KELLER ENGINEERING

RESERVE FUND STUDY UPDATE WITHOUT SITE VISIT
OTTAWA CARLETON STANDARD CONDOMINIUM CORPORATION No. 769, OTTAWA, ONTARIO

File # 1210316
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STUDY SUMMARY

Based on our review of the previous Reserve Fund Study with Site Visit produced by Keller Engineering and dated March 12, 2019, a fiscal analysis and best current estimate, it is recommended that annual reserve fund contributions of Ottawa-Carleton Standard Condominium Corporation No. 769 be increased to **$506,777** in fiscal year **2023, $549,854** in fiscal year **2024, $596,591** in fiscal year **2025**. Increases in the annual contributions in fiscal year **2026** and all years thereafter are budgeted at **2.5% per year**, which is our assumed yearly construction cost increase. This funding plan, in our opinion, will provide adequate funds to carry out necessary repair work and will provide a surplus which will be required in later years to pay for major capital expenditures anticipated beyond the time-period examined in this Reserve Fund Study.

The following revisions have been made to the Comprehensive Reserve Fund Study, based on information provided by the Board Directors:

- The allowance for glass panel balcony railing replacement has been increased above inflation.
- The caulking replacement has been rescheduled to fiscal year 2022 and 2023.
- The allowance for the balcony door replacement has been increased above inflation.
- The allowance for the garage door replacement has been increased above inflation.
- The replacement of the suite heat pumps has been postponed until fiscal year 2022.
- The replacement of the domestic hot water tank heater has been rescheduled to fiscal year 2022.
- The replacement of the steam generator has been rescheduled to fiscal year 2025.

Future Work

The following items are not expected to require repair or replacement within the 30-year scope of this study; however, it is likely that work will be required in the future. Budgeting for these items will commence as they approach the 30-year scope of the Reserve Fund Study:

- Site Services Replacement
- EIFS Replacement
- Aluminum Siding Replacement
- Main Disconnect Switchgear Replacement
- Metering Sockets Replacement
- Electrical Distribution Breaker Panels Replacement
- Fused Disconnect Switches Replacement
- Hydronic Piping and Riser Replacement
- Domestic Hot Water Storage Tank Relining
- Domestic Cold & Hot Water Distribution and Risers Replacement
- Sanitary and Storm Pipes & Stacks Replacement
- Sprinkler Heads Replacement
- Standpipes Replacement
- Sprinkler Pipes Replacement

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1.0 INTRODUCTION

1.1 Scope

The Board of Directors of Ottawa-Carleton Standard Condominium Corporation No. 769 (OCSCC 769) commissioned Keller Engineering to prepare the following Reserve Fund Study Update. The work included the review of the current Reserve Fund Study Update with Site Visit and make adjustments based on input from the Board of Directors and/or the Property Management on the work carried out and the performance of the common elements over the past few years.

In accordance with 'The Condominium Act, 1998', the purpose of this study is 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 repairs and replacement of the common elements and assets of the Corporation. The Reserve Fund Study contains findings about the current conditions of the common elements, and it tabulates major capital expenditure predictions over the next 30 years.

This Reserve Fund Study satisfies the requirements of a Reserve Fund Study Update without Site Visit as outlined in Part IV of the Ontario Regulation 48/01, s. 28.

1.2 Description of Property

Ottawa-Carleton Standard Condominium Corporation No. 769 is a 15-year-old, 19-storey high-rise containing 140 residential units. The property known as Rivergate phase 2 is located at 3580 Rivergate Way, in Ottawa, Ontario.

Figure 1: Location of OCSCC 769

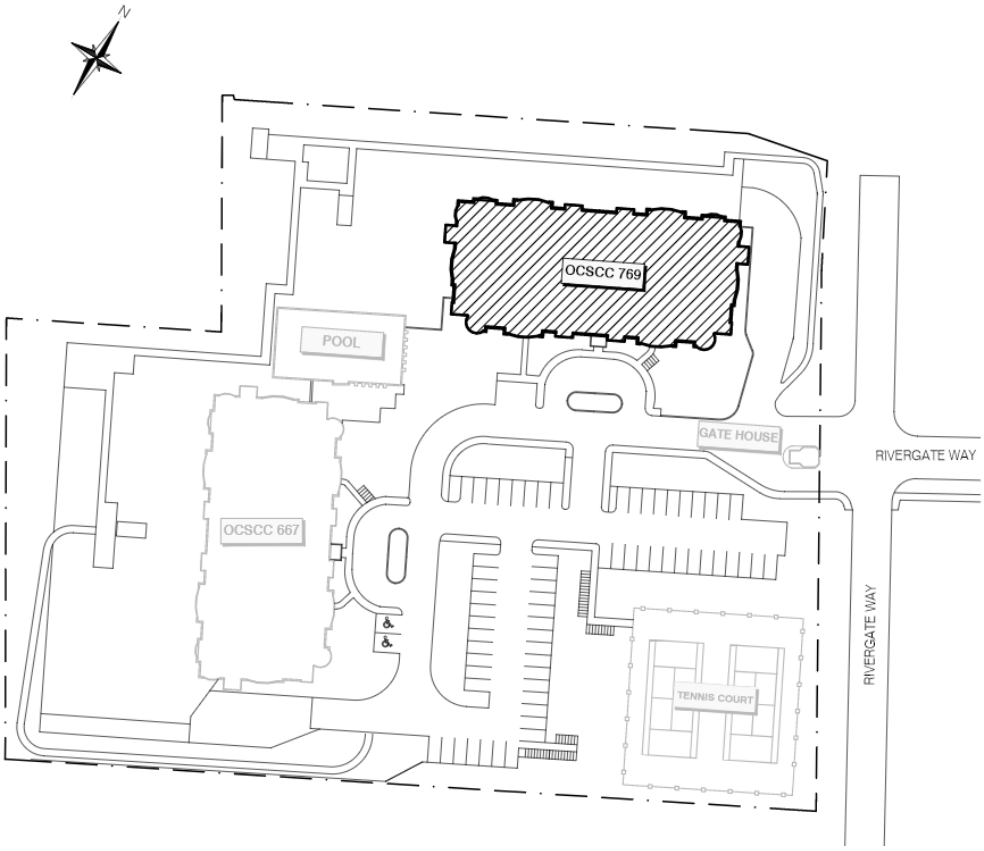

Figure 2: Key Plan

1.3 References

Reference Materials were provided by Ms. Kimberly Renwick, of Condominium Management Group, Property Manager for OCSCC 769.

The following documents were available for review for the purpose of completing this study:

- Previous Reserve Fund Studies
  - Reserve Fund Study Update with Site Visit; dated March 12, 2019; Keller Engineering
- 2020 Budget
- Auditor's Statements
  - Fiscal Year 2021; dated July 7, 2021
- Drawings
  - Architectural; A1-A18; For Construction; dated August 8, 2003
  - Structural; S1-S16; As-built; dated November 6, 2007
- Declaration; dated February 15, 2017
  - By-Law No. 1; dated October 31, 2007
  - By-Law No. 2; dated October 31, 2007
  - By-Law No. 3; dated October 31, 2007
  - By-Law No. 4; dated May 27, 2010
  - By-Law No. 5; dated October 5, 2011
  - By-Law No. 6; dated July 20, 2012
- Share Services Agreement; dated October 15, 2003

2.0 GENERAL INFORMATION

2.1 Determination of Repair/Replacement Costs

The costs and scheduling for the major repair/replacement work involving the common elements to the Corporation have been taken directly from the Reserve Fund Study Update with Site Visit, unless revisions have been requested or are required as part of this update due to poor performance, increased cost, or unanticipated work.

COST INCREASES

Keller Engineering has reviewed each of the capital expenditures for the repair and replacement of the common building components, and have made adjustments in one of the following manners:

i) The capital expenditures have been increased by inflation to approximate the cost of the work in current dollars. The inflation rates for the past three years have been taken directly from the data posted by Statistics Canada for construction projects in the Ottawa-Gatineau area.

ii) The capital expenditures have been increased to reflect a market increase factor. Based on our experience over the past few years, the cost of some construction specialties has increased dramatically above the average inflation rate due to unique increases in the cost of materials and labour.

FORECASTING COSTS

Capital expenditures for repair and replacement of building components have been forecasted in current dollars and the most probable fiscal years when these expenditures will be required have been set out in this report. Adjustments for construction cost increases as well as earned interest are automatically made to the spreadsheet and, since the annual fees are to be revised in the current year, the recommended contributions are also determined in current dollars. Beyond the current year, it is the Board's responsibility to ensure that the reserve fund contributions are in line with those outlined in the spreadsheet.

When an expense will be incurred depends on a number of factors, such as:

i) The urgency of repair or replacement: Some building components, such as water supply, sanitary sewers or electricity distribution mains, must operate flawlessly at all times. Interruptions in their working condition cannot be tolerated and repair costs for these items cannot be deferred.

ii) The perceived importance of a repair or replacement: For example, caulking, paving or painting need not be addressed when the first blemishes appear. The Board of Directors has considerable freedom to delay or advance the time when funds will be spent on these non-essential types of repairs to suit the demand from owners and the financial constraints of the Corporation's budget.

In most cases, expenses for each common element have been budgeted for the specific fiscal year in which the repair or replacement will likely be required. If possible, repair or replacement of the common elements will usually be performed throughout the corporation during one year rather than spreading the repairs out over a few years as this is generally the most cost-effective solution. For cases where repair or replacement of a building component is not required throughout the corporation at the same time, it may be more cost effective to phase the work over two or more years. Phasing the work may also be necessary due to a lack of reserve funds. A prudent manager would be expected to determine whether phasing the work is cost effective and have the work performed accordingly. Some of the expenses outlined in this Reserve Fund Study will occur early in the predicted time period, other expenses will be incurred later however the accumulated reserve fund should be sufficient to pay for all of these expenses as they come due.

It is within the Board's mandate to advance or defer non-essential repair contracts based on sound technical advice at the time of the scheduled repair.

ENGINEERING FEES

To ensure that major repair and replacement work at the condominium corporation is properly specified and performed, it is strongly recommended, that an experienced engineer be hired to provide professional assistance. Engaging the services of a professional engineer would ensure that the work is properly specified, tendered, and executed. Engineering fees related to the common element repairs will be paid out of the reserve fund. Accordingly, a suitable allowance for engineering fees has been included in the spreadsheet where it is likely that the Board will require professional assistance in implementing the work. Depending on the extent and complexity of the work, engineering fees can range between 5% and 15% of the value of the construction project.

2.2 Financial Plan

SPREADSHEET

The main purpose of the spreadsheet is to determine the annual reserve fund contributions required to ensure that there will be sufficient funds to pay for all foreseeable expenditures over the 30-year plan. To determine the total expenditures to be incurred in each fiscal year, the projected expenditures are entered into the spreadsheet, summed and adjusted for yearly construction cost increases.

INFLATION RATES

Over the past few years, the rate at which construction costs increase has varied significantly between -0.7% and 7.0%. An annual inflation rate of **2.5%** has been used in this report. This rate is based on annually published data by Statistics Canada relating to the construction price index for apartment buildings in the local region.

While the increase in construction costs will fluctuate from year to year, an annual rate of **2.5%** will likely provide a reasonable representation of how prices will increase over the next few years.

INTEREST RATES

For this Reserve Fund Study, a **2.5%** interest rate was assumed in calculating the annual contributions from interest earned on the reserve fund balance.

While actual inflation and interest rates may differ from those assumed for this report, the above rates, in combination, should be representative over the next few years.

DETERMINING CONTRIBUTION AMOUNTS

Trial values for the annual reserve fund contributions are entered into the spreadsheet and through an iterative process the most appropriate annual contributions are determined and used to establish the 30-year funding plan. The iterations account for annual expenditures, annual contributions from owners' monthly fees as well as contributions from investment interest earned on the unused balance of the reserve fund. As noted previously, these figures are adjusted to account for yearly construction cost increases prior to determining the recommended funding plan and the annual contributions are shown in the actual dollar values for each respective year.

The most appropriate contribution ensures that sufficient funds are accumulated in the reserve fund to cover all anticipated expenditures as they come due while leaving a surplus at the end of the study period. The size of the surplus depends greatly on the individual condominium and on the expenses that are to be incurred beyond the study period. Condominiums which are expected to incur large expenditures shortly beyond the study period should have a large surplus.

At the end of the spreadsheet, the remaining reserve fund is shown in current dollars to provide a better perspective of the fund balance at the end of the study period.

Reserve funds for condominiums must be adequately funded following each reserve fund study. The most accepted interpretation of adequate funding is that annual contributions remain constant and increasing only by inflation and that no special assessments are necessary.

As part of the changes to the Condominium Act, the Regulations of the Act are being revised. While the changes relating to reserve fund planning have yet to be implemented, we anticipate that the current recommendations will be implemented in the near future. The current recommendations include allowing condominiums to plan for an increase of the year-over-year total contributions above regular inflation for a period of 3 years upon completion of the reserve fund study.

Note, Keller Engineering projects expenses for a timeframe 10-years beyond 30-year plan. Financial plans will be presented that will meet the necessary funding requirements of both the 30-year plan and the period 10-years beyond. It is a common that a financial plan that only meets the 30-year period will not be sufficient to prevent a deficit occurring in the 10-years beyond the scope of the study. The Board of Directors may elect to proceed with a funding plan which exhibits a deficit beyond the 30-year plan with the knowledge that a significant increase to the contributions may be required upon time of the next Reserve Fund Study.

In accordance with the Condominium Act and the associated Regulations, Reserve Fund Study Updates must be conducted every 3 years. These updates will allow for adjustments to interest rates, construction cost increases, and/or the funding plan, due to any unforeseen costs incurred over the 3-year period. Prices for future reserve fund studies are for budgeting purposes only and do not constitute a fee proposal for future services.

3.0 ASSUMPTION AND LIMITATIONS

The accuracy of the discussions, conclusions and cost information contained in this study is limited to the extent of information available at this time. No on-site or visual assessment of the condition or technical audit of the common elements of the Corporation was carried out as part of this Reserve Fund Study, unless otherwise specified. Meetings by Keller Engineering with the Board of Directors held on site at the Corporation building(s) do not constitute a site or visual inspection of the common elements.

Life expectancy projections for the common elements assume that the corporation will provide satisfactory and timely periodic maintenance. The study does not make allowances for the effects of rare events such as flood, fire, lightning, explosions, earthquakes etc.

Future cost projections for the repair or replacement of common element items is based on a set inflation rate taken as an average of past years' construction price index, which is provided by Statistics Canada. As market value increases may vary annually, it is difficult to determine the percentage increase on an item by item basis. Therefore, the most accurate projection is provided by reviewing the previous year's average of the entire construction industry and extrapolated over the life span of the study.

It is assumed that the expected performance standards and appearance correspond to the current norm. Furthermore, housing industry averages and manufacturers' published data on component life expectancy apply to this condominium corporation.

All revisions that have been made to the previous Reserve Fund Study were at the request of the Corporation or its counsel and were solely based on work carried out to date and the advice from industry professionals.

4.0 APPENDICES

4.1 Spreadsheet for Major Repair and Replacement

As described in Section 2: General Information, the purpose of the spreadsheet is to determine the annual reserve fund contributions required to ensure that there will be sufficient funds to pay for all foreseeable expenditures over the next thirty years.

4.2 Notice of Future Funding (Formerly Form 15)

The Notice of Future Funding of the Reserve Fund is included in Appendix B. This notice contains a summary of the Reserve Fund Study as well as the proposed plan for future funding. Copies of this notice are to be sent to each of the unit owners to give notice and make them aware of the proposed plan.

Within 120 days of receiving the study, it is the responsibility of the Board of Directors in consort with the Corporation's property management and financial advisors, to review the Reserve Fund Study and propose a plan for future funding of the reserve fund which the Board determines will ensure that the fund will be adequate for the purpose for which it was established.

5.0 TECHNICAL AUDIT AND COSTING

The following sections include a brief technical discussion of the major building components common to the condominium corporation, approximate quantities involved, life expectancy, repair and replacement costs as well as the fiscal years in which work is anticipated.

All items have been ranked on a scale from poor to satisfactory. The rankings are as follows:

- Satisfactory – The condominium complex component exhibits little to no deterioration and is expected to last or exceed its estimated full life cycle assuming regular maintenance and no change to its general environment.
- Fair – The condominium complex component is serviceable although there is evidence of collective degradation or deficient operation. Repairs may be required within the next 5 years.
- Poor – The condominium complex component is either at the end of its life cycle or there is the potential for imminent failure. In the circumstance, the condominium complex component may be inoperative or exhibit total failure and immediate repairs or replacement may be required.

5.1 Architectural/Structural/Civil

5.1.1 Parking Garage

The 2-level reinforced concrete below grade parking garage is located beneath the condominium and the adjacent landscaped podium.

PARKING GARAGE STRUCTURE

The parking garage structure is constructed of reinforced concrete slabs, beams, and columns and concrete block masonry walls. The parking garage structure will typically last the life of the complex; however, significant repairs usually required after 30 years of service.

Parking Garage Structure Repair Allowance	
Quantity	Allowance
Cost	$30,400
Year(s)	2026, 2036, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A In order to ensure funds are available to perform repairs to the parking garage structure when required, an allowance of **$30,400** has been budgeted in **2026 and every 10 years thereafter**

.B Although costs are not included in this study, as it does not constitute a major repair or replacement, we recommend that a comprehensive investigation of the parking garage be performed in the next 5-10 years using funds from the operating budget

PODIUM SLAB COVERED WITH LANDSCAPING

The landscaped covered podium is located on the south end of the property and is protected by a waterproofing membrane. The waterproofing under the landscaping has a typical service life of 20-35 years.

Podium Waterproofing Replacement	
Quantity	2,415 m^2
Cost	$669,400
Year(s)	2036 - 2037

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C Replacement of the podium waterproofing not including landscaping is estimated to cost **$669,400** and this work has been budgeted **equally over 2 years beginning in 2036**. This work includes an allowance for concrete repairs

.D The removal and reinstatement of the landscaping required to perform the podium waterproofing replacement is estimated to cost **$377,200** and this work has been budgeted **equally over 2 years beginning in 2036**

.E Although costs are not included in this study, as it does not constitute a major repair or replacement, we recommend that a comprehensive investigation of the waterproofing under the landscaping be performed in **2026**, using funds from the operating budget

Podium Landscaping Replacement	
Quantity	2,415 m^2
Cost	$377,200
Year(s)	2036 - 2037

INTERMEDIATE SLABS

The intermediate suspended slabs on Level P1 in the parking structure are protected with an elastomeric traffic bearing membrane. The traffic bearing membrane has a typical service life of 15-20 years; however, areas of high traffic can have a reduced service life.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Traffic Bearing Membrane Waterproofing - Drive Lanes and Parking Areas Replacement	
Quantity	2,550 m^2
Cost	$316,400
Year(s)	2026, 2046

We recommend the following work be anticipated and funded:

.F Replacement of the traffic bearing membrane at the drive lanes and parking areas on level P1 is estimated to cost **$316,400** and this work has been budgeted in **2026 and every 20 years** thereafter

.G In order to ensure funds are available to replace the traffic bearing membrane turning radius and ramps, an allowance of **$48,700** has been provided in fiscal year **2038**

.H In order to ensure funds are available to perform isolated repairs to the intermediate slab and traffic bearing membranes when required, an allowance of **$12,200** has been budgeted in fiscal year **2021 and every 5 years** thereafter

.I Minor repairs of the traffic bearing membrane should be performed, as required, using funds from the operating budget

Traffic Bearing Membrane Waterproofing - Turning Radiuses and Ramps Replacement	
Quantity	360 m^2
Cost	$48,700
Year(s)	2038

Intermediate Slab Repair Allowance	
Quantity	2,550 m^2
Cost	$12,200
Year(s)	2021, 2026, 2031, 2036, 2041, 2046

CONCRETE SLAB-ON-GRADE

A concrete slab-on-grade has been installed in level 1 of the parking garage. The concrete slab-on-grade will typically last the life of the complex.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Concrete Slab-on-grade Repair Allowance	
Quantity	Allowance
Cost	$36,500
Year(s)	2031, 2041

We recommend the following work be anticipated and funded:

.J In order to ensure funds are available to perform isolated repairs to the parking garage concrete slab-on-grade when required, an

allowance of **$36,500** has been budgeted in **2031** and **every 10 years thereafter**

.K Minor repairs of the concrete slab-on-grade should be performed, as required, using funds from the operating budget

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5.1.2 Gazebo

WOOD GAZEBO

A wood gazebo is located at the northwest corner of the landscaped podium. The wood gazebo has a typical service life of 15-30 years but can vary depending on maintenance.

Gazebo Repair & Replacement	
Quantity	Allowance
Cost (Recon.)	$6,100
Year(s)	2040

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A In order to ensure funds are available to perform isolated repairs and replacements to the gazebo when required, an allowance of **$6,100** has been budgeted in **2040** and **every 30 years** thereafter

.B Costs for staining the gazebo have been included in the Exterior Painting Section

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5.1.3 Fencing

WOOD FENCING

Wood fencing is located on the northeast elevation of the building. Wood fencing has a typical service life of 20-25 years.

Wood Fencing Replacement	
Quantity	20 m
Cost	$7,300
Year(s)	2035

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the wood fencing is estimated to cost **$7,300** and this work has been budgeted in **2035** and **every 20 years** thereafter

.B Minor repairs of the fencing should be performed using funds from the operating budget

.C Costs for repainting of the fencing have been included in the Exterior Painting Section

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5.1.4 Foundation Walls

CONCRETE FOUNDATION WALLS

The cast-in-place concrete foundation walls support the high-rise building structure. The foundation walls will typically last the life of the complex.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Minor concrete repairs of the foundation walls should be performed as required using funds from the operating budget

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5.1.5 Balconies

BALCONY STRUCTURE

The balcony structures are constructed of cantilevered reinforced concrete slabs. The balcony slabs will typically last the life of the complex; however, significant repairs usually required after 30 years of service.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A In order to ensure funds are available to perform repairs to the balcony slabs when required, an allowance of **$182,600** has been budgeted in **2033 and every 15 years** thereafter

Balcony Structure Repair Allowance	
Quantity	Allowance
Cost	$182,600
Year(s)	2033, 2048

BALCONY RAILINGS

The precast concrete and glass panel railings are located at the balcony edges. The aluminum and glass panel railings have a typical service life of 30-40 years. The precast concrete railings will typically last the life of the complex.

The allowance for the glass panel balcony railings replacement has been increased above inflation to reflect current market values.

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.B Replacement of the balcony railings is estimated to cost **$435,000** and this work has been budgeted **equally over 3 years beginning in 2048** of this study

.C Costs for the repair of the precast concrete railings have been included in the concrete balcony repair allowance

Glass Panel Balcony Railings	
Quantity	1270 m
Cost	$435,000
Year(s)	2048 - 2050

5.1.6 Masonry

MASONRY VENEER

A masonry brick veneer is installed as the primary cladding of the building. The masonry veneer will typically last the life of the complex; however, significant repairs usually required after 30 years of service.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Masonry Veneer Repair Allowance	
Quantity	Allowance
Cost	$121,700
Year(s)	2033, 2048

We recommend the following work be anticipated and funded:

.A In order to ensure funds are available to perform isolated repairs when required, an allowance of **$121,700** has been made in **2033 and every 15 years** thereafter
.B Minor repairs of the masonry should be performed, as required, using funds from the operating budget.
.C Although costs are not included in this study, as it does not constitute a major repair or replacement, we recommend that a comprehensive survey of the masonry veneer be performed in 2029 using funds from the operating budget
.D Although costs are not included in this study, as it does not constitute a major repair or replacement, we recommend that an investigation into the masonry veneer efflorescence be performed in 2029 in the next, using funds from the operating budget

CONCRETE BLOCK MASONRY

The concrete block masonry is located throughout the parking garage, and the below-grade rooms and corridors. The concrete block masonry will typically last the life of the complex.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.E Minor repairs of the concrete block masonry should be performed, as required, using funds from the operating budget.

5.1.7 Exterior Insulation & Finish System (EIFS)

The EIFS is installed at the parking garage entrance. This system typically consists of a cementitious basecoat and acrylic granular finish coating applied over a rigid insulation-type panel of various thicknesses, which is either mechanically fastened or adhered to the wall. The EIFS has a typical service life of 50-60 years; however, significant repairs are usually required after 25-30 years of service.

EIFS Recoating & Repair	
Quantity	50 m^2
Cost	$6,100
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

EIFS Replacement	
Quantity	50 m^2
Cost	$36,500
Year(s)	Beyond 2050

We recommend the following work be anticipated and funded:

.A Recoating and repair of the EIFS is estimated to cost **$6,100** and this work has been budgeted in **2031**.
.B Replacement of the EIFS is estimated to cost **$36,500** and this work has been budgeted **beyond the 30-year planning period** of this study
.C Minor repairs of the EIFS should be performed, as required, using funds from the operating budget

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5.1.8 Soffit & Fascia

ALUMINUM FASCIA

The aluminium fascia is located at the front entrance canopy and the parking garage podium exit. Aluminium fascia has a typical service life of 30-40 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the aluminium fascia is estimated to cost **$6,100** and this work has been budgeted **2046** in conjunction with the canopy and garage exit window replacements

.B Minor repairs of the aluminium soffits and fascias should be performed, as required, using funds from the operating budget

Aluminum Fascia	
Quantity (Fascia)	80 m
Cost	$6,100
Year(s)	2046

5.1.9 Exterior Coating

EXTERIOR PAINTING

Exterior painting and staining has been performed on the penthouse roof ladder and the gazebo. Exterior painting has a typical service life of 5-6 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A As requested by the Board, repainting and staining should be performed, as required, using funds from the operating budget

5.1.10 Caulking

The caulking is located at the window and door openings, the masonry control joints, roof flashings, and parking garage columns. The caulking has a typical service life of 10-12 years.

The caulking was not replaced in fiscal years 2019 and 2020 as such has been rescheduled to fiscal year 2022 and 2023

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the caulking is estimated to cost **$292,200** and this work has been budgeted equally **over two years beginning** in **2022** and **every 12 years** thereafter until **2043** when the allowance is reduced to **$60,900** due to the caulking replacements included in the window replacement costs at that time

Caulking	
Quantity	Allowance
Cost	$292,200
Year(s)	2022 – 2023, 2034 - 2035

Caulking – Excluding Windows	
Quantity	Allowance
Cost	$60,900
Year(s)	2043

.B Minor repairs of the caulking should be performed, as required, using funds from the operating budget.

5.1.11 Windows & Balcony Doors

WINDOWS

The aluminium framed punched windows and curtain walls provide the primary fenestration for the building. The windows have a typical service life of 30-40 years.

According to the information available, the allowance for curtain wall glazing was not expensed in the current fiscal year

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the punched windows is estimated to cost **$2,556,000** and this work has been budgeted **equally over four years beginning in 2046**

.B As requested by the Board, an **annual allowance** of **$48,700** has been budgeted beginning in **2022** for the replacement of the curtain wall glazing and caps when required

.C Minor repairs including replacement of hardware, screens, weatherstripping and isolated thermopanes should be performed, as required, using funds from the operating budget

Punched Window Replacement	
. Qty	1,800 m^2
. Cost	$2,556,000
.Year(s)	2046 – 2049

Curtain Wall Glazing Replacement	
. Qty	5,300 m^2
. Cost	$48,700
. Year(s)	Annually

ENTRANCE CANOPY WINDOWS

The aluminium framed laminated windows make up the central portion of the front entrance canopy. The windows have a typical service life of 30-40 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.D Replacement of the windows is estimated to cost **$85,200** and this work has been budgeted **equally over four years beginning in 2046** in conjunction with the punched and curtain wall window replacements

.E Minor repairs including replacement of hardware, screens, weatherstripping and isolated thermopanes should be performed, as required, using funds from the operating budget

Entrance Canopy Window Replacement	
. Quantity	65 m^2
. Cost	$85,200
. Year(s)	2046 - 2049

GARAGE EXIT WINDOWS

The aluminium framed windows make up the above-grade walls of the podium garage exit. The windows have a typical service life of 30-40 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Garage Exit Window Replacement	
. Quantity	32 m^2
. Cost	$41,200
. Year(s)	2046 - 2049

We recommend the following work be anticipated and funded:

.F Replacement of the windows is estimated to cost **$41,200** and this work has been budgeted **equally over four years beginning in 2046** in conjunction with the punched and curtain wall window replacements
.G Minor repairs including replacement of hardware, screens, weatherstripping and isolated thermopanes should be performed, as required, using funds from the operating budget

BALCONY DOORS

The aluminium sliding doors are located at the unit balconies. The balcony doors have a typical service life of 30-40 years.

The allowance for the balcony door replacement has been increased above inflation to reflect current market values.

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Balcony Door Replacement	
Quantity	144
Cost	$492,400
Year(s)	2046 - 2049

We recommend the following work be anticipated and funded:

.H Replacement of the balcony doors is estimated to cost **$492,400** and this work has been budgeted **equally over four years beginning in 2046** in conjunction with the punched and curtain wall window replacements
.I Minor repairs including replacement of hardware, screens, weatherstripping and isolated thermopanes should be performed, as required, using funds from the operating budget

5.1.12 Doors

MAIN ENTRANCE DOORS

The main exterior entrance doors are located on the ground floor at the front of the building. The main entrance doors have a typical service life of 25 to 30 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Main Entrance Door Replacement	
Quantity	2
Cost	$12,200
Year(s)	2036

We recommend the following work be anticipated and funded:

.A Replacement of the main entrance doors is estimated to cost **$12,200** and this work has been budgeted in **2036**
.B Minor repairs of the main entrance doors should be performed, as required, using funds from the operating budget

COMMON AREA DOORS

The common area man doors are located at entrances of stairwells, in common rooms and corridors, at emergency exits, in the garage and at entrances to mechanical rooms and other common areas. The common area man doors have a varying service life depending on usage and exposure.

Common Area Door Replacement	
Quantity	Allowance
Cost	$6,100
Year(s)	2026, 2036, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C In order to ensure funds are available to perform isolated repairs and replacements when required, an allowance of **$6,100** has been made in **2026** and **every 10 years** thereafter
.D Minor repairs of the unit suite doors should be performed, as required, using funds from the operating budget

UNIT SUITE DOOR

The unit suite doors have a typical service life of 40-50 years.

Unit Suite Door Replacement	
Quantity	Allowance
Cost	$30,400
Year(s)	2041, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.E In order to ensure funds are available to perform isolated repairs and replacements when required, an allowance of **$30,400** has been made in **2041 and every 5 years** thereafter
.F Minor repairs of the unit suite doors should be performed, as required, using funds from the operating budget

GARAGE DOORS

The garage door is located at the garage entrance on the east side of the building. The garage door has a typical service life of 15-20 years but can vary depending on usage.

Garage Door Replacement	
Quantity	1
Cost	$7,000
Year(s)	2026, 2046

The allowance for the Garage Door Replacement has been increased above inflation to reflect current market values.

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.G Replacement of the garage door is estimated to cost **$7,000** and this work has been budgeted in **2026 and every 20 years** thereafter
.H Minor repairs of the garage doors should be performed, as required, using funds from the operating budget

5.1.13 Roofing Systems

INVERTED ROOFING SYSTEM

An inverted roofing membrane system protects the main roof, penthouse roof, entrance canopy, and the podium access stairwell. Inverted roofs typically consists of a hot-applied rubberized asphalt membrane covered by rigid insulation, filter fabric and gravel ballast. An inverted roofing system has a typical service life of 20-25 years.

Inverted Roofing System Replacement – Main Roof	
Quantity	1,800 m^2
Cost	$584,200
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the inverted roofing membrane system on the main roof is estimated to cost **$584,200** and this work has been budgeted in **2031 and every 25 years** thereafter
.B Replacement of the inverted roofing membrane system at the podium stairs and entrance canopy is estimated to cost **$24,300** and this work has been budgeted in **2031 and every 25 years** thereafter
.C Minor repairs of the inverted roofing membrane system should be performed, as required, using funds from the operating budget

Inverted Roofing System Replacement – Podium Stairs & Entrance Canopy	
Quantity	70 m^2
Cost	$24,300
Year(s)	2031

METAL ROOFING

The metal roofing is located on the mechanical penthouse and is comprised of aluminum siding. The aluminium siding has a typical service life of 40-50 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.D Replacement of the aluminium siding is estimated to cost **$243,400** and this work has been budgeted **beyond the 30-year planning period** of this study
.E Minor repairs of the aluminium siding should be performed, as required, using funds from the operating budget

Aluminum Siding Replacement	
Quantity	560 m^2
Cost	$243,400
Year(s)	Beyond 2050

5.1.14 Common Corridors

The interior finishes of the corridors on levels 1-19 consist of painted, and decorative panel walls, stone, ceramic tile, and painted concrete flooring, and painted and acoustical tile ceilings.

The interior finishes of the corridors on levels P-P2 consist of painted walls, ceramic tile and painted concrete flooring, and painted ceilings.

As requested by the Board, all interior refinishing and refurnishing is to be completed using funds from the operating budget

PAINTED WALLS

The walls are painted in the main corridors of the building. Painted walls have a typical service life of 10-15 years prior to becoming aesthetically unpleasing.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Repainting should be performed, as required, using funds from the operating budget

DECORATIVE WALL PANELS

The walls are cladded with decorative panels in the main corridors of the building. Wall panels have a typical service life of 40 years prior to becoming aesthetically unpleasing.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.B Repair and replacement of the decorative wall panels should be performed, as required, using funds from the operating budget.

STONE FLOORING

Stone flooring is installed on levels 1-19. The stone flooring will typically last the life of the complex.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C Minor repairs should be performed, as required, using funds from the operating budget

CERAMIC TILE FLOORING

Ceramic tile flooring is installed on levels P2-19. Ceramic tile flooring has a typical service life of 40-50 years prior to requiring replacement.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.D Repair and replacement of the ceramic tile flooring should be performed, as required, using funds from the operating budget

PAINTED CONCRETE FLOORING

Painted concrete floors are located throughout the building. The painted concrete floors have a typical service life of 15-20 years prior to becoming aesthetically unpleasing.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.E Minor repairs of the exposed concrete ceiling should be performed, as required, using funds from the operating budget

ACOUSTICAL TILE

Acoustical tile ceilings are located on levels 2-19. The acoustical tile ceilings will have a typical service life of 40-50 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.F Minor repairs of the acoustical tile ceiling should be performed, as required, using funds from the operating budget

PAINTED CEILING

The ceilings are painted in the main corridors of the building. Painted ceilings have a typical service life of 15-20 years prior to becoming aesthetically unpleasing.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.G Minor repainting should be performed, as required, using funds from the operating budget

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5.1.15 Common Rooms

The interior common rooms of the building include a lobby, stairwells, a condominium office, an exercise room, a steam room, change rooms, a library, bike rooms, a party room, a games room, a hobby room and a janitor's laundry room.

As requested by the Board, all interior refinishing and refurnishing is to be completed using funds from the operating budget.

LOBBY

The lobby consists of stone tile floors, painted drywall and decorative wall paneling, and painted drywall coffered ceilings. Furnishings include a security guard desk, couches, chairs, tables, mailboxes and artwork. Generally major renovations of the lobby occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the lobby furniture or finishes should be performed, as required, using funds from the operating budget

STAIRWELLS
The stairwells consist of painted concrete walls, floors and ceilings.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.B Repairs to the stairwell finishes should be performed, as required, using funds from the operating budget

CONDOMINIUM OFFICE
The condominium office consists of carpeted floors, painted drywall walls, and a painted drywall ceiling. Furnishings include chairs, a desk, tables and storage. Generally major renovations of the condominium office occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 15 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C Replacement of the condominium office furniture or finishes should be performed, as required, using funds from the operating budget

EXERCISE ROOM
The exercise room consists of a carpeted floor with painted drywall walls and a painted drywall ceiling. Furnishings include exercise equipment. Generally major renovations of the exercise room occur after 30-40 years of service as the original finishes appear dated. The service life of the exercise equipment varies based on usage and maintenance.

Exercise Room Equipment Allowance	
Quantity	Allowance
Cost	$4,900
Year(s)	2021, 2026, 2031 2036, 2041, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.D At the request of the Board, in order to ensure funds are available to replace exercise room equipment when required, an allowance of **$4,900** has been made in **2021 and every 5 years** thereafter
.E Refinishing of the exercise room should be performed, as required, using funds from the operating budget

LIBRARY
The library consists of carpeted floors and painted drywall walls and ceilings. Furnishings include tables, chairs, shelving, lighting and artwork. Generally major renovations of the library occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.F Replacement of the library furniture or finishes should be performed, as required, using funds from the operating budget

BIKE ROOM

The bike room consists of painted concrete walls and ceilings and exposed concrete floors. Furnishings include steel bike racks.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.G Repairs to the furniture or finishes should be performed, as required, using funds from the operating budget

LOCKERS

The locker rooms consist of painted concrete walls and ceilings and exposed concrete floors. Furnishings include steel lockers. Typically, the lockers require replacement every 30-40 years, depending on usage.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.H Minor repairs to the furniture or finishes should be performed, as required, using funds from the operating budget

STEAM ROOMS

The steam rooms are located within the swimming pool change rooms. The steam room finishes consist of ceramic tile walls, flooring and seating. The finishes of the steam room have a typical service life of 20-30 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.I Refinishing of the steam room should be performed, as required, using funds from the operating budget

CHANGE ROOMS

The change rooms consist of ceramic tile floors, painted drywall and ceramic tile walls, and painted drywall ceilings. Furnishings include showers, lockers, benches and washrooms. Generally major renovations of the change rooms occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.J Replacement of the change room furniture or finishes should be performed, as required, using funds from the operating budget

HOBBY ROOM

The hobby room consists of painted concrete walls, floors and ceilings. Furnishings include work benches, chairs, tool cabinets, carpentry equipment; and storage lockers. Generally major renovations of the theatre room occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.K Replacement of the hobby room furniture or finishes should be performed, as required, using funds from the operating budget

PARTY ROOM

The party room consists of carpeted and ceramic tile floors, painted walls, acoustic ceiling tiles and painted drywall ceilings. Furnishings include a stove, microwave, dishwasher, refrigerator, cabinets, couches, chairs, tables, AV equipment and three single washrooms. Generally major renovations of the party rooms occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.L Replacement of the party room furniture or finishes should be performed, as required, using funds from the operating budget

JANITOR LAUNDRY ROOM

The janitor laundry room consists of ceramic tile floors and painted concrete walls and ceilings. Furnishings include a washer and a dryer. Generally major renovations of the laundry rooms occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.M Refinishing and replacement of the janitor laundry room equipment should be performed, as required, using funds from the operating budget

GAMES ROOM

The games room consists of carpeted floors, painted drywall walls and painted concrete walls and ceilings. Furnishings include a pool table, a ping pong table, a dart board, tables, chairs, lighting and artwork. Generally major renovations of the billiards rooms occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.N Replacement of the games room furniture or finishes should be performed, as required, using funds from the operating budget

GUEST SUITE

The gust suite consists of carpeted and ceramic tile floors, painted drywall walls and painted ceilings. Furnishings includes two beds, tables, chairs, storage, decorative paintings and lighting, a television and a bathroom. Generally major renovations of guest suites occur after 30-40 years of service as the original finishes appear dated. Typically, the furniture requires replacement every 10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.O Replacement of the guest suite furniture or finishes should be performed, as required, using funds from the operating budget

5.2 Electrical

5.2.1 Electrical Distribution

MAIN DISCONNECT SWITCHGEAR

The 1200A, 600V main disconnect switchgear located in the main electrical room within the parking garage protects and isolates the main electrical feed into the building. Main disconnect switchgear has a typical service life of 40-45 years.

Main Disconnect Switchgear	
Quantity	1
Cost	$389,500
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the main disconnect switchgear is estimated to cost **$389,500** and this work has been budgeted **beyond the 30-year planning period** of this study

.B Although costs are not included in this study, as they do not constitute a major repair or replacement, we recommend periodic maintenance and infrared thermography be performed on the electrical system every 5 years, using funds from the operating budget

METERING SOCKETS

The metering sockets located in the electrical rooms within the building provide individual electrical metering to the suites. Metering sockets have a typical service life of 45-50 years.

Metering Sockets	
Quantity	144
Cost	$279,900
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C Replacement of the metering sockets is estimated to cost **$279,900** and this work has been budgeted **beyond the 30-year planning period** of this study

DISTRIBUTION BREAKER PANELS

The 120/240V and 600V distribution breaker panels installed in electrical rooms and mechanical rooms divide electrical power feed into subsidiary circuits. Moulded case circuit breakers contained within provide circuit overload protection. Breaker panels have a typical service life of 40-45 years.

Electrical Distribution Breaker Panels	
Quantity	6
Cost	$121,700
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.D Replacement of the breaker panels and moulded case breakers is estimated to cost **$121,700** and this work has been budgeted **beyond the 30-year planning period** of this study

FUSED DISCONNECT SWITCHES

The 600V fused disconnect switches of amperages ranging from 30A to 400A installed in electrical rooms, mechanical rooms, and electrical provide electrical power feed and overload protection to individual pieces of equipment. Fused disconnect switches have a typical service life of 40-45 years.

Fused Disconnect Switches	
Quantity	40
Cost	$140,000
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.E Replacement of the fused disconnect switches is estimated to cost **$140,000** and this work has been budgeted **beyond the 30-year planning period** of this study

DRY CORE TRANSFORMERS

The dry core transformers ranging from 27 kVA to 250 kVA located in the electrical and mechanical rooms reduce the voltage of the electrical feed. Dry core transformers have a typical service life of 35-40 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.F Replacement or overhaul of the dry core transformers is estimated to cost **$505,100** and this work has been budgeted in **2046**

Dry Core Transformers	
Quantity	13
Cost	$505,100
Year(s)	2046

MECHANICAL LOAD STARTERS

The 600V motor starters installed in the electrical and mechanical rooms provide a safe method for starting an electric motor with a large load, under-voltage and overload protection, and an automatic cut-off in the event of a power failure. Motor starters have a typical service life of 20-25 years which can vary depending on usage.

According to the information provided, the allowance for the motor starters replacement will not be expensed in fiscal year 2021.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.G Due to the varying service life of the motor starters, replacement need only be completed as required. For budgeting purposes, an allowance of **$21,900** has been made in **2026 and every 5 years thereafter** to ensure funds are available when the work is required

Motor Starters	
Quantity	Allowance
Cost	$21,900
Year(s)	2026, 2031 2036, 2041, 2046

5.2.2 Lighting

LIGHT FIXTURES

The common area light fixtures are located throughout the common areas of the building and inside the parking garage. Common area light fixtures have a varying service life depending on usage and environmental conditions.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Full scale replacement of the light fixtures should not be required during the span of this study, and consequently, no funds have been allocated for fixture replacement. When individual fixtures and light bulbs/tubes require replacement, the costs should be paid for out of the operating budget

5.2.3 Fire Alarm System

FIRE ALARM PANEL

The Siemens fire alarm panel with voice annunciator installed in the fire alarm closet adjacent to the lobby and the remote annunciator installed in the main entrance vestibule provide monitoring of the fire alarm sensors. Fire alarm panels have a typical service life of 25-30 years.

Fire Alarm Panel	
Quantity	1
Cost	$365,100
Year(s)	2042

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the fire alarm panel and partial rewiring of the fire alarm system is estimated to cost **$365,100** and this work has been budgeted in **2042**

.B Although costs are not included in this study, as they do not constitute a major repair or replacement, the ULC 536 test of the fire alarm system is required on an annual basis, using funds from the operating budget

FIRE ALARM SENSORS

The smoke detectors and heat sensors located in the common areas throughout the building provide monitoring for the fire alarm system. Smoke detectors and heat sensors have a typical service life of 5-10 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C As requested by the Board, replacement of the smoke detectors and heat sensors is to be completed using funds from the operating budget

5.2.4 Emergency Power System

BATTERY PACK UNITS

The Kholer 600V, 300kW emergency power generator consisting of a Volvo diesel fueled engine, located in the generator room within the parking garage provides emergency power to the elevators, emergency lights, and life and safety equipment. Emergency power generators have a typical service life of 30-35 years.

Emergency Power Generator	
Quantity	1
Cost	$395,600
Year(s)	2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the emergency power generator is estimated to cost **$395,600** and this work has been budgeted in **2036**

TRANSFER SWITCH

The Cutler-Hammer 400A transfer switch located in the generator room within the parking garage automatically transfers power between the main hydro power and emergency power. Transfer switches have a typical service life of 30-35 years.

Emergency Transfer Switch	
Quantity	1
Cost	$24,300
Year(s)	2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.B Replacement of the transfer switch is estimated to cost **$24,300** and this work has been budgeted in **2036**, in conjunction with the emergency generator replacement

FUEL STORAGE TANKS

The 1,500 litres double wall main fuel tank located in the parking garage generator room provides diesel fuel storage for the generator. TSSA could require that fuel storage tanks to be replaced every 10 years.

Fuel Storage Main Tank	
Quantity	1
Cost	$18,300
Year(s)	2028, 2038, 2048

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C Replacement of the main fuel tank is estimated to cost **$18,300,** the costs for the 2018 replacement have been included with the Emergency Power Generator & Fuel Systems Code Compliance Updates. Subsequent fuel tank replacement has been budgeted in **2028 and every 10 years thereafter**

5.2.5 Electrical Heating Systems

BASEBOARD ELECTRIC HEATERS

The baseboard electric heaters located in ground floor common areas provide supplemental heating to these areas. Baseboard electric heaters have a typical service life of 40-45 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A As requested by the Board, repairs and replacements of the electric baseboard heaters are to be completed as required using funds from the operating budget

FORCED FLOW ELECTRIC HEATERS

The forced flow electric heaters located in emergency exits, provide primary heating to these areas. Forced flow electric heaters have a typical service life of 25-30 years.

Forced Flow Electric Heaters	
Quantity	4
Cost	$7,300
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.B Replacement of the forced flow electric heaters is estimated to cost **$7,300** and this work has been budgeted in **2031**

5.2.6 Security Systems

DOOR ENTRY SYSTEM

The Kantech phone-based door entry system consists of an access panel located in the main entrance vestibule to provide visitor access to the building. Door entry systems have a typical service life of 25-30 years.

Door Entry System	
Quantity	1
Cost	$9,700
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the door entry system is estimated to cost **$9,700** and this work has been budgeted in **2031**

KEY FOB SYSTEM

The key fob system consists of a main controller and fob readers. Key fob systems have a typical service life of 15-20 years.

Key Fob System	
Quantity	1
Cost	$24,300
Year(s)	2030, 2045

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.B Replacement of the key fob system is estimated to cost **$24,300** and this work has been budgeted in **2030 and every 15 years thereafter**

CCTV SYSTEM

The CCTV system consists of a DVR and screen located in the pool security room and monitors 11 B&W cameras located inside the building and parking garage. CCTV DVR monitoring stations have a typical service life of 15-20 years. CCTV cameras have a typical service life of 10-15 years.

CCTV Monitoring Station	
Quantity	1
Cost	$14,600
Year(s)	2021, 2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C Replacement of the CCTV monitoring station is estimated to cost **$14,600** and this work has been budgeted in **2021 and every 15 years thereafter**

.D Replacement of the CCTV cameras is estimated to cost **$7,300** and this work has been budgeted in **2021 and every 10 years thereafter**

CCTV Cameras	
Quantity	15
Cost	$7,300
Year(s)	2021, 2031, 2041

BUILDING AUTOMATION SYSTEM

The building automation system consists of a computer and screen located in the mechanical room and monitors the building's HVAC equipment. Building automation systems have a typical service life of 15-20 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.E Due to the varying service life of the building automation system, isolated repairs, updates or upgrades need only be completed as required. For budgeting purposes, an allowance of **$12,200** has been made in fiscal year **2027 and every 10 years thereafter** to ensure funds are available when the work is required

Building Automation System	
Quantity	1
Cost	$12,200
Year(s)	2027, 2037, 2047

5.3 Mechanical

5.3.1 Ventilation System

MAKE-UP AIR UNIT

The packaged indoor Engineered Air 27,000CFM make-up air unit with glycol heating and built-in cooling coils and compressors located in the penthouse mechanical room provides fresh air to the building, pressurises the building and prevents odour transfer between units. Make-up air units have a typical service life of 30-35 years.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the make-up air unit is estimated to cost **$365,100** and this work has been budgeted in **2036**

Make-up Air Unit	
Quantity	1
Cost	$365,100
Year(s)	2036

EXHAUST FANS

The multiple exhaust fans located in the electrical rooms, electrical vault, mechanical room, locker rooms, garbage room, laundry exhaust and other common areas provide ventilation and temperature control. Exhaust fans have a typical service life of 30-35 years which can vary greatly depending on usage and environmental conditions.

Exhaust Fans	
Quantity	Allowance
Cost	$30,400
Year(s)	2026, 2036, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.B Due to the varying service life of the exhaust fans, isolated replacement need only be completed as required. For budgeting purposes, an allowance of **$30,400** has been made in **2026 and every 10 years thereafter** to ensure funds are available when the work is required

GARAGE VENTILATION

The axial exhaust fans, and motorized dampers for the parking garage ventilation are set to run in conjunction with the gas detection system. Axial exhaust fans and motorized dampers have a typical service life of 30-35 years.

Garage Exhaust Fans	
Quantity	5
Cost	$36,500
Year(s)	2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Motorized Dampers	
Quantity	Allowance
Cost	$24,300
Year(s)	2036

We recommend the following work be anticipated and funded:

.C Replacement of the axial exhaust fans is estimated to cost **$36,500** and this work has been budgeted in **2036**

.D Due to the varying expected wear of the motorized dampers, replacement need only be completed as required. For budgeting purposes, an allowance of **$24,300** has been made in **2036**

GARAGE GAS MONITORING SYSTEM

The Armstrong gas monitoring controller monitors CO sensors located in the parking garage controlling the operation of the parking garage ventilation equipment. Gas monitoring controllers have a typical service life of 15-20 years. CO sensors have a typical service life of 5-7 years.

Gas Monitoring Controller	
Quantity	1
Cost	$12,200
Year(s)	2021, 2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

CO Sensors	
Quantity	Allowance (16)
Cost	$9,700
Year(s)	2024, 2029, 2034 2039, 2044, 2049

We recommend the following work be anticipated and funded:

.E Replacement of the gas monitoring controller is estimated to cost **$12,200** and this work has been budgeted in **2021 and every 15 years thereafter**

.F Although costs are not included in this study, as they do not constitute a major repair or replacement, we recommend that testing and calibration of the gas monitoring system be performed every year, using funds from the operating budget

.G Due to the varying condition of the CO sensors, replacement need only be completed as required. For budgeting purposes, an allowance of **$9,700** has been made in **2024 and every 5 years thereafter** to ensure funds are available when the work is required

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5.3.2 Heating & A/C Systems

HEATING BOILERS

The Laars 2,501MBH output gas fueled atmospheric heating boilers located in the penthouse mechanical room provide heated water to the fan coil loop hot water heater loop and make-up air unit. Atmospheric heating boilers have a typical service life of 25-30 years.

Atmospheric Heating Boilers	
Quantity	3
Cost	$541,600
Year(s)	2031

The planned replacement of 1 atmospheric heating boiler was not performed in 2018 as such, this work has been rescheduled to fiscal year 2022 and every 20 years thereafter.

Condensing Heating Boiler	
Quantity	1
Cost	$178,900
Year(s)	2022, 2042

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the 3 remaining atmospheric heating boilers is estimated to cost **$541,600** and this work has been budgeted in **2031**

.B The replacement of one of the atmospheric heating boilers for a condensing boiler is budgeted to cost **$178,900** and this work has been budgeted in **2022 and every 20 years thereafter**

PRIMARY LOOP PUMPS

The Bell & Gossett 900USGPM, 10HP primary loop pumps in the penthouse mechanical room hot water circulation between the boiler and the secondary heating loops. Primary loop pumps have a typical service life of 25-30 years.

Primary Loop Pumps	
Quantity	2
Cost	$36,500
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.C Replacement of the primary loop pumps is estimated to cost **$36,500** and this work has been budgeted in **2031**

PRIMARY HEAT PUMP LOOP PUMPS

The Bell & Gossett 1,100USGPM, 40HP primary heat pump loop pumps, located in the penthouse mechanical room distribute the tempered water throughout the building to the primary heat pumps inside the units and common areas. Primary heat pump loop pumps have a typical service life of 25-30 years.

Primary Heat Pump Loop Pumps	
Quantity	2
Cost	$146,100
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.D Replacement of the primary heat pump loop pumps is estimated to cost **$146,100** and this work has been budgeted in **2031**

HEATING HEAT PUMP LOOP PUMPS

The Bell & Gossett 100USGPM, 1HP heating heat pump loop pumps, located in the penthouse mechanical room distribute the tempered water throughout the building to the heating heat pumps inside the units and common areas. Heating heat pump loop pumps have a typical service life of 25-30 years.

Heating Heat Pump Loop Pumps	
Quantity	2
Cost	$11,000
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.E Replacement of the heating heat pump loop pumps is estimated to cost **$11,000** and this work has been budgeted in **2031**

GARAGE HEATING LOOP PUMPS

The Bell & Gossett 225USGPM, 5HP garage heating loop pumps, located in the penthouse mechanical room distribute the water to the garage heating loop. Garage heating loop pumps have a typical service life of 25-30 years.

Garage Heating Loop Pumps	
Quantity	2
Cost	$43,800
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.F Replacement of the garage heating loop pumps is estimated to cost **$43,800** and this work has been budgeted in **2031**

MAKE-UP AIR CIRCULATING PUMPS

The Bell & Gossett 275USGPM and 300USGPM, 5HP and 7.5HP make-up air circulating pumps located in the penthouse mechanical room circulate water and glycol between the make-up air, the heat exchanger, and the main heating loop. Make-up air circulating pumps have a typical service life of 25-30 years.

Make-up Air Circulating Pumps	
Quantity	2
Cost	$21,900
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

H. Replacement of the make-up air circulating pumps is estimated to cost **$21,900** and this work has been budgeted in **2031**

COOLING TOWER

The BAC 482-Ton capacity cooling tower installed in the penthouse mechanical room cools down the water in the heat pump loop. Cooling towers have a typical service life of 20-25 years with proper preventive maintenance and water treatment.

Cooling Tower	
Quantity	1
Cost	$182,600
Year(s)	2026, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

I. Replacement or overhaul of the cooling tower is estimated to cost **$182,600** and this work has been budgeted in **2026 and every 20 years thereafter**

GLYCOL MAKE-UP UNIT

The glycol make-up unit installed in the penthouse mechanical room automatically provides glycol make-up to the make-up air heating loop. Glycol make-up units have a typical service life of 30-35 years.

Glycol Make-up Unit	
Quantity	1
Cost	$4,900
Year(s)	2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

J. Repairs and overhaul of the glycol make-up unit is estimated to cost **$4,900** and this work has been budgeted in **2036**

GYLCOL LOOP EXPANSION TANK

The Amtrol SX-60V expansion tank for the glycol loop located in the mechanical room handles the expansion and contraction for the glycol in the closed loop system. Expansion tanks have a typical service life of 10-15 years.

Glycol Loop Expansion Tank	
Quantity	1
Cost	$1,200
Year(s)	2029, 2039, 2049

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

K. Replacement of the expansion tank is estimated to cost **$1,200** and this work has been budgeted in **2029 and every 10 years thereafter**

HYDRONIC LOOP EXPANSION TANK

The Elbi expansion tank for the heating loop located in the mechanical room handles the expansion and contraction for the water in the closed loop system. Expansion tanks have a typical service life of 10-15 years.

Hydronic Loop Expansion Tank	
Quantity	1
Cost	$2,400
Year(s)	2029, 2039, 2049

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

L. Replacement of the expansion tank is estimated to cost **$2,400** and this work has been budgeted in **2029 and every 10 years thereafter**

HEAT EXCHANGER

The plate and frame heat exchanger for the make-up air unit is located in the penthouse mechanical room and provides heat transfer between the secondary heating loop and the make-up air glycol loop. Plate and frame heat exchangers have a typical service life of 20-25 years, this can vary greatly depending on the water treatment.

Heat Exchanger	
Quantity	1
Cost	$48,700
Year(s)	2026, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

M. Replacement of the heat exchanger is estimated to cost **$48,700** and this work has been budgeted in **2026 and every 20 years thereafter**
N. Although costs are not included in this study, as they do not constitute a major repair or replacement, we recommend that flushing and cleaning of the heat exchangers be performed ever 5 years, using funds from the operating budget

HYDRONIC CABINET UNIT HEATERS

The hydronic cabinet unit heaters located in the vestibule and mechanical penthouse provide primary heating to these building areas. Cabinet unit heaters have a typical service life of 40-45 years, which can vary greatly depending on usage and environmental conditions.

Hydronic Cabinet Unit Heaters	
Quantity	3
Cost	$8,500
Year(s)	2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

O. Replacement of the cabinet unit heaters is estimated to cost **$8,500** and this work has been budgeted in **2046**

SPACE HEATERS

The Rosemex hydronic space heaters located in the mechanical room and parking garage provide primary heating to these building areas. The space heaters have a typical service life of 30-35 years which can vary greatly depending on environmental conditions.

Space Heaters	
Quantity	3
Cost	$4,900
Year(s)	2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Parking Garage Space Heaters	
Quantity	18
Cost	$42,600
Year(s)	2036

We recommend the following work be anticipated and funded:

P. Replacement of the space heaters in the mechanical room is estimated to cost **$4,900** and this work has been budgeted in **2036**
Q. Replacement of the space heaters in the parking garage is estimated to cost **$42,600** and this work has been budgeted in **2036**

HEAT PUMPS

The Trane water source heat pumps located in the elevator rooms, common areas and individual suites provide air conditioning and primary heating to these building areas. According to the declaration, ownership and maintenance of the heat pumps in the suites are the responsibility of the condominium. Heat pumps have a typical service life of 15-20 years.

Common Area Heat Pumps	
Quantity	9
Cost	$79,100
Year(s)	2023, 2038

According to the information provided, the replacement of the common area and suite heat pumps was not completed in 2021 as such the allowances have been pushed back to fiscal year 2022.

Suite Heat Pumps	
Quantity	144
Cost	$1,034,500
Year(s)	2022 - 2026 2037 - 2041

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

R. Replacement of the common area heat pumps is estimated to cost **$79,100** and this work has been budgeted in **2023 and every 15 years thereafter**
S. Total replacement of the suite heat pumps is estimated to cost **$1,034,500**. This work has been budgeted **equally over 5 years beginning in 2022**. Subsequent replacements have been scheduled **every 15 years** thereafter

HYDRONIC PIPING

The hydronic piping and risers installed throughout the building distribute heating water to the fain coil loop and tempered water to the heat pump loop. Hydronic piping systems have a typical service life of 50-70 years with proper maintenance and water treatment. However, it is our experience that the life experience of systems with poor maintenance or water treatment can be reduced by 10-20 years.

Hydronic Piping and Risers	
Cost	$1,217,000
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

T. A rough order of magnitude for the replacement of the hydronic piping and risers is estimated to cost **$1,217,000** and this work has been budgeted **beyond the 30-year planning period** of this study
U. Minor repairs to the hydronic piping and risers should be performed, as required, using funds from the operating budget

5.3.3 Plumbing Systems

DOMESTIC COLD WATER BOOSTER PUMPS

The duplex Bell & Gossett 200USGPM, 30HP cold water booster pumps, located in the pump room within the parking garage, increase the incoming water pressure to deliver cold water to the high-rise section of the building. Cold water booster pumps have a typical service life of 20-25 years.

Domestic Cold Water Booster Pumps	
Quantity	2
Cost	$73,000
Year(s)	2026, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the cold-water booster pumps is estimated to cost **$73,000** and this work has been budgeted in **2026 and every 20 years thereafter**

DOMESTIC HOT WATER HEATERS

The Laars 688.5MBH output gas fueled atmospheric hot water heaters located in the penthouse mechanical room provide domestic hot water to the suites. Atmospheric domestic hot water heaters have a typical service life of 25-30 years.

Domestic Hot Water Heaters	
Quantity	2
Cost	$79,100
Year(s)	2031

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

B. Replacement of the domestic hot water heaters is estimated to cost **$79,100** and this work has been budgeted in **2031**

DOMESTIC HOT WATER TANK HEATERS

The Rheem 10USgal 12kW electric glass lined hot water tank heaters located in the 7 and 13 floor garbage chute rooms provide boosting of the domestic hot water to the recirculation loop. Glass lined domestic hot water tank heaters have a typical service life of 5-10 years.

Domestic Hot Water Tank Heaters	
Quantity	2
Cost	$9,700
Year(s)	2022, 2027, 2032 2037, 2042, 2047

The allowance for the replacement of the domestic hot water tank heater was not expensed in 2019 as such it has been rescheduled to fiscal year 2022 and every 5 years thereafter.

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

C. Replacement of the domestic hot water tank heaters is estimated to cost **$9,700** and this work has been budgeted in **2022 and every 5 years thereafter**

DOMESTIC HOT WATER HEATER CIRCULATION PUMPS

The Bell & Gossett 140USGPM, 2HP domestic hot water heater circulation pumps located in the penthouse mechanical room provide hot water circulation between the water heaters and the storage tanks. The domestic hot water heater circulation pumps have a typical service life of 20-25 years.

Domestic Hot Water Heater Circulation Pumps	
Quantity	2
Cost	$14,600
Year(s)	2026, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

D. Replacement of the domestic hot water heater circulation pumps is estimated to cost **$14,600** and this work has been budgeted in **2026 and every 20 years thereafter**

DOMESTIC HOT WATER RECIRCULATION PUMPS

The Bell & Gossett 30USGPM, ½HP domestic hot water recirculation pumps in the penthouse mechanical room provide hot water recirculation throughout the building to ensure hot water is readily available at all times. Domestic hot water recirculation pumps have a typical service life of 20-25 years.

Domestic Hot Water Recirculation Pumps	
Quantity	2
Cost	$7,300
Year(s)	2026, 2046

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

E. Replacement of the domestic hot water recirculation pumps is estimated to cost **$7,300** and this work has been budgeted in **2026 and every 20 years thereafter**

DOMESTIC HOT WATER RECIRCULATION PUMPS

The Armstrong Astro 14USGPM, fractional domestic hot water recirculation pumps in the 7 and 13 floor garbage chute rooms provide hot water recirculation for the mid- and low-rise sections of the building. Fractional domestic hot water recirculation pumps have a typical service life of 10-15 years.

Domestic Hot Water Recirculation Pumps	
Quantity	2
Cost	$1,200
Year(s)	2023, 2033, 2043

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

F. Replacement of the domestic hot water recirculation pumps is estimated to cost **$1,200** and this work has been budgeted in **2023 and every 10 years thereafter**

DOMESTIC HOT WATER STORAGE TANKS

The Flo Fab 1,400USGal concrete lined domestic hot water storage tank installed in the penthouse mechanical room provides domestic hot water storage for the building. Concrete lined domestic hot water storage tanks have a typical service life of 60+ years and could potentially last the life of the complex, providing scheduled maintenance including anode replacement and periodic relining is performed. Tank relining is typically required every 10 years.

Domestic Hot Water Storage Tank Relining	
Quantity	1
Cost	$12,200
Year(s)	2024, 2034, 2044

Domestic Hot Water Storage Tank Replacement	
Quantity	1
Cost	$85,200
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

G. Relining of the domestic hot water storage tanks is estimated to cost **$12,200** and this work has been budgeted in **2024 and every 10 years thereafter**

H. Replacement of the domestic hot water storage tanks is estimated to cost **$85,200** and this work has been budgeted **beyond the 30-year planning period** of this study

I. Although costs are not included in this study, as they do not constitute a major repair or replacement, we recommend periodic inspection and anode replacement be performed on storage tanks every 1-3 years, using funds from the operating budget

DOMESTIC WATER EXPANSION TANK

The Elbi expansion tank for the domestic cold water located in the penthouse mechanical room handles the expansion and contraction for the incoming water as warms up. Expansion tanks have a typical service life of 10-15 years.

Domestic Cold Water Expansion Tank	
Quantity	1
Cost	$3,700
Year(s)	2028, 2038, 2048

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

J. Replacement of the expansion tank is estimated to cost **$3,700** and this work has been budgeted in **2028 and every 10 years thereafter**

STEAM GENERATOR

The Relax-A-Mist 13.5kW electric steam generator located in the parking garage storage room provides low pressure steam to the steam sauna. Electric steam generators have a typical service life of 10-15 years.

Steam Generator	
Quantity	1
Cost	$17,000
Year(s)	2025, 2035, 2045

The replacement of the steam generator was not performed in 2020 as such this work has been rescheduled for 2025 and every 10 years thereafter.

No other changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

K. Replacement of the steam generator is estimated to cost **$17,000** and this work has been budgeted in fiscal year **2025 and every 10 years thereafter**

PLUMBING SYSTEMS

The plumbing systems are comprised of domestic cold and hot water distribution pipes and risers, and sanitary and storm pipes and stacks installed throughout the building. The plumbing systems have a typical service life of 60-80 years.

Domestic Cold & Hot Water Distribution and Risers	
Cost	$4,259,500
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

Sanitary and Storm Pipes & Stacks	
Quantity	Allowance
Cost	$3,651,000
Year(s)	Beyond 2050

We recommend the following work be anticipated and funded:

L. A rough order of magnitude for the replacement of the domestic cold and hot water distribution pipes and risers is estimated to

cost **$4,259,500** and this work has been budgeted in **beyond the 30-year planning period** of this study

M. Minor repairs of the domestic cold & hot water distribution pipes and risers should be performed, as required, using funds from the operating budget
N. A rough order of magnitude for the replacement of the sanitary and storm pipes is estimated to cost **$3,651,000** and this work has been budgeted in **beyond the 30-year planning period** of this study
O. Minor repairs of the sanitary and storm pipes should be performed, as required, using funds from the operating budget
P. Although costs are not included in this study, as they do not constitute a major repair or replacement, we recommend that flushing and camera inspection of the sanitary pipes and stacks be performed every 10 years, using funds from the operating budget

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5.3.4 Sump Pumps

SUMP PUMPS

The sump pumps and pump controllers are located in their respective pit in the basement pumping water from the lower levels of the building to the city sewer. Sump pumps have a typical service life of 10-15 years which can vary greatly depending on usage.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

A. According to the information provided, repair and replacement of the sump pumps is to be completed when required using funds from the operating budget

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5.3.5 Elevators

ELEVATORS

The ThyssenKrupp traction elevators installed in the building provide access to floors P to 19. The elevator mechanical rooms are located in two penthouse mechanical rooms. Traction elevators have a typical service life of 25-30 years. Elevator cab interiors have a typical service life of 25-30 years and are renewed for aesthetic purposes.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Replacement of the elevator control systems is estimated to cost **$988,300** and this work has been budgeted in **2031**
.B Replacement of the elevator cab interiors is estimated to cost **$82,800** and this work has been budgeted in **2031**, in conjunction with the elevator control modernization

Elevator Control Modernization	
Quantity	4
Cost	$988,300
Year(s)	2031

Elevator Cab Interior Modernization	
Quantity	4
Cost	$82,800
Year(s)	2031

.C At the request of the Board**,** funds required to perform potential mandatory TSSA upgrades shall be taken from the operating budget

.D At the request of the Board, rust repairs and painting to the equipment in the elevator pits shall be completed using funds from the operating budget

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5.3.6 Fire Protection Systems

FIRE PROTECTION SYSTEMS

The fire protection system consists of fire extinguishers and fire hose cabinets installed throughout the building. Fire protection systems have a varying service life.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

.A Repairs and maintenance of the fire protection system should be performed, as required, using funds from the operating budget

.B Although costs are not included in this study, as they do not constitute a major repair or replacement, we recommend that annual inspection and testing be performed, using funds from the operating budget

FIRE PUMPS

The ITT 750USGPM, 78HP listed fire pump, jockey pump and pump controller, located in the pump room within the parking garage provide water to the standpipe, fire hose cabinets in the building. Fire pumps have a typical service life of 30-35 years.

Fire Pumps	
Quantity	1
Cost	$121,700
Year(s)	2036

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

C. Replacement of the fire pumps is estimated to cost **$121,700** and this work has been budgeted in **2036**

SPRINKLER HEADS

The automatic sprinkler heads installed in the parking garage and basement provide fire protection to the building. The sprinkler heads need to be replaced or tested and re-certified every 50 years.

Sprinkler Heads	
Cost	$267,800
Year(s)	Beyond 2050

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

D. A rough order of magnitude for the replacement of the sprinkler heads is estimated to cost **$267,800** and this work has been budgeted **beyond the 30-year planning period** of this study

STANDPIPES AND SPRINKLER PIPES

The standpipes and sprinkler pipes are comprised of steel pipes installed throughout the condominium. The standpipes and sprinkler systems have a typical service life of 60-80 years which can vary greatly depending on environmental conditions.

No changes have been made to the allowances (except for an inflationary increase) or to the scheduling for the work in this section from the most recent Study.

We recommend the following work be anticipated and funded:

E. A rough order of magnitude for the replacement of the standpipes is estimated to cost **$304,300** and this work has been budgeted **beyond the 30-year planning period** of this study
F. Minor repairs of the standpipes should be performed, as required, using funds from the operating budget
G. A rough order of magnitude for the replacement of the sprinkler pipes is estimated to cost **$426,000** and this work has been budgeted **beyond the 30-year planning period** of this study

H. Minor repairs of the sprinkler pipes and sprinkler heads should be performed, as required, using funds from the operating budget

Standpipes	
Cost	$304,300
Year(s)	Beyond 2050

Sprinkler Pipes	
Cost	$426,000
Year(s)	Beyond 2050

APPENDIX A: SPREADSHEET FOR MAJOR REPAIR AND REPLACEMENT COSTS

OCSCC 769: Spreadsheet For Major Repair & Replacement Costs, Fiscal Years 2021 to 2050

AGE OF COMPLEX		15 Years	16 Years	17 Years	18 Years	19 Years	20 Years	21 Years	22 Years	23 Years	24 Years	25 Years	26 Years	27 Years	28 Years	29 Years
REPAIR/REPLACEMENT ITEMS [2]		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
5.1	**CIVIL, ARCHITECTURAL**															
5.1.1	**Parking Garage**	$12,200					$359,000					$48,700				
5.1.2	**Gazebo**															
5.1.3	**Fencing**															$7,300
5.1.4	**Foundation Walls**															
5.1.5	**Balconies**													$182,600		
5.1.6	**Masonry**													$121,700		
5.1.7	**Exterior Insulation & Finish System**											$6,100				
5.1.8	**Soffits & Fascias**															
5.1.9	**Exterior Coatings**															
5.1.10	**Caulking**		$146,100	$146,100											$146,100	$146,100
5.1.11	**Windows & Balcony Doors**		$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700
5.1.12	**Doors**						$13,100									
5.1.13	**Roofing Systems**											$608,500				
5.1.14	**Common Corridors**															
5.1.15	**Common Rooms**	$4,900					$4,900					$4,900				
5.2	**ELECTRICAL SYSTEMS**															
5.2.1	**Electrical Distribution**						$21,900					$21,900				
5.2.2	**Lighting**															
5.2.3	**Fire Alarm System**															
5.2.4	**Emergency Power System**								$18,300							
5.2.5	**Electrical Heating System**											$7,300				
5.2.6	**Security System**	$21,900						$12,200			$24,300	$17,000				
5.3	**MECHANICAL SYSTEMS**															
5.3.1	**Ventilation System**	$12,200			$9,700		$30,400			$9,700					$9,700	
5.3.2	**Heating & A/C System**		$385,800	$286,000	$206,900	$206,900	$438,200			$3,700		$800,800				
5.3.3	**Plumbing System**		$9,700	$1,200	$12,200	$17,000	$94,900	$9,700	$3,700			$79,100	$9,700	$1,200	$12,200	$17,000
5.3.4	**Sump Pumps**															
5.3.5	**Elevators**											$1,071,000				
5.3.6	**Fire Protection System**															
	GENERAL															
	Reserve Fund Study Update	$4,700			$7,200			$4,700			$7,200			$4,700		
YEARLY EXPENDITURE TOTALS		$55,900	$590,300	$482,000	$284,700	$272,600	$1,011,100	$75,300	$70,700	$62,100	$80,200	$2,714,000	$58,400	$358,900	$216,700	$219,100
EXPENDITURES INCL. INFLATION [3]		$55,900	$605,058	$506,401	$306,591	$300,899	$1,143,967	$87,325	$84,040	$75,663	$100,159	$3,474,149	$76,626	$482,681	$298,723	$309,583
CONTRIBUTIONS FROM FEES		$447,391	$467,076	$506,777	$549,854	$596,591	$611,506	$626,794	$642,463	$658,525	$674,988	$691,863	$709,159	$726,888	$745,061	$763,687
ADDITIONAL CONTRIBUTIONS																
INTEREST CONTRIBUTIONS [1]		$61,327	$59,165	$60,157	$67,204	$75,692	$64,086	$78,984	$94,724	$111,462	$128,414	$61,856	$79,000	$86,858	$99,961	$113,580
REMAINING RESERVE FUND		$2,738,105	$2,659,288	$2,719,821	$3,030,288	$3,401,672	$2,933,297	$3,551,750	$4,204,897	$4,899,221	$5,602,465	$2,882,034	$3,593,567	$3,924,633	$4,470,931	$5,038,616

ESTIMATED RESERVE FUND = $2,285,287 December 31, 2021

CURRENT ANNUAL CONTRIBUTIONS = $447,391 January 1, 2021

FUTURE ANNUAL CONTRIBUTIONS = $467,076 January 1, 2022

ANN. INCREASE IN CONTRIBUTIONS = 6.0 % ABOVE INFLATION PER YEAR FOR 3 YEARS, STARTING IN THE FISCAL YEAR 2023

NOTES:

1) Interest contributions for each year are calculated at the midpoint of the fiscal year and assume that all expenditures have occurred and 50% of contributions have been collected. A fixed interest rate of 2.5% is used in the calculation

2) Estimates for expenditures include HST and, where appropriate, engineering fees.

30 Years	31 Years	32 Years	33 Years	34 Years	35 Years	36 Years	37 Years	38 Years	39 Years	40 Years	41 Years	42 Years	43 Years	44 Years		AGE OF COMPLEX	
2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	TOTALS	REPAIR/REPLACEMENT ITEMS	
																5.1	CIVIL, ARCHITECTURAL
$565,900	$523,300	$48,700			$48,700					$359,000					$1,965,500	5.1.1	Parking Garage
				$6,100											$6,100	5.1.2	Gazebo
															$7,300	5.1.3	Fencing
															$0	5.1.4	Foundation Walls
												$327,600	$145,000	$145,000	$800,200	5.1.5	Balconies
												$121,700			$243,400	5.1.6	Masonry
															$6,100	5.1.7	Exterior Insulation & Finish System
										$6,100					$6,100	5.1.8	Soffits & Fascias
															$0	5.1.9	Exterior Coatings
							$60,900								$645,300	5.1.10	Caulking
$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$48,700	$842,400	$842,400	$842,400	$842,400	$48,700	$4,587,100	5.1.11	Windows & Balcony Doors
$18,300					$30,400					$43,500					$105,300	5.1.12	Doors
															$608,500	5.1.13	Roofing Systems
															$0	5.1.14	Common Corridors
$4,900					$4,900					$4,900					$29,400	5.1.15	Common Rooms
																5.2	ELECTRICAL SYSTEMS
$21,900					$21,900					$527,000					$614,600	5.2.1	Electrical Distribution
															$0	5.2.2	Lighting
						$365,100									$365,100	5.2.3	Fire Alarm System
$419,900		$18,300										$18,300			$474,800	5.2.4	Emergency Power System
															$7,300	5.2.5	Electrical Heating System
$14,600	$12,200				$7,300				$24,300		$12,200				$146,000	5.2.6	Security System
																5.3	MECHANICAL SYSTEMS
$468,500			$9,700					$9,700		$30,400			$9,700		$599,700	5.3.1	Ventilation System
$52,400	$206,900	$286,000	$210,500	$206,900	$206,900	$178,900				$239,800			$3,700		$3,920,300	5.3.2	Heating & A/C System
	$9,700	$3,700				$9,700	$1,200	$12,200	$17,000	$94,900	$9,700	$3,700			$429,400	5.3.3	Plumbing System
															$0	5.3.4	Sump Pumps
															$1,071,000	5.3.5	Elevators
$121,700															$121,700	5.3.6	Fire Protection System
																	GENERAL
$7,200			$4,700			$7,200			$4,700			$7,200			$59,500		Reserve Fund Study Update
$1,744,000	$800,800	$405,400	$273,600	$261,700	$368,800	$609,600	$110,800	$70,600	$94,700	$2,148,000	$864,300	$1,320,900	$1,000,800	$193,700	$16,819,700	YEARLY EXPENDITURE TOTALS	
$2,525,832	$1,188,792	$616,864	$426,723	$418,367	$604,322	$1,023,873	$190,750	$124,582	$171,286	$3,982,272	$1,642,423	$2,572,849	$1,998,092	$396,389	$25,791,180	EXPENDITURES INCL. INFLATION	
$782,779	$802,349	$822,407	$842,968	$864,042	$885,643	$907,784	$930,479	$953,740	$977,584	$1,002,024	$1,027,074	$1,052,751	$1,079,070	$1,106,047	$23,455,362	CONTRIBUTIONS FROM FEES	
															$0	ADDITIONAL CONTRIBUTIONS	
$72,604	$64,514	$71,014	$82,939	$95,891	$105,051	$104,498	$125,320	$148,892	$172,473	$101,973	$88,826	$52,723	$30,737	$48,909	$2,608,836	INTEREST CONTRIBUTIONS	
$3,368,167	$3,046,238	$3,322,795	$3,821,979	$4,363,545	$4,749,917	$4,738,327	$5,603,375	$6,581,426	$7,560,197	$4,681,922	$4,155,399	$2,688,024	$1,799,738	$2,558,305	$2,558,305	REMAINING RESERVE FUND	
											REMAINING RESERVE FUND IN 2021 DOLLARS				$1,250,145		

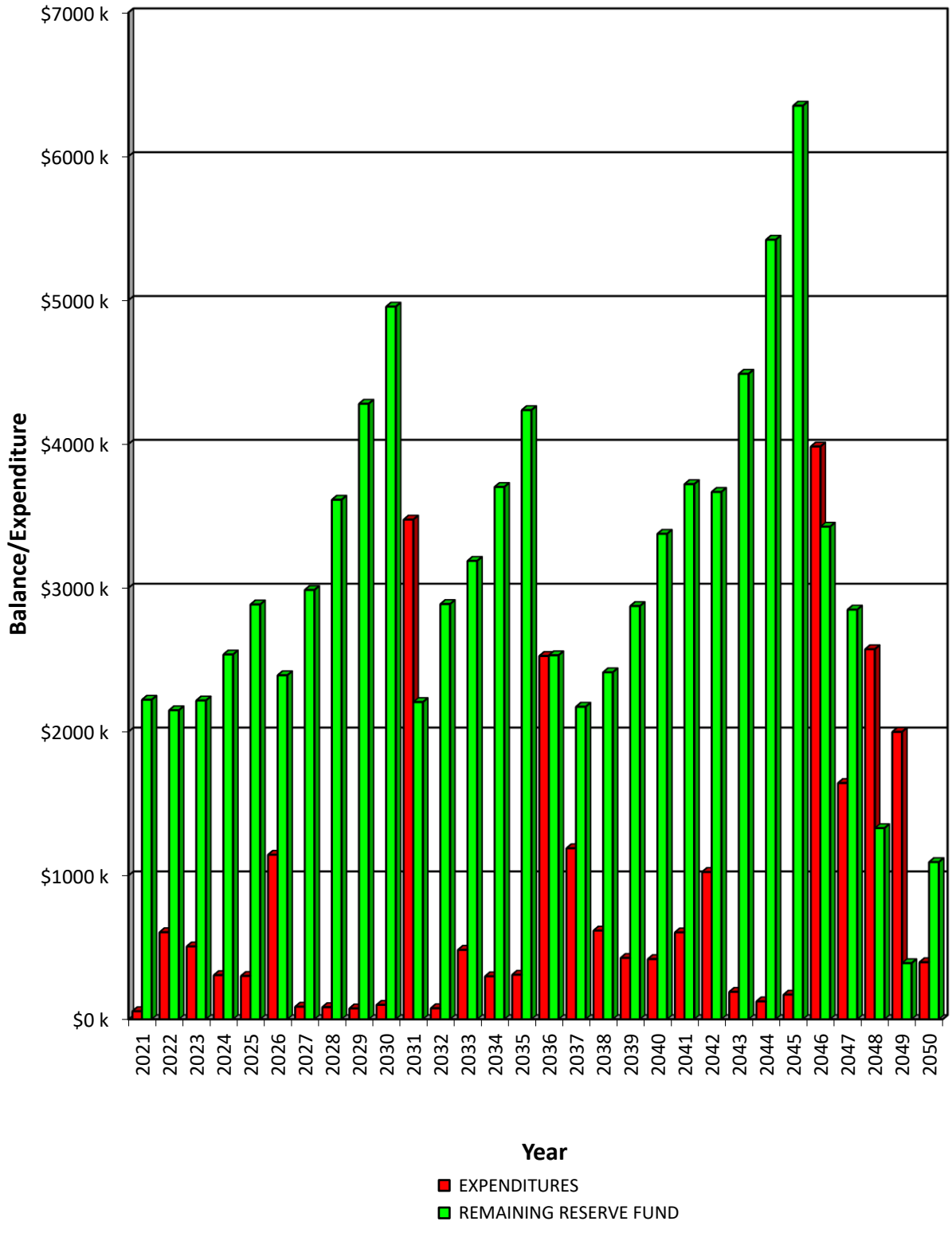
3) Inflation assumed to be at an average rate of 2.5% over the time frame examined above.

4) The inflation increase of 21.7% for the past 3 years is derived from the data posted by Statistics Canada.

5) The market increase are based on Keller Engineering's experience over the past 3 years on similar projects.

KELLER ENGINEERING

OCSCC 769 - Reserve Fund Annual Expenditures/Closing Balance



APPENDIX B: NOTICE OF FUTURE FUNDING OF RESERVE FUND

NOTICE OF FUTURE FUNDING OF THE RESERVE FUND

(under *subsection 94 (9)* of the *Condominium Act, 1998*)

TO: All Owners of Ottawa Carleton Standard Condominium Corporation No. 769

The Board has received and reviewed a Class 3 - Update without Site Inspection Reserve Fund Study dated February 10, 2022, prepared by Keller Engineering, and has proposed a plan for the future funding of the reserve fund that the Board of Directors has determined will ensure that, in accordance with the regulations made under the Condominium Act, 1998, the reserve fund will be adequate for the major repair and replacement of the common elements and assets of the corporation.

This notice contains:

1. A summary of the reserve fund study.
2. A summary of the proposed funding plan.
3. A statement indicating the areas, if any, in which the proposed funding plan differs from the reserve fund study.

At the present time the average contribution per unit per month to the reserve fund is $266.30. Based on the proposed funding plan, the average increase in contribution per unit per month will be $11.72 in fiscal year 2022, $23.63 in fiscal year 2023, and $25.64 in fiscal year 2024.

The proposed funding plan will be implemented on or before January 1, 2022.

Dated this _____ day of _____, 2022.

OTTAWA CARLETON STANDARD CONDOMINIUM CORPORATION NO. 769

_____
, Director

_____
, Director

SUMMARY OF RESERVE FUND STUDY

The following is a summary of the Class 3 - Update without Site Inspection dated February 10, 2022, prepared by Keller Engineering for Ottawa Carleton Standard Condominium Corporation No. 769 (known as the 'Reserve Fund Study').

Subsection 94 (1) of the *Condominium Act, 1998*, requires the corporation to 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. As a result, the corporation has obtained the Reserve Fund Study.

The estimated expenditures from the reserve fund for the next thirty (30) years are set out in the CASH FLOW TABLE. In this summary, the term 'annual contribution' means the total amount to be contributed each year to the reserve fund, exclusive of interest earned on the reserve fund. The recommended annual contribution for 2022 is $467,076, based on the estimated expenditures and the following:

Opening Balance of the Reserve Fund:	$ 2,285,287
Minimum Reserve Fund Balance during the projected period:	$ 1,799,738
Assumed Annual Inflation Rate for Reserve Fund Expenditures:	2.5%
Assumed Annual Interest Rate for interest earned on the Reserve Fund:	2.5%

The Reserve Fund Study can be examined by making a written request to the Board of Directors of Ottawa Carleton Standard Condominium Corporation No. 769.

CASH FLOW TABLE

Opening Balance of the Reserve Fund:	$ 2,285,287
Current Annual Contributions:	$ 447,391
Minimum Reserve Fund Balance (as indicated in this table):	$ 1,799,738
Assumed Annual Inflation Rate for Reserve Fund Expenditures:	2.5%
Assumed Annual Interest Rate for interest on the Reserve Fund:	2.5%

Fiscal Year Ending	Opening Balance	Recommended Annual Total Contribution	Estimated Inflation Adjusted Expenditures	Estimated Interest Earned	Percentage Increase (Decrease) in Recommended Annual Total Contribution	Closing Balance
2021	$2,285,287	$447,391	$55,900	$61,327	0.0%	$2,738,105
2022	$2,738,105	$467,076	$605,058	$59,165	4.4%	$2,659,288
2023	$2,659,288	$506,777	$506,401	$60,157	8.5%	$2,719,821
2024	$2,719,821	$549,854	$306,591	$67,204	8.5%	$3,030,288
2025	$3,030,288	$596,591	$300,899	$75,692	8.5%	$3,401,672
2026	$3,401,672	$611,506	$1,143,967	$64,086	2.5%	$2,933,297
2027	$2,933,297	$626,794	$87,325	$78,984	2.5%	$3,551,750
2028	$3,551,750	$642,463	$84,040	$94,724	2.5%	$4,204,897
2029	$4,204,897	$658,525	$75,663	$111,462	2.5%	$4,899,221
2030	$4,899,221	$674,988	$100,159	$128,414	2.5%	$5,602,465
2031	$5,602,465	$691,863	$3,474,149	$61,856	2.5%	$2,882,034
2032	$2,882,034	$709,159	$76,626	$79,000	2.5%	$3,593,567
2033	$3,593,567	$726,888	$482,681	$86,858	2.5%	$3,924,633
2034	$3,924,633	$745,061	$298,723	$99,961	2.5%	$4,470,931
2035	$4,470,931	$763,687	$309,583	$113,580	2.5%	$5,038,616
2036	$5,038,616	$782,779	$2,525,832	$72,604	2.5%	$3,368,167
2037	$3,368,167	$802,349	$1,188,792	$64,514	2.5%	$3,046,238
2038	$3,046,238	$822,407	$616,864	$71,014	2.5%	$3,322,795
2039	$3,322,795	$842,968	$426,723	$82,939	2.5%	$3,821,979
2040	$3,821,979	$864,042	$418,367	$95,891	2.5%	$4,363,545
2041	$4,363,545	$885,643	$604,322	$105,051	2.5%	$4,749,917
2042	$4,749,917	$907,784	$1,023,873	$104,498	2.5%	$4,738,327
2043	$4,738,327	$930,479	$190,750	$125,320	2.5%	$5,603,375
2044	$5,603,375	$953,740	$124,582	$148,892	2.5%	$6,581,426
2045	$6,581,426	$977,584	$171,286	$172,473	2.5%	$7,560,197
2046	$7,560,197	$1,002,024	$3,982,272	$101,973	2.5%	$4,681,922
2047	$4,681,922	$1,027,074	$1,642,423	$88,826	2.5%	$4,155,399
2048	$4,155,399	$1,052,751	$2,572,849	$52,723	2.5%	$2,688,024
2049	$2,688,024	$1,079,070	$1,998,092	$30,737	2.5%	$1,799,738
2050	$1,799,738	$1,106,047	$396,389	$48,909	2.5%	$2,558,305

SUMMARY OF PROPOSED PLAN FOR FUTURE FUNDING OF THE RESERVE FUND

The following is a summary of the board's proposed plan for the future funding of the reserve fund.

The Board of Ottawa Carleton Standard Condominium Corporation No. 769 has reviewed the Class 3 - Update without Site Inspection dated February 10, 2022 prepared by Keller Engineering for the corporation (known as the 'Reserve Fund Study') and has proposed a plan for the future funding of the reserve fund that the Board has determined will ensure that, in accordance with the regulations made under the Condominium Act, 1998, the reserve fund will be adequate for the major repair and replacement of the common elements and assests of the corporation.

The Board has adopted the funding recommendations of the Reserve Fund Study and will implement them as set out in the CONTRIBUTION TABLE.

The annual contribution recommended under the proposed funding plan for fiscal year 2022 is $467,076, which represents an increase of 4.4% over the amount already budgeted.

The Proposed Plan for Future Funding of the Reserve Fund can be examined by making a written request to the Board of Directors of Ottawa Carleton Standard Condominium Corporation No. 769.

CONTRIBUTION TABLE

Fiscal Year Ending	A Annual Contribution*	% Increase Over Previous Year	B Other Contribution (e.g. special assessment, loan)	A + B Total Contribution Each Year to Reserve Fund
2021	$447,391	0.0%	$0	$447,391
2022	$467,076	4.4%	$0	$467,076
2023	$506,777	8.5%	$0	$506,777
2024	$549,854	8.5%	$0	$549,854
2025	$596,591	8.5%	$0	$596,591
2026	$611,506	2.5%	$0	$611,506
2027	$626,794	2.5%	$0	$626,794
2028	$642,463	2.5%	$0	$642,463
2029	$658,525	2.5%	$0	$658,525
2030	$674,988	2.5%	$0	$674,988
2031	$691,863	2.5%	$0	$691,863
2032	$709,159	2.5%	$0	$709,159
2033	$726,888	2.5%	$0	$726,888
2034	$745,061	2.5%	$0	$745,061
2035	$763,687	2.5%	$0	$763,687
2036	$782,779	2.5%	$0	$782,779
2037	$802,349	2.5%	$0	$802,349
2038	$822,407	2.5%	$0	$822,407
2039	$842,968	2.5%	$0	$842,968
2040	$864,042	2.5%	$0	$864,042
2041	$885,643	2.5%	$0	$885,643
2042	$907,784	2.5%	$0	$907,784
2043	$930,479	2.5%	$0	$930,479
2044	$953,740	2.5%	$0	$953,740
2045	$977,584	2.5%	$0	$977,584
2046	$1,002,024	2.5%	$0	$1,002,024
2047	$1,027,074	2.5%	$0	$1,027,074
2048	$1,052,751	2.5%	$0	$1,052,751
2049	$1,079,070	2.5%	$0	$1,079,070
2050	$1,106,047	2.5%	$0	$1,106,047

* The term 'annual contribution' means the amount to be contributed each year to the reserve fund from the monthly common expenses

DIFFERENCES BETWEEN THE RESERVE FUND STUDY AND THE PROPOSED PLAN FOR FUTURE FUNDING OF THE RESERVE FUND

The Plan for Future Funding of the Reserve Fund proposed by the Board differs from the Reserve Fund in the following respects:

NIL