the original windows and doors (9%). The replacement windows and doors include a variety of types and configurations of aluminum or vinyl framed windows. Many of the original wood swing doors have been replaced with sliding doors.	The original windows had areas of peeling paint and failed sealant. Interior damage and peeling paint was also noted which is likely caused by condensation around the windows. We understand that the windows are replaced on an as needed basis at the discretion of the Board. Any upgrades or changes to the windows and doors are paid for by the individual unit owners. As a result of the windows and doors being replaced on an as needed basis, the type, configuration and quality of the windows varies throughout. Damage to the adjacent cladding as noted in Item BE1c are also likely the result of poor installation detailing of these new windows. We understand that the Condominium has set aside funds this year to replace some of the failing windows.	Fair
BE2c	Newer Sheltered Windows and Balcony Doors - Replace			Good
BE3	Main Entrance - Replace	The main entry consists of an aluminum framed glazing assembly with integral doors. There is a secondary glazed entry system between the vestibule and the main lobby.	We noted peeling paint at the metal frame of the entry door system and noted that some of the glazing stops appear to have been replaced. We also noted signs of corrosion and moisture damage at the interior of the glazing system indicative of poor thermal performance and condensation. These windows have reached the end of their reliable service life.	Fair

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Item No.	Component	Recommendations	Typical Life Expectancy	Actual or Estimated Year of Acquisition	Present Age	Time To First Replacement	Time to Subsequent Replacements	Years Over Which Work is Phased	Total Repair or Replacement Costs*
BE1a	Sheltered Concrete Panels and Sealant - Repair	An allowance to complete repairs to the exterior concrete cladding and sealant replacement at the balconies and ground floor.	15 - 20	1973	41	7	15	1	$45,000
BE1b	Exposed Concrete Panels, Repair, Sealer & Sealant	An allowance for replacement of the exterior sealant, re-application of the clear concrete sealer and repairs to the concrete panels as required. Periodic repairs may be required to address isolated issues and can be completed as required out of the operating and maintenance budget. CCC 15 may wish to consider an inspection by boseman chair at the halfway point between the sealant replacement to identify any issues.	15 - 20	2011	3	9	10	1	$90,000
BE1c	Exterior Cladding - Repair	An allowance to complete repairs to the exterior cladding (excluding exposed concrete) as required.	10 - 15	varies	varies	2	10	1	$34,000
BE2a	Exposed Windows - Replace	Replace the exposed windows (east and west elevations only) at the end of the reliable service life.	30 - 40	1988	26	9	30	1	$271,000
BE2b	Original Sheltered Windows and Balcony Doors - Replace	An allowance to complete the replacement of any remaining original windows and doors.	35 - 40	1973	41	1	35	5	$102,000
BE2c	Newer Sheltered Windows and Balcony Doors - Replace	An allowance to complete replacement of the newer windows and doors as they begin to reach the end of their service life. The existing age is an assumed average of all of the replaced windows and doors.	35 - 40	1995	19	16	5	1	$606,000
BE3	Main Entrance - Replace	Replace the main entry window and door assembly.	25 - 35	1973	41	10	30	1	$17,000

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Item No.	Component	Description	Observations	Condition
BE4	Sealant at Exposed Windows	Exterior sealant joints are provided around the perimeter of the exposed windows.	We were informed that the sealant at the exposed windows was replaced circa 2012.	Fair
BE5a	Main Tower and Mechanical Penthouse Roof - Replace	The main roof and the mechanical penthouse roof consist of a thermoplastic polyolefin (TPO) membrane roof with prefinished metal flashing and coping. Based on previous reports, we understand the roof membrane is installed over the existing built up roof assembly.	The roof was reviewed visually from the roof access hatch. No visible signs of damage or deterioration were noted. Typical staining and dirt accumulation was noted on the surface of the membrane. Roof Maintenance Reports from B.J. Millaire Builders 2011 indicated roofs were performing well and no major repairs were required. Regular inspection of the roofs and minor repairs to the membrane, flashing and sealant at penetrations should continue to be completed. This can be completed out of the operating and maintenance budget.	Good
BE5b	Mechanical Penthouse Walls	The walls of the mechanical penthouse are sloped and protected with a prefinished metal siding. Based on previous reports we understand that the metal siding is installed over the existing asphalt shingle roof.	The walls of the penthouse roof were not easily accessible for a visual review from the roof hatch. The walls were reviewed where visible from the roof hatch and from the adjacent building. No major damage or deterioration was observed and no issues were reported to us. The Roof Maintenance Reports from B.J. Millaire Builders from 2010 and 2011 indicated that the metal siding was in good condition.	Good
BE6	Penthouse Condo Terraces - Replace	The penthouse terraces are protected with a composite decking. Based on previous reports and discussion on site, we understand that the membrane is a 2-ply modified bitumen roofing membrane installed onto the concrete deck. The composite wood decking and insulation was replaced in 2013. We understand that a self adhered membrane and pre-finished metal flashing was installed along the outside perimeter of the parapet walls at the penthouse terraces in 2007.	The membrane is covered with insulation and decking and was not visible for review. Based on the roof condition assessment letter prepared by Cleland Jardine we understand that the modified bitumen roofing membrane was in fair to poor condition with surface degranulation and areas of ponding water. We have adjusted the life expectancy accordingly.	Fair
BE7	Roofs over Balconies - Replace	The concrete cantilever at the top level over each of the unit balconies was protected with a torch applied modified bitumen roofing membrane.	Typical aging of the membrane was noted. No major issues or deterioration were observed.	Fair
A1	Interior - Painting	Interior hallways and common areas consists of painted drywall.	We noted areas of damage and peeling of the paint. Periodic touch ups or repairs to the paint and drywall should be completed on an as needed basis out of the operating and maintenance budget. Based on previous reports we understand the last major painting of the common areas was completed in 2003.	Good
A2	Corridor Carpeting - Replace	The corridors are covered with carpeting.	We noted minor areas of wear to the hallway carpeting but carpeting was generally performing as expected. Based on previous reports we understand that the carpeting was replaced in 2003.	Good
A3a	Lobby Refurbishment	The lobby is finished with ceramic tile flooring, painted gypsum board and areas of wallpaper. There are mirrors, couches tables located within the lobby.	The finishes and furnishings in the lobby did not show any major sings of damage or deterioration. Based on previous reports we understand that the lobby was refurbished in 1990. We understand that CCC 15 is planning for a lobby renovation next year.	Good
A3b	Common Areas	The ground level common areas include a laundry room with a small restroom, the corridor, elevator lobby and mailboxes. As well as the garbage room and recycling room.	The washing machines are leased and do not belong to the condominium. We noted a few damaged and stained ceiling tiles and a few isolated cracked tiles. No major damage or deterioration was noted.	Good

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BE4	Sealant at Exposed Windows	An allowance to remove and replace the window caulking of the exposed windows (east and west elevations only). The caulking around the other windows and doors (patio, entrance, exterior) is replaced as required from the operating budget.	12 - 15	2012	2	9	12	1	$25,000
BE5a	Main Tower and Mechanical Penthouse Roof - Replace	Replace the thermoplastic polyolefin membrane of the main tower and mechanical penthouse roofs and the end of the reliable service life.	15 - 20	2003	11	9	20	1	$156,000
BE5b	Mechanical Penthouse Walls	Replace the metal siding and underlying components at the end of the reliable service life.	30 - 40	1996	18	12	30	1	$113,000
BE6	Penthouse Condo Terraces - Replace	Replace the modified bitumen system of the balcony terraces of the penthouse condos.	25 - 30	2003	11	5	25	1	$113,000
BE7	Roofs over Balconies - Replace	Replace the roofing membrane over the cantilevered balconies.	20 - 25	1996	18	7	20	1	$38,000
A1	Interior - Painting	An allowance for interior painting of common areas.	12 - 15	2003	11	3	15	1	$35,000
A2	Corridor Carpeting - Replace	Replace the carpet in the corridors.	12 - 15	2003	11	3	15	1	$66,000
A3a	Lobby Refurbishment	An allowance to refurbish the lobby including finishes and furniture.	30 - 35	1990	24	1	30	1	$54,000
A3b	Common Areas	Replacement of common area finishes and furnishings to be completed as needed out of the operating and maintenance budget. Some furnishing replacement will be completed as part of the lobby refurbishment.	5 - 10	1973	41				

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Item No.	Component	Description	Observations	Condition
A4	Superintendent's Apartment	There is a superintendents apartment located on the ground level of the building.	We understand that the apartment was renovated in 2010. The interior of the apartment was not accessed for review.	Good
A5	Suite Doors	Suite doors consist of wood doors in wood frames.	The doors are expected to last the life of the building with regular maintenance and repairs. No major issues with operation or the finishes were noted or reported to us.	Good
A6	Doors - Common Areas	The majority of the common area doors (corridors, stairwells, service rooms, amenity rooms, etc.) are painted metal doors in painted metal frames, doors in circulation routes have glazed vision panels.	No damage or deterioration was noted.	Good
A7	Stairwell - Painting	There are two main stairwells in the building. The walls, ceilings, stairs and landings are painted metal or painted concrete. Painted metal railings are provided at the stairs.	We noted some areas of chipped paint at the railings. The painted finish is worn at the edges of some of the stair treads and landings.	Good
A8	Garbage System - Repairs	The garbage disposal system includes garbage rooms at each floor, the garbage chute and collection bins.	We understand that repairs were undertaken to address deficiencies with the fire rated access doors in 2012 as required by the City of Ottawa Fire Safety Inspection Report. The interior of the garbage chute was noted to have been damaged in one area observed.	Fair
M1	Air Handler Unit	Corridors are supplied by an Trane built up air handler located in the mechanical penthouse. The built up unit contains, an electric heating coil and glycol preheat coil installed within the ductwork, recovering heat from the exhaust air.	Corrosion is present on the fan unit housing, and insulation shows signs of deterioration. Blower motor, heating control panel, duct heater and glycol preheat appear to be of more recent installation of varying ages and are in good condition.	Fair
M2	Glycol heat Recovery	The built up air handler is equipped with a glycol heat recovery system complete with fractional inline pump, expansion tank and 3 coils (1 within the supply duct, 2 within the return duct).	No issues reported or observed.	Good
M3	Electric Heating Coil	The built up air handler is equipped with a electric chromolox heating coil installed within the duct, and controller.	No issues reported or observed.	Good
M2	Main Exhaust Fans	The building is exhausted by four Delhi 1/3hp cabinet exhaust fans located in the mechanical penthouse. Two heat recovery coils are installed in the duct, circulate glycol to the make up air unit.	No issues reported or observed.	Good
M3	Air Conditioner - Elevator Room - Replace	The elevator room is cooled by a Fujitsu split air conditioner.	No issues reported or observed.	Good
M4	Boiler - Replace	The building Domestic Hot Water is heated by a gas fired Raytherm boiler with an input of 1222MBH located in the basement.	No issues reported or observed.	Good
M5	Storage Tanks - Replace	Domestic hot water is stored in two concrete lined steel storage tanks located in the basement.	Tanks have undergone recent repairs.	Good
M6	Piping - Testing	Piping within the building includes the domestic hot and cold water, sanitary drainage, sprinkler and standpipe.	Evaluating the condition of piping systems within a building is very difficult. Internal wear of piping is dependent on many factors (including water treatment, level of use, quality of installation, etc.) and the achieved service life varies greatly. Industry practice suggests that conducting metallurgical testing, as the piping nears the end of its service life, can be instrumental in more accurately predicting when replacement will be required. The timing of piping replacement has a significant impact on cash flow, as the cost to replace piping is substantial due to difficulties accessing the piping (removal of drywall, concrete floor slabs, etc.). But failure to plan for replacement can result in unexpected failures, which also has significant cost implications.	NA

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A4	Superintendent's Apartment	An allowance to refurbish the superintendent's apartment.	20 - 25	2010	4	16	20	1	$20,000
A5	Suite Doors	Periodic repairs and replacement of the doors and door hardware should be completed on an as needed basis out of the operating and maintenance budget.	50 plus	1973	41				
A6	Doors - Common Areas	Painting, repairs and replacement of the doors can be completed as required out of the operating and maintenance budget.	50 plus	1973	41				
A7	Stairwell - Painting	Complete painting of the stairwells as needed out of the operating and maintenance budget.	15 - 20	unknown	unknown				
A8	Garbage System - Repairs	Complete repairs to the garbage disposal system including the garbage chute, access doors, and collection bins, as needed out of the operating and maintenance budget.	25 - 30	1973	41				
M1	Air Handler Unit	An allowance for replacement of the air handler, damper and insulation. Preheat and electrical heating coils to remain.	40	1973	41	5	40	1	$26,000
M2	Glycol heat Recovery	Replace at end of useful life.	25 - 30	2012	2	23	25	1	$20,000
M3	Electric Heating Coil	Replace at end of useful life.	15 - 20	1983	31	1	15	1	$8,000
M2	Main Exhaust Fans	Replace fans at failure.	25	1973	41	1	9	1	$2,000
M3	Air Conditioner - Elevator Room - Replace	Replace the air conditioner in the elevator machine room at the end of the reliable service life.	10 - 15	2010	4	11	15	1	$14,000
M4	Boiler - Replace	Replace the domestic boiler at the end of life.	20 - 25	2009	5	16	20	1	$34,000
M5	Storage Tanks - Replace	An allowance for replacement of domestic hot water storage tanks at end of expected life.	20 - 25	2004	10	15	20	1	$40,000
M6	Piping - Testing	We recommend budgeting for metallurgical testing of the sprinkler and domestic hot and cold water piping, and a camera survey of the drainage piping to determine the current condition and remaining service life of the piping.	40	1973	41	2	10	1	$5,000

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Item No.	Component	Description	Observations	Condition
M7	Domestic Water Piping	Piping consists mainly of copper pipe where observed.	No issues were reported or observed. Following the draft report, CCC 15 provided a list identifying domestic water riser replacement completed between 1996 and 2001.	Fair
M8	Drainage Piping	Piping consisted of cast iron where observed.		Fair
M9	Main Booster Pumps - Replace	Two Armstrong 45gpm 10hp Booster pumps located in the basement transport water to the upper floors.	No issues observed or reported with the Main Booster Pumps. Housings show signs of corrosion.	Good
M10	Boiler Pump	Water is circulated through the boiler by means of a 1/3hp pipe mounted pump.	No issues reported or observed.	Good
M11	Recirculation Pump	Hot water is circulated from the boiler to the storage take by means of a 1/3hp pipe mounted pump.	No issues reported or observed.	Good
M12	Sump Pumps	Located in the basement machine room are two pits equipped with fractional horse power submersible pumps.	Pumps could not be observed	Fair
M13	Standpipe & Sprinkler	The building is equipped with a standpipe consisting of grooved steel joint piping. The mechanical and elevator penthouse is sprinklered.	Some leaks suspected at valves.	Fair
M14	Fire Hose Cabinets	A fire hose cabinet is located on each floor of the tower.	Inspections of the fire hose cabinets have lapsed.	Good
M15	Exhaust fans	The generator room, boiler room, elevator room and pump room are all exhausted into the garage by fractional horse power wall mounted propeller fans. Fans are considered to be original.	No issues reported. Fans show signs of age.	Fair
M16	Garbage Compactor - Replace	The garbage room is equipped with a Trash Compactor. The compactor appears to be of recent installation.	No issues reported or observed.	Good
M17	Generator fuel storage tank	The generator fuel is stored in the basement generator room, within a steel, double walled, vacuum monitored tank with secondary containment.	No issues reported or observed.	Good
M18	Generator Muffler	The generator exhaust is attenuated by a muffler. The muffler is fully insulated and suspended from the ceiling of the generator room. Name plate data could not be observed. We assume the muffler was installed in coordination with the fuel tank.	No issues reported or observed.	Good
E1	Incoming Service	Incoming utility service is provided by a FPE metal clad switch gear, six utility owned transformers, a 347/600V service supplied through three x 167kVA single phase transformers and a 120/208V supply supplied through three x 333kVA transformers. This equipment is located in the Hydro Vault.	Building is primary metered.	Fair
E2	120/208V Switchboard	A Taylor Electric (manufacturer), 120/208V, 4000A, 2-section switchboard supplied from the hydro vault.		Fair
E3	Condo Distribution	Taylor Electric (manufacturer), 120/208V, distribution panels and associated disconnects and riser.	13 panels, & discs, 1 riser	Fair

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M7	Domestic Water Piping	An allowance for replacement of the domestic water piping at the end of its anticipated service life. The timing of replacement should be adjusted, based on the results of the testing (item M6).	40 - 50	1996	18	31	40	6	$139,000
M8	Drainage Piping	An allowance for replacement of the drainage piping at the end of its anticipated service life. The timing of replacement should be adjusted, based on the results of the testing (item M6).	50 - 60	1973	41	19	50	1	$5,000
M9	Main Booster Pumps - Replace	Replace the main water supply booster pumps at end of service life.	25	2008	6	19	25	1	$45,000
M10	Boiler Pump	Replace boiler circulation pump at end of service life.	5 - 10	2009	5	5	10	1	$2,000
M11	Recirculation Pump	Replace recirculation pump at end of service life.	5 - 10	2004	10	5	5	1	$2,000
M12	Sump Pumps	Replace pumps at failure.	5 - 10	unknown	unknown	3	10	1	$2,000
M13	Standpipe & Sprinkler	An allowance for replacement of the standpipe and sprinkler piping and valves at the end of its anticipated service life. The timing of replacement should be adjusted, based on the results of the testing (item M6).	50	1973	41	9	50	1	$91,000
M14	Fire Hose Cabinets	Replacement of fire hose cabinets should be completed, as needed, in coordination with piping replacements.							
M15	Exhaust fans	Replace fans at failure.	10 - 15	1973	41	5	10	1	$3,000
M16	Garbage Compactor - Replace	Replace the garbage compactor.	15 - 20	unknown	unknown	10	15	1	$14,000
M17	Generator fuel storage tank	Replace at end of useful life.	25 - 30	2009	5	25	30	1	$6,000
M18	Generator Muffler	Replace at end of useful life.	15	2010	4	16	20	1	$11,000
E1	Incoming Service	Replace incoming service, including primary and secondary utility owned transformer conductors, transformer pads, switchgear, conductors servicing main electrical room and associated conduit and cable tray at end of typical service life. Coordinate incoming service replacement with Hydro Ottawa to ensure replacement system is approved. Current setup may not be allowed at time of replacement if Ottawa Hydro refuses to allow two service for each tower. Cost is to replace system as is.	40	1973	41	1	40	1	$484,000
E2	120/208V Switchboard	Replace 120/208V switchboard and associated conductors and conduits at end of service life. Replacing switchboard in conjunction with incoming service will reduce down time and overall cost.	40	1973	41	1	40	1	$57,000
E3	Condo Distribution	Replace distribution panels and associated disconnects and riser in bulk at end of service life.	40	1973	41	3	40	1	$480,000

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E4	Triacta Smart Meter	A Triacta (manufacturer), PowerHawk 6312 High Density Meter located in the electrical closet with each condo distribution panel and one in the penthouse mechanical room.		Excellent
E5	120/208V Main Splitter Trough	120/208V non-emergency common area distribution is supplied through a splitter trough in the main electrical room.		Fair
E6	120/208V Panels	120/208V non-emergency panels.		Fair
E7	347/600V Switchgear	A Siemens (manufacturer), 347/600V, 1200A,		Excellent
E8	347/600V Main Splitter Trough	A BEL 347/600V splitter trough located in the main electrical room to supply the building's 347/600V and emergency 120/208V loads.		Fair
E9	Penthouse Distribution	Penthouse 347/600V splitter troughs and disconnects serving mechanical loads.		Fair
E10	Basement Distribution	Basement mechanical room splitter troughs, disconnects and starters serving mechanical equipment.		Fair
E11	Panel E1 & T1 Transformer	A 347/600V panel and 15kVA transformer.		Fair
E12	Emergency 120/208V Splitter Trough	A BEL 120/208V splitter trough located in the main electrical room to emergency 120/208V loads.		Good
E13	Emergency 120/208V Panels	Five 120/208V emergency panels located mostly in the main electrical room.		Good
E14	Fire Pump Controller	A 600V controller used to control the fire pump motor.		Excellent
E15	Jockey Pump Controller	A 600V controller used to control the 2HP jockey pump motor.		Excellent
E16	Domestic Water Pump Duplex Controller	A 600V duplex controller used to control the two 10HP domestic water pump motors.		Good
E17	Sump Pump Duplex Controller	A 600V duplex controller used to control the two sump pump motors.		Good
E18	Interior Public Lighting	Corridor, lobby and stairwell lighting.		Good
E19	Fire Alarm Control Panel (FACP) & Annunciator Panel	An EST (manufacturer), 48 zone, single-stage fire alarm system. The control panel (FACP) is located in a locked room beside the main entrance and the annunciator panel is located in the main lobby.	CCC 15 indicated that a new fire alarm control panel is to be provided in 2015 as part of a new fire alarm service contract.	Good

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E4	Triacta Smart Meter	Replace meter and associated conductors and conduit at end of typical service life.	25 - 30	2012	2	23	25	1	$170,000
E5	120/208V Main Splitter Trough	Replace 120/208V splitter trough and associated disconnects, conductors and conduit at end of service life.	40	1973	41	5	40	1	$11,000
E6	120/208V Panels	Replace all non-emergency 120/208V panels and associated conductors and conduit at end of service life.	40	1973	41	5	40	1	$85,000
E7	347/600V Switchgear	Replace 347/600V switchgear and associated conductors and conduits at end of service life. Replacing switchgear in conjunction with incoming service at end of typical service life will reduce down time and overall cost.	40	2012	2	38	40	1	$57,000
E8	347/600V Main Splitter Trough	Replace 347/600V splitter trough and associated disconnects, conductors and conduit at end of service life.	40	1973	41	5	40	1	$14,000
E9	Penthouse Distribution	Replace 347/600V distribution and associated conductors and conduit in the penthouse mechanical area (excluding elevator machine room equipment) in bulk at end of service life.	40	1973	41	5	40	1	$11,000
E10	Basement Distribution	Replace splitter troughs and associated disconnects, starters, conductors and conduit in bulk at end of service life. Consider replacing loose disconnects and starters with one motor control centre. Cost is based upon replacing current equipment as is.	40	1973	41	5	40	1	$40,000
E11	Panel E1 & T1 Transformer	Replace panel, transformer and associated conductors and conduit in bulk at end of typical service life.	40	1988	26	14	40	1	$17,000
E12	Emergency 120/208V Splitter Trough	Replace splitter trough and associated, disconnects, conductors and conduit.	40	1988	26	14	40	1	$9,000
E13	Emergency 120/208V Panels	Replace panels and associated conductors and conduit at end of service life.	40	1988	26	14	40	1	$68,000
E14	Fire Pump Controller	Replace fire pump controller and associated conductors and conduit at end of typical service life.	30	2010	4	26	30	1	$42,000
E15	Jockey Pump Controller	Replace jockey pump controller and associated conductors and conduit at end of typical service life.	30	2010	4	26	30	1	$12,000
E16	Domestic Water Pump Duplex Controller	Replace domestic water pump duplex controller and associated conductors and conduit at end of service life.	30	2007	7	23	30	1	$17,000
E17	Sump Pump Duplex Controller	Replace sump pump duplex controller and associated conductors, level sensors and conduit at end of service life.	30	2005	9	21	30	1	$23,000
E18	Interior Public Lighting	Replace the interior lighting of the common areas (corridors, stairwells, lobbies, etc.) at the end of service life. Recommend coordinating with corridor renovations where feasible.	25	1995	19	10	25	1	$57,000
E19	Fire Alarm Control Panel (FACP) & Annunciator Panel	Replace the FACP, annunciator panel and associated conductors and conduit at end of typical service life.	20	2015	-1	21	20	1	$28,000

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E20	Fire Alarm Devices	Common spaces, smoke detectors, heat detectors, manual pull stations and bells controlled by the FACP.		Good
E21	Emergency Exit Signs	Two-sided, two lamp exit signs.		Good
E22	Emergency Generator	A Leroy Somer (manufacturer), 125kW, 600V generator.		Fair
E23	Automatic Transfer Switch	An ASCO (manufacturer), automatic transfer switch.		Fair
E24	Guest Entry Panel	Front vestibule entry panel.		Excellent
EL1	Elevators - B44 Safety Code	Periodically, TSSA dictates that remedial work be carried out on elevators.	Refer to the elevator report in Appendix D.	NA
EL2	Elevators - Modernization	There are two traction passenger elevators in the building which provide access to all floors.	Refer to the elevator report in Appendix D.	Good
EL3	Elevators - Cab Finishes	The cab finishes were recently refurbished.	Refer to the elevator report in Appendix D.	Good
RFS1	Reserve Fund Study with Site Review	CCC 15 is required to complete a Reserve Fund Study Update with Site Inspection within three years of the Update without Site (as specified by O.Reg. 48/01, s. 31 (3)); this is the minimum requirement for conducting Reserve Fund Studies.	CCC 15 should consider an Update with Site Inspection if any significant changes in the condition of the common elements become apparent.	NA
RFS2	Reserve Fund Study - No Site Review	CCC 15 is required to complete a Reserve Fund Study Update without Site Inspection within three years of the date of this study (as specified by O.Reg. 48/01, s. 31 (3)); this is the minimum requirement for conducting Reserve Fund Studies.	CCC 15 should consider an Update without Site Inspection at an earlier date if there are any significant changes to the cash flow due to unforeseen conditions.	NA
JC-PG1a	Upper Podium Membrane - Building A/B	The upper podium is waterproofed with a rubberized asphalt waterproofing membrane. There is a variety of paving and landscaping located over the podium slab.	The membrane was not exposed for a visual review. We noted a significant number of leakage areas within the garage which have been repaired and there are reports of multiple areas of ongoing leakage which are being investigated and are planned for repairs. Some areas of the podium waterproofing membrane replacement have been replaced or repaired in recent years. Based on the ongoing leakage issues we are of the opinion that the podium membrane has reached the end of its reliable service life. We recommend continuing with the phased approach to replacement of the remaining areas of the waterproofing membrane and have budgeted for areas of replacement over the next few years. An investigation was completed by Cleland Jardine in October 2014, which included exploratory openings at five locations and provided recommendations for repairs. Membrane replacement includes for the replacement of the various paving and landscaping elements located over the podium deck.	Poor
JC-PG1b	Upper Podium Membrane - Building B/C over Parking Garage			Poor
JC-PG1c	Upper and Lower Podium Membrane - Northwest of Bldg. A & South of Bldg. C.			Poor
JC-PG1d	Upper Podium Membrane - Building C/D over Recreation Area			Poor

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E20	Fire Alarm Devices	Replace fire alarm devices and associated conductors and conduit in conjunction with every 2nd FACP at end of typical service life. Replace devices at failure out of O&M budget until then.	40	1985	29	11	40	1	$85,000
E21	Emergency Exit Signs	Replace emergency exit signs in bulk at end of typical service life, replace signs at failure out of O&M budget until then. Replace associated conductors with every 2nd sign replacement.	20	2012	2	18	20	1	$20,000
E22	Emergency Generator	Replace the emergency generator and associated conductors and conduit..	30 - 35	1988	26	9	30	1	$121,000
E23	Automatic Transfer Switch	Replace the emergency generator transfer switch and associated conductors and conduit at end of typical service life.	30 - 35	1988	26	9	30	1	$17,000
E24	Guest Entry Panel	Replace the main entrance entry panel system. Replace associated conductors and conduit with every 2nd replacement.	20	2013	1	19	20	1	$15,000
EL1	Elevators - B44 Safety Code	A contingency for future mandatory work as required by the B44 Safety Code.	5	1973	41	2	5	1	$3,000
EL2	Elevators - Modernization	Complete modernization of the existing elevators including B44 Code upgrades.	25 - 30	2012	2	26	25	1	$339,000
EL3	Elevators - Cab Finishes	An allowance to modernize cab finishes.	15 - 20	2012	2	13	15	1	$32,000
RFS1	Reserve Fund Study with Site Review	Perform a Comprehensive Reserve Fund Study or Reserve Fund Study with Site Review as required by the current Condominium Act.	6	2008	6		6	1	$7,600
RFS2	Reserve Fund Study - No Site Review	Perform a Reserve Fund Study without Site Review as required by the current Condominium Act.	6	2011	3	3	6	1	$3,000
JC-PG1a	Upper Podium Membrane - Building A/B	Investigation and repairs completed this year. An allowance for replacement the podium membrane at the upper podium deck between Buildings A & B.	25 - 30	1972	42	2	25	2	$345,000
JC-PG1b	Upper Podium Membrane - Building B/C over Parking Garage	An allowance for replacement of the podium membrane at the upper podium deck between Buildings B & C over the parking garage.	25 - 30	1972	42	7	25	1	$381,000
JC-PG1c	Upper and Lower Podium Membrane - Northwest of Bldg. A & South of Bldg. C.	An allowance for replacement of the podium membrane at the upper podium deck at the northwest corner of Building A and the lower podium deck at the south of Building C which was not replaced as part of the previous lower podium replacement.	25 - 30	1972	42	12	25	1	$218,000
JC-PG1d	Upper Podium Membrane - Building C/D over Recreation Area	An allowance for replacement of the podium membrane at the upper podium over the recreation area.	26 - 31	2003	11	17	25	1	$127,000

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Item No.	Component	Description	Observations	Condition
JC-PG1e	Lower Podium Membrane	At the east side of the complex the main entry roadways, visitor parking and sidewalks are located over the lower level of the parking garage. The horizontal slab is protected with a waterproofing membrane. We understand that the lower level membrane and associated asphalt paving, concrete sidewalks and landscaping was replaced circa 2005.	The membrane is covered with paving and landscaping and was not visible for review. There were no reported leaks or issues with this area of the podium membrane. Leaks at the expansion joint are ongoing and are discussed in Item JC-PG7b.	Good
JC-PG2a	Expansion Joint - Upper Podium A/B - Replace	There are two expansion joints running east to west across the podium deck at the upper and lower podiums.	Leakage issued and deterioration of the expansion joint were noted. In the report completed by A. Dagenais & Assoc. Ltd., the leakage of the expansion joint was identified as the cause of the deterioration of the concrete columns. We understand that the expansion joints at the lower podium were replaced as part of the membrane replacement in 2005 but that there are ongoing issues and leaks related to the expansion joint. We understand that the Board is planning to replace these expansion joints in the short term. We understand that a section of the expansion joint over the recreation areas was replaced along with the membrane replacement in 2003 and that there are no current issues or concerns with this section of the expansion joint.	Poor
JC-PG2b	Expansion Joint - Upper Podium B/C - Over parking garage			Poor
JC-PG2c	Expansion Joint - Lower Podium A/B & B/C - Replace			Poor
JC-PG2d	Expansion Joint Upper Podium B/C over Recreation Area			Good
JC-PG3a	Upper Garage - Suspended Slab Waterproofing - Repairs	The upper level of the two storey parking garage consists of a suspended slab with an asphaltic membrane waterproofing covered with an asphalt overlay. We understand that the membrane and overlay were installed circa 2008.	No major deterioration of the overlay was noted. There were not reported leaks through the suspended slab.	Good
JC-PG3b	Upper Garage - Suspended Slab Waterproofing - Replace			Good
JC-PG4	Lower Garage Asphalt - Repairs	The lower level of the parking garage consists of asphalt on grade.	Isolated areas of cracking and settling of the asphalt on grade were noted. The asphalt was deteriorated at the car wash bay due to increased exposure to salt and moisture.	Good
JC-PG5	Garage Concrete - Repairs	In addition to the exterior walls and suspended slab, the interior of the garage includes cast-in-place concrete columns and walls	We understand that the garage has undergone structural and waterproofing repairs in 1981, 1988 and 2004. Additional areas of delamination and spalling of the underside of the concrete slabs were noted. Isolated areas of deterioration of the concrete columns were also noted. An investigation was completed by A. Dagenais and Assoc. Ltd. in 2013 which identified columns requiring repair and recommended repairs to the expansion joints to prevent further deterioration.	Good
JC-PG6	Ramp - Walls - Repairs	There are two access ramps to the lower level of the parking garage. One ramp near the north entrance to the site and one at the south end of the site. The walls of the ramps are protected with cementitious parging with metal flashing at the base of the walls and painted metal railings along the top of the walls.	The exterior walls of the south ramp have damaged parging and flashing. The metal railing on the top of the walls is also deteriorated. The metal railing is included in the metal railings discussed in item JC-L1.	Fair

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JC-PG1e	Lower Podium Membrane	An allowance for replacement of the lower podium deck membrane including replacement of associated landscaping.	25 - 30	2005	9	21	25	2	$508,000
JC-PG2a	Expansion Joint - Upper Podium A/B - Replace	An allowance to replace the expansion joint at the upper podium between Buildings A & B.	20 - 30	1972	42	1	20	1	$40,000
JC-PG2b	Expansion Joint - Upper Podium B/C - Over parking garage	An allowance for replacement of the expansion joint at the upper podium between buildings B & C over the parking garage.	20 - 30	1972	42	7	20	1	$15,000
JC-PG2c	Expansion Joint - Lower Podium A/B & B/C - Replace	An allowance to replace the two expansion joint sections at the lower podium.	20 - 30	2005	9	11	20	1	$8,000
JC-PG2d	Expansion Joint Upper Podium B/C over Recreation Area	An allowance for replacement of the expansion joint at the upper podium between buildings B & C over the recreation area.	20 - 30	2003	11	14	20	1	$8,000
JC-PG3a	Upper Garage - Suspended Slab Waterproofing - Repairs	An allowance for repairs to the upper garage suspended slab, membrane and overlay.	15 - 20	2008	6	9	15	1	$21,000
JC-PG3b	Upper Garage - Suspended Slab Waterproofing - Replace	An allowance to replace the upper garage suspended slab, membrane and overlay.	30 - 40	2008	6	24	30	2	$424,000
JC-PG4	Lower Garage Asphalt - Repairs	An contingency for periodic repairs, as needed, of the asphalt of the lower level of the parking garage.	30 - 40	1972	42	3	3	1	$1,000
JC-PG5	Garage Concrete - Repairs	An allowance for periodic concrete repairs.	10 - 15	1972	42	1	3	1	$6,000
JC-PG6	Ramp - Walls - Repairs	An allowance for repairs to the ramp walls and flashing.	20 - 25	1972	42	1	20	1	$2,000

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Item No.	Component	Description	Observations	Condition
JC-PG7	Garage Exterior Walls - Repair	The west elevation of the parking garage is an exposed concrete wall facing Vanier Avenue. Other areas of exposed concrete wall exist areas of upper level of the garage at the east elevation.	The concrete was cracked and spelled. Several areas of delamination and damage to the exposed concrete wall were noted. There were sections of exposed reinforcing steel with surface corrosion. Deterioration of the concrete was also noted at the anchors of the metal railings along the length of the wall. Signs of water ingress at the interior of the garage along the exterior wall was also noted which is likely related to the podium waterproofing membrane above. This repair work was originally planned for in 2009, however based on the investigation report by A. Dagenais and Assoc. Inc. from 2013, the exterior wall requires repairs in the next several years. Replacement of a section of the garage wall at the north garage wall at the louver was completed this year.	Fair
JC-PG8	Overhead Garage Doors - Replace	There are 4 insulated overhead garage doors providing access to the parking garage.	No signs of damage were noted. No issues with the operation or performance of the doors was reported. We understand that the doors are inspected and maintained regularly as part of the operating and maintenance budget.	Good
JC-CC1a	Pool Building Roof - Main Roof - Replace	The roof of the community centre consists of asphalt shingles and is divided into a main roof and east/west roofs.	The shingles were warping and aged at the lower east/west portions of the pool building roof. There were no reports of leaks or issues with the roof. We understand that the east/west portions of the roof were replaced in the current fiscal year.	Good
JC-CC1b	Pool Building Roof - East/West Roof - Replace			Fair
JC-CC2	Pool Building - Curtain Wall - Replace	There is a glazed curtain wall at the east and west elevations of the community centre. We understand that the curtain wall was replaced circa 2010.	No issues were reported or observed.	Good
JC-CC3	Pool Building - Metal Cladding	The exterior of the community centre is clad with a pre-finished metal siding.	No issues were reported or observed. Some minor corrosion of the metal cladding was noted. Minor repairs to the siding can be completed out of the operating and maintenance budget.	Good
JC-CC4a	Pool -Tank - Replace	The pool is finished with a waterproof coating.	We understand that the pool is in need of a re-coating and that there are leakage issues with the expansion joint which runs through the pool area resulting in leakage into the exercise room below.	Fair
JC-CC4b	Pool Area - Refurbish	The interior finishes of the pool area include ceramic tile flooring, painted drywall walls and a metal clad ceiling.	No issues or damage were reported or observed.	Good
JC-CC4c	Changerooms and Sauna - Refurbishment	The change rooms are located below the pool area. The male and female change rooms include showers, toilets and partitions, lockers and a sauna. The finishes in the change rooms consist of ceramic tile flooring and shower surrounds and painted concrete block and drywall walls and ceilings. The saunas consist of cedar plank walls, ceilings and benches.	No major deterioration or damage to the change room finishes and fitments were noted. The shower surrounds appeared to have been recently replaced. Typical ageing of the cedar finishes within the saunas were noted but no signs of damage or deterioration. The Board indicated that the change rooms and saunas were renovated in 2013.	Good
JC-IF1	Recreation Areas - Refinish	The recreation areas include a party room with kitchen, exercise room, card room, library and washrooms as well as the management offices. The recreation areas and Towers are connected by a central corridor. Finishes include wood paneling, painted drywall, ceramic tile and carpet flooring, and suspended ceiling tiles. The recreation areas are connected by a common hallway.	We understand that the kitchen and management offices were renovated in 2012 and new flooring was installed in the party room in 2013. New ceramic tile flooring was installed in the interconnected hallways. The finishes and furnishings were of varying age and condition. General wear was noted with older finishes. We recommend budgeting for periodic upgrades and replacement of the recreation area finishes.	Varies

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JC-PG7	Garage Exterior Walls - Repair	Replacement of a section of the north garage wall at the louver. An allowance for the phased repairs of the deteriorated west wall including patching the damaged concrete as recommended in the A. Dagenais & Assoc. Report.	30 - 40	1972	42	2	30	10	$36,000
JC-PG8	Overhead Garage Doors - Replace	Repairs and periodic replacement of the overhead doors are completed as needed out of the operating and maintenance budget.	15 - 20	2006					
JC-CC1a	Pool Building Roof - Main Roof - Replace	Replace the main roof area asphalt shingles of the pool building.	15 - 20	1991	23	5	15	1	$6,000
JC-CC1b	Pool Building Roof - East/West Roof - Replace	Replace the east/west portions of the pool roof.	15 - 20	1991	23		15	1	$1,300
JC-CC2	Pool Building - Curtain Wall - Replace	Replace the curtain wall of the community centre.	35 - 40	2010	4	31	35	1	$6,000
JC-CC3	Pool Building - Metal Cladding	An allowance for replacement of the metal cladding of the Community Centre.	40 - 45	1991	23	17	40	1	$9,000
JC-CC4a	Pool -Tank - Replace	An allowance to replace the pool waterproofing membrane	10 - 15	2010	4	1	10	1	$6,000
JC-CC4b	Pool Area - Refurbish	An allowance to refurbish the pool area, including painting, finishes, and furnishings, of the pool.	15 - 20	2011	3	22	15	1	$19,000
JC-CC4c	Changerooms and Sauna - Refurbishment	The Board has indicated that any repairs or renovations to the change rooms and saunas will be completed as needed out of the operating and maintenance budget.	10 - 15	2013					
JC-IF1	Recreation Areas - Refinish	A periodic allowance for replacement of finishes of the recreation areas and corridors such as carpeting and gym flooring. The Board has indicated that painting, ceiling repairs, door replacement and other minor updating and repairs to the finishes is completed out of the operating and maintenance budget.	10 - 15	2011	3	7	10	1	$4,000

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Item No.	Component	Description	Observations	Condition
JC-IF2	Recreation Areas - Furnishings	Furnishings include tables, chairs, bookshelves, televisions, office furnishings, workout equipment, etc.	The age of the furnishing varied. General ageing and wear of the furnishings were noted.	Good
JC-L1	Metal Railings and Handrails - Replace	Painted metal railings and handrails are located throughout the complex at the perimeter of the upper podium levels and stairs.	Peeling of the paint and significant corrosion of the metal railings were noted along the west garage wall and at the south garage ramp.	Poor
JC-L2	Landscaping	The upper podium landscaping consist of a variety of soft landscaping including sod, trees, shrubs and gardens as well as a variety of paved surfaces including asphalt and concrete walkways with concrete curbs, concrete patio outside the pool and pre-cast pavers at individual unit patios and small concrete block retaining walls at the main site entrance.	No major damage or issues were observed with the landscaping. The majority of the landscaping at the upper podium will be replaced with the podium membrane.	Good
JC-L3	Asphalt & Concrete Walkways and Curbs - Repairs	There are asphalt and concrete walkways and curbs located throughout the complex.	Areas of deteriorated asphalt and damaged curbs were noted at the upper podium. The new concrete sidewalks at the lower podium were replaced with the lower podium membrane replacement. These walkways will be replaced with the podium membrane replacement. We recommend budgeting for periodic repairs to the walkways and curbs.	Fair
JC-L4	Asphalt Roadways Parking - Repairs	Asphalt paving is provided at the main entry/driveway and visitor parking along the east side of the complex.	The majority of the paving is located over the lower podium and was replaced circa 2005. Minor cracking of the asphalt was noted and will require periodic repairs.	Good
JC-L5	Irrigation System - Replace	There is an irrigation system provided for the soft landscaping.	The irrigation system was not visible for review, condition is assumed.	Good
JC-L6	Chain Link Fence	There are chain link fences located along the east and south property lines. The fence was reported to have been replaced in 2005.	No issues were reported or observed.	Good
JC-M1	Garage Make Up Air Units	The garage is heated and ventilated by 5 gas fired make up air units.	Units have surpassed their expected service lives. Signs of corrosion and deterioration are present.	Fair
JC-M2	Garage Exhaust Fans	The garage is exhausted by approximately 17 fans of varying configurations.	In general the fans appear to be original and have surpassed their normal service life.. No issues were reported or observed.	Fair
JC-M3	Ramp Heating	The concrete garage exit and entrance ramps are equipped with ice melting systems. The boilers and pumps for which are located in machine rooms in the garage.	The system is broken into two sections. The exit ramp is heated by a single 233MBH age fired boiler manufactured in 2001. The system is equipped with a 1/2hp pump, an expansion tank, header, and buried ramp tubing. The entrance ramp is heated by two 164MBH Boilers manufactured in 2002, 1/2hp pump, and expansion tank, header and buried piping. No issues with the ramp heating systems were reported to us.	Fair
JC-M4	Hazardous Gas Detection	The garage is equipped with CO detectors interlocked with the main exhaust fans.	Inspection has lapsed on the CO Detection system. Date of installation has been assumed.	Good
JC-M5	Fire Pump	Water is provided to sprinklered spaces in the lower level public spaces, garage, mechanical and elevator penthouse, by a packaged 20hp Armstrong Fire Pump, located in the basement mechanical room of tower B.		Good

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JC-IF2	Recreation Areas - Furnishings	Replacement of the furnishings and equipment of the community centre and recreation areas will be completed out of the operating and maintenance budget.	10 - 15	2008					
JC-L1	Metal Railings and Handrails - Replace	Replace the exterior metal railings.	40 - 50	1972	42	3	40	1	$28,000
JC-L2	Landscaping	The majority of the landscaping elements will be replaced as part of the podium deck membrane replacement. All other periodic landscaping work will be completed out of the operating and maintenance budget.	10 - 15	2009					
JC-L3	Asphalt & Concrete Walkways and Curbs - Repairs	An allowance for repairs to the concrete curbs and sidewalks.	10 - 20	1972	42	5	10	1	$3,000
JC-L4	Asphalt Roadways Parking - Repairs	An allowance for repairs to the asphalt pavement.	15 - 20	2005	9	6	15	1	$4,000
JC-L5	Irrigation System - Replace	Replace the irrigation system.	15 - 20	2006	8	7	30	1	$13,000
JC-L6	Chain Link Fence	An allowance for replacement of the chain link fences.	30 - 35	2005	9	26	30	1	$7,000
JC-M1	Garage Make Up Air Units	An allowance for the phased replacement of the MUA units.	25 - 35	1972	42	2	30	5	$121,000
JC-M2	Garage Exhaust Fans	Replace Exhaust Fans at Failure. The allowance provided is for a lump sum replacement of all major fans over five years.	15 - 20	1972	42	2	20	5	$37,000
JC-M3	Ramp Heating	An allowance for replacement of the entry and exit ramps and heating system.	25 - 30	2001	13	17	25	1	$28,000
JC-M4	Hazardous Gas Detection	The Board has indicated that the CO detectors are inspected annually and replaced on an as needed basis out of the operating and maintenance budget. Allowance for replacement of the panels and related components at the end of service life.	15 - 20	2001	13	2	15	1	$3,000
JC-M5	Fire Pump	Replace Fire Pump at end of life.	30	1983	31		30	1	$12,000

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Item No.	Component	Description	Observations	Condition
JC-M6	Piping - Testing	Piping within the Joint Common Areas includes sprinkler piping, sanitary drainage and cold water piping.	Evaluating the condition of piping systems within a building is very difficult. Internal wear of piping is dependent on many factors (including water treatment, level of use, quality of installation, etc.) and the achieved service life varies greatly. Industry practice suggests that conducting metallurgical testing, as the piping nears the end of its service life, can be instrumental in more accurately predicting when replacement will be required. The timing of piping replacement has a significant impact on cash flow, as the cost to replace piping is substantial due to difficulties accessing the piping (removal of drywall, concrete floor slabs, etc.). But failure to plan for replacement can result in unexpected failures, which also has significant cost implications.	NA
JC-M7	Sprinkler System - Piping	The garage and lower level public spaces are equipped with upright sprinklers.		Good
JC-M8	Sprinkler System - Heads		The Board reported that approximately 10 sprinkler heads were replaced 3 years ago.	Good
JC-M9	Fire hose Cabinets	The garage is equipped with approximately 14 fire hose cabinets.	Inspections of the fire hose cabinets have lapsed.	Good
JC-M10	Fire Hydrants	On site there are 2 fire hydrants.	Fire hydrants appear to be in good condition and are considered to be original.	Good
JC-M11	Water Main	The site is serviced by a 6" steel water main pipe which supplies domestic and fire protection water to the buildings, and site hydrants.	No issues were reported or observed.	Good
JC-M12	Domestic Cold Water Piping	The domestic cold water piping serves hose bibs in the garage and common area fixtures.	No issues were reported or observed.	Good
JC-M13	Sanitary Drainage	Each tower's main sanitary line and sanitary drainage through the garage, and common spaces is considered to be original to the 1972 construction.	No issues were reported with the drainage piping.	Good
JC-M14	Pool Boiler	The pool water is heated by a Teledyne Laars 160MBH Boiler located in the garage.	Boiler is in fair condition, and is assumed to have been installed in the mid to late 90s.	Fair
JC-M15	Pool Filtration System	The pool is filtered by a sand filter and uv water treatment system.	Filtration system and associated components appear to be of recent installation and in good condition.	Good
JC-M16	Pool Ventilation	The pool area is ventilated by a package Dectron ventilation unit complete with dehumidification, electrical heat and integrated controls.		Good
JC-M17	Pool Change Rooms	The pool changing rooms are equipped with a total of 2 toilets, 2 sinks and 4 showers.	Changerooms have undergone recent renovation. The Board indicated that the renovations were completed in 2013.	Good
JC-M18	Public Corridor Washrooms	The public corridor washrooms are equipped with a total of 3 toilets, 1 urinal, and 2 sinks (men's and women's combined). There is also a double sink in the public kitchen.		Fair
JC-M19	Exhaust Fans - Hobby, Common & Exercise Room	The hobby room and exercise rooms are ventilated by fractional horsepower wall mounted propeller fans manufactured by Greenheck. The kitchen is exhausted by a residential style Nutone range hood.		Good

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Item No.	Component	Recommendations	Typical Life Expectancy	Actual or Estimated Year of Acquisition	Present Age	Time To First Replacement	Time to Subsequent Replacements	Years Over Which Work is Phased	Total Repair or Replacement Costs*
JC-M6	Piping - Testing	We recommend budgeting for metallurgical testing of the sprinkler and cold water piping, and a camera survey of the drainage piping to determine the current condition and remaining service life of the piping.	40	1972	42	1	10	1	$2,000
JC-M7	Sprinkler System - Piping	An allowance for replacement of the sprinkler piping at the end of its anticipated service life. The timing of replacement should be adjusted, based on the results of the testing (item JC-M6).	50 - 60	1972	42	18	50	1	$26,000
JC-M8	Sprinkler System - Heads	Replace sprinkler heads in accordance with NFPA regulations, as needed, out of the operating and maintenance budget.	50	1972	42				
JC-M9	Fire hose Cabinets	Replacement of fire hose cabinets should be completed, as needed, in coordination with piping replacements.	50 - 60	1972	42				
JC-M10	Fire Hydrants	Contingency to replace fire hydrants at failure.	50 - 60	1972	42	18	50	1	$4,000
JC-M11	Water Main	An allowance for replacement of the water main at the end of its anticipated service life. The timing of replacement should be adjusted, based on the results of the testing (item JC-M6).	50 - 60	1972	42	18	50	1	$124,000
JC-M12	Domestic Cold Water Piping	An allowance for replacement of the domestic cold water piping at the end of its anticipated service life. The timing of replacement should be adjusted, based on the results of the testing (item JC-M76).	50 - 60	1972	42	18	50	1	$8,000
JC-M13	Sanitary Drainage	An allowance for replacement of the sanitary drainage piping at the end of its anticipated service life. Considerations have been made for each tower's main waste pipes as well as temporary demolition and excavation work. The timing of replacement should be adjusted, based on the results of the testing (item JC-M6).	40 - 50	1972	42	10	40	1	$32,000
JC-M14	Pool Boiler	Replace boiler at the end of its service life.	30	1995	19	11	30	1	$4,000
JC-M15	Pool Filtration System	Replace pool filtration system at end of service life.	20 - 25	2006	8	12	20	1	$2,000
JC-M16	Pool Ventilation	Replace pool ventilation system at end of service life.	25 - 30	2010	4	26	25	1	$28,000
JC-M17	Pool Change Rooms	Replace fixtures and trim at failure.	25 - 30	2013	1	34	25	1	$3,000
JC-M18	Public Corridor Washrooms	Replace fixtures and trim at failure.	25 - 30	1971	43	5	25	1	$2,000
JC-M19	Exhaust Fans - Hobby, Common & Exercise Room	Replace exhaust fans at failure	15	2010	4	11	15	1	$1,000

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Item No.	Component	Description	Observations	Condition
JC-M20	Common Space Electric Water Heater	Water for the common spaces between buildings B and C is heated by a Rudd 175Gal electric water heater, located in a storage space on the ground floor. A water heater also provides hot water to the pool showers.	The water heater appears to be in good condition. No issues were reported or observed. The water heater for the pool showers was reported to have been replaced in 2014.	Good
JC-E1	Garage Interior Lighting	Surface mounted 1'x4', 2-lamp T5 fluorescent and caged, surface mounted, 2-lamp, T8 fluorescent luminaires are used to illuminate the garage.	The luminaires are observed to vary in age. The previous report indicates a large expenditure on the luminaires in 2011. This expenditure did not include replacement of all luminaires. Luminaires replacement has likely been replaced in phases.	Good
JC-E2	Garage 347/600V Distribution Equipment	347/600V local starters and disconnects supplying the mechanical equipment (mostly exhaust fans) throughout the garage.		Fair
JC-E3	Pool Interior Lighting	Primary lighting consists of surface mounted, 2'x4', 4-lamp fluorescent fixtures in the pool area. Various wet location lamps used in change rooms and sauna.		Good
JC-E4	Pool 120/208V Distribution Equipment	A 120/208V splitter trough is located in an electrical closet off of the men's change room.	Equipment is observed to be of various ages and conditions.	Fair
JC-E5	Pool 347/600V Distribution Equipment	A 347/600V splitter trough is located in the pool mechanical room closet. This supplies the mechanical loads associated with the pool.	Equipment is observed to be of various ages and conditions.	Fair
JC-E6	Common Corridor Interior Lighting	Primary lighting consists of surface mounted, 2'x4/2'x2', 2-lamp fluorescent fixtures in the common corridors and management areas.		Good
JC-E7	Exterior Perimeter Lighting	Building perimeter lighting consisting of wall packs, pot lights and courtyard 10' pole.	Equipment is observed to be of various ages and conditions. Recommend bulk replacement to allow for a uniform design and appearance.	Good
JC-E8	Exterior Pole Lighting	Exterior driving lane is illuminated by 20' pole mounted, arm-mounted, 1-lamp, metal halide luminaires.		Good
JC-E9	Common Area Emergency Exit Signs	Two-sided, 2-lamp exit signs.		Good
JC-E10	Electric Heaters	Wall mounted force flow convection heaters and baseboard unit heaters used for subsidiary heating.	Equipment is observed to be of varying condition and age.	Good

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Item No.	Component	Recommendations	Typical Life Expectancy	Actual or Estimated Year of Acquisition	Present Age	Time To First Replacement	Time to Subsequent Replacements	Years Over Which Work is Phased	Total Repair or Replacement Costs*
JC-M20	Common Space Electric Water Heater	Replace the electric water heater at the end of the reliable service life.	15	1998	16	1	15	1	$2,000
JC-E1	Garage Interior Lighting	Replace the parking garage luminaires and associated conductors and conduit in bulk at end of typical service life by parkade level. The age is an estimated average age of luminaires.	25	2000	14	11	25	2	$27,000
JC-E2	Garage 347/600V Distribution Equipment	Replace mechanical starters, disconnects and associated conductors and conduit in bulk at end of typical service life. Replace failed equipment out of O&M budget until scheduled bulk replacement.	25 - 40	1972	42	5	25	1	$15,000
JC-E3	Pool Interior Lighting	Replace luminaires and associated conductors and conduit in bulk at end of typical service life.	25	2010	4	21	25	1	$3,000
JC-E4	Pool 120/208V Distribution Equipment	Replace splitter trough and associated controls, conductors and conduit at end of typical service life. Replace failed equipment out of O&M budget until scheduled bulk replacement.	40	1972	42	5	40	1	$1,000
JC-E5	Pool 347/600V Distribution Equipment	Replace splitter trough and associated disconnects, conductors and conduit at end of typical service life. Replace failed equipment out of O&M budget until scheduled bulk replacement.	40	1972	42	5	40	1	$2,000
JC-E6	Common Corridor Interior Lighting	Replace luminaires and associated conductors and conduit in bulk at end of typical service life.	25	2010	4	21	25	1	$6,000
JC-E7	Exterior Perimeter Lighting	Replace luminaires and associated conductors in bulk at end of typical service life.	20	2005	9	11	20	1	$8,000
JC-E8	Exterior Pole Lighting	Replace luminaires and poles and conductors.	20	2005	9	11	20	1	$13,000
JC-E9	Common Area Emergency Exit Signs	Replace emergency exit signs in bulk at end of typical service life. Replace remaining 9 signs in the parking garage at failure out of O&M budget. Replace associated conductors with every 2nd sign replacement.	20	2010	4	16	20	1	$2,000
JC-E10	Electric Heaters	Replace units at failure out of O&M budget. The following cost is an allowance to replace units across their life time.	30	2014		30	30	1	$3,000

APPENDIX B

Current Contribution

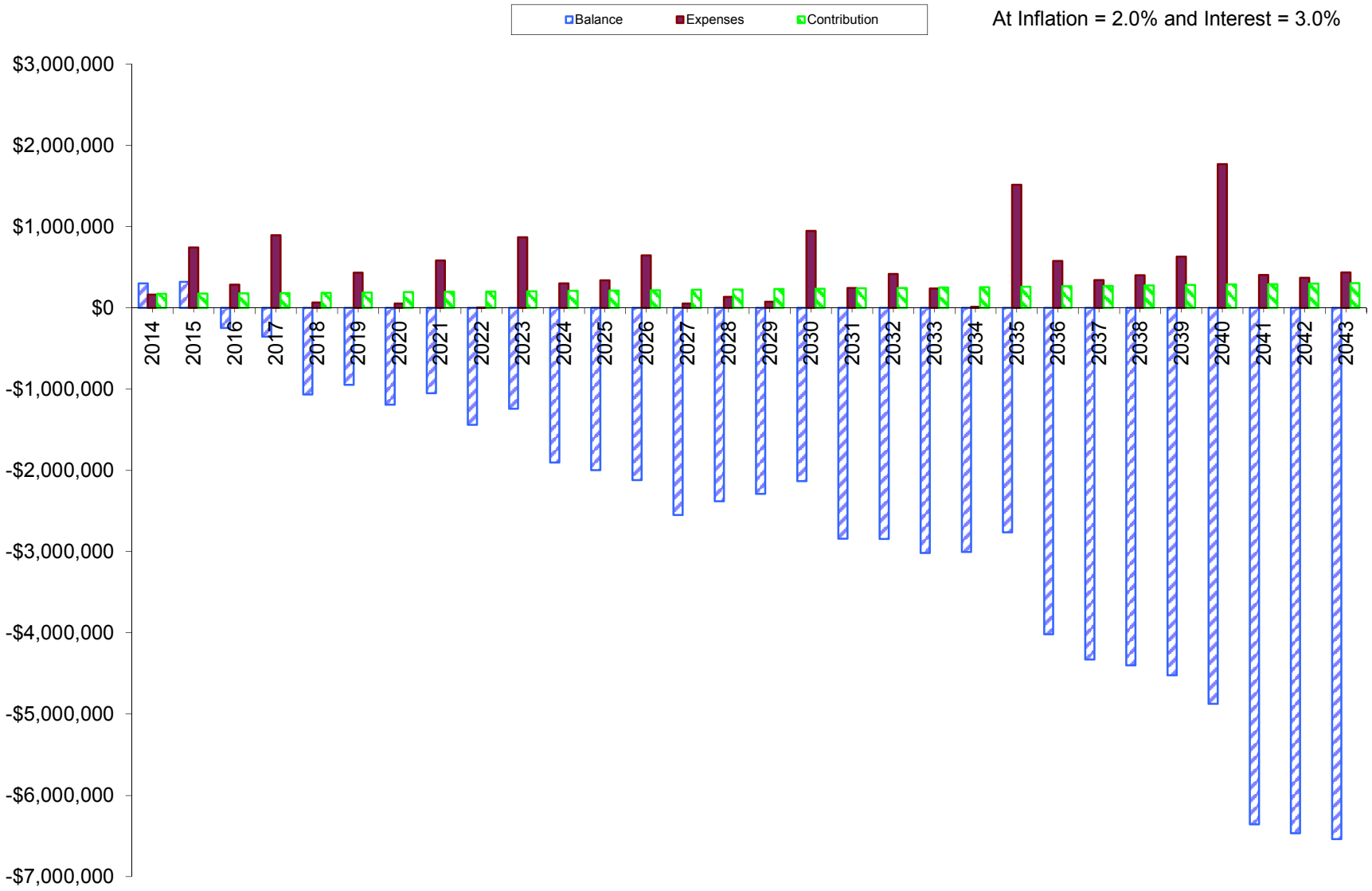
CCC 15
30 Year Reserve Fund Cash Flow Table
Current Plan - Final - May 20, 2015

Assumed Interest Rate	3.0%
Assumed Inflation Rate	2.0%
Reserve Fund Balance at Start of 2014 Fiscal Year	300,000
Minimum Reserve Fund Balance	(6,669,376)

Year Ending In	Opening Balance	Annual Contribution*	Percent Increase over Previous Year	Other Contribution	Estimated Future Inflated Expenditures	Projected Interest Earned	Closing Balance
2014	300,000	171,506			162,320	9,138	318,324
2015	318,324	174,936	2.0%		742,968	1,029	(248,679)
2016	(248,679)	178,435	2.0%		284,133		(354,377)
2017	(354,377)	182,004	2.0%		894,704		(1,067,078)
2018	(1,067,078)	185,644	2.0%		66,678		(948,112)
2019	(948,112)	189,356	2.0%		432,358		(1,191,114)
2020	(1,191,114)	193,144	2.0%		53,831		(1,051,801)
2021	(1,051,801)	197,006	2.0%		584,222		(1,439,016)
2022	(1,439,016)	200,947	2.0%		4,218		(1,242,287)
2023	(1,242,287)	204,966	2.0%		868,160		(1,905,482)
2024	(1,905,482)	209,065	2.0%		300,604		(1,997,021)
2025	(1,997,021)	213,246	2.0%		337,079		(2,120,854)
2026	(2,120,854)	217,511	2.0%		646,930		(2,550,273)
2027	(2,550,273)	221,861	2.0%		51,744		(2,380,156)
2028	(2,380,156)	226,299	2.0%		134,587		(2,288,444)
2029	(2,288,444)	230,824	2.0%		74,427		(2,132,046)
2030	(2,132,046)	235,441	2.0%		945,849		(2,842,455)
2031	(2,842,455)	240,150	2.0%		243,642		(2,845,947)
2032	(2,845,947)	244,953	2.0%		416,477		(3,017,471)
2033	(3,017,471)	249,852	2.0%		237,460		(3,005,079)
2034	(3,005,079)	254,849	2.0%		11,888		(2,762,118)
2035	(2,762,118)	259,946	2.0%		1,514,151		(4,016,323)
2036	(4,016,323)	265,145	2.0%		577,269		(4,328,447)
2037	(4,328,447)	270,448	2.0%		341,241		(4,399,240)
2038	(4,399,240)	275,857	2.0%		400,501		(4,523,884)
2039	(4,523,884)	281,374	2.0%		631,469		(4,873,980)
2040	(4,873,980)	287,001	2.0%		1,767,799		(6,354,777)
2041	(6,354,777)	292,741	2.0%		403,679		(6,465,715)
2042	(6,465,715)	298,596	2.0%		369,968		(6,537,086)
2043	(6,537,086)	304,568	2.0%		436,858		(6,669,376)

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

CCC 15
30 Year Reserve Fund Cash Flow Chart
Current Plan - Final - May 20, 2015



Actual annual values for contribution, forecast expenditures, and balance can be found in the Cash Flow Table and Plan

APPENDIX C

Proposed Contribution Scenarios

SCENARIO 1 - PROPOSED CONTRIBUTION 1

30-Year Detailed Cash-Flow Plan

Detailed Thirty Year Reserve Fund Cash-Flow Plan

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Scenario 1
Final - May 20, 2015

	Starting Balance	300,000	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,595	5,550	9,063	16,990	20,120	23,739	25,395	28,055	26,750	21,180	23,631	21,188	23,185	33,163
	Annual Reserve Contribution	171,506	212,667	263,708	326,997	333,537	340,208	347,012	353,953	361,032	368,252	375,617	383,130	390,792	398,608	406,580
	Other Contribution	0	405,600	405,600	405,600	0										
	Ending Balance	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451	1,274,607
	Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
S3a	Balconies - West Elevation Rehabilitation	132,500														
S3b	Balconies - Rehabilitation - North, East & South Elevations											137,746	140,501	143,311		
S3d	Balcony - Condition Assessment		45,900													
BE1a	Sheltered Concrete Panels and Sealant - Repair								51,691							
BE1b	Exposed Concrete Panels, Repair, Sealer & Sealant										50,000					
BE1c	Exterior Cladding - Repair			35,374										43,120		
BE2a	Exposed Windows - Replace										323,870					
BE2b	Original Sheltered Windows and Balcony Doors - Replace		20,808	21,224	21,649	22,082	22,523									
BE2c	Newer Sheltered Windows and Balcony Doors - Replace															
BE3	Main Entrance - Replace											20,723				
BE4	Sealant at Exposed Windows															
BE5a	Main Tower and Mechanical Penthouse Roof - Replace										186,434					
BE5b	Mechanical Penthouse Walls													143,311		
BE6	Penthouse Condo Terraces - Replace						124,761									
BE7	Roofs over Balconies - Replace								43,650							
A1	Interior - Painting			37,142												
A2	Corridor Carpeting - Replace			70,040												
A3a	Lobby Refurbishment	55,080														
A4	Superintendent's Apartment															
M1	Air Handler Unit						28,706									
M2	Glycol heat Recovery															
M3	Electric Heating Coil	8,160														
M2	Main Exhaust Fans	2,040										2,438				
M3	Air Conditioner - Elevator Room - Replace												17,407			
M4	Boiler - Replace															
M5	Storage Tanks - Replace															
M6	Piping - Testing		5,202											6,341		
M8	Drainage Piping															
M9	Main Booster Pumps - Replace															
M10	Boiler Pump						2,208									
M11	Recirculation Pump						2,208					2,438				
M12	Sump Pumps			2,122											2,587	
M13	Standpipe & Sprinkler										108,753					
M15	Exhaust fans						3,312									
M16	Garbage Compactor - Replace											17,066				
M17	Generator fuel storage tank															
M18	Generator Muffler															

Detailed Thirty Year Reserve Fund Cash-Flow Plan

CCC 15
Scenario 1
Final - May 20, 2015

	Starting Balance	1,274,607	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	43,343	41,904	38,136	42,452	47,251	58,530	51,269	35,587	37,311	42,027	42,826	23,439	7,194	11,742	16,247
	Annual Reserve Contribution	414,712	423,006	431,466	440,096	448,897	457,875	467,033	476,374	485,901	495,619	505,531	515,642	525,955	536,474	547,203
	Other Contribution															
	Ending Balance	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383	612,975
Item	Fiscal Year	16 2029	17 2030	18 2031	19 2032	20 2033	21 2034	22 2035	23 2036	24 2037	25 2038	26 2039	27 2040	28 2041	29 2042	30 2043
S3a	Balconies - West Elevation Rehabilitation											217,380				
S3b	Balconies - Rehabilitation - North, East & South Elevations															
S3d	Balcony - Condition Assessment															
BE1a	Sheltered Concrete Panels and Sealant - Repair								69,569							
BE1b	Exposed Concrete Panels, Repair, Sealer & Sealant					131,113										159,826
BE1c	Exterior Cladding - Repair								52,563							
BE2a	Exposed Windows - Replace															
BE2b	Original Sheltered Windows and Balcony Doors - Replace															
BE2c	Newer Sheltered Windows and Balcony Doors - Replace		831,908					918,494					1,014,091			
BE3	Main Entrance - Replace															
BE4	Sealant at Exposed Windows							37,892								
BE5a	Main Tower and Mechanical Penthouse Roof - Replace															277,032
BE5b	Mechanical Penthouse Walls															
BE6	Penthouse Condo Terraces - Replace															
BE7	Roofs over Balconies - Replace													64,862		
A1	Interior - Painting				49,989											
A2	Corridor Carpeting - Replace				94,264											
A3a	Lobby Refurbishment															
A4	Superintendent's Apartment		27,456													
M1	Air Handler Unit															
M2	Glycol heat Recovery									31,538						
M3	Electric Heating Coil		10,982													
M2	Main Exhaust Fans					2,914									3,482	
M3	Air Conditioner - Elevator Room - Replace												23,428			
M4	Boiler - Replace		46,675													
M5	Storage Tanks - Replace	53,835														
M6	Piping - Testing								7,730							
M8	Drainage Piping					7,284										
M9	Main Booster Pumps - Replace					65,557										
M10	Boiler Pump	2,692										3,281				
M11	Recirculation Pump	2,692					2,972					3,281				
M12	Sump Pumps									3,154						
M13	Standpipe & Sprinkler															
M15	Exhaust fans	4,038										4,922				
M16	Garbage Compactor - Replace											22,968				
M17	Generator fuel storage tank											9,844				
M18	Generator Muffler		15,101													

Detailed Thirty Year Reserve Fund Cash-Flow Plan

CCC 15
Scenario 1
Final - May 20, 2015

	Starting Balance	300,000	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,595	5,550	9,063	16,990	20,120	23,739	25,395	28,055	26,750	21,180	23,631	21,188	23,185	33,163
	Annual Reserve Contribution	171,506	212,667	263,708	326,997	333,537	340,208	347,012	353,953	361,032	368,252	375,617	383,130	390,792	398,608	406,580
	Other Contribution	0	405,600	405,600	405,600	0										
	Ending Balance	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451	1,274,607
	Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
E1	Incoming Service		493,680													
E2	120/208V Switchboard		58,140													
E3	Condo Distribution				509,380											
E4	Triacta Smart Meter															
E5	120/208V Main Splitter Trough						12,145									
E6	120/208V Panels						93,847									
E8	347/600V Main Splitter Trough						15,457									
E9	Penthouse Distribution						12,145									
E10	Basement Distribution						44,163									
E11	Panel E1 & T1 Transformer															22,431
E12	Emergency 120/208V Splitter Trough															11,875
E13	Emergency 120/208V Panels															89,725
E14	Fire Pump Controller															
E15	Jockey Pump Controller															
E16	Domestic Water Pump Duplex Controller															
E17	Sump Pump Duplex Controller															
E18	Interior Public Lighting											69,483				
E19	Fire Alarm Control Panel (FACP) & Annunciator Panel															
E20	Fire Alarm Devices												105,687			
E21	Emergency Exit Signs															
E22	Emergency Generator										144,606					
E23	Automatic Transfer Switch										20,317					
E24	Guest Entry Panel															
EL1	Elevators - B44 Safety Code			3,121					3,446					3,805		
EL2	Elevators - Modernization															
EL3	Elevators - Cab Finishes														41,395	
RFS1	Reserve Fund Study with Site Review	7,600						8,559						9,639		
RFS2	Reserve Fund Study - No Site Review				3,184						3,585					
JC-PG1a	Upper Podium Membrane - Building A/B	5,420		179,469	183,058											
JC-PG1b	Upper Podium Membrane - Building B/C over Parking Garage								437,649							
JC-PG1c	Upper and Lower Podium Membrane - Northwest of Bldg. A & South of Bldg. C.													276,477		
JC-PG1d	Upper Podium Membrane - Building C/D over Recreation Area															
JC-PG1e	Lower Podium Membrane															
JC-PG2a	Expansion Joint - Upper Podium A/B - Replace		40,800													

Detailed Thirty Year Reserve Fund Cash-Flow Plan

CCC 15
Scenario 1
Final - May 20, 2015

	Starting Balance	1,274,607	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	43,343	41,904	38,136	42,452	47,251	58,530	51,269	35,587	37,311	42,027	42,826	23,439	7,194	11,742	16,247
	Annual Reserve Contribution	414,712	423,006	431,466	440,096	448,897	457,875	467,033	476,374	485,901	495,619	505,531	515,642	525,955	536,474	547,203
	Other Contribution															
	Ending Balance	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383	612,975
Item	Fiscal Year	16 2029	17 2030	18 2031	19 2032	20 2033	21 2034	22 2035	23 2036	24 2037	25 2038	26 2039	27 2040	28 2041	29 2042	30 2043
E1	Incoming Service															
E2	120/208V Switchboard															
E3	Condo Distribution															
E4	Triacta Smart Meter									268,073						
E5	120/208V Main Splitter Trough															
E6	120/208V Panels															
E8	347/600V Main Splitter Trough															
E9	Penthouse Distribution															
E10	Basement Distribution															
E11	Panel E1 & T1 Transformer															
E12	Emergency 120/208V Splitter Trough															
E13	Emergency 120/208V Panels															
E14	Fire Pump Controller												70,284			
E15	Jockey Pump Controller												20,081			
E16	Domestic Water Pump Duplex Controller									26,807						
E17	Sump Pump Duplex Controller							34,860								
E18	Interior Public Lighting															
E19	Fire Alarm Control Panel (FACP) & Annunciator Panel							42,439								
E20	Fire Alarm Devices															
E21	Emergency Exit Signs				28,565											
E22	Emergency Generator															
E23	Automatic Transfer Switch															
E24	Guest Entry Panel					21,852										
EL1	Elevators - B44 Safety Code			4,201					4,638					5,121		
EL2	Elevators - Modernization												567,289			
EL3	Elevators - Cab Finishes														55,713	
RFS1	Reserve Fund Study with Site Review				10,855						12,224					
RFS2	Reserve Fund Study - No Site Review	4,038						4,547						5,121		
JC-PG1a	Upper Podium Membrane - Building A/B													294,438	300,327	
JC-PG1b	Upper Podium Membrane - Building B/C over Parking Garage															
JC-PG1c	Upper and Lower Podium Membrane - Northwest of Bldg. A & South of Bldg. C.															
JC-PG1d	Upper Podium Membrane - Building C/D over Recreation Area			177,831												
JC-PG1e	Lower Podium Membrane							384,979	392,679							
JC-PG2a	Expansion Joint - Upper Podium A/B - Replace							60,627								

Detailed Thirty Year Reserve Fund Cash-Flow Plan

CCC 15
Scenario 1
Final - May 20, 2015

	Starting Balance	300,000	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,595	5,550	9,063	16,990	20,120	23,739	25,395	28,055	26,750	21,180	23,631	21,188	23,185	33,163
	Annual Reserve Contribution	171,506	212,667	263,708	326,997	333,537	340,208	347,012	353,953	361,032	368,252	375,617	383,130	390,792	398,608	406,580
	Other Contribution	0	405,600	405,600	405,600	0										
	Ending Balance	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451	1,274,607
	Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
JC-PG2b	Expansion Joint - Upper Podium B/C - Over parking garage								17,230							
JC-PG2c	Expansion Joint - Lower Podium A/B & B/C - Replace												9,947			
JC-PG2d	Expansion Joint Upper Podium B/C over Recreation Area															10,556
JC-PG3a	Upper Garage - Suspended Slab Waterproofing - Repairs										25,097					
JC-PG3b	Upper Garage - Suspended Slab Waterproofing - Replace															
JC-PG4	Lower Garage Asphalt - Repairs				1,061			1,126			1,195			1,268		
JC-PG5	Garage Concrete - Repairs		6,120			6,495			6,892			7,314			7,762	
JC-PG6	Ramp - Walls - Repairs		2,040													
JC-PG7	Garage Exterior Walls - Repair	3,500		3,745	3,820	3,897	3,975	4,054	4,135	4,218	4,302	4,388	4,476			
JC-CC1a	Pool Building Roof - Main Roof - Replace						6,624									
JC-CC1b	Pool Building Roof - East/West Roof - Replace	1,300														
JC-CC3	Pool Building - Metal Cladding															
JC-CC4a	Pool -Tank - Replace		6,120										7,460			
JC-CC4b	Pool Area - Refurbish															
JC-IF1	Recreation Areas - Refinish								4,595							
JC-L1	Metal Railings and Handrails - Replace				29,714											
JC-L3	Asphalt & Concrete Walkways and Curbs - Repairs						3,312									
JC-L4	Asphalt Roadways Parking - Repairs							4,505								
JC-L5	Irrigation System - Replace								14,933							
JC-L6	Chain Link Fence															
JC-M1	Garage Make Up Air Units			25,178	25,681	26,195	26,719	27,253								
JC-M2	Garage Exhaust Fans			7,699	7,853	8,010	8,170	8,334								
JC-M3	Ramp Heating															
JC-M4	Hazardous Gas Detection			3,121												
JC-M5	Fire Pump	12,000														
JC-M6	Piping - Testing		2,040										2,487			
JC-M7	Sprinkler System - Piping															
JC-M10	Fire Hydrants															
JC-M11	Water Main															
JC-M12	Domestic Cold Water Piping															
JC-M13	Sanitary Drainage											39,008				
JC-M14	Pool Boiler												4,973			
JC-M15	Pool Filtration System													2,536		
JC-M16	Pool Ventilation															

Detailed Thirty Year Reserve Fund Cash-Flow Plan

CCC 15
Scenario 1
Final - May 20, 2015

	Starting Balance	1,274,607	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	43,343	41,904	38,136	42,452	47,251	58,530	51,269	35,587	37,311	42,027	42,826	23,439	7,194	11,742	16,247
	Annual Reserve Contribution	414,712	423,006	431,466	440,096	448,897	457,875	467,033	476,374	485,901	495,619	505,531	515,642	525,955	536,474	547,203
	Other Contribution															
	Ending Balance	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383	612,975
Item	Fiscal Year	16 2029	17 2030	18 2031	19 2032	20 2033	21 2034	22 2035	23 2036	24 2037	25 2038	26 2039	27 2040	28 2041	29 2042	30 2043
JC-PG2b	Expansion Joint - Upper Podium B/C - Over parking garage													25,603		
JC-PG2c	Expansion Joint - Lower Podium A/B & B/C - Replace															
JC-PG2d	Expansion Joint Upper Podium B/C over Recreation Area															
JC-PG3a	Upper Garage - Suspended Slab Waterproofing - Repairs										33,777					
JC-PG3b	Upper Garage - Suspended Slab Waterproofing - Replace										340,989	347,808				
JC-PG4	Lower Garage Asphalt - Repairs	1,346			1,428			1,516			1,608			1,707		
JC-PG5	Garage Concrete - Repairs		8,237			8,741			9,276			9,844			10,446	
JC-PG6	Ramp - Walls - Repairs							3,031								
JC-PG7	Garage Exterior Walls - Repair															
JC-CC1a	Pool Building Roof - Main Roof - Replace						8,916									
JC-CC1b	Pool Building Roof - East/West Roof - Replace	1,750														
JC-CC3	Pool Building - Metal Cladding			12,602												
JC-CC4a	Pool -Tank - Replace							9,094								
JC-CC4b	Pool Area - Refurbish								29,374							
JC-IF1	Recreation Areas - Refinish			5,601										6,828		
JC-L1	Metal Railings and Handrails - Replace															
JC-L3	Asphalt & Concrete Walkways and Curbs - Repairs	4,038														
JC-L4	Asphalt Roadways Parking - Repairs															
JC-L5	Irrigation System - Replace															
JC-L6	Chain Link Fence												11,714			
JC-M1	Garage Make Up Air Units															
JC-M2	Garage Exhaust Fans								11,440	11,669	11,902	12,140	12,383			
JC-M3	Ramp Heating			39,207												
JC-M4	Hazardous Gas Detection			4,201												
JC-M5	Fire Pump															
JC-M6	Piping - Testing							3,031								
JC-M7	Sprinkler System - Piping				37,134											
JC-M10	Fire Hydrants				5,713											
JC-M11	Water Main				177,103											
JC-M12	Domestic Cold Water Piping				11,426											
JC-M13	Sanitary Drainage															
JC-M14	Pool Boiler															
JC-M15	Pool Filtration System															
JC-M16	Pool Ventilation												46,856			

Detailed Thirty Year Reserve Fund Cash-Flow Plan

CCC 15
Scenario 1
Final - May 20, 2015

	Starting Balance	300,000	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,595	5,550	9,063	16,990	20,120	23,739	25,395	28,055	26,750	21,180	23,631	21,188	23,185	33,163
	Annual Reserve Contribution	171,506	212,667	263,708	326,997	333,537	340,208	347,012	353,953	361,032	368,252	375,617	383,130	390,792	398,608	406,580
	Other Contribution	0	405,600	405,600	405,600	0										
	Ending Balance	318,324	195,218	585,943	432,899	716,748	644,718	961,639	756,766	1,141,634	668,477	764,669	834,351	599,402	969,451	1,274,607
	Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
JC-M18	Public Corridor Washrooms						2,208									
JC-M19	Exhaust Fans - Hobby, Common & Exercise Room												1,243			
JC-M20	Common Space Electric Water Heater		2,040													
JC-E1	Garage Interior Lighting												16,786	17,121		
JC-E2	Garage 347/600V Distribution Equipment						16,561									
JC-E3	Pool Interior Lighting															
JC-E4	Pool 120/208V Distribution Equipment						1,104									
JC-E5	Pool 347/600V Distribution Equipment						2,208									
JC-E6	Common Corridor Interior Lighting															
JC-E7	Exterior Perimeter Lighting												9,947			
JC-E8	Exterior Pole Lighting												16,164			
JC-E9	Common Area Emergency Exit Signs															

Detailed Thirty Year Reserve Fund Cash-Flow Plan

CCC 15
Scenario 1
Final - May 20, 2015

	Starting Balance	1,274,607	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	43,343	41,904	38,136	42,452	47,251	58,530	51,269	35,587	37,311	42,027	42,826	23,439	7,194	11,742	16,247
	Annual Reserve Contribution	414,712	423,006	431,466	440,096	448,897	457,875	467,033	476,374	485,901	495,619	505,531	515,642	525,955	536,474	547,203
	Other Contribution															
	Ending Balance	1,658,235	1,177,296	1,403,257	1,469,328	1,728,016	2,232,534	1,236,686	1,171,378	1,353,349	1,490,494	1,407,382	178,665	308,135	486,383	612,975
Item	Fiscal Year	16 2029	17 2030	18 2031	19 2032	20 2033	21 2034	22 2035	23 2036	24 2037	25 2038	26 2039	27 2040	28 2041	29 2042	30 2043
JC-M18	Public Corridor Washrooms															
JC-M19	Exhaust Fans - Hobby, Common & Exercise Room												1,673			
JC-M20	Common Space Electric Water Heater		2,746													
JC-E1	Garage Interior Lighting															
JC-E2	Garage 347/600V Distribution Equipment															
JC-E3	Pool Interior Lighting							4,547								
JC-E4	Pool 120/208V Distribution Equipment															
JC-E5	Pool 347/600V Distribution Equipment															
JC-E6	Common Corridor Interior Lighting							9,094								
JC-E7	Exterior Perimeter Lighting															
JC-E8	Exterior Pole Lighting															
JC-E9	Common Area Emergency Exit Signs		2,746													

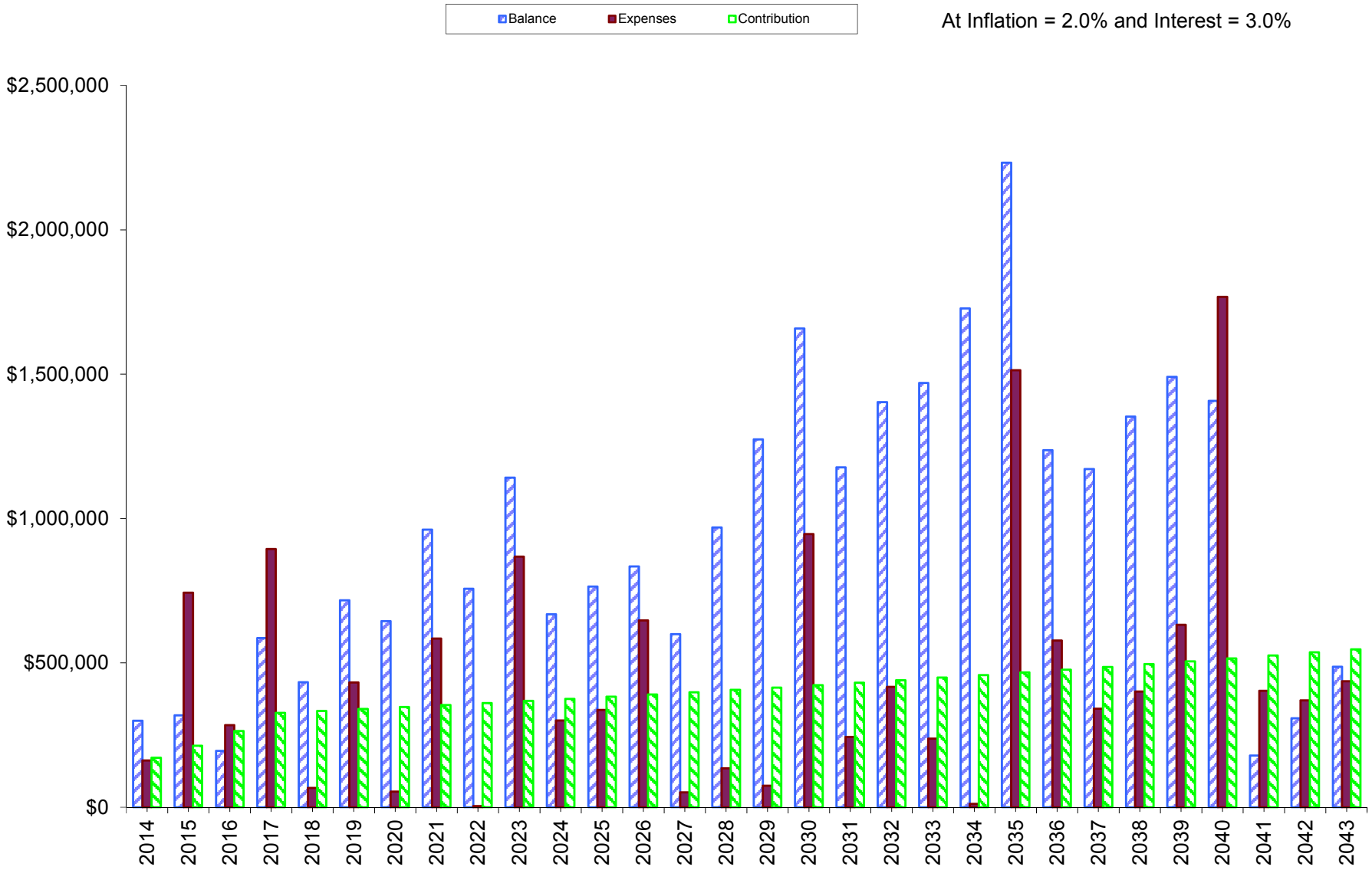
CCC 15
30 Year Reserve Fund Cash Flow Table
Final - May 20, 2015

Assumed Interest Rate	3.0%
Assumed Inflation Rate	2.0%
Reserve Fund Balance at Start of 2014 Fiscal Year	300,000
Minimum Reserve Fund Balance	178,665

Year Ending In	Opening Balance	Annual Contribution*	Percent Increase over Previous Year	Other Contribution	Estimated Future Inflated Expenditures	Projected Interest Earned	Closing Balance
2014	300,000	171,506			162,320	9,138	318,324
2015	318,324	212,667	24.0%	405,600	742,968	1,595	195,218
2016	195,218	263,708	24.0%	405,600	284,133	5,550	585,943
2017	585,943	326,997	24.0%	405,600	894,704	9,063	432,899
2018	432,899	333,537	2.0%		66,678	16,990	716,748
2019	716,748	340,208	2.0%		432,358	20,120	644,718
2020	644,718	347,012	2.0%		53,831	23,739	961,639
2021	961,639	353,953	2.0%		584,222	25,395	756,766
2022	756,766	361,032	2.0%		4,218	28,055	1,141,634
2023	1,141,634	368,252	2.0%		868,160	26,750	668,477
2024	668,477	375,617	2.0%		300,604	21,180	764,669
2025	764,669	383,130	2.0%		337,079	23,631	834,351
2026	834,351	390,792	2.0%		646,930	21,188	599,402
2027	599,402	398,608	2.0%		51,744	23,185	969,451
2028	969,451	406,580	2.0%		134,587	33,163	1,274,607
2029	1,274,607	414,712	2.0%		74,427	43,343	1,658,235
2030	1,658,235	423,006	2.0%		945,849	41,904	1,177,296
2031	1,177,296	431,466	2.0%		243,642	38,136	1,403,257
2032	1,403,257	440,096	2.0%		416,477	42,452	1,469,328
2033	1,469,328	448,897	2.0%		237,460	47,251	1,728,016
2034	1,728,016	457,875	2.0%		11,888	58,530	2,232,534
2035	2,232,534	467,033	2.0%		1,514,151	51,269	1,236,686
2036	1,236,686	476,374	2.0%		577,269	35,587	1,171,378
2037	1,171,378	485,901	2.0%		341,241	37,311	1,353,349
2038	1,353,349	495,619	2.0%		400,501	42,027	1,490,494
2039	1,490,494	505,531	2.0%		631,469	42,826	1,407,382
2040	1,407,382	515,642	2.0%		1,767,799	23,439	178,665
2041	178,665	525,955	2.0%		403,679	7,194	308,135
2042	308,135	536,474	2.0%		369,968	11,742	486,383
2043	486,383	547,203	2.0%		436,858	16,247	612,975

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

CCC 15
30 Year Reserve Fund Cash Flow Chart
Final - May 20, 2015



Actual annual values for contribution, forecast expenditures, and balance can be found in the Cash Flow Table and Plan

CCC 15
Contribution Table
Scenario 1 - Final - May 20, 2015

Year	Annual Contribution*	Percent Increase over Previous Year	Other Contribution	Total Contribution
2014	171,506			171,506
2015	212,667	24.0%	405,600	618,267
2016	263,708	24.0%	405,600	669,308
2017	326,997	24.0%	405,600	732,597
2018	333,537	2.0%		333,537
2019	340,208	2.0%		340,208
2020	347,012	2.0%		347,012
2021	353,953	2.0%		353,953
2022	361,032	2.0%		361,032
2023	368,252	2.0%		368,252
2024	375,617	2.0%		375,617
2025	383,130	2.0%		383,130
2026	390,792	2.0%		390,792
2027	398,608	2.0%		398,608
2028	406,580	2.0%		406,580
2029	414,712	2.0%		414,712
2030	423,006	2.0%		423,006
2031	431,466	2.0%		431,466
2032	440,096	2.0%		440,096
2033	448,897	2.0%		448,897
2034	457,875	2.0%		457,875
2035	467,033	2.0%		467,033
2036	476,374	2.0%		476,374
2037	485,901	2.0%		485,901
2038	495,619	2.0%		495,619
2039	505,531	2.0%		505,531
2040	515,642	2.0%		515,642
2041	525,955	2.0%		525,955
2042	536,474	2.0%		536,474
2043	547,203	2.0%		547,203

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

SCENARIO 2 - PROPOSED CONTRIBUTION 2

30-Year Detailed Cash-Flow Plan

CCC 15
Detailed Thirty Year Reserve Fund Cash-Flow Plan
Scenario 2 - Final - May 20, 2015

	Starting Balance	300,000	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,955	1,141	1,237	6,594	13,237	20,550	26,089	32,828	35,805	34,728	41,893	44,391	51,564	66,964
	Annual Reserve Contribution	171,506	236,678	326,616	450,730	459,745	468,940	478,318	487,885	497,642	507,595	517,747	528,102	538,664	549,437	560,426
	Other Contribution		202,800	202,800	202,800											
	Ending Balance	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207	2,512,010
	Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
S3a	Balconies - West Elevation Rehabilitation	132,500														
S3b	Balconies - Rehabilitation - North, East & South Elevations											137,746	140,501	143,311		
S3d	Balcony - Condition Assessment		45,900													
BE1a	Sheltered Concrete Panels and Sealant - Repair								51,691							
BE1b	Exposed Concrete Panels, Repair, Sealer & Sealant										50,000					
BE1c	Exterior Cladding - Repair			35,374										43,120		
BE2a	Exposed Windows - Replace										323,870					
BE2b	Original Sheltered Windows and Balcony Doors - Replace		20,808	21,224	21,649	22,082	22,523									
BE2c	Newer Sheltered Windows and Balcony Doors - Replace															
BE3	Main Entrance - Replace											20,723				
BE4	Sealant at Exposed Windows															
BE5a	Main Tower and Mechanical Penthouse Roof - Replace										186,434					
BE5b	Mechanical Penthouse Walls													143,311		
BE6	Penthouse Condo Terraces - Replace						124,761									
BE7	Roofs over Balconies - Replace								43,650							
A1	Interior - Painting			37,142												
A2	Corridor Carpeting - Replace			70,040												
A3a	Lobby Refurbishment	55,080														
A4	Superintendent's Apartment															
M1	Air Handler Unit						28,706									
M2	Glycol heat Recovery															
M3	Electric Heating Coil	8,160														
M2	Main Exhaust Fans	2,040										2,438				
M3	Air Conditioner - Elevator Room - Replace												17,407			
M4	Boiler - Replace															
M5	Storage Tanks - Replace															
M6	Piping - Testing			5,202										6,341		
M8	Drainage Piping															
M9	Main Booster Pumps - Replace															
M10	Boiler Pump						2,208									
M11	Recirculation Pump						2,208					2,438				
M12	Sump Pumps			2,122											2,587	
M13	Standpipe & Sprinkler										108,753					
M15	Exhaust fans						3,312									
M16	Garbage Compactor - Replace											17,066				
M17	Generator fuel storage tank															
M18	Generator Muffler															
E1	Incoming Service	493,680														
E2	120/208V Switchboard	58,140														

CCC 15
Detailed Thirty Year Reserve F
Scenario 2 - Final - May 20, 20'

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	Starting Balance	2,512,010	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	82,818	87,319	89,764	100,575	112,164	130,537	130,686	122,741	132,541	145,685	155,276	145,058	138,374	152,887	167,777
	Annual Reserve Contribution	571,635	583,067	594,729	606,623	618,756	631,131	643,754	656,629	669,761	683,156	696,820	710,756	724,971	739,471	754,260
	Other Contribution															
	Ending Balance	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875	5,919,054
	Fiscal Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Item		2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
S3a	Balconies - West Elevation Rehabilitation											217,380				
S3b	Balconies - Rehabilitation - North, East & South Elevations															
S3d	Balcony - Condition Assessment															
BE1a	Sheltered Concrete Panels and Sealant - Repair								69,569							
BE1b	Exposed Concrete Panels, Repair, Sealer & Sealant					131,113										159,826
BE1c	Exterior Cladding - Repair								52,563							
BE2a	Exposed Windows - Replace															
BE2b	Original Sheltered Windows and Balcony Doors - Replace															
BE2c	Newer Sheltered Windows and Balcony Doors - Replace		831,908					918,494					1,014,091			
BE3	Main Entrance - Replace															
BE4	Sealant at Exposed Windows							37,892								
BE5a	Main Tower and Mechanical Penthouse Roof - Replace															277,032
BE5b	Mechanical Penthouse Walls															
BE6	Penthouse Condo Terraces - Replace															
BE7	Roofs over Balconies - Replace													64,862		
A1	Interior - Painting				49,989											
A2	Corridor Carpeting - Replace				94,264											
A3a	Lobby Refurbishment															
A4	Superintendent's Apartment		27,456													
M1	Air Handler Unit															
M2	Glycol heat Recovery									31,538						
M3	Electric Heating Coil		10,982													
M2	Main Exhaust Fans					2,914									3,482	
M3	Air Conditioner - Elevator Room - Replace												23,428			
M4	Boiler - Replace		46,675													
M5	Storage Tanks - Replace	53,835														
M6	Piping - Testing								7,730							
M8	Drainage Piping					7,284										
M9	Main Booster Pumps - Replace					65,557										
M10	Boiler Pump	2,692										3,281				
M11	Recirculation Pump	2,692					2,972					3,281				
M12	Sump Pumps									3,154						
M13	Standpipe & Sprinkler															
M15	Exhaust fans	4,038										4,922				
M16	Garbage Compactor - Replace											22,968				
M17	Generator fuel storage tank											9,844				
M18	Generator Muffler		15,101													
E1	Incoming Service															
E2	120/208V Switchboard															

CCC 15
Detailed Thirty Year Reserve Fund Cash-Flow Plan
Scenario 2 - Final - May 20, 2015

	Starting Balance	300,000	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,955	1,141	1,237	6,594	13,237	20,550	26,089	32,828	35,805	34,728	41,893	44,391	51,564	66,964
	Annual Reserve Contribution	171,506	236,678	326,616	450,730	459,745	468,940	478,318	487,885	497,642	507,595	517,747	528,102	538,664	549,437	560,426
	Other Contribution		202,800	202,800	202,800											
	Ending Balance	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207	2,512,010
Item	Fiscal Year	1 2014	2 2015	3 2016	4 2017	5 2018	6 2019	7 2020	8 2021	9 2022	10 2023	11 2024	12 2025	13 2026	14 2027	15 2028
E3	Condo Distribution				509,380											
E4	Triacta Smart Meter															
E5	120/208V Main Splitter Trough						12,145									
E6	120/208V Panels						93,847									
E8	347/600V Main Splitter Trough						15,457									
E9	Penthouse Distribution						12,145									
E10	Basement Distribution						44,163									
E11	Panel E1 & T1 Transformer															22,431
E12	Emergency 120/208V Splitter Trough															11,875
E13	Emergency 120/208V Panels															89,725
E14	Fire Pump Controller															
E15	Jockey Pump Controller															
E16	Domestic Water Pump Duplex Controller															
E17	Sump Pump Duplex Controller															
E18	Interior Public Lighting											69,483				
E19	Fire Alarm Control Panel (FACP) & Annunciator Panel															
E20	Fire Alarm Devices												105,687			
E21	Emergency Exit Signs															
E22	Emergency Generator										144,606					
E23	Automatic Transfer Switch										20,317					
E24	Guest Entry Panel															
EL1	Elevators - B44 Safety Code			3,121				3,446						3,805		
EL2	Elevators - Modernization															
EL3	Elevators - Cab Finishes														41,395	
RFS1	Reserve Fund Study with Site Review	7,600						8,559						9,639		
RFS2	Reserve Fund Study - No Site Review				3,184					3,585						
JC-PG1a	Upper Podium Membrane - Building A/B	5,420		179,469	183,058											
JC-PG1b	Upper Podium Membrane - Building B/C over Parking Garage							437,649								
JC-PG1c	Upper and Lower Podium Membrane - Northwest of Bldg. A & South of Bldg. C.													276,477		
JC-PG1d	Upper Podium Membrane - Building C/D over Recreation Area															
JC-PG1e	Lower Podium Membrane															
JC-PG2a	Expansion Joint - Upper Podium A/B - Replace		40,800													
JC-PG2b	Expansion Joint - Upper Podium B/C - Over parking garage							17,230								
JC-PG2c	Expansion Joint - Lower Podium A/B & B/C - Replace												9,947			

CCC 15
Detailed Thirty Year Reserve F
Scenario 2 - Final - May 20, 20'

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	Starting Balance	2,512,010	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	82,818	87,319	89,764	100,575	112,164	130,537	130,686	122,741	132,541	145,685	155,276	145,058	138,374	152,887	167,777
	Annual Reserve Contribution	571,635	583,067	594,729	606,623	618,756	631,131	643,754	656,629	669,761	683,156	696,820	710,756	724,971	739,471	754,260
	Other Contribution															
	Ending Balance	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875	5,919,054
Item	Fiscal Year	16 2029	17 2030	18 2031	19 2032	20 2033	21 2034	22 2035	23 2036	24 2037	25 2038	26 2039	27 2040	28 2041	29 2042	30 2043
E3	Condo Distribution															
E4	Triacta Smart Meter									268,073						
E5	120/208V Main Splitter Trough															
E6	120/208V Panels															
E8	347/600V Main Splitter Trough															
E9	Penthouse Distribution															
E10	Basement Distribution															
E11	Panel E1 & T1 Transformer															
E12	Emergency 120/208V Splitter Trough															
E13	Emergency 120/208V Panels															
E14	Fire Pump Controller												70,284			
E15	Jockey Pump Controller												20,081			
E16	Domestic Water Pump Duplex Controller									26,807						
E17	Sump Pump Duplex Controller							34,860								
E18	Interior Public Lighting															
E19	Fire Alarm Control Panel (FACP) & Annunciator Panel							42,439								
E20	Fire Alarm Devices															
E21	Emergency Exit Signs				28,565											
E22	Emergency Generator															
E23	Automatic Transfer Switch															
E24	Guest Entry Panel					21,852										
EL1	Elevators - B44 Safety Code			4,201					4,638					5,121		
EL2	Elevators - Modernization												567,289			
EL3	Elevators - Cab Finishes														55,713	
RFS1	Reserve Fund Study with Site Review				10,855						12,224					
RFS2	Reserve Fund Study - No Site Review	4,038						4,547						5,121		
JC-PG1a	Upper Podium Membrane - Building A/B													294,438	300,327	
JC-PG1b	Upper Podium Membrane - Building B/C over Parking Garage															
JC-PG1c	Upper and Lower Podium Membrane - Northwest of Bldg. A & South of Bldg. C.															
JC-PG1d	Upper Podium Membrane - Building C/D over Recreation Area			177,831												
JC-PG1e	Lower Podium Membrane							384,979	392,679							
JC-PG2a	Expansion Joint - Upper Podium A/B - Replace							60,627								
JC-PG2b	Expansion Joint - Upper Podium B/C - Over parking garage													25,603		
JC-PG2c	Expansion Joint - Lower Podium A/B & B/C - Replace															

CCC 15
Detailed Thirty Year Reserve Fund Cash-Flow Plan
Scenario 2 - Final - May 20, 2015

	Starting Balance	300,000	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,955	1,141	1,237	6,594	13,237	20,550	26,089	32,828	35,805	34,728	41,893	44,391	51,564	66,964
	Annual Reserve Contribution	171,506	236,678	326,616	450,730	459,745	468,940	478,318	487,885	497,642	507,595	517,747	528,102	538,664	549,437	560,426
	Other Contribution		202,800	202,800	202,800											
	Ending Balance	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207	2,512,010
	Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
JC-PG2d	Expansion Joint Upper Podium B/C over Recreation Area															10,556
JC-PG3a	Upper Garage - Suspended Slab Waterproofing - Repairs										25,097					
JC-PG3b	Upper Garage - Suspended Slab Waterproofing - Replace															
JC-PG4	Lower Garage Asphalt - Repairs				1,061			1,126			1,195			1,268		
JC-PG5	Garage Concrete - Repairs		6,120			6,495			6,892			7,314			7,762	
JC-PG6	Ramp - Walls - Repairs		2,040													
JC-PG7	Garage Exterior Walls - Repair	3,500		3,745	3,820	3,897	3,975	4,054	4,135	4,218	4,302	4,388	4,476			
JC-CC1a	Pool Building Roof - Main Roof - Replace						6,624									
JC-CC1b	Pool Building Roof - East/West Roof - Replace	1,300														
JC-CC3	Pool Building - Metal Cladding															
JC-CC4a	Pool -Tank - Replace		6,120										7,460			
JC-CC4b	Pool Area - Refurbish															
JC-IF1	Recreation Areas - Refinish								4,595							
JC-L1	Metal Railings and Handrails - Replace				29,714											
JC-L3	Asphalt & Concrete Walkways and Curbs - Repairs						3,312									
JC-L4	Asphalt Roadways Parking - Repairs							4,505								
JC-L5	Irrigation System - Replace								14,933							
JC-L6	Chain Link Fence															
JC-M1	Garage Make Up Air Units			25,178	25,681	26,195	26,719	27,253								
JC-M2	Garage Exhaust Fans			7,699	7,853	8,010	8,170	8,334								
JC-M3	Ramp Heating															
JC-M4	Hazardous Gas Detection			3,121												
JC-M5	Fire Pump	12,000														
JC-M6	Piping - Testing		2,040										2,487			
JC-M7	Sprinkler System - Piping															
JC-M10	Fire Hydrants															
JC-M11	Water Main															
JC-M12	Domestic Cold Water Piping															
JC-M13	Sanitary Drainage											39,008				
JC-M14	Pool Boiler												4,973			
JC-M15	Pool Filtration System													2,536		
JC-M16	Pool Ventilation															
JC-M18	Public Corridor Washrooms						2,208									
JC-M19	Exhaust Fans - Hobby, Common & Exercise Room												1,243			
JC-M20	Common Space Electric Water Heater		2,040													
JC-E1	Garage Interior Lighting												16,786	17,121		
JC-E2	Garage 347/600V Distribution Equipment						16,561									

CCC 15
Detailed Thirty Year Reserve F
Scenario 2 - Final - May 20, 20'

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	Starting Balance	2,512,010	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	82,818	87,319	89,764	100,575	112,164	130,537	130,686	122,741	132,541	145,685	155,276	145,058	138,374	152,887	167,777
	Annual Reserve Contribution	571,635	583,067	594,729	606,623	618,756	631,131	643,754	656,629	669,761	683,156	696,820	710,756	724,971	739,471	754,260
	Other Contribution															
	Ending Balance	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875	5,919,054
	Fiscal Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Item		2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
JC-PG2d	Expansion Joint Upper Podium B/C over Recreation Area															
JC-PG3a	Upper Garage - Suspended Slab Waterproofing - Repairs										33,777					
JC-PG3b	Upper Garage - Suspended Slab Waterproofing - Replace										340,989	347,808				
JC-PG4	Lower Garage Asphalt - Repairs	1,346			1,428			1,516			1,608			1,707		
JC-PG5	Garage Concrete - Repairs		8,237			8,741			9,276			9,844			10,446	
JC-PG6	Ramp - Walls - Repairs							3,031								
JC-PG7	Garage Exterior Walls - Repair															
JC-CC1a	Pool Building Roof - Main Roof - Replace						8,916									
JC-CC1b	Pool Building Roof - East/West Roof - Replace	1,750														
JC-CC3	Pool Building - Metal Cladding			12,602												
JC-CC4a	Pool -Tank - Replace							9,094								
JC-CC4b	Pool Area - Refurbish								29,374							
JC-IF1	Recreation Areas - Refinish			5,601										6,828		
JC-L1	Metal Railings and Handrails - Replace															
JC-L3	Asphalt & Concrete Walkways and Curbs - Repairs	4,038														
JC-L4	Asphalt Roadways Parking - Repairs															
JC-L5	Irrigation System - Replace															
JC-L6	Chain Link Fence												11,714			
JC-M1	Garage Make Up Air Units															
JC-M2	Garage Exhaust Fans								11,440	11,669	11,902	12,140	12,383			
JC-M3	Ramp Heating			39,207												
JC-M4	Hazardous Gas Detection			4,201												
JC-M5	Fire Pump															
JC-M6	Piping - Testing							3,031								
JC-M7	Sprinkler System - Piping				37,134											
JC-M10	Fire Hydrants				5,713											
JC-M11	Water Main				177,103											
JC-M12	Domestic Cold Water Piping				11,426											
JC-M13	Sanitary Drainage															
JC-M14	Pool Boiler															
JC-M15	Pool Filtration System															
JC-M16	Pool Ventilation												46,856			
JC-M18	Public Corridor Washrooms															
JC-M19	Exhaust Fans - Hobby, Common & Exercise Room												1,673			
JC-M20	Common Space Electric Water Heater		2,746													
JC-E1	Garage Interior Lighting															
JC-E2	Garage 347/600V Distribution Equipment															

CCC 15
Detailed Thirty Year Reserve Fund Cash-Flow Plan
Scenario 2 - Final - May 20, 2015

	Starting Balance	300,000	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207
	Total Expenses inflated at 2% annually	162,320	742,968	284,133	894,704	66,678	432,358	53,831	584,222	4,218	868,160	300,604	337,079	646,930	51,744	134,587
	Interest at 3% annually	9,138	1,955	1,141	1,237	6,594	13,237	20,550	26,089	32,828	35,805	34,728	41,893	44,391	51,564	66,964
	Annual Reserve Contribution	171,506	236,678	326,616	450,730	459,745	468,940	478,318	487,885	497,642	507,595	517,747	528,102	538,664	549,437	560,426
	Other Contribution		202,800	202,800	202,800											
	Ending Balance	318,324	16,789	263,213	23,276	422,937	472,755	917,793	847,545	1,373,797	1,049,038	1,300,909	1,533,825	1,469,950	2,019,207	2,512,010
	Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
JC-E3	Pool Interior Lighting															
JC-E4	Pool 120/208V Distribution Equipment						1,104									
JC-E5	Pool 347/600V Distribution Equipment						2,208									
JC-E6	Common Corridor Interior Lighting															
JC-E7	Exterior Perimeter Lighting												9,947			
JC-E8	Exterior Pole Lighting												16,164			
JC-E9	Common Area Emergency Exit Signs															

CCC 15
Detailed Thirty Year Reserve F
Scenario 2 - Final - May 20, 20

	Starting Balance	2,512,010	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875
	Total Expenses inflated at 2% annually	74,427	945,849	243,642	416,477	237,460	11,888	1,514,151	577,269	341,241	400,501	631,469	1,767,799	403,679	369,968	436,858
	Interest at 3% annually	82,818	87,319	89,764	100,575	112,164	130,537	130,686	122,741	132,541	145,685	155,276	145,058	138,374	152,887	167,777
	Annual Reserve Contribution	571,635	583,067	594,729	606,623	618,756	631,131	643,754	656,629	669,761	683,156	696,820	710,756	724,971	739,471	754,260
	Other Contribution															
	Ending Balance	3,092,037	2,816,574	3,257,425	3,548,146	4,041,606	4,791,386	4,051,675	4,253,775	4,714,836	5,143,177	5,363,803	4,451,818	4,911,485	5,433,875	5,919,054
	Fiscal Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Item		2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
JC-E3	Pool Interior Lighting							4,547								
JC-E4	Pool 120/208V Distribution Equipment															
JC-E5	Pool 347/600V Distribution Equipment															
JC-E6	Common Corridor Interior Lighting							9,094								
JC-E7	Exterior Perimeter Lighting															
JC-E8	Exterior Pole Lighting															
JC-E9	Common Area Emergency Exit Signs		2,746													

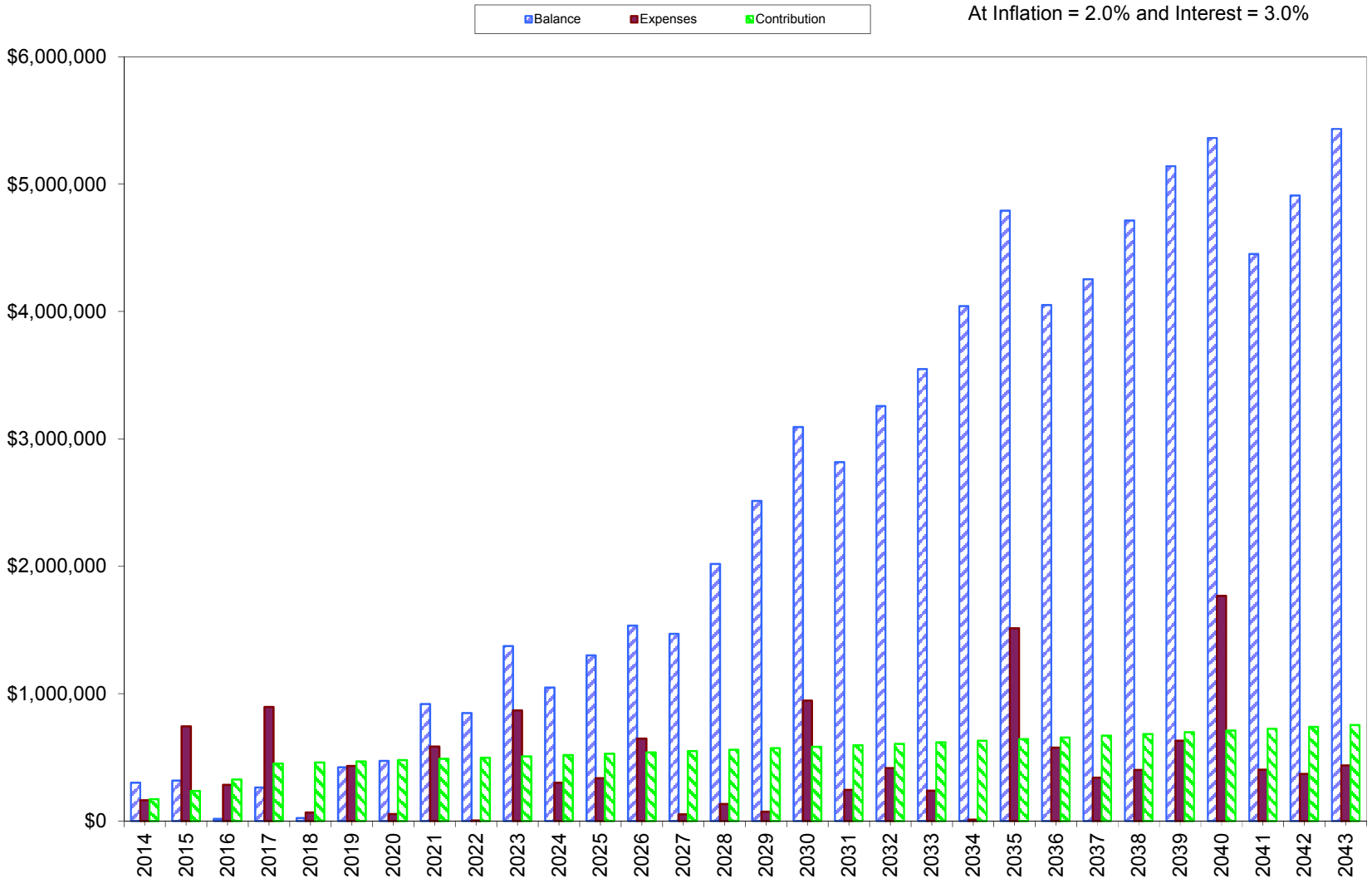
CCC 15
30 Year Reserve Fund Cash Flow Table
Scenario 2 - Final - May 20, 2015

Assumed Interest Rate	3.0%
Assumed Inflation Rate	2.0%
Reserve Fund Balance at Start of 2014 Fiscal Year	300,000
Minimum Reserve Fund Balance	16,789

Year Ending In	Opening Balance	Annual Contribution*	Percent Increase over Previous Year	Other Contribution	Estimated Future Inflated Expenditures	Projected Interest Earned	Closing Balance
2014	300,000	171,506			162,320	9,138	318,324
2015	318,324	236,678	38.0%	202,800	742,968	1,955	16,789
2016	16,789	326,616	38.0%	202,800	284,133	1,141	263,213
2017	263,213	450,730	38.0%	202,800	894,704	1,237	23,276
2018	23,276	459,745	2.0%		66,678	6,594	422,937
2019	422,937	468,940	2.0%		432,358	13,237	472,755
2020	472,755	478,318	2.0%		53,831	20,550	917,793
2021	917,793	487,885	2.0%		584,222	26,089	847,545
2022	847,545	497,642	2.0%		4,218	32,828	1,373,797
2023	1,373,797	507,595	2.0%		868,160	35,805	1,049,038
2024	1,049,038	517,747	2.0%		300,604	34,728	1,300,909
2025	1,300,909	528,102	2.0%		337,079	41,893	1,533,825
2026	1,533,825	538,664	2.0%		646,930	44,391	1,469,950
2027	1,469,950	549,437	2.0%		51,744	51,564	2,019,207
2028	2,019,207	560,426	2.0%		134,587	66,964	2,512,010
2029	2,512,010	571,635	2.0%		74,427	82,818	3,092,037
2030	3,092,037	583,067	2.0%		945,849	87,319	2,816,574
2031	2,816,574	594,729	2.0%		243,642	89,764	3,257,425
2032	3,257,425	606,623	2.0%		416,477	100,575	3,548,146
2033	3,548,146	618,756	2.0%		237,460	112,164	4,041,606
2034	4,041,606	631,131	2.0%		11,888	130,537	4,791,386
2035	4,791,386	643,754	2.0%		1,514,151	130,686	4,051,675
2036	4,051,675	656,629	2.0%		577,269	122,741	4,253,775
2037	4,253,775	669,761	2.0%		341,241	132,541	4,714,836
2038	4,714,836	683,156	2.0%		400,501	145,685	5,143,177
2039	5,143,177	696,820	2.0%		631,469	155,276	5,363,803
2040	5,363,803	710,756	2.0%		1,767,799	145,058	4,451,818
2041	4,451,818	724,971	2.0%		403,679	138,374	4,911,485
2042	4,911,485	739,471	2.0%		369,968	152,887	5,433,875
2043	5,433,875	754,260	2.0%		436,858	167,777	5,919,054

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

CCC 15
30 Year Reserve Fund Cash Flow Chart
Scenario 2 - Final - May 20, 2015



Actual annual values for contribution, forecast expenditures, and balance can be found in the Cash Flow Table and Plan

CCC 15
Contribution Table
Scenario 2 - Final - May 20, 2015

Year	Annual Contribution*	Percent Increase over Previous Year	Other Contribution	Total Contribution
2014	171,506			171,506
2015	236,678	38.0%	202,800	439,478
2016	326,616	38.0%	202,800	529,416
2017	450,730	38.0%	202,800	653,530
2018	459,745	2.0%		459,745
2019	468,940	2.0%		468,940
2020	478,318	2.0%		478,318
2021	487,885	2.0%		487,885
2022	497,642	2.0%		497,642
2023	507,595	2.0%		507,595
2024	517,747	2.0%		517,747
2025	528,102	2.0%		528,102
2026	538,664	2.0%		538,664
2027	549,437	2.0%		549,437
2028	560,426	2.0%		560,426
2029	571,635	2.0%		571,635
2030	583,067	2.0%		583,067
2031	594,729	2.0%		594,729
2032	606,623	2.0%		606,623
2033	618,756	2.0%		618,756
2034	631,131	2.0%		631,131
2035	643,754	2.0%		643,754
2036	656,629	2.0%		656,629
2037	669,761	2.0%		669,761
2038	683,156	2.0%		683,156
2039	696,820	2.0%		696,820
2040	710,756	2.0%		710,756
2041	724,971	2.0%		724,971
2042	739,471	2.0%		739,471
2043	754,260	2.0%		754,260

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

APPENDIX D

Elevator Report

1.0 PURPOSE

In August 2014 a review of the elevator systems at 158 B McArthur Avenue, CCC No. 15, Chateau Vanier, Ottawa, was performed for Morrison Hershfield Engineering. The purpose of the review and this report is to determine the capital costs likely to be encountered by the Condominium, assess the operation of the elevator, note upgrades required to meet current Code[1], and to itemize maintenance deficiencies to be corrected.

2.0 DESCRIPTION OF ELEVATOR SYSTEM

The elevator system consists of two (2) traction passenger elevators operating as a duplex system.

2.1 TECHNICAL DATA

A description of technical and nameplate data is as follows:

Installation Numbers:	23419	23420
Elevator Numbers:	1	2
Class:	Passenger	
Capacity:	2,000 lbs.	
Speed:	350 fpm	
Floors Served:	B, G, 1-19, PH (elev 2 has rear at floor G)	
Car Door Opening:	36" wide x 84" high Single slide, side opening	
Car Door Re-opening Device:	Solid state detector	
Power Supply:	600 Volt, 3 Phase, 60 Hz	
Machine:	Gearless Overhead Traction	
Hoist Motor:	*Imperial* 13 HP, 298 volt	

[1] ASME A17.1-2010/CSA-B44-10 Safety Code for Elevators and Escalators

Electrical Controller:	*MCE i-control* Duplex selective collective
Roping:	1:1
Hoist Ropes:	4 - 15.9mm, Wedge Clamp fastenings
Aux. Brake:	gearless machine double brake
Date Installed:	Original circa 1972
Modernization Date:	Circa 2012. CNIM Elevator
Maint. Contractor:	*Kone Elevator*

2.2 EXISTING CONDITIONS

The original elevator system was manufactured and installed circa 1972. CNIM Elevator modernized the elevators circa 2012.

As part of this modernization the original controllers, geared machines, hoistway locking door locking equipment, car door operators, operating fixtures, overspeed governors and cab interiors were all replaced. Gearless AC motors were installed which should provide considerable performance improvements and power savings over equipment conventionally used in residential applications.

Fully non proprietary elevator controls were implemented meaning the condominium has a choice as far as elevator maintenance supplier. The MCE I control system utilized is of very high quality.

The elevator systems are equipped with emergency recall, in-car emergency service operation and emergency power operation. These features were not tested as a part of this review although the log books are signed to verify their operation.

The existing elevator cab interiors are in very good condition.

The elevator door protection system is a multi-beam solid state edge. Contact with the edge is not required to initiate a door re-open cycle.

The machine room guarding and car top railings are in place and in conformance with current code.

3.0 MAINTENANCE

The elevators are maintained by *Kone*, presumably under the terms of their standard full service preventive maintenance contract. As all major components of the elevator system are covered under the terms of a full maintenance program, no major capital expenditures should arise to repair these components. Exceptions to full maintenance coverage detailed in the contract, such as vandalism, mis-use etc. should be noted.

Although the stated scope of the agreement covers parts and labour over the "full life potential" of the equipment, several provisions could lead to extra costs to the equipment owner. For example:

- The obsolescence clause effectively undermines parts coverage due to vague wording including "usual sources". Historically, elevator contractors have been reasonably fair in the application of this clause. However, occasionally elevator contractors have used similar clauses to avoid responsibility for high cost repairs. The obsolescence clause should not require the property owner to pay any more than the extra costs of replacing obsolete components;

- The contract fails to address such fundamental issues as the frequency of preventative maintenance visits, the time to be spent doing preventative maintenance monthly, a description of the preventative maintenance that the contractor will complete and the maximum permissible response time for the contractor to repair an out of service elevator or free a trapped passenger. The maintenance contract also should address the issue of elevator performance as measured by running speed, flight times, door times and noise levels. This information should be quantified now as a benchmark against which the contractor's work can be evaluated. By failing to do so, many property owners find that they have no recourse in the instance of the maintenance contractor's allowing the elevators to gradually deteriorate over the contract's multi-year term.

- The document employs an "evergreen" clause that will result in the Condominium being contractually obligated for subsequent five year terms, should cancellation notice be given less than 90 days in advance of the fifth anniversary of the contract term.

Our recommendation is that the Board renegotiate the terms at the next opportunity. A better alternative would be the use of a maintenance specification and contract written to reflect the interests of the Board.

MAINTENANCE - con't

MAINTENANCE DEFICIENCIES

3.1 Machine Room Log Books

The state of the machine room safety logs required improvement. Some annual maintenance tasks are outstanding. These logs are required in the Province of Ontario in order to document safety work completed on elevator installations and the applicable legislation puts the onus of completion of the logs on the property owner.

Monthly Maintenance: 2014 Current (missed April)

Annual Maintenance: Due August 2014

Fire Service testing: Overdue

The Maintenance Control Program (MCP) for each elevator was located in the machine room.

3.2 MAINTENANCE DEFICIENCIES

Listed below are deficiencies that should be corrected by the maintenance contractor under the terms of the current maintenance contract, at no additional cost to the Condominium.

Deficiencies

1. Adjust to correct bump in start in down direction.

2. Install dust cover for monitor and keyboard.

3. Adjust brake on elevator 2 for quieter operation.

4. Clean the pits.

5. Provide pad on counterweight guard so as to not damage Whisperflex compensation system.

4.0 VARIANCES TO CURRENT ASME A17.1-2010/CSA-B44-10 SAFETY CODE

The elevators were installed/modernized in compliance with the then-existing B44 safety code. Since the date of installation, there have been few revisions to the Code.

5.0 PERFORMANCE DATA

The performance parameters defined on the following page below were measured. Any found not to reasonably fall within the normal range of values are listed as deficiencies in Section 3.2 of this report.

TRACTION ELEVATORS PERFORMANCE DATA

PARAMETER	REQUIRED	ELEVATOR 1	ELEVATOR 2
Car Speed UP	**350 fpm ± 5%**	346	344
Car Speed DOWN	**350 fpm ± 5%**	346	345
Average Accel. UP	**0.09 g**	0.08	0.08
Maximum Jerk Rate	≤ **8 f/s_3**	14	13
Flight Time UP	≤ **13.0 sec.**	13.1	13.6
Flight Time DOWN	≤ **13.0 sec.**	13.3	13.8
Door Time-out	**20 sec.**	26	24/24 (f/r)
Door Stall Force	≤ **30 lbs**	23	26/24

TABLE DEFINITIONS

Car Speed:
The normal maximum running speed of the elevator, measured in both the up and down directions. The measured value is compared to the design speed of the elevator system.

Flight Time:
The time elapsed for an elevator to serve two consecutive floors, in either the up or down direction, measured from the time the elevator doors begin to close until they are 3/4 open at the next floor. The flight time measurement is compared to a maximum suggested value which is determined by parameters such as car speed, elevator door type and building floor heights.

Average Acceleration:
The average acceleration experienced in the car when approaching top speed. The acceleration measurement is compared to a suggested value which is dependent on the type of elevator system - hydraulic, geared or gearless.

Maximum Jerk:
The maximum change in acceleration experienced in the car over the ride including start, acceleration, deceleration and stop. The Jerk measurement is compared to a suggested value which is dependent on the type of elevator system - hydraulic, geared or gearless.

Door time-out:
The time elapsed from the initiation of a door re-open cycle until the time any light activated door protection device times itself out. The door time-out setting should be 20 seconds.

Door Stall Force:
The force exerted by the elevator car door, during a door close cycle but after the door has been manually brought to a stop. The force is measured while the door is approximately 1/3 closed. The measured force is compared to the maximum force allowed by The CSA Safety Code For Elevators.

6.0 RECOMMENDATIONS AND COSTS

Short Term

We recommend that the deficiencies of Section 3.2 of this report be referred to the maintenance contractor for their corrective action. We would suggest 90 days as a reasonable time frame for them to complete the deficiencies. The elevators were operating as designed and should not require any upgrades in the foreseeable future.

Long Term

As almost all of the major components of the existing elevator system are covered under the terms of a full maintenance program, there should be no major capital expenditures to replace or repair these components. Notable exceptions are vandalism and replacement of obsolete parts. Another common source of extra costs occurs when one maintenance contractor's services are terminated by the property owner (or the contractor themselves terminate their contract). This can lead to a new contractor requiring extras to the monthly maintenance fee to cover major components left in poor condition by the outgoing contractor. Vigilant ongoing policing of the performance of the maintenance contractor is an effective method of avoiding this source of extra costs.

If these elevators are properly maintained under the terms of full maintenance contract, they should continue to operate in a safe and acceptable manner for approximately another twenty (20) to twenty-two (22) years. At such time the existing drive control system, machine and controllers may require replacement. A modernization typically involves the installation of a new micro-processor based controller, the installation of a solid-state motor drive and machine, and other renewals of the wiring and fixtures. This modernization would cost approximately $150,000 per elevator (total $300,000). This upgrading cost for the existing elevator includes all associated work to ensure the elevator fully comply with the latest edition of the CSA Safety Code for Elevator (Section 4.0 of this report).

Normally, cab interiors are renewed periodically for aesthetic reasons. We recommend allowing funds for cab work in approximately fifteen years. A full cab "modernization" could cost $14,000 per cab if done without particularly expensive materials such as bronze or marble.

Periodically the Technical Standards and Safety Authority (TSSA) mandates remedial work that must be carried out on various types of elevator. As these rulings become enforced, the cost to ensure the elevator comply with the Rulings is the responsibility of the condominium. A contingency fund of $3,000 every five years should be established to cover the cost of any future mandatory work.

7.0 PROJECTED CAPITAL COST TABLE

Year / Predicted Work	1-5	6-10	11-15	16-20	21-25	26-30
Future mandatory work required by B44 Safety Code	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Complete modernization of existing elevators including B44 Code upgrades and cab interiors					$ 300,000	
Upgrade of cab interior finishes (discretionary)				$ 28,000		

Notes of Costs: HST not included;
Based on year 2014 dollars;
Work not the responsibility of the elevator trade not included.

- end of report -