

TPSGC/PWGSC

Building Condition Report - Winnipeg Tax Centre Site Winnipeg P600009A



66 Stapon
Winnipeg Tax Centre Site Winnipeg P600009A
P600009-101-60000321
Winnipeg
Construction Year: 1979
Gross Area (SM): 31,710
Date of Most Recent Assessment: 1/18/17

Asset Information

Region:	Western/Région de l'Ouest	Year Constructed:	1979
Property:	66 Stapon	Year Renovated:	
Asset:	Winnipeg Tax Centre Site Winnipeg P600009A	Asset Number:	P600009-101-60000321
Address:	66 Stapon	CAPS ID:	P600009A
City:	Winnipeg	Postal Code:	R3C3M2
CCI:		Date of Current Assessment:	January 18, 2017
Asset Type:	Building	Historical Designation:	Not applicable
Asset Use:	Office Facilities	Area:	31,710
Ownership:		Replacement Cost New:	
Managed by:		Financial Ownership Type:	Crown Owned
Custodian:	PWGSC		

Asset Description**BCR Project Team Documents:**

In October 2016, 1x1 architecture inc. was engaged by PWGSC to provide Architectural, Structural, Mechanical and Electrical Building Condition assessments of 66 Stapon Road. The report includes thermographic scanning services. The project team consisted of the following:

Architectural: 1x1 architecture inc.: Glen Gross, Markian Yereniuk, Jordan Pauls, Mike Karakas
 Structural: Crosier Kilgour and Partners Ltd.: Ryan Morphy, Waldemar Boxhorn
 Mechanical: Epp Siepman Engineering Inc.: Darron Rempel, Johann Baetsen
 Electrical: Epp Siepman Engineering Inc.: Mike Lee
 Thermographic Scanning: Crosier Kilgour and Partners Ltd.: Chris Richter summary report, review and updating by MM and A&E, Western region

Consultations with Brookfield Global Integrated Solutions (BGIS) were conducted to collect relevant data from work completed at the building since the previous BCR.

1x1 architecture and the consultant team visited the site over multiple dates in January and February of 2017.

The BCR document is a culmination of data from the following sources:

1. 2010 BCR Report, produced by Williams Engineering Inc.

The only documents consulted were the original architectural, mechanical, electrical and structural drawings, and the recently created floor layout drawings.

Building History:

The Winnipeg Taxation Centre was constructed in 1979 for the Government of Canada. The architect of record for the building was Number Ten Architectural Group, with HTFC Landscape Architects completing the extensive site landscaping. The building was designed in the brutalist style and features extensive pre-cast concrete cladding with circular motifs repeated on all facades. With approximately 32,000 square meters of floor area, the facility occupies a huge footprint on the site and houses a large population of federal employees. The building maintains much of its original design features and has only experienced minor interior alterations since the original date of construction.

BCR Executive Summary:

This Report provides a general overview of existing, representative building conditions determined by means of visual observation and non-destructive testing. Information collected from PWGSC, BGIS, and on-site personnel included previous studies and reports, existing drawings, equipment inventories and anecdotal commentary. 1x1 architecture inc. and its sub-consultants have based their observations on the assumption that this information as accurate and true, and cannot be held responsible for inconsistency or inaccuracy of this information. Furthermore, our observations are based on the present condition only and no guarantees can be made with respect to future deterioration of these conditions.

Observations made with respect to building life-safety systems are also general in nature and we make no guarantee that all building components conform to applicable codes and regulations.

This report did not include an investigation of hazardous materials. It is our understanding that BGIS maintains Designated Substances Reports for all PWGSC facilities and that these are updated on a regular basis. These Reports are available on a "need-to-know" basis for personnel that may be affected through the course of their activities on site.

Design Parameters & Deficiencies – current & future:

The building is comprised of a foundation system of cast-in-place grade beams supported on driven concrete piles. The building consists of a steel beam and column framework, with a main floor system of structural cast-in-place concrete slab and a second floor composite system, with metal decking and concrete topping. The roof is comprised of metal roof deck supported on open web steel joists and or Gerber beam systems. Overall the structural elements of the Winnipeg Taxation Centre are in good condition.

Overview Architectural & Structural Condition:

The building for the Winnipeg Taxation Centre is a sprawling two storey structure with expansive open office areas on both floors. There are four large mechanical penthouses above the second floor level. The building exterior is entirely clad with architectural precast concrete panels with many large window openings. The south facade features an array of curtain-wall glazing including clerestory windows that run nearly the length of the building, providing natural light into the main corridor. The precast panels, curtain-wall glazing and windows appeared to be in general good condition. However, repairs/replacement of panel joint sealant is required and signs of water infiltration and failed sealed glazing units were noted at window locations.

The flat roof areas of the main building and penthouses are covered with a 2-ply modified bitumen roofing membrane system, which was installed in 2010. The roof structure over the east facing exit/entrance vestibule is sloped and covered with metal roof panels. Overall, all components appeared to be in good condition.

A raised access floor serves much of the second floor office area. The remaining floor areas are covered with a variety of durable floor finishes. A suspended coffered acoustic ceiling is the predominant overhead finish, much of which is in poor condition. Each floor is served with four service cores with washroom facilities and eleven stairwells that ring the perimeter of the building. The main floor has a large open lobby area, a mechanical room, and interior loading dock. A spacious cafeteria is located within a projecting volume on the south side of the building. This area was formerly served by a large commercial kitchen. This kitchen was decommissioned in 2015, but remains in place an undeveloped space. The interior and exterior finishes and components appear to be well maintained.

Overview Site Condition:

The Taxation Centre is located on a large 10 hectare site in East Winnipeg adjacent to some major thoroughfares. Outside of the building, a little over 50% of the site is covered with asphalt paving for parking and roadways and concrete paving for sidewalks and curbs. Just south of the building is a storm water retention pond that also serves as a contemplative and reflecting pond. There is approximately 2.4 hectares of soft landscaping comprised of sod, shrubs and trees with wood and stone mulch. The trees and shrubs are both a mix of deciduous and coniferous species. There are large planters of shrubs, trees and bedding plants adjacent to the south facade as well as along walkways. Directly in front of the main entrance is a large paved plaza that serves as a staff meeting and conversation area.

Overview of Vertical & Horizontal Transportation Condition:

The Taxation building is provided with two passenger elevators, one freight elevator, and two escalators, which are all original to the building.

We are recommending the three elevators be upgraded as identified in this report, which would extend their life cycle to 2044.

According to a conversation with the Building Manager on March 29, 2017, a capital project to replace the escalators has been proposed for 2019-2021.

According to Kone within the 2012 BCR, the piles which support the escalators have moved and therefore are not providing proper support, which allows the escalators to shift. According to a conversation with the Building Manager on March 29, 2017, this hasn't been an issue but will be looked at in the future.

Overview of Mechanical Systems Condition:

The building was constructed in 1979 with a number of mechanical systems renewed or added to the building. Overall, the mechanical systems appeared to be in good condition and maintained. The cafeteria kitchen was not in service during the site review and a future re-opening of the space is unknown. The kitchen was not reviewed as most of the space was being used for storage and there was no floor access.

Boilers have been replaced with four Aerco Benchmark 3.0 condensing boilers. Kitchen domestic hot water boiler is new since the last review and used for the domestic water supply as the kitchen was taken out of service in Summer 2016.

Few of the Dri-Steem humidifiers were operating during the review and were in various states of condition (turned off, in alarm, out of commission with the covers removed). This is having an impact on numerous paper handling machines that depend on regulated humidity and the space is operating well under MD15000 requirements.

The penthouse HVAC systems are slowly deteriorating. A number of air handling unit coils had holes cut into the fins for tubing repair. These holes allow some air to bypass the coil, reducing overall heat transfer to the air. The ductwork inside the penthouses is showing signs of age with duct leaks, open holes and occasionally bowed in on exhaust ductwork. Insulation on ductwork, refrigerant and hydronic piping is deteriorating. No urgency is required to address the HVAC system, but consideration should be made to begin phasing the replacement and upgrading of systems as the HVAC system comes with a significant overall replacement cost.

Overview of Electrical Systems Condition:

The electrical systems in this building appear in good condition and for the most part appear to be maintained.

Cabling and bus ducts - A cable tray system is installed in the main floor ceiling space of the building and appears to be in good condition.

Capacitors - An Automatic Capacitor Bank has been lacking maintenance or record keeping, condition cannot be verified without proper testing.

Clock systems - A Simplex clock system is installed appears to be working properly.

Communications Systems - The communication service consists of multi-pair telephone cables and fibre optic cables. Enclosed server racks appear to be placed throughout the floor space where needed. The overall condition appears good, some pieces of equipment were noticed to be dirty and dusty which will affect the life of the equipment.

Distribution panels - Electrical distribution panels appear in good condition.

Emergency lighting - Emergency lighting is provided by the emergency generator in some areas and battery bank units with remote heads in the others. The battery banks appear to be nearing end of life and replaced as they fail testing.

Emergency power systems - The emergency power system for the building consists of two diesel generators which appear to be tested regularly and appear in good condition.

Exit signs - Bilingual exit signs are installed throughout the building.

Exterior lighting - Exterior lighting consists primarily HID fixtures which appear to be operating.

Fire alarm - The fire alarm panel was installed in 2011 and appears to be in good condition.

General lighting - Fluorescent fixtures are used almost exclusively. Fixtures in the coffered acoustical ceiling appear to be failing as netting has been installed to catch falling pieces. As lighting is replaced, LED should be considered.

MCC - Motor Control Centres appear in good condition.

Power meters - A single utility meter is owned and maintained by the utility and appears to be in good condition.

Primary switchgear - The main electrical service consists of two underground feeders terminating in two switches, a common bus and two switches for the transformers. All appear to be in good condition and should be tested on a regular basis to confirm condition.

Primary transformer and vault - Two dry type transformers appear to be in good condition and should be tested on a regular basis to confirm condition.

Secondary switch gear - The secondary switchgear appears to be in good condition except for the main breaker #2 was in the tripped position at time of review and was apparently due to an under voltage relay. The trip should be investigated and corrected.

Secondary transformer - The transformers appear to be in good condition.

Compliance with TBS Temp, Humidity & Ventilation Targets:

The building appears to be compliant with TBS temperature and ventilation targets but the humidity is well off the MD15000 requirements. The staff who occupy the building appeared to be satisfied with the temperature conditions within the building but there is significant humidity issues affecting the paper handling machines.

Regulator Testing Confirmation:

Fall arrest equipment is provided in each penthouse for safety in accessing the various catwalk areas. The equipment is reviewed annually as part of the preventative maintenance program. No testing is required.

Compliance with Accessibility Standards:

An Accessibility Audit was completed by the PWGSC Architecture and Interior Design Unit and submitted October 27, 2009. The facility scored 64.4% on the PWGSC Accessibility Compliance Scoring Standard (CSA 2004) and identified approximately \$3.4M in remedial work. Upon closer examination of the report, it would appear that there may be a clerical error in the Cost Estimates section. If this is the case, then the remedial work identified would total approximately \$250K. The work required is spread out across multiple areas, including upgrades to exterior walkway, barrier-free parking, entrances, railings and guards, and signage. For a complete deficiency list and renovation estimates, please contact Maintenance Management-Edmonton for a copy of this report.

Overview of Seismic Screening:

The building is not located in a seismic loading zone, thus this section is not applicable.

Overview of Environmental Issues:

The Winnipeg Tax Centre asset was not evaluated for environmental issues. Based on the era of construction, it is common that building from this era contain hazardous materials. The building property manager maintains an inventory of potentially hazardous materials. This document should be consulted when any work is undertaken in the building as well as any required additional testing.

Overview of Project Grouping – requirement for swing space:

Grouping and or combining renovation projects, finishes replacement, repair and maintenance within the building under the same discipline will increase in efficiencies for trades and should maximize construction value for the work undertaken.

Code Compliance Summary:

The scope of the work for this BCR was to identify any obvious code issues and deficiencies noted during the condition assessment. It was not to conduct a complete code compliance audit. There have been changes to the various codes since the building was constructed in 1979. Any significant renovations, modifications or retrofit of the building will require a thorough review of existing code requirements. Direct and indirect code-related improvements identified will need to be addressed at that time.

Systems

A1010 - Standard Foundations - Footings & Foundations

Description

System Description

Structural drawings S-1 thru S-36 dated June 1978 were reviewed to determine the existing structural system. The foundations were not visible for review as they were below grade. No test openings were made to expose these elements.

According to the original drawings, the foundation system was comprised of exterior perimeter cast-in place grade beams as well as some interior grade beams supported on mix of cast in place concrete friction piles and end bearing precast driven concrete piles. Select locations of the foundation included pile caps with multiple pile groups.

System Condition & Anticipated Replacement

No direct visual inspection of the foundation system was completed as the foundation was concealed from view below grade. No openings were made to expose these elements. Observations throughout the building indicate no signs of distress or damage which would indicate movement of the foundation system. Thus the system appears to be in good condition, functioning well and no repair or replacement recommendations are necessary.

Replacement of the building foundation will not be required without the complete reconstruction of the building thus no replacement date is noted.

Condition Rating	Good	Lifetime	110
Year Installed	1979	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$83.97
Quantity	15,850	Units	m2
Replacement Cost	\$1,330,924		
Comments			

AUDIT - Audit and Assessments - Building Condition Report**Description****System Description**

Building Condition Report (BCR) development is the backbone for the AMP and BMP functions in PWGSC.

System Condition & Anticipated Replacement

Currently, the Winnipeg Tax Centre asset has an overall condition rating ranging from average to good. The BCR document is typically produced every five years, with the next one scheduled for 2022.

Condition Rating	Good	Lifetime	5
Year Installed	2017	Years Remaining	5 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$0.00
Quantity	1	Units	ea
Replacement Cost	\$0		

Comments**Requirement: (Renewal)**

Building Condition Report Renewal

Description

Auto generated renewal for 10.1A-015 Building Condition Report. System Description: Component Description:

Conduct a level II building condition report (BCR).

Component Condition & Anticipated Replacement Date:

Update the 2010 BCR in 2015.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	5- Year 5	Category	I - Lifecycle
Estimated Cost	\$0	FY Action Date	2022

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Requirement: (Non-Renewal)

All Life Cycle Activity - Building Condition Report

Description**Brief Description**

Produce Building Condition Report

Requirement Justification and Strategy

Conducting and producing a BCR, is a necessary task to supply information for the building AMP and BMP. Conduct BCR inspections of all disciplines, and produce evaluation report for 20 year cyclical replacements, of all building components.

Implication of Requirement Deferral

Conducting and producing a BCR, is a necessary task to supply information for the building AMP and BMP. Delaying the BCR generation would hinder the asset's retention outlook.

Priority	5- Year 5	Category	O - Mission
Estimated Cost	\$62,210	FY Action Date	2023

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation****B10 - Superstructure - Frame - Concrete + Steel****Description****System Description**

Original structural drawings S-1 thru S-36, dated June, 1978 were reviewed for confirmation of the existing structural systems. The upper floors are steel framed with 3-1/2" concrete topping on 3" steel deck bearing on steel beams. The beams in turn span to large steel girders supported on wide flange steel columns. The roof framing consists of steel deck on open web steel joists spanning to steel beams supported on the same wide flange steel beams. The penthouses are of similar steel framing to the roof.

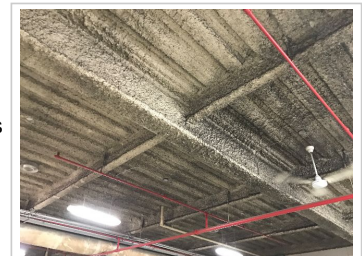
System Condition & Anticipated Replacement

Most structural framing components were concealed from view due to sheathing and/or architectural finishes. No test openings were made to expose these framing elements. In locations such as the loading dock, the main floor mechanical rooms, and the mechanical roof top penthouse units portions of the building's structural framing system was visible.

The steel beams and columns where visible and reviewed appear to be in good condition and are expected to last through the complete life cycle of the building. No signs of duress or deterioration were noted in the main framing components as reflected in building finishes.

Replacement of the main building structure is not anticipated for the lifespan of the structure, well beyond the period covered by this study. Thus no events have been provided.

Condition Rating	Good	Lifetime	110
Year Installed	1979	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$10.52
Quantity	31,700	Units	m2
Replacement Cost	\$333,484		
Comments			



Frame - Concrete + Steel - Steel structure and deck

B1010 - Floor Construction - Slab above Grade - Concrete**Description****System Description**

Original structural drawings S-1 thru S-36, dated June, 1978 were reviewed for confirmation of the existing structural systems.

The drawings indicated the main floor slab throughout the building was a cast-in-place concrete structural slab cast over a void space. The thickness of the structural slab varies between 6" and 8" and is conventionally reinforced. Throughout the main floor area there are sections that are recessed or that feature housekeeping pads above (in the service areas). The structural concrete slab was shown to be supported on interior cast in place concrete friction piles as well as exterior grade beams on a mix of concrete piles.

The upper floor is steel framed with 3-1/2" concrete topping on 3" steel deck bearing on steel beams with composite connection.

The floor in the mechanical rooftop penthouse units was of similar construction to the second floor.

System Condition & Anticipated Replacement

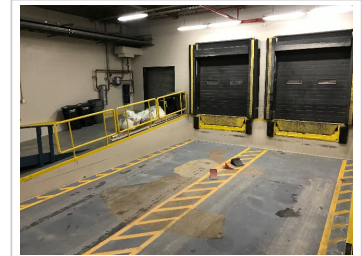
The majority of the main floor structural slab was concealed from view due to architectural finishes such as carpeting, epoxy coatings, and protective membranes, which may include a painted or colored shake hardener finish. No test openings were made to expose the concrete slab or the internal reinforcement. The structural slab appears to be in good condition, with no signs of major cracking, damage or movement. Select areas of wear in the finish were noted in areas of heavy use. No replacement dates are indicated as the structural concrete slab is expected to last the full life cycle of the building.

The vast majority of the second floor was concealed from view by finishes such as carpeting or computer flooring system from above and by false ceiling tiles or architectural finishes from below. From the loading dock the metal deck and steel framework was exposed from below allowing visual confirmation of the floor system. However, the structural elements were coated with a fire protection preventing a close visual inspection of the individual elements. The second floor system appears to be in good condition and is expected to span the full life cycle of the building, thus no replacement date is indicated at this time.

The underside of the floor to the mechanical rooftop penthouse units were concealed from view due to architectural finishes, thus no direct visual inspection from below was performed. Within the penthouse units, the floor was visible for inspection. The floor of the mechanical rooftop penthouse units appear to be in good condition. No signs of distress were observed and the floor system is expected to last the full length of the building's life cycle.

The replacement of the main structural system is not anticipated for the lifespan of the structure which is well beyond the period of this study. Thus no events are provided here.

Condition Rating	Good	Lifetime	110
Year Installed	1979	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$131.14
Quantity	31,700	Units	m2
Replacement Cost	\$4,157,138		
Comments			



Slab above Grade - Concrete -
Concrete slab at loading dock

B1020 - Roof Construction - Roof Str-Steel Joist + Steel deck**Description****System Description**

Original structural drawings S-1 thru S-36, dated June, 1978 were reviewed for confirmation of the existing structural systems.

The structural roof elements for the main portion of the building was comprised of 1 1/2" steel roof decking on open web steel joists supported on the steel beam and column framework. The existing drawings indicate the joists to typically be 24" deep with joist ties located at each column in addition to diagonal joist bridging.

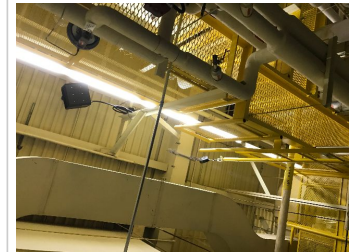
The roof system of the mechanical rooftop penthouse units consisted of steel beams supported on steel beams and steel columns. Steel framing also includes girts and cross bracing elements. A series of catwalks and platforms is provided in each penthouse area for access to mechanical equipment. The platforms and catwalks are supported primarily from the roof system and access is provided via permanent ladder with fall arrest systems attached to the roof beams.

System Condition & Anticipated Replacement

The roof of the main building was concealed from view due to architectural finishes below and by the roof membrane above. Within the penthouses, the steel roof was exposed and visible. Overall there were no signs of duress or deterioration noted and in overall good condition.

These elements are expected to last the full life cycle of the building and therefore do not have an anticipated replacement date nor associated cost.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1	Unit Cost	\$0.00
Quantity	15,850	Units	m2
Replacement Cost	\$0		
Comments			



Roof Str-Steel Joist + Steel deck - Steel structure

B2010 - Exterior Walls - Ext.W-Synthetic plaster on rigid insulation**Description****System Description**

An exterior insulating finishing system was utilized for the east facing exit/entrance vestibule, which was added likely in the late 1980's/ early 1990's. It has a stucco finish with recessed aluminum horizontal reveals.

System Condition & Anticipated Replacement

The finish appears to be in average condition. Some areas show stains and cracks on the finish stucco which might be due to possible water infiltration in behind the wall finish along the roof to wall interfaces. The anticipated replacement year is 2030 based on the anticipated 40 year life cycle.

Condition Rating	Average	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	1	Unit Cost	\$371.43
Quantity	40	Units	m2
Replacement Cost	\$14,857		
Comments			



Ext.W-Synthetic plaster on rigid insulation - Synthetic plaster exterior finish

B2010 - Exterior Walls - Precast Concrete Panels - Low-Rise**Description****System Description**

The majority of the exterior building is clad with precast concrete panels, which have an exposed aggregate finish. The horizontal and vertical joints between the large precast panels are used as an architectural feature of the building and supplemented with horizontal reveals cast into the panels. Mechanical penthouse walls consist of pre-cast architectural concrete sandwich panels.

Numerous selected vertical panel joints were observed to typically have sealant installed and a few locations were noted to have a thin metal closure strip along the back side of the vertical panel joint.

As per the existing building drawings one of the typical exterior wall assembly consists of the following:

Precast Concrete Panels
Air Space
100mm Rigid Insulation
Vapour Barrier
Exterior Gypsum Wall Board
Heavy Gauge Steel Studs
Standard Steel Studs
Fire Rated Gypsum Wall Board

System Condition & Anticipated Replacement

The precast concrete panels appear to be in good condition. Only localized areas along panel soffits were noted to have stained areas, which is a sign of entrapped moisture and these locations had spalled concrete. No other significant anomalies in the panel itself were noted.

The joint sealant at the panel joints was observed to be in a poor to fair condition. Numerous locations were noted to have failed/deboned sealant, including cracked and split sealant. The thin metal closure strip was observed to be deformed or displaced and not uniformly in contact with the panel.

With regular maintenance and repairs of the spalled/damaged precast panels, the precast panels will last the life of the building. The anticipated replacement year is beyond this BCR's 20 year event window.

It is recommended that all cracked and deteriorated sealant be removed and to undertake a program to install new sealant at all precast panel joints, completed with weep holes designed at appropriate locations to generally restore the face-seal intention of the precast walls.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1	Unit Cost	\$757.05
Quantity	8,500	Units	SM
Replacement Cost	\$6,434,930		
Comments			

Requirement: (Non-Renewal)

Removal and Installation of Panel Joint Sealant

Description**Brief Description**

Removal of all existing sealant at the precast panel joints, repairs of spalled concrete panel areas, and commencement of the installation program of new sealant at all precast panel joints.

Requirement Justification and Strategy

Replacement of the existing deteriorated, cracked/split panel joint sealant and repairs of the spalled concrete panel areas are required. Installation of new sealant at all precast panel joints is recommended to generally restore the face-seal intention of the precast walls.

If possible this work should be done in coordination with other building envelope work/repairs to save cost on the site mobilization.

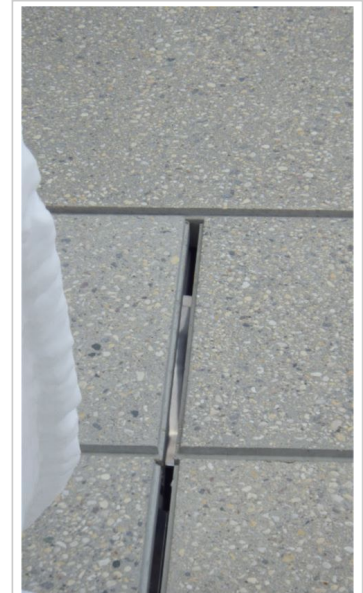
Implication of Requirement Deferral

Without the necessary panel repairs, pieces of concrete will continue to loose stability and become a safety hazard.

Water infiltration into the exterior wall assembly and building envelope will continue to occur through the open precast panel joints, which might cause damage to the precast panels, envelope and interior finishes.

The new sealant will potentially extend the expected life of the precast panels and assist against further deterioration of the building envelope.

Priority	3- Year 3	Category	O - Maintenance
Estimated Cost	\$232,400	FY Action Date	2021



Precast Concrete Panels - Low-Rise
- Deformed metal closure strip at one of the vertical precast panel joints

Requirement Type**Comments**

Precast Panel Joint Sealant Program

Deferral Reason? Explain Risk Mitigation**B2020 - Exterior Windows - Steel Windows****Description****System Description**

Pressed steel framed Georgian glass interior partitions are found throughout the building.

System Condition & Anticipated Replacement

The frames are painted regularly and appear in good condition. The single pane glazing is also in good condition. The anticipated replacement date is beyond the 20 year systems planning window.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$770.14
Quantity	417	Units	m2
Replacement Cost	\$321,148		

Comments

Steel Windows - Typical Interior sidelite glazing

B2020 - Exterior Windows - Other-Specialties Windows**Description****System Description**

Single pane aluminum storefront glazing is used at the vestibule partitions, to control access to the Lobby and at some office locations.

System Condition & Anticipated Replacement

The glass and aluminum framing are in good condition and the anticipated replacement date is beyond the 20 year budget period.

Condition Rating	Good	Lifetime	75
Year Installed	1994	Years Remaining	N/A
Adjustment Factor	1.4500	Unit Cost	\$764.64
Quantity	140	Units	m2
Replacement Cost	\$107,050		

Comments

Oct.26-28 065 (Small).jpg - Note the glass and aluminum partitioning in the main lobby.

B2020 - Exterior Windows - Curtain Wall System**Description****System Description**

The curtain wall consists of aluminum mullions with dual glazed sealed units and has been used at the east and west ends of the building, at a very long clerestory above the roof level, and for a large expanse above the main entrance.

System Condition & Anticipated Replacement

The aluminum mullions appear to be in average condition. Signs of frost and condensation built-up within the glazing panes were observed at a few locations, indicating that sealed unit has failed. The normal anticipated life span of a sealed glazing unit is approximately 25 years, which all units exceeded at this time. Cracked and de-bonded sealant around window rough openings were also noted at numerous locations.

It is recommended that sealed glazing units be replaced on an annual basis as failures occur starting 2018. At the same time the sealant at the rough openings should be replaced.

Condition Rating	Average	Lifetime	40
Year Installed	1979	Years Remaining	2 (Observed)
Adjustment Factor	1	Unit Cost	\$1,009.69
Quantity	845	Units	SM
Replacement Cost	\$853,186		

Comments**Requirement: (Renewal)**

Curtain Wall System Renewal

Description

Auto generated renewal for Curtain Wall System. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

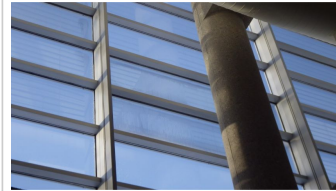
Priority	2- Year 2	Category	I - Lifecycle
Estimated Cost	\$1,066,483	FY Action Date	2019

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Curtain Wall System - Curtain wall above the main entrance on the south elevation.



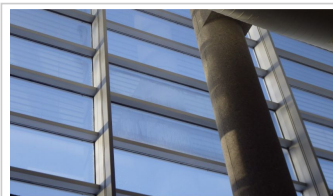
Curtain Wall System - Curtain wall on the east elevation.



Curtain Wall System - Curtain wall on the south elevation, showing moisture within the sealed unit.



Curtain Wall System - Curtain wall on the west elevation.



Curtain Wall System - View of curtain wall from interior

Requirement: (Non-Renewal)

Replace Seals Exterior Windows - Curtain Wall System

Description**Brief Description**

On an annual basis over 7 years commencing 2018, replace sealed glazing units at the exterior framed curtain wall which show signs of unit failure in the form of fogging, frost or condensation within the glazing pane.

Requirement Justification and Strategy

The sealed glazing units have exceeded their anticipated life span of approximately 25 years. All sealed glazing units, with age, will eventually fail due to saturation of the desiccant within the space or show unit failure in the form of frost, fogging or condensation within the glazing pane. There are more energy efficient glazing units on the market. Sealed units should be replaced during periods of warm and dry weather and be coordinated with other envelope work.

Implication of Requirement Deferral

Old sealed glazing units will eventually fail with age and are not as energy efficient as newer units due to emerging technologies. Less efficient windows are often subject to energy loss, water infiltration and condensation, which may lead to damage to the building envelope and impact the building tenants comfort.

Priority	1- Year 1	Category	O - Maintenance
Estimated Cost	\$118,188	FY Action Date	2019

Requirement Type**Comments**

Replace failed sealed glazing units at the curtain wall locations.

Deferral Reason? Explain Risk Mitigation

B2020 - Exterior Windows - Aluminum Windows

Description

System Description

The windows are aluminum framed fixed windows with insulating dual glazed sealed units. Each of the exit stairwells has a large round window. The frames utilize a curtain wall type of system. The date stamp on the sealed glazing units, where reviewed on-site, indicated a manufacturing year of 1979 which means that they are original to the building.

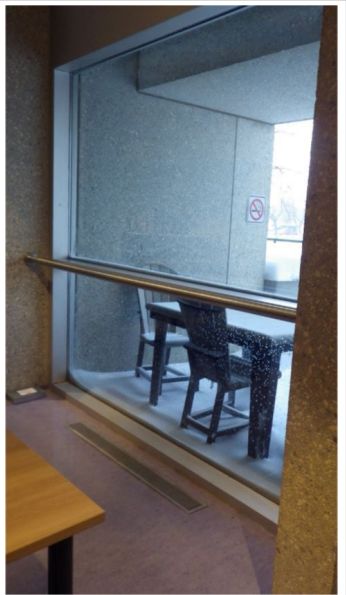
System Condition & Anticipated Replacement

The window frames and glazing appear to be in general average condition. Signs of water infiltration were observed at a few window locations. Frost and condensation built-up on the glazing pane was also noted, at a few locations. The normal anticipated life span of a sealed glazing unit is approximately 25 years, which all units exceeded at this time. Cracked and de-bonded sealant around window rough openings were also noted at numerous locations.

Due to the current age of the sealed units and the aluminum frames, and the observed conditions it is recommended that a full window replacement, including frames, be completed in the long-term (+/-15 years) prior to 2032.

At this time it is recommended that failed sealed glazing units be replaced as they occur, and to replace the exterior window rough opening sealant to reduce air leakage and improve temperature differential between the frames and the interior until a full window replacement is performed.

Condition Rating	Average	Lifetime	30
Year Installed	1979	Years Remaining	15 (Observed)
Adjustment Factor	1	Unit Cost	\$718.41
Quantity	730	Units	SM
Replacement Cost	\$524,437		
Comments			



Aluminum Windows - Window in the lunchroom.

Requirement: (Renewal)

Aluminum Windows Renewal

Description

Auto generated renewal for Aluminum Windows. System Description: N/A

Brief Description

Requirement Justification and Strategy

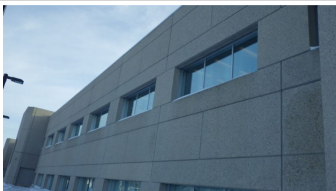
Implication of Requirement Deferral

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$655,546	FY Action Date	2032

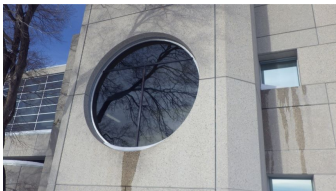
Requirement Type

Comments

Deferral Reason? Explain Risk Mitigation



Aluminum Windows - Typical windows in the office spaces on the main and second floor.



Aluminum Windows - Typical large round window in the stairwells.



Aluminum Windows - Condensation build-up with-in the sealed glazing unit.

Requirement: (Non-Renewal)

Replace Failed Sealed Glazing Units and Rough Opening Sealant.

Description

Brief Description

Replace failed sealed glazing units at the exterior aluminum framed windows and replace the existing sealant at exterior window rough openings.

Requirement Justification and Strategy

The sealed glazing units have all exceeded their anticipated life expectancy, which is approximately 25 years. Sealed glazing units, with age, will eventually fail due to saturation of the desiccant within the spacer or show unit failure in a form of frost, fogging or condensation within the glazing pane.

Locations with cracked and deteriorated sealant around window rough openings were noted. Sealant with age will eventually deteriorated and harden due to exposure to different weather conditions.

There are more energy efficient glazing unit on the market. Sealed glazing units and window rough opening sealant should be replaced during periods of warm weather and possible be coordinated with other building envelope work.

Implication of Requirement Deferral

Old sealed glazing units will eventually fail with age and are not as energy efficient as newer units due to emerging technologies. Less efficient windows are often subject to energy loss, water infiltration and condensation, which may impact to the building tenants comfort.

Water infiltration into the building envelope may occur through deteriorated and cracked sealant, causing damage to other building envelope components and interior finishes.

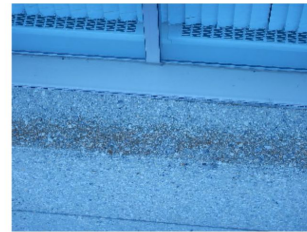
Priority	2- Year 2	Category	O - Maintenance
Estimated Cost	\$135,000	FY Action Date	2020

Requirement Type

Comments

Sealed Glazing Units and Sealant Replacement.

Deferral Reason? Explain Risk Mitigation



Replace Failed Sealed Glazing Units and Rough Opening Sealant. - Cracked and de-bonded sealant at the window rough opening.

B2030 - Exterior Doors - Steel Doors**Description****System Description**

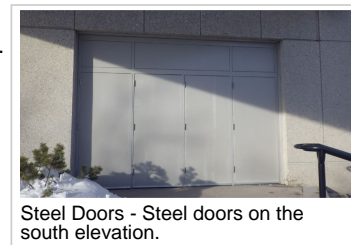
Insulated metal doors with pressed steel frames are located at all service and emergency exit doors around the main floor and the service doors to the roof in the mechanical penthouses.

System Condition & Anticipated Replacement

The doors, frames and hardware appear to be in general good condition relative to their age and use. Some doors are for emergency egress only, and therefore used very rarely. With regular repair and maintenance, the remaining anticipated life of this component can be reached. The anticipated replacement year is 2044, which is beyond this BCR's 20 year event window.

Some doors are subject to regular use than others, therefore the door hardware and weather-stripping might require an earlier replacement than the actual doors. An event has been created to replace door hardware components.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1	Unit Cost	\$2,109.36
Quantity	35	Units	ea
Replacement Cost	\$73,828		
Comments			

**B2030 - Exterior Doors - Revolving Door****Description****System Description**

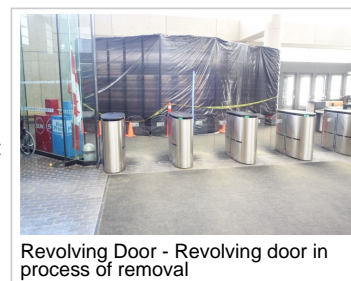
The existing aluminum revolving door at the front Lobby is being replaced at the time of this BCR.

System Condition & Anticipated Replacement

The revolving door is currently being removed and replaced with new full swing doors, same type as the remaining adjacent vestibule doors.

Therefore, the anticipated replacement of the new installed doors is beyond this BCR's 20 year event window, so no event for the replacement has been provided.

Condition Rating	Not Assessed	Lifetime	50
Year Installed	2016	Years Remaining	1 (Observed)
Adjustment Factor	0	Unit Cost	\$0.00
Quantity	1	Units	ea
Replacement Cost	\$0		
Comments			

**Requirement: (Renewal)**

Revolving Door Renewal

Description

Auto generated renewal for Revolving Door. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$0	FY Action Date	2018

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

B2030 - Exterior Doors - Glazed Doors**Description****System Description**

There are twelve fully glazed bronze anodized aluminum doors at the main front building entrance, including two at the west employee building entrance and four at the east building entrance. There are sixteen fully glazed clear anodized aluminum doors in the Lunchroom, which are providing access to the exterior patio space.

System Condition & Anticipated Replacement

The doors and hardware appear to be in average condition. The weather-stripping and threshold shows signs of normal wear and use. Frost built-up was noted on the aluminum door frames in the lunchroom, indicating that the frames are not very thermally efficient. The normal anticipated life span of a sealed glazing unit is approximately 25 years, which all units exceeded. Sealed glazing units, with age, will eventually fail due to saturation of the desiccant within the spacer or show unit failure in a form of frost, fogging or condensation within the glazing pane.

The aluminum door frames and sealed glazing units are 38 years in age, we recommend that they be replaced in 2024.

Condition Rating	Average	Lifetime	60
Year Installed	1979	Years Remaining	7 (Observed)
Adjustment Factor	1.6570	Unit Cost	\$5,377.25
Quantity	34	Units	ea
Replacement Cost	\$182,826		
Comments			



Oct.26-28 021 (Small).jpg - West side aluminum framed glazed doors.

Requirement: (Renewal)

Glazed Doors Renewal

Description

Auto generated renewal for 01.3-060C05 Glazed Doors. System Description: Component Description:

There are twelve bronze anodized heavy duty 914mm x 2438mm glazed doors into the main vestibule entrance. There are eight clear anodized 1219mm x 2438mm heavy duty glazed doors into the Lunchroom from the patio. There are two glazed clear anodized doors on the west side of the building and four on the east side.

Component Condition & Anticipated Replacement Date:

Most of the doors are in good condition however some of the hinges and the fastening to the frames are stripped and worn out at the main entrance. Some of the glazing units are near the end of their anticipated life cycle. With regular repair and maintenance, the remaining anticipated life of this component will exceed the thirty year budgeting period.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	7- Year 7	Category	I - Lifecycle
Estimated Cost	\$182,826	FY Action Date	2024

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Glazed Doors - Glazed bronze aluminum doors at the main front building entrance.



Oct.26-28 005 (Small).jpg - Glazed doors and transom at the south main entrance.



Glazed Doors - Frost build-up on one of the glazed aluminum doors in the lunchroom.



Glazed Doors - Glazed bronze aluminum doors at the west employee building entrance.

Requirement: (Non-Renewal)

DELETE - Glazed Door Replacement

Description**Brief Description**

Replace all fully glazed aluminum doors, including door hardware and sealed glazing units.

Requirement Justification and Strategy

The aluminum door frames are 38 years old and some units appear not to be very thermally efficient. The sealed glazing units have exceeded their normal anticipated life span of approximately 25 years, and with age the units will eventually fail. Due to the heavy everyday use, especially at the main front building entrance, the hardware and weather stripping become worn and their functionality will be affected. There are more energy efficient door frames and sealed units on the market.

Doors should be replaced during periods of warm and dry weather and be coordinated with other building envelope work.

Implication of Requirement Deferral

Old aluminum door frames and sealed glazing units are not as energy efficient as new units due to emerging technologies. Less efficient doors are often subject to energy loss, water infiltration and condensation, which may lead to damage to the building envelope and impact the building tenants comfort. Worn out door hardware and weather stripping may no longer operate as required, and therefore may impact egress in an emergency situation.

Priority	7- Year 7	Category	I - Lifecycle
Estimated Cost	\$176,800	FY Action Date	2025

Requirement Type**Comments**

Replace glazed aluminum framed doors.

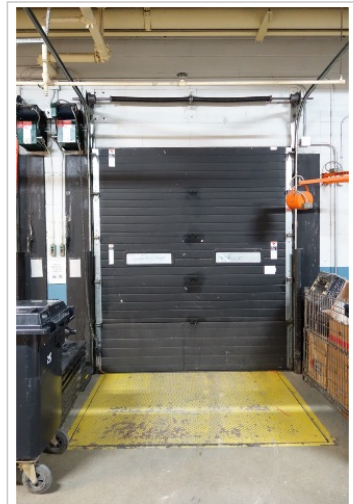
Deferral Reason? Explain Risk Mitigation**B2034 - Overhead Doors - Overhead Door - Interior****Description****System Description**

There are two overhead (O/H) steel sectional doors and an O/H coiling door between the loading ramp and the shipping/receiving area. There are also two fire rated O/H coiling doors to the adjacent office and storage areas.

System Condition & Anticipated Replacement

Doors and operators appear to be in average condition. The fire rated coiling doors of the shipping/receiving area are open in the day and closed at night and have fusible links for operation in a fire situation. It was reported that the coiling door at the loading dock was replaced approximately ten years ago. The anticipated replacement date for the remaining doors is 2022.

Condition Rating	Average	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$10,816.86
Quantity	5	Units	ea
Replacement Cost	\$54,084		
Comments			



Overhead Door - Interior - View of interior overhead door from loading dock

B2034 - Overhead Doors - Overhead Door - Exterior**Description****System Description**

There are two segmented vertical sectional steel panel exterior overhead doors at the loading dock. One is approximately 5.5 M x 4.3 M, the other is 2.7 M x 4.3 M. The doors are equipped with power door operators.

System Condition & Anticipated Replacement

The doors and door operators appear to be in average condition. Continue repair and maintenance and replacement of parts can extend the anticipated life cycle beyond the 20 year BCR's event period to 2032.

Condition Rating	Average	Lifetime	60
Year Installed	2017	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$18,649.74
Quantity	2	Units	ea
Replacement Cost	\$37,299		
Comments			



Overhead Door - Exterior - View from interior of exterior overhead door

B30 - Roofing - Modified Bitumen**Description****System Description**

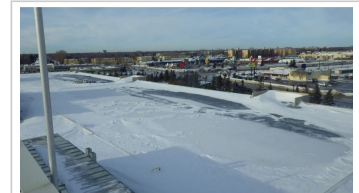
The flat roof portions of the building, including the four penthouses and the sloped roofs at the clearstories, are covered with a modified bitumen roofing membrane (SBS). The roof system includes insulation boards and a vapour retarder.

System Condition & Anticipated Replacement

The roofing membrane appears to be in good condition and the entire roof assembly was replaced in 2010. At the time of our site review the roof areas were snow covered, therefore our review was very limited. Loose fasteners were noted on the roof membrane, and damaged/bent metal flashings were noted at one of the mechanical vents.

The typical anticipated life cycle of this type of roof system is 25 years. An annual roof maintenance/review program is recommended to be implemented to ensure that the roof system reaches or exceeds its anticipated life span. No discernible deterioration or roof leaks were reported. The anticipated replacement year of the membrane, insulation and vapour retarder is 2035.

Condition Rating	Good	Lifetime	20
Year Installed	2010	Years Remaining	18 (Observed)
Adjustment Factor	2	Unit Cost	\$209.54
Quantity	16,400	Units	SM
Replacement Cost	\$3,436,395		
Comments			



Modified Bitumen - Modified bitumen roofing membrane on the main flat roof section.

Requirement: (Renewal)

Modified Bitumen Renewal

Description

Auto generated renewal for Modified Bitumen. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$4,295,494	FY Action Date	2035

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Modified Bitumen - Modified bitumen roofing membrane at the clearstory.



Modified Bitumen - Modified bitumen roofing membrane on one of the mechanical penthouses.

B30 - Roofing - Metal Roofing**Description****System Description**

There is a sloped standing seam metal roof on the east facing exit/entrance vestibule, which was added likely in the late 1980's/ early 1990's.

The metal roof at the front lobby clearstory has been replaced as part of the flat main roof replacement project in 2010.

System Condition & Anticipated Replacement

At the time of our site review the metal roof was snow covered, therefore our review was very limited. The typical anticipated life cycle of this type of roof cladding is 60 years. Due to the current age of the roof cladding and the fact that no discernable deterioration or roof leaks were reported, the anticipated replacement is beyond this BCR's 20 year event window.

Condition Rating	Good	Lifetime	65
Year Installed	1990	Years Remaining	38 (Observed)
Adjustment Factor	1	Unit Cost	\$476.51
Quantity	33	Units	SM
Replacement Cost	\$15,725		
Comments			



Metal Roofing - High End - New - Standing seam metal roof on the east facing exit/entrance vestibule.

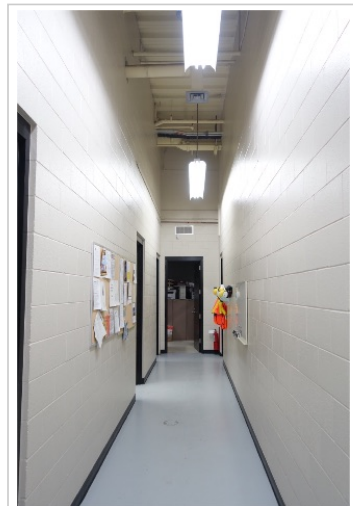
C1010 - Partitions - Concrete Block Partition**Description****System Description**

Concrete masonry block walls and partitions enclosing mechanical, electrical and boiler rooms, storage and loading dock areas.

System Condition & Anticipated Replacement

Appear to be in good condition. The walls are anticipated to last the life of the structure and beyond the 20 year budget period.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$278.07
Quantity	2,200	Units	m2
Replacement Cost	\$611,746		
Comments			



Concrete Block Partition - Typical concrete block interior wall

C1010 - Partitions - Glazed Block Partition**Description****System Description**

There are some glass block partitions on both the main and second levels surrounding the Lobby.

System Condition & Anticipated Replacement

The glass blocks are in good condition and the anticipated replacement date is beyond the 20 year budget period.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$1,172.46
Quantity	30	Units	m2
Replacement Cost	\$35,174		
Comments			



Glazed Block Partition - Typical interior glazed block wall

C1010 - Partitions - Concrete Partition**Description****System Description**

There is a secure vault on the second floor with cast-in-place concrete walls.

System Condition & Anticipated Replacement

The concrete walls are in overall good condition and shows no signs of deterioration. They are anticipated to last the life of the structure and beyond the 20 year budget period.

Condition Rating	Good	Lifetime	110
Year Installed	1979	Years Remaining	N/A
Adjustment Factor	1.4500	Unit Cost	\$308.79
Quantity	104	Units	m2
Replacement Cost	\$32,114		
Comments			



Concrete Partition - Interior concrete wall

C1011 - Fixed Partitions - Gypsum Board Partition with Studs**Description****System Description**

The majority of partition walls throughout the building are steel stud with gypsum wallboard including around the interior of the pre-cast concrete panels. Most interior partitions are fitted with sound attenuation insulation.

System Condition & Anticipated Replacement

The walls are generally in good condition. Any damage seen was located at the bottom of the walls as a result of mail container impact.

With regular maintenance and repair, the partitions will last the life of the building so the anticipated replacement date is beyond the 20 year period.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$2.18
Quantity	8,600	Units	m2
Replacement Cost	\$18,705		

Comments

Wood base boards along walls have become damaged from mail cart impact and should be removed, repaired/refinished and reinstalled.



Gypsum Board Partition with Studs - Typical interior gypsum board partition

C1014 - Site Built Toilet Partitions - Washroom Partitions**Description****System Description**

There are approximately 80 stalls of enameled steel partitions enclosing water closets and a few showers.

System Condition & Anticipated Replacement

The washroom partitions are in good condition. The anticipated replacement date is 2026.

Condition Rating	Good	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$2,366.28
Quantity	80	Units	ea
Replacement Cost	\$189,303		

Comments

Washroom Partitions - Typical interior washroom partition

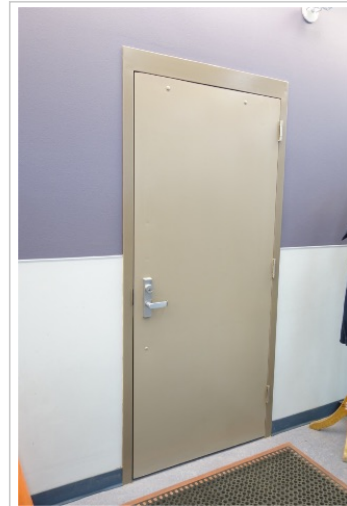
C1020 - Interior Doors - Replace hollow metal doors and frames**Description****System Description**

Many of the interior doors and frames are painted hollow metal. Most are fire rated, many have glazing.

System Condition & Anticipated Replacement

The doors, frames and hardware are generally in good condition. Some doors have been replaced. (computer lab) The anticipated replacement date is 2039.

Condition Rating	Good	Lifetime	60
Year Installed	1979	Years Remaining	22 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$4,842.65
Quantity	177	Units	ea
Replacement Cost	\$857,149		
Comments			



Replace hollow metal doors and frames - Typical interior metal door and frame

C1020 - Interior Doors - Softwood Doors**Description****System Description**

Most doors to offices and washrooms are 3'x 8' painted solid core wood in pressed steel frames.

System Condition & Anticipated Replacement

Wood doors, frames and hardware are generally in good condition. The anticipated replacement date is 2029.

Condition Rating	Good	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$1,800.44
Quantity	112	Units	ea
Replacement Cost	\$201,649		
Comments			



Softwood Doors - Interior Softwood Doors

C1020 - Interior Doors - Glass & Glazed Doors**Description****System Description**

There are interior glazed aluminum doors on the interior vestibule walls at the Lobby and at both the east and west exits.

System Condition & Anticipated Replacement

The doors appear to be in good condition. The east exit doors are not in use. The anticipated replacement date is 2029.

Condition Rating	Good	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$4,913.09
Quantity	13	Units	ea
Replacement Cost	\$63,870		
Comments			



Glass & Glazed Doors - Front entry glazed doors

C1020 - Interior Doors - Interior doors, frames and other miscellaneous metal finishes.**Description****System Description**

This system includes interior doors, frames and other miscellaneous metal finishes.

System Condition & Anticipated Replacement

The interior doors and frames are in overall good condition and should last until end of life cycle in 2039. Doors require re-painting as a result of day to day wear and impact from mail carts. Re-paint interior doors, frames and other miscellaneous metal finishes on a 4 year cyclical basis.

Paint will continue to be worn away and will look in poor condition. Updated interior colour schemes may require that the doors be re-painted.

Condition Rating	Good	Lifetime	60
Year Installed	1979	Years Remaining	22 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$4,658.84
Quantity	177	Units	ea
Replacement Cost	\$824,614		

Comments**Requirement: (Non-Renewal)**

Repaint Doors & Frames

Description**Brief Description**

Re-paint interior doors, frames and other miscellaneous metal finishes. A yearly allowance had been budgeted.

Requirement Justification and Strategy

Doors require re-painting as a result of day to day wear and impact from mail carts. Updated interior colour schemes may require that the doors be re-painted.

Implication of Requirement Deferral

Without maintenance, paint will continue to be worn away and will look in poor condition.

Priority	4- Year 4	Category	O - Maintenance
Estimated Cost	\$10,000	FY Action Date	2022

Requirement Type Repair**Comments****Deferral Reason? Explain Risk Mitigation**

Interior doors, frames and other miscellaneous metal finishes. - Typical interior metal doors and frames

C1023 - Interior Door Hardware - Interior Door Hardware**Description****System Description**

Hardware in metal and wood doors typically includes heavy duty commercial quality hinges, exit devices, closers, mortise latches and deadbolts.

System Condition & Anticipated Replacement

The hardware is generally in good working order. The anticipated replacement date is 2029.

Condition Rating	Good	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$749.01
Quantity	289	Units	ea
Replacement Cost	\$216,464		

Comments

Interior Door Hardware - Typical interior door hardware

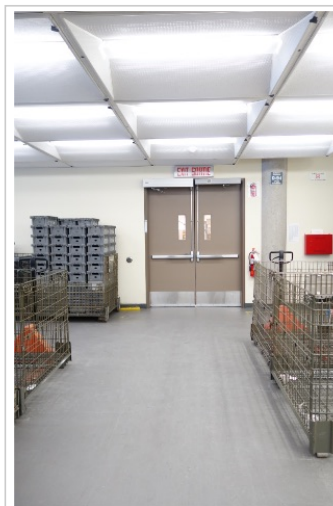
C1023 - Interior Door Hardware - Replace interior hardware on metal doors**Description****System Description**

Replace interior hardware of metal doors.

System Condition & Anticipated Replacement

The door hardware will reach their anticipated life cycle. Generally the existing hardware is in good condition. Anticipated date of door hardware replacement is 2029.

Condition Rating	Good	Lifetime	50
Year Installed	1979	Years Remaining	12 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$1,183.69
Quantity	289	Units	ea
Replacement Cost	\$342,087		
Comments			



Replace interior hardware on metal doors - View of Interior Door with panic hardware

Requirement: (Renewal)

Replace interior hardware on metal doors Renewal

Description

Auto generated renewal for Replace interior hardware on metal doors. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$342,087	FY Action Date	2029

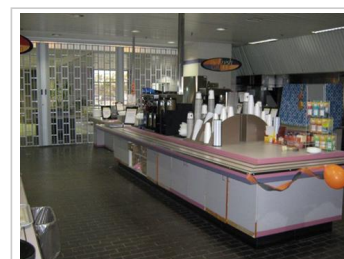
Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation****C1030 - Fittings - Fixed or Permanent Furnishing (Millwork)****Description****System Description**

Some custom millwork cabinets can be found in boardrooms and meeting rooms. Some of this millwork appears to have been replaced with furniture. The recently renovated commons area near the front entry features new built in millwork. Washrooms have newer built in counters. In the back service areas and the cafeteria, there is some older millwork.

System Condition & Anticipated Replacement

The cabinetry is generally in average condition. The anticipated replacement date is 2019 for the older millwork.

Condition Rating	Average	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	1	Unit Cost	\$2,075.21
Quantity	35	Units	m
Replacement Cost	\$72,632		
Comments			



Oct.26-28 107 (Small).jpg - Millwork in the food service area of the cafeteria.

C2020 - Stair Finishes - Interior Stairs**Description****System Description**

There are eleven exit stairways between the main and second levels, a central feature staircase and four spiral stairways to the four mechanical penthouses. The stairs are steel framed concrete filled steel pan except of the four spiral stairways with are open grate treads.

System Condition & Anticipated Replacement

The stairs are in good condition and with regular maintenance shall last the life of the building. Some of the maintenance that is required includes either replacement or re-gluing of the tread and riser finishes (resilient flooring) as well as the stair nosing which is a code requirement. No replacement of the stair structure is offered.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1	Unit Cost	\$9,887.63
Quantity	16	Units	flts
Replacement Cost	\$158,202		
Comments			



Oct.26-28 066 (Small).jpg - The central feature staircase in the lobby.

C3012 - Wall Finishes to Interior Walls - Ceramic Wall Tile**Description****System Description**

Ceramic wall tiling is found in all washrooms, showers and in the kitchen/food service areas.

System Condition & Anticipated Replacement

The ceramic wall tiling appears to be in good condition. It was reported the wall tiling in the washrooms was replaced approximately ten to fifteen years ago. The anticipated replacement date is 2029.

Condition Rating	Good	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	1	Unit Cost	\$354.15
Quantity	1,160	Units	m2
Replacement Cost	\$410,814		
Comments			



Oct.26-28 106 (Small).jpg - Ceramic wall tiling in the food service areas of the cafeteria.

Washrooms in the former Kitchen area are in the worse condition, due to the closure of the Kitchen facility.

C3012 - Wall Finishes to Interior Walls - Acoustic Wall Treatment**Description****System Description**

Fabric covered panels cover the walls in a couple of boardrooms and a print room.

System Condition & Anticipated Replacement

The panels appear to be in poor condition. The anticipated replacement date is 2017.

Condition Rating	Poor	Lifetime	25
Year Installed	2017	Years Remaining	24 (Age Based)
Adjustment Factor	1	Unit Cost	\$158.83
Quantity	290	Units	m2
Replacement Cost	\$46,061		
Comments			



Oct.26-28 081 (Small).jpg - Acoustic wall panels in the printing room.

C3012 - Wall Finishes to Interior Walls - Paint**Description****System Description**

Interior paint has been applied over the interior gypsum board walls, concrete block, the doors and door frames, some ceiling areas and the steel window frames.

System Condition & Anticipated Replacement

Painted surfaces are in average condition. The building interior utilizes durable material finishes throughout. However, normal wear and use have caused some small, localized damage to areas. Interior painting is recommended to be renewed on a 5 year basis. It is anticipated the next painting event will be in 2017.

Condition Rating	Average	Lifetime	5
Year Installed	2004	Years Remaining	0 (Observed)
Adjustment Factor	1	Unit Cost	\$28.48
Quantity	12,000	Units	m2
Replacement Cost	\$341,760		
Comments			

Requirement: (Renewal)

Paint Renewal

Description

Auto generated renewal for 01.5-060C15 Paint. System Description: Component Description:

Interior paint has been applied over the interior gypsum board walls, concrete block, the doors and door frames, some ceiling areas and the steel window frames.

Component Condition & Anticipated Replacement Date:

The building interior utilizes durable material finishes throughout. However, normal wear and use have caused some small, localized damage to areas. Interior painting is recommended to be renewed on a 15 year basis. It is anticipated the next painting event will be in 2012.

BPR Narrative (Mandatory if component rating is unsatisfactory):

Painting in common and mechanical spaces is completed on a cyclical basis through operations. The tenant painted their occupied space in 2010/11.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$341,760	FY Action Date	2017

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

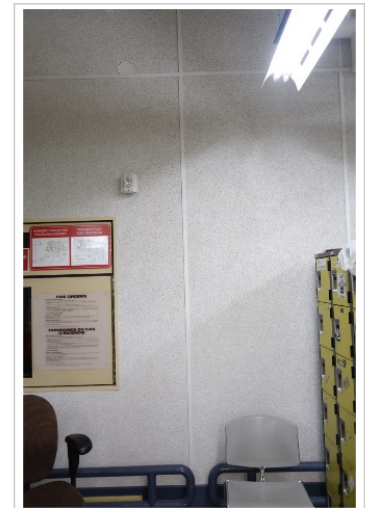
C3012 - Wall Finishes to Interior Walls - Vinyl Wall Covering**Description****System Description**

Much of the vinyl wall covering was installed as pre-finished vinyl covered drywall for some interior office partitions.

System Condition & Anticipated Replacement

The vinyl covering is generally in good condition. In some areas, rather than recover or replace the vinyl, it was painted over. Unless there is a decor change or office layout rearrangement, it is not anticipated that the vinyl wall coverings will be replaced. As such, no event is included.

Condition Rating	Good	Lifetime	20
Year Installed	1998	Years Remaining	10 (Observed)
Adjustment Factor	1	Unit Cost	\$55.51
Quantity	380	Units	m2
Replacement Cost	\$21,094		
Comments			



Vinyl Wall Covering - Typical interior vinyl wall covering

Requirement: (Renewal)

Vinyl Wall Covering Renewal

Description

Auto generated renewal for Vinyl Wall Covering. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$21,094	FY Action Date	2027

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

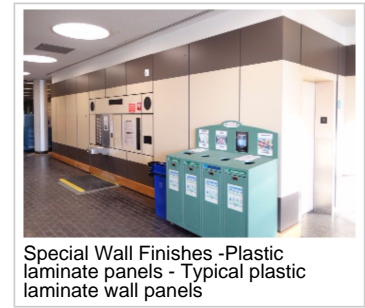
C3012 - Wall Finishes to Interior Walls - Special Wall Finishes -Plastic laminate panels**Description****System Description**

Plastic laminate covered wood wall panels are located around washrooms and service areas along the main corridors.

System Condition & Anticipated Replacement

The building interior utilizes durable material finishes throughout and appear to be in fair condition. However normal wear and use have caused some small, localized damage to areas. Some panels have been painted. The anticipated replacement date is 2026.

Condition Rating	Fair	Lifetime	20
Year Installed	2017	Years Remaining	19 (Age Based)
Adjustment Factor	1	Unit Cost	\$214,518.81
Quantity	1	Units	Cool tons
Replacement Cost	\$214,519		
Comments			



Special Wall Finishes -Plastic laminate panels - Typical plastic laminate wall panels

Requirement: (Renewal)

Special Wall Finishes -Plastic laminate panels Renewal

Description

Auto generated renewal for Special Wall Finishes -Plastic laminate panels.
System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$214,519	FY Action Date	2037

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Oct.26-28 063 (Small).jpg - Plastic laminated wall panels enclose the washroom and service areas.



Special Wall Finishes -Plastic laminate panels - Typical plastic laminate wall panels

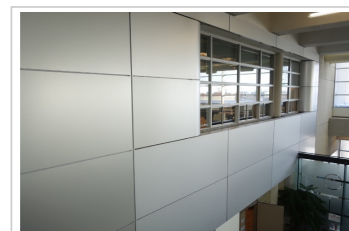
C3012 - Wall Finishes to Interior Walls - Special Wall Finishes - Aluminum panels**Description****System Description**

Satin finished silver gray metal panels are mounted to the walls and columns surrounding the main entrance Lobby.

System Condition & Anticipated Replacement

The panels are in good condition and most are not subject to potential impact. The panels have a heavy-duty wear capability and it is anticipated the panels will not require replacement within the 20 year budget period Replacement date is 2044.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1	Unit Cost	\$412.70
Quantity	460	Units	m2
Replacement Cost	\$189,842		
Comments			



Special Wall Finishes - Aluminum panels - Interior aluminum wall panels

C3012 - Wall Finishes to Interior Walls - Special Wall Finishes- Folding Partition**Description****System Description**

There is a folding partition wall separating two of the rooms on the second floor.

System Condition & Anticipated Replacement

The partition is in good condition. The anticipated replacement date is 2029.

Condition Rating	Good	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	1	Unit Cost	\$1,787.65
Quantity	15	Units	m
Replacement Cost	\$26,815		
Comments			



Special Wall Finishes- Folding Partition - Typical interior folding partition

C3022 - Traffic Membranes - Floor Toppings & Traffic Membranes**Description****System Description**

A traffic bearing membrane has been applied over the structural concrete floor in the indoor loading area.

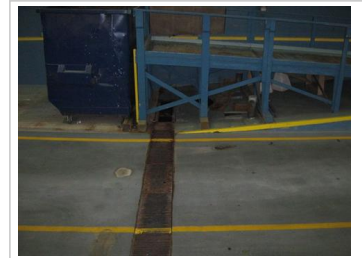
System Condition & Anticipated Replacement

The membrane is in fair condition and has had some previous repairs and additional repairs are required as there is some evidence of deteriorated concrete and perforated membrane.

Project PW113091 has been raised to replace this flooring area. The membrane is damaged with several deteriorated areas. Temp patching is completed through O&M.

The floor should be replaced in 2017.

Condition Rating	Fair	Lifetime	5
Year Installed	2002	Years Remaining	0 (Observed)
Adjustment Factor	1	Unit Cost	\$75.34
Quantity	280	Units	m2
Replacement Cost	\$21,095		
Comments			



Oct.26-28 079 (Small).jpg - Note holes in the traffic bearing membrane.

Requirement: (Renewal)

Floor Toppings & Traffic Membranes Renewal

Description

Auto generated renewal for 01.5-070C80 Floor Toppings & Traffic Membranes.
System Description: Component Description:

A traffic bearing membrane has been applied over the structural concrete floor in the indoor loading area.

Component Condition & Anticipated Replacement Date:

The membrane has had some previous repairs and additional repairs are required as there is some evidence of deteriorated concrete and perforated membrane. Repair/replacement of approximately one third is required in 2010. BPR Narrative (Mandatory if component rating is unsatisfactory):

Project PW113091 has been raised to replace this flooring area. The membrane is damaged with several deteriorated areas. Temp patching is completed through O&M.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$21,095	FY Action Date	2017

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Requirement: (Non-Renewal)

Floor Toppings & Traffic Membranes

Description**Brief Description**

Replace worn and damaged membrane
The entire membrane surface needs to be examined to identify damaged and delaminating concrete by a chain drag method. The membrane is to be removed and replaced in these areas as well as any worn, loose or damaged concrete. This process should be repeated every five years.

Requirement Justification and Strategy

There are notable perforations in the membrane caused by wear and/or deteriorating concrete.

Implication of Requirement Deferral

Moisture carrying road salt and other damaging compounds may get into the structural concrete and severely weaken the slab and cause it to fail under heavy loading.

Priority	3- Year 3	Category	O - Maintenance
Estimated Cost	\$11,203	FY Action Date	2021

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

PW113091 Not Funded/Regular Preventative Maintenance being conducted and will continue to assess

C3023 - Hardeners and Sealers - Sealed-Epoxy Concrete Floor - Mail Processing**Description****System Description**

Sealed and epoxy painted concrete floors at the pallet storage areas, north side mail processing area and in the battery charging area.

System Condition & Anticipated Replacement

The epoxy surface in the mail processing area on the north central area of that main level is a newer finish and in good condition. The painted epoxy surfaces in the remaining area appear to be well worn, stained and in poor condition. Due to heavy wear, the surface has reached the end of it's anticipated life and should be replaced in 2017.

Condition Rating	Poor	Lifetime	30
Year Installed	2017	Years Remaining	29 (Age Based)
Adjustment Factor	1	Unit Cost	\$124.12
Quantity	620	Units	m2
Replacement Cost	\$76,954		

Comments

Sealed-Epoxy Concrete Floor - Mail Processing - Worn out sealed concrete flooring in mail processing area

C3023 - Hardeners and Sealers - Sealed-Epoxy Concrete Floor - Shipping Area

Description

System Description

Sealed and epoxy painted concrete floors exist at the shipping, pallet storage areas, and in the battery charging area.

System Condition & Anticipated Replacement

The epoxy surface in the north central area of the main level is a newer finish and in good condition. The painted epoxy surfaces in the remaining areas appear to be well worn, stained and in poor condition. Due to heavy wear, the surface has reached the end of it's anticipated life and should be replaced in 2023.

Condition Rating	Poor	Lifetime	30
Year Installed	2017	Years Remaining	29 (Age Based)
Adjustment Factor	1	Unit Cost	\$116.37
Quantity	620	Units	m2
Replacement Cost	\$72,149		
Comments			



Sealed-Epoxy Concrete Floor - Sealed painted concrete flooring in shipping area

C3024 - Flooring - Linoleum or Sheet Vinyl Floor

Description

System Description

Linoleum is used on some of the main corridor areas on the second floor, exits, service areas, the lunchroom and in some mail processing areas on the main floor. Commercial grade sheet vinyl is also used in some main floor service areas.

System Condition & Anticipated Replacement

Both flooring types are in fair condition and can withstand heavy use. The anticipated replacement date is 2020.

Repairs to the second floor were unsuccessful due to the nature of sheet flooring/the area requiring repair. Project PW157735 includes the replacement of this flooring. PW157735 also includes removing the asbestos containing floor in the stairwells and replacing with new.

Linoleum has been replaced in the stairwells.

Condition Rating	Fair	Lifetime	25
Year Installed	2017	Years Remaining	24 (Age Based)
Adjustment Factor	1	Unit Cost	\$120.23
Quantity	4,100	Units	m2
Replacement Cost	\$492,943		
Comments			



Oct.26-28 058 (Small).jpg - A variety of interior finishes, note the central second level corridor linoleum flooring.

C3024 - Flooring - Quarry Tile Floor

Description

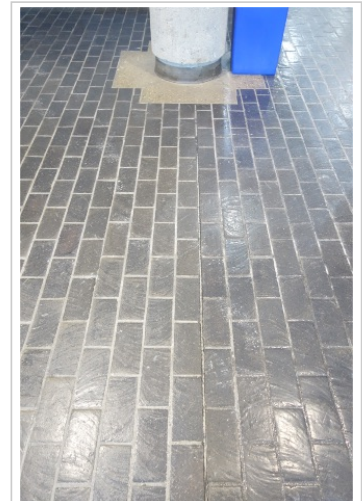
System Description

Quarry floor tiles are used in the main floor corridor, the lobby, kitchen and food service area.

System Condition & Anticipated Replacement

The floor tiles appear to be in average condition. It was reported the floor tiles were replaced with Ceramic Floor tiles in the washrooms approximately ten to fifteen years ago. The anticipated replacement date is 2055.

Condition Rating	Average	Lifetime	60
Year Installed	1995	Years Remaining	38 (Observed)
Adjustment Factor	1	Unit Cost	\$228.67
Quantity	2,900	Units	m2
Replacement Cost	\$663,143		
Comments			



Quarry Tile Floor - Quarry tile in main floor corridor

C3024 - Flooring - Painted Concrete Floor**Description****System Description**

Service rooms have painted concrete floors.

System Condition & Anticipated Replacement

Appears to be in average condition. No action required at present. The anticipated replacement date is 2020.

Painted floors in heavy traffic areas has worn more quickly than others.

Condition Rating	Average	Lifetime	15
Year Installed	2017	Years Remaining	14 (Age Based)
Adjustment Factor	1	Unit Cost	\$31.11
Quantity	800	Units	m2
Replacement Cost	\$24,888		
Comments			



Painted Concrete Floor - Worn painted concrete floors in heavy traffic corridors.

Requirement: (Renewal)

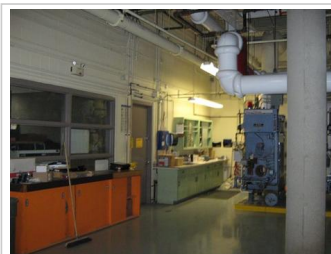
Painted Concrete Floor Renewal

Description

Auto generated renewal for Painted Concrete Floor. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$24,888	FY Action Date	2032

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Oct.26-28 077 (Small).jpg - Painted concrete floor of the boiler room.

C3024 - Flooring - Special or Other Floor Finishes**Description****System Description**

The concrete floor in the shipping/receiving area was recently retro-plated providing a clean polished concrete surface with exposed aggregate.

System Condition & Anticipated Replacement

The floor is in excellent condition and with regular maintenance and sealing, will last the life of the structure. No event is offered.

Condition Rating	Excellent	Lifetime	80
Year Installed	2008	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$111.02
Quantity	95	Units	m2
Replacement Cost	\$10,547		
Comments			

C3024 - Flooring - Vinyl Floor Tile**Description****System Description**

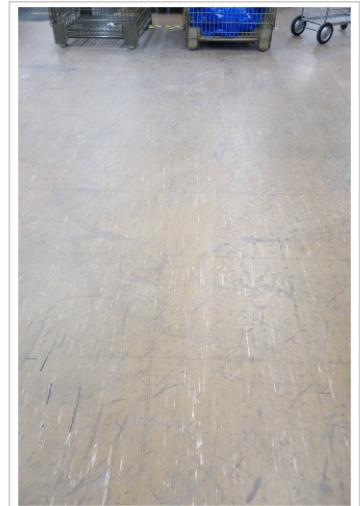
There are 600mm x 600mm tiles in the mail processing area at the west end of the main floor.

System Condition & Anticipated Replacement

The tiles are heavily scuffed and marked due to the heavy wheeled traffic and in fair condition. The anticipated replacement date is 2019.

Flooring in the inserter room has been cut out (around printers) and adhesive left on the floor due health and safety concerns. Patching is still ongoing in the mail processing area - the flooring may need to be removed in this area too as funding for project PW157735 is considered.

Condition Rating	Fair	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	1	Unit Cost	\$80.53
Quantity	750	Units	m2
Replacement Cost	\$60,398		
Comments			



Vinyl Floor Tile - Scuffed vinyl floor tile on main floor west side of the building

C3025 - Carpeting - Carpeting**Description****System Description**

Most of the office area on the main floor is finished with carpet tile over the concrete floor. Carpet tiles are also used over the access floor system found on both levels.

System Condition & Anticipated Replacement

The majority of carpeted areas are covered with carpet tile which permits localized replacement. The carpet tiles are generally in average condition. It is recommended the carpets be reviewed on a five year basis to replace heavily worn tiles.

Approximately 50% of the carpet (most worn areas including the raised access flooring on the main and second floors) was replaced in 2010/11. The replaced areas are satisfactory, however the areas not replaced under the project in 2010/2011 also require phased replacement, for which carpet tile has been purchased and is in storage. A PWGSC project has been raised to install the tile and other flooring requiring replacement on the first floor. It is recommended to ensure that the flooring is safe (no developing tripping hazards) and presents a uniform appearance for the property. As such, some of the component rating has remained as unsatisfactory to reflect the need for further carpet replacements.

All roll carpeted areas have been replaced with carpet tile to allow for localized replacement of worn tiles. It is recommended that carpet tile be evaluated on a 5 year cycle to replace worn out tiles in heavy traffic areas.

Carpeting replacement should again be reviewed in 2022 after the anticipated updates.

Condition Rating	Average	Lifetime	5
Year Installed	2017	Years Remaining	4 (Age Based)
Adjustment Factor	1	Unit Cost	\$44.06
Quantity	21,300	Units	m2
Replacement Cost	\$938,478		
Comments			

Requirement: (Renewal)

Carpeting Renewal

Description

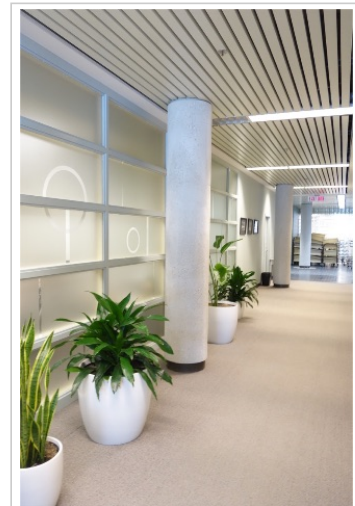
Auto generated renewal for Carpeting. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	5- Year 5	Category	I - Lifecycle
Estimated Cost	\$938,478	FY Action Date	2022

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Oct.26-28 075 (Small).jpg - A variety of interior finishes, note the carpet tiles in the office area.



Carpeting - Carpet tile in corridor

C3027 - Access Pedastal Flooring - Raised Floor Systems**Description****System Description**

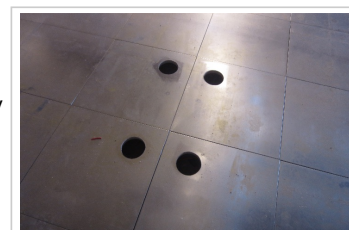
A raised access floor system is used predominantly throughout the second level as well as the training areas and the computer lab areas on the main level.

System Condition & Anticipated Replacement

Generally the system appears to be stable, solid and in average condition. The system has an acknowledged 50 year anticipated life cycle, but with regular maintenance and repair the system may not require replacement within the twenty year budget period.

The raised floor system on the second floor and main floor training room were replaced in 2012/11. The raised floor in the computer lab on the main floor was not replaced which is why the rating has been left at unsatisfactory.

Condition Rating	Average	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	1	Unit Cost	\$349.99
Quantity	13,000	Units	m2
Replacement Cost	\$4,549,870		
Comments			



Raised Floor Systems - Photo of raised floor system with carpet removed

C3030 - Ceiling Finishes - Gypsum Board Ceiling**Description****System Description**

A gypsum board ceiling is found along the perimeter of most of the open office areas as well as washrooms, exits and janitor rooms.

System Condition & Anticipated Replacement

Gypsum board finishes are generally in average condition given the age of the building. Minor repairs / painting of ceilings is required as part of regular maintenance. The anticipated replacement date is beyond the 20 year budget period.

Condition Rating	Average	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1	Unit Cost	\$105.47
Quantity	3,000	Units	m2
Replacement Cost	\$316,410		
Comments			



Gypsum Board Ceiling - Water staining around light and ceiling grille

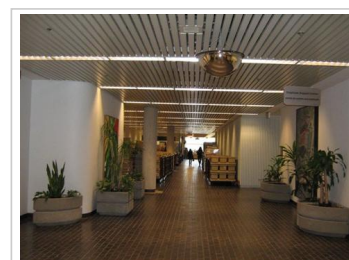
C3030 - Ceiling Finishes - Metal Panel Ceiling**Description****System Description**

A linear metal ceiling is predominantly found in the centre corridors on both levels and the cafeteria.

System Condition & Anticipated Replacement

The linear ceiling is generally in good condition. With regular maintenance and repair it will not require replacement within the 20 year budget period. It should be noted that some Linear Metal Ceiling was stained at the East and West end of the main corridor.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1	Unit Cost	\$316.40
Quantity	4,000	Units	m2
Replacement Cost	\$1,265,600		
Comments			



Oct.26-28 098 (Small).jpg - The linear metal ceiling of the main level central corridor.

C3030 - Ceiling Finishes - Ceiling Paint**Description****System Description**

Paint has been applied to the gypsum board ceilings as well as the ceilings with exposed structure. Gypsum board ceilings have been painted since the building was constructed but some exposed structure likely has only the original paint.

System Condition & Anticipated Replacement

Generally, the painted ceilings are in average condition although the ceilings in the loading and receiving areas are dirty. We recommend painting portions of the building on a rotating basis such that painted surfaces are repainted every 15 years which should begin in 2022.

Condition Rating	Average	Lifetime	5
Year Installed	2000	Years Remaining	5 (Observed)
Adjustment Factor	1	Unit Cost	\$8.86
Quantity	5,000	Units	m2
Replacement Cost	\$44,300		

Comments**Requirement: (Renewal)**

Ceiling Paint Renewal

Description

Auto generated renewal for 01.5-080C37 Ceiling Paint. System Description:
Component Description:

Paint has been applied to the gypsum board ceilings as well as the ceilings with exposed structure. Gypsum board ceilings have been painted since the building was constructed but some exposed structure likely has only the original paint.

Component Condition & Anticipated Replacement Date:

Generally, the painted ceilings are in good condition although the ceilings in the loading and receiving areas are dirty. We recommend painting portions of the building on a rotating basis such that painted surfaces are repainted every 15 years.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	5- Year 5	Category	I - Lifecycle
Estimated Cost	\$44,300	FY Action Date	2022

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Requirement: (Non-Renewal)

Ceiling Paint

Description**Brief Description**

Paint 1/3 of Gypsum wallboard ceilings

Requirement Justification and Strategy

Renew the interior finish in an ongoing maintenance program.

Implication of Requirement Deferral

The interior painted ceiling finish will become stained and dirty due to airborne contaminants and require regular renewal of the finish.

Priority	5- Year 5	Category	O - Maintenance
Estimated Cost	\$46,354	FY Action Date	2023

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation****C3032 - Suspended Ceilings - Acoustic Tile Ceiling****Description****System Description**

Acoustic tiles are found within the structural ceiling grids of the Lobby and the Cafeteria.

System Condition & Anticipated Replacement

The acoustic tiles are in average condition given their recorded age. The anticipated replacement date is 2029. It should be noted that some tiles have become stained and discoloured. Localized replacement can be performed as required.

Condition Rating	Average	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	1	Unit Cost	\$114.83
Quantity	950	Units	m2
Replacement Cost	\$109,088		

Comments

Oct.26-28 111 (Small).jpg - The acoustic ceiling tiles found within the ceiling grid of the cafeteria.

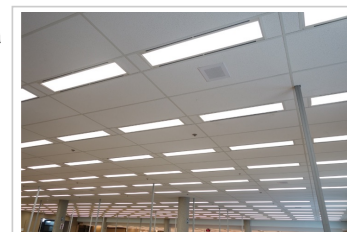
C3032 - Suspended Ceilings - Suspended Acoustic Panel Ceiling**Description****System Description**

Coffered acoustical ceiling tile is predominantly found in the office work areas. Standard 600mm x 1200mm and 600mm x 600mm suspended acoustic tiles are also used in a variety of spaces but to a lesser extent.

System Condition & Anticipated Replacement

Both the grids and tiles are generally in good condition. Even with regular maintenance, repair and replacement of stained or damaged ceiling tiles, the system will require replacement in 2039. It should be noted that ceiling tiles installed prior to 1984 may have some asbestos content and should not be handled or replaced without proper precautions.

Condition Rating	Good	Lifetime	60
Year Installed	1979	Years Remaining	22 (Observed)
Adjustment Factor	1	Unit Cost	\$125.60
Quantity	20,000	Units	m2
Replacement Cost	\$2,512,000		

Comments

Suspended Acoustic Panel Ceiling - Typical acoustical ceiling tile

D1010 - Elevators and Lifts - Upgrade both elevators - doors & cylinders**Description****System Description**

The building is provided with two Montgomery passenger elevators, which have a capacity of 2000 pounds, and serve the main and second floors.

System Condition & Anticipated Replacement

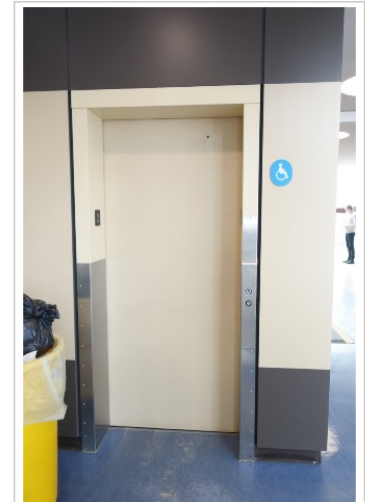
Both elevators appeared in good condition for their age. With the installation of the following equipment for each elevator, the lifecycle of both elevators could be extended to 2044, and therefore no replacement event will be provided.

- PVC encapsulation for the hydraulic cylinder.
- New door operator.
- New controller.

Single wall cylinder for hydraulic elevators does not meet code and is a health and safety and environmental concern. PVC encapsulation (secondary containment) has been raised in project PW126911 and is shelf ready; this project now includes new door operator and new controller.

According to the Building Manager, this work is scheduled to be undertaken in 2017, but has not begun at the time of BCR site review.

Condition Rating	Good	Lifetime	65
Year Installed	2005	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$402,877.37
Quantity	2	Units	ea
Replacement Cost	\$805,755		
Comments			



Upgrade both elevators - doors & cylinders - Passenger Elevator from second floor

Requirement: (Non-Renewal)

Upgrade both elevators - doors & cylinders

Description**Brief Description**

Upgrade both elevators - doors & cylinders

Project PW126911 raised to address elevator upgrades

- PVC encapsulation for the hydraulic cylinder.
- New door operators for each elevator.

Requirement Justification and Strategy

The installation of the PVC encapsulator is required for safety and environmental reasons. The estimated cost for each passenger elevator is \$55,000.00.

The door operators are at the end of their lifecycle and require replacement for an estimated cost of \$22,000.00 per passenger elevator.

Cost Line was not utilized to develop the estimated costs.

Implication of Requirement Deferral

The installation of the PVC encapsulator is required for safety and environmental reasons. The estimated cost for each passenger elevator is \$55,000.00.

The door operators are at the end of their lifecycle and require replacement for an estimated cost of \$22,000.00 per passenger elevator.

Cost Line was not utilized to develop the estimated costs. Both systems are subject to failure if not acted on.

Priority	1- Year 1	Category	I - Reliability
Estimated Cost	\$165,179	FY Action Date	2017

Requirement Type Repair**Comments**

According to a conversation with the Building Manager on March 29, 2017, this work is active, scheduled and repair work will be undertaken in 2017, but has not begun at the time of BCR site review.

Deferral Reason? Explain Risk Mitigation

PW126911 raised/ Shelf Ready/Project includes new door operator and new controller. Regular PM being conducted and will continue to assess.



Upgrade both elevators - doors & cylinders - Elevator #2 Interior Cab



Upgrade both elevators - doors & cylinders - Elevator #1 Interior Cab

Requirement: (Non-Renewal)

Upgrade both elevators -controllers

Description**Brief Description**

Upgrade both elevators -controllers

Replace the controllers on both passenger elevators.

Requirement Justification and Strategy

The controllers are at the end of their life. The new controllers will provide additional safety features.

Cost Works was not used to provide the estimated cost. The estimated cost to install a new controller for each passenger elevator is approximately \$22,000.00.

Implication of Requirement Deferral

The controllers are at the end of their life. The new controllers will provide additional safety features.

Cost Works was not used to provide the estimated cost. The estimated cost to install a new controller for each passenger elevator is approximately \$22,000.00. The controllers will begin to fail and require additional maintenance.

Priority	1- Year 1	Category	I - Reliability
Estimated Cost	\$47,195	FY Action Date	2017

Requirement TypeRepair**Comments**

According to a conversation with the Building Manager on March 29, 2017, this work is active, scheduled and repair work will be undertaken in 2017, but has not begun at the time of BCR site review.

Deferral Reason? Explain Risk Mitigation

D1012 - Freight Elevators - Upgrade freight elevator - cylinder**Description****System Description**

The building is equipped with one Montgomery hydraulic freight elevator, which services the main and second floors, and has a capacity of 6000 pounds.

System Condition & Anticipated Replacement

The elevator appeared in good condition for its age. With the installation of the following equipment, the lifecycle of the elevator could be extended to 2044, and therefore no replacement event will be provided.

- PVC encapsulation for the hydraulic cylinder.
- New door operator.
- New controller.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1	Unit Cost	\$321,786.31
Quantity	1	Units	ea
Replacement Cost	\$321,786		



Upgrade freight elevator - cylinder - West Freight Elevator

Comments

According to a conversation with the Building Manager on March 29, 2017, repair work will be undertaken in 2017, but has not begun at the time of BCR site review.

Additionally, according to a conversation with the Building Manager on March 29, 2017, a repair job is upcoming to address elevator rail anchors to the shaft wall, but has not begun at the time of BCR site review. No further information regarding this issue is known by the reviewer.

Requirement: (Non-Renewal)

Upgrade freight elevator - door & controller

Description**Brief Description**

Upgrade freight elevator - door & controller

Replace the door operator and controller.

Requirement Justification and Strategy

The door operator parts from the two passenger elevators can be used to extend the life of the freight elevator's door operation for a few years, at which point we recommend replacing the door operator for an estimated cost of \$10,000.00.

The new controllers will provide additional safety features. The estimated cost to install the new controller is approximately \$22,000.00.

Cost Line was not used to develop the estimated costs.

Implication of Requirement Deferral

The door operator parts from the two passenger elevators can be used to extend the life of the freight elevator's door operation for a few years, at which point we recommend replacing the door operator for an estimated cost of \$10,000.00.

The new controllers will provide additional safety features. The estimated cost to install the new controller is approximately \$22,000.00.

Cost Line was not used to develop the estimated costs.

The controller and door operator will begin to fail and require additional maintenance.

Priority	1- Year 1	Category	I - Reliability
Estimated Cost	\$34,323	FY Action Date	2017

Requirement Type Repair**Comments**

According to a conversation with the Building Manager on March 29, 2017, this work is active, scheduled and repair work will be undertaken in 2017, but has not begun at the time of BCR site review.

Deferral Reason? Explain Risk Mitigation

Requirement: (Non-Renewal)

Upgrade freight elevator - cylinder

Description**Brief Description**

Upgrade freight elevator - cylinder

The freight elevator requires a PVC encapsulation for the hydraulic cylinder.

Requirement Justification and Strategy

The installation of the PVC encapsulator is required for safety and environmental reasons.

The estimated cost to install a PVC encapsulator is approximately \$55,000.00. Cost Line was not used to provide the estimate.

Implication of Requirement Deferral

The installation of the PVC encapsulator is required for safety and environmental reasons.

The estimated cost to install a PVC encapsulator is approximately \$55,000.00. Cost Line was not used to provide the estimate. Possible failure of the hydraulic system, if the PVC encapsulation system is not installed.

Priority	1- Year 1	Category	I - Reliability
Estimated Cost	\$58,993	FY Action Date	2017

Requirement Type Repair**Comments**

According to a conversation with the Building Manager on March 29, 2017, this work is active, scheduled and repair work will be undertaken in 2017, but has not begun at the time of BCR site review.

Deferral Reason? Explain Risk Mitigation

Cylinder replacement Project PW126911 initiated in 2015.

D1021 - Escalators - Escalators**Description****System Description**

The building is provided with two Montgomery escalators, which serve the main and second floors. Both escalators are past their Life Time.

System Condition & Anticipated Replacement

Both escalators are in fair condition with an anticipated replacement date of 2019-2021 based on a proposed capital project.

Condition Rating	Fair	Lifetime	30
Year Installed	2017	Years Remaining	29 (Age Based)
Adjustment Factor	1	Unit Cost	\$268,721.61
Quantity	2	Units	ea
Replacement Cost	\$537,443		

Comments

According to a conversation with the Building Manager on March 29, 2017, a capital project to replace the escalators has been proposed for 2019-2021.



mech 098 (Small).jpg - One of the escalators near the front entrance to the building.

D2010 - Plumbing Fixtures - Emergency Shower Units (Each)**Description**

Plumbed eyewash stations with emergency showers are provided where hazards exists to warrant the requirement.

System Description

The emergency showers observed included eyewash stations.

Shower locations:

- forklift battery charging room

- loading dock

The shower had tags indicating they were being checked weekly as is required.

Eyewash/Shower stations are governed by ANSI 358.1 and Manitoba WorkSafe requirements. ANSI requires annual inspections to ensure ANSI requirements and weekly activations and has specific checklist items to review.

System Condition & Anticipated Replacement

Overall, the showers appeared functional and were being tested for compliance. Any deficiency found on the weekly checklist would require immediate action.

Any inactive or non-functional shower should have clear signage or be removed to prevent an injured person assuming the safety station is active and possibly resulting legal issues based on providing inadequate safety devices.

Condition Rating	Fair	Lifetime	30
Year Installed	1979	Years Remaining	0 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$4,409.06
Quantity	2	Units	Each
Replacement Cost	\$8,818		

Comments

Price based on each.

Requirement: (Renewal)

Emergency Shower Units (Each) Renewal

Description

Auto generated renewal for Emergency Shower Units (Each). System Description: Plumbed eyewash stations with emergency showers are provided where hazards exists to warrant the requirement.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$9,259	FY Action Date	2017

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Requirement: (Non-Renewal)

Eye wash station plumbing

Description

Boiler room eye wash station plumbing.

Brief Description

Building maintenance operator indicated it is plumbed wrong with hot water plumbed to cold water piping. Hot or cold could come out based on pressures.

Requirement Justification and Strategy

Remove from service and repair.

Implication of Requirement Deferral

Compounded injury could result if untampered water prevents a person from effectively emergency eye washing.

Priority	1- Year 1	Category	R - Life Safety
Estimated Cost	\$1,450	FY Action Date	2019

Requirement TypeRepair

Comments**Deferral Reason? Explain Risk Mitigation**

Requirement: (Non-Renewal)

Repair janitor room eye wash station - main floor

Description

Janitor room eye wash station - repair

Brief Description

Eye wash station is good, but screws are loose on lever and faucet covers are missing.

Requirement Justification and Strategy

Screws are loose on lever which may make the levers fall off if they are too loose.
No eye wash faucet covers for dirt prevention and biological growth reduction.

Implication of Requirement Deferral

Possible harm could come to the user in an emergency if the lever fails or foreign materials are introduced into the eye wash water stream.

Priority	1- Year 1	Category	I - Reliability
Estimated Cost	\$145	FY Action Date	2019

Requirement TypeRepair

Comments

General labour and materials estimate

Deferral Reason? Explain Risk Mitigation

D2010 - Plumbing Fixtures - Plumbing Fixtures and Accessories - Washrooms

Description

The plumbing fixtures are an integral part of the hygienic operation of a building. Plumbing fixtures that fail cause a disruption to the occupancy of the facility or may affect occupant hygiene.

System Description

Plumbing fixtures are located throughout the building in washrooms, janitorial rooms, mechanical rooms, service areas, and other locations.

Washroom lavatories are operated by hands free auto-sensor with mixing valve temperature control. Water closets and urinals throughout the main occupied areas are operated with automatic flush mechanisms. Some manual flush mechanisms exist. Washrooms were updated since the previous report, approximately 2012.

Washroom fixtures noted:

- 69 - water closets
- 16 - water closets - accessible
- 62 - lavatories
- 16 - urinals

Showers were not updated

7 - showers

System Condition & Anticipated Replacement

Washroom lavatories, faucets, water closets and urinals are in excellent condition.

Showers don't appear to be commonly used. These are in average condition, however with low usage the requirement to be replaced is low.

Janitor rooms contain abandoned flush tanks from the original design, consider removal of unnecessary fixture.

Condition Rating	Excellent	Lifetime	35
Year Installed	2012	Years Remaining	30 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$6,168.55
Quantity	170	Units	ea
Replacement Cost	\$1,048,653		

Comments

Requirement: (Renewal)

Replace 147 plumbing fixtures

Description

Brief Description / Brève description:

Replace 147 plumbing fixtures

Event Description:

Replace the following plumbing fixtures:

- 69 - water closets
- 16 - handicapped water closets
- 44 - lavatories
- 18 - handicapped lavatories

Event Justification and Strategy / Justification de l'événement et stratégie:

The plumbing fixtures are at the end of their life.

Implication of Event Deferral / Incidence du report de l'événement:

The plumbing fixtures are at the end of their life. The plumbing fixtures will begin to fail and result in additional maintenance.

Brief Description

Requirement Justification and Strategy

Implication of Requirement Deferral

Priority	Not Time Critical	Category	I - Lifecycle
Estimated Cost	\$1,048,653	FY Action Date	2027

Requirement Type

Comments

Deferral Reason? Explain Risk Mitigation



Plumbing Fixtures and Accessories - Washrooms - Urinal with auto-flush - representative of average unit



Plumbing Fixtures and Accessories - Washrooms - Abandoned flush tanks in janitor rooms



Plumbing Fixtures and Accessories - Washrooms - Maintenance staff WC-basement



Plumbing Fixtures and Accessories - Washrooms -
Typical fixture - office area



Plumbing Fixtures and Accessories - Washrooms -
Mechanical staff shower-basement



Plumbing Fixtures and Accessories - Washrooms -
Fixture on main floor



Plumbing Fixtures and Accessories - Washrooms -
Manual flush valve, corroded



Plumbing Fixtures and Accessories - Washrooms -
Typical fixture in office areas.

D2010 - Plumbing Fixtures - Water Coolers - Wall-Mounted**Description**

Water fountains are found throughout the facility to provide drinking water to the building occupants.

System Description

Existing units are single height units. Refrigerated units are located throughout the central corridors. Refrigerated units operated with R-12, an ozone depleting substance for which significant restrictions exist. Original drinking fountains are recessed and do not meet Accessibility requirements. Drinking fountains likely contain leaded brass within the fixture.

Locations:

Loading dock - qty 1 - non-refrigerated, appears abandoned

Main floor - qty 3 - refrigerated, 1 Accessible

Second floor - qty 2 - refrigerated

System Condition & Anticipated Replacement

Units are operational and a fountain was installed separate from the original units to provide an Accessible station for those requiring it, but not at all existing stations.

Condition Rating	Fair	Lifetime	20
Year Installed	1979	Years Remaining	0 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$3,108.39
Quantity	5	Units	Each
Replacement Cost	\$15,542		

Comments

Price per each. Adapt for single height, recessed or semi-recessed or drinking fountains.

Requirement: (Renewal)

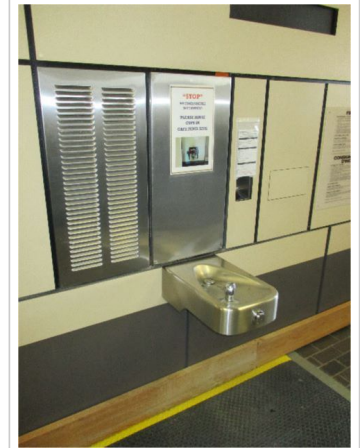
Water Coolers - Wall-Mounted Renewal

Description

Auto generated renewal for Water Coolers - Wall-Mounted. System Description: Water fountains are found throughout the facility to provide drinking water to the building occupants.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$19,427	FY Action Date	2018

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Water Coolers - Wall-Mounted - Typical - original unit - R12 refrigerant



Water Coolers - Wall-Mounted - Disconnected - loading dock



Water Coolers - Wall-Mounted - Office area drinking fountain



Water Coolers - Wall-Mounted - Disconnected - loading dock



Water Coolers - Wall-Mounted - Posted information of R-12 refrigerant at fountains



Water Coolers - Wall-Mounted - Drinking water fountain



Water Coolers - Wall-Mounted - Disconnected - loading dock

Requirement: (Non-Renewal)

Replace: Water Coolers - Wall-Mounted Dual-Height (Each)

Description

Replace existing water coolers with new dual-height refrigerated stations.

Brief Description

Replace existing drinking fountains with new dual height stations with integral bottle filling stations.

Requirement Justification and Strategy

Units have passed the lifespan guideline. Units contain R-12, a heavily restricted refrigerant for its ozone depleting properties.

Existing recessed stations do not comply with Accessibility requirements required in the national building code, however the single Accessible unit allows the building to comply with the National Building Code 3.8.3.16 requirement, however this station is also with R-22, also an obsolete refrigerant.

Implication of Requirement Deferral

A refrigerant leak would be a violation of the Federal Halocarbon Regulations (2003). Effective Jan 1, 2005, small refrigeration systems are not allowed to be charged, a failure of the fountain refrigeration system would not be rechargeable.

Priority	5- Year 5	Category	O - Sustainability
Estimated Cost	\$17,967	FY Action Date	2023

Requirement TypeCapital

Comments

Deferral Reason? Explain Risk Mitigation



Replace: Water Coolers - Wall-Mounted Dual-Height (Each) - Water fountain to be replaced.

Requirement: (Non-Renewal)

Protection of drinking fountain

Description

Drinking fountain unprotected by local hose bib.

Brief Description

Add a vacuum breaker to the hose bib.

Requirement Justification and Strategy

Plumbing connections where outlets are capable of being submerged are required to have backflow prevention. The loading bay hose bib connected to the drinking fountain could have a hose connected that sits submerged in water and in a potential vacuum situation would contaminate the water supply.

Implication of Requirement Deferral

Violation of National Plumbing Code.

Priority	1- Year 1	Category	R - Building Code
Estimated Cost	\$36	FY Action Date	2019

Requirement TypeRepair

Comments

Deferral Reason? Explain Risk Mitigation



Protection of drinking fountain - Fountain requiring repairs.

D2010 - Plumbing Fixtures - Custodial/Utility Sinks - Each**Description****System Description**

Main and second floor mop sinks are fibreglass floor mount with janitorial faucet - qty 5
 Mechanical room utility sink is stainless steel on legs - qty 1
 A can washer was observed on the main floor - qty 1
 Two stainless steel basin sinks inset in cabinetry (boiler room, cafeteria) - qty 2

Custodial sinks are a combination of floor mount and leg mount. Includes rough-in and faucet.
 Utility sinks include a can washer and sinks located in mechanical room spaces.

System Condition & Anticipated Replacement

Mop sinks and faucets, while showing their age, are still largely in fair shape and functional. At least one mop sink faucet was noticed to be leaking, remaining were in fair condition.

Maintenance utility sink in fair condition, however faucet was observed having no vacuum breaker and should be replaced - requirement issued.

Overall, no replacement is expected before next BCR report - re-evaluate by 2020.

Condition Rating	Fair	Lifetime	30
Year Installed	1979	Years Remaining	0 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$4,499.19
Quantity	9	Units	Each
Replacement Cost	\$40,493		

Comments

Price per each.

Requirement: (Renewal)

Custodial/Utility Sinks - Each Renewal

Description

Auto generated renewal for Custodial/Utility Sinks - Each. System Description:
 N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$50,616	FY Action Date	2017

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Requirement: (Non-Renewal)

Install Backflow-Siphonage for utility sinks.

Description

Backflow prevention missing on some utility sinks. The requirement for backflow prevention is in the National Codes.

Brief Description

Backflow prevention required.

Requirement Justification and Strategy

National Plumbing Code requires backflow prevention where the faucet connection can be located below the flood level rim. Instances observed where faucets with hoses can endanger the safety of the domestic water system by not being protected by backflow prevention.

Implication of Requirement Deferral

Building code is not being complied with and can endanger the safety of the domestic water system.

Priority	1- Year 1	Category	R - Building Code
Estimated Cost	\$489	FY Action Date	2019

Requirement TypeRepair**Comments**

Two locations observed with no backflow prevention on sinks with hoses attached to faucets.

Deferral Reason? Explain Risk Mitigation

D2020 - Domestic Water Distribution - Water Dist Complete - Average**Description**

The building domestic water distribution system includes a water main line, water meter, rpz backflow preventer, with rough ins included. This System does not include a water heater.

Domestic water distribution consists of domestic cold, domestic hot, and domestic hot re-circulation piping systems, which are located throughout the building, but concentrated in the center of the building.

System Description

Most piping was insulated. Assessment was based on locations where piping was exposed.

System Condition & Anticipated Replacement

The building is provided with a domestic water system, which consists of domestic cold, domestic hot, and domestic hot re-circulation piping systems, which are located in the drop ceiling space of each occupied floor.

The standard software database requirement for this lifecycle is 30 years, however no significant concerns were observed where piping was exposed and leaks were being repaired as required.

Condition Rating	Average	Lifetime	30
Year Installed	1979	Years Remaining	0 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$44.37
Quantity	31,710	Units	SM
Replacement Cost	\$1,406,968		

Comments

VFA indicates price as per 1000 SF of building area. Pricing of \$48.84/m² appears reasonable (\$4.8/ft²).

Requirement: (Renewal)

Water Dist Complete - Average Renewal

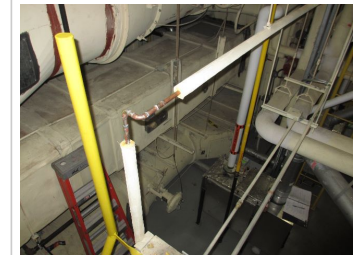
Description

Auto generated renewal for Water Dist Complete - Average. System Description: The building domestic water distribution system includes a water main line, water meter, rpz backflow preventer, with rough ins included. This System does not include a water heater.

Domestic water distribution consists of domestic cold, domestic hot, and domestic hot re-circulation piping systems, which are located throughout the building, but concentrated in the center of the building.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$1,575,804	FY Action Date	2017

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Water Dist Complete - Average - exposed section of copper DCW



Water Dist Complete - Average - piping with discoloured insulation



Water Dist Complete - Average - domestic water in penthouse is boosted



Water Dist Complete - Average - Utility connection



Water Dist Complete - Average - Utility connection



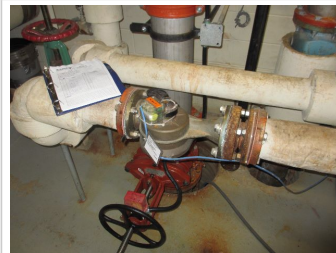
Water Dist Complete - Average - Utility connection



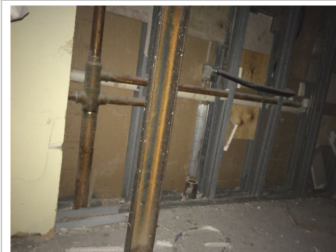
Water Dist Complete - Average - exposed piping, disconnected branch



Water Dist Complete - Average - exposed piping



Water Dist Complete - Average - Water meter



Water Dist Complete - Average - Open wall exposed piping
--

Requirement: (Non-Renewal)

Replace DCW thrust rods

Description

Replace thrust rods (BCR 2010 report carryover)

Brief Description

Replace thrust rods on domestic/fire water service into the boiler room.

Requirement Justification and Strategy

If a fire condition were to occur and the thrust rods were to fail, the water service could potentially come apart, resulting in a flood of water into the boiler room.
(BCR 2010)

Implication of Requirement Deferral

If a fire condition were to occur and the thrust rods were to fail, the water service could potentially come apart, resulting in a flood of water into the boiler room.
(BCR 2010)

Priority	5- Year 5	Category	O - Maintenance
Estimated Cost	\$145,000	FY Action Date	2023

Requirement TypeCapital**Comments**

Renewal item was provided in 2010 BCR. Item held over based on review and comments by Building Maintenance Administrator.

Deferral Reason? Explain Risk Mitigation

D2023 - Domestic Water Supply Equipment - Water Storage Tanks - DHW**Description**

Domestic hot water storage tanks store hot water in tanks separated between the kitchen (out of commission at time of review) and the rest of the building hot water demand.

System Description

The domestic hot water produced by the two Aerco domestic hot water boilers is circulated and stored in two A.O. Smith T350A storage tanks.

System Condition & Anticipated Replacement

The storage tanks are beginning to deteriorate with some evidence of rusting or leaking having occurred. No fresh leaks observed. Kitchen hot water tank (on the right) is valved off as kitchen is not currently in service. Copper piping connected to the bottom of the kitchen tank is corroding with evidence of previous leak issues.

Condition Rating	Fair	Lifetime	35
Year Installed	2018	Years Remaining	35 (Age Based)
Adjustment Factor	1	Unit Cost	\$8.07
Quantity	2,660	Units	ltr
Replacement Cost	\$21,466		

Comments**Requirement: (Non-Renewal)**

Replace DHW mixing valve.

Description

Domestic Hot Water Mixing Valve - not working.

Brief Description

Building maintenance operators indicated the DHW mixing valve for the main system is not working.

Requirement Justification and Strategy

Hot water mixing valves adjust to maintain a set temperature as required by the National Plumbing Code to prevent injury. Uncontrolled boiler output above 60°C would cause injury quickly.

Implication of Requirement Deferral

Potential for injury if off-boiler temperatures are not controlled to max temperatures per NPC. Showers have original mixing valves, so maintaining temperatures below 49°C while maintaining hot water for the kitchen at +60°C without a mixing valve is going to cause issues.

Priority	1- Year 1	Category	R - Life Safety
Estimated Cost	\$4,350	FY Action Date	2019

Requirement Type Repair**Comments**

Based on removal and replacement of 50 mm mixing valve with RSMeans 2014.

Deferral Reason? Explain Risk Mitigation

Water Storage Tanks - DHW - Domestic water storage tanks

D2023 - Domestic Water Supply Equipment - Plumbing Pumps**Description**

Pumps involved in all domestic and sanitary water movement.

System Description

Booster pump system - Domestic Water - Basement Mechanical room: two B&G model 1531 pumps @ 5hp

Domestic water circulator between boilers and storage tanks: four Armstrong model S35 pumps @ 1/4hp, installed in 2002, and located in the boiler room.

The domestic hot water system is equipped with two re-circulation pumps, appear to be from 1979, and located in the boiler room and are as follows:

CP-25 is a Bell & Gossett model 189103 HX @ 1/6 hp and serves the kitchen.
CP-26 is a Bell & Gossett @ 1.5 hp and serves the washrooms.

Penthouse DCW booster pump - one located in each penthouse @ 1/2hp (qty 4)

Elevator sump pumps - qty 3 -Gorman Rupp 81 @ 1/2hp.

Pond aerator pump: Monarch ESEF-750LP circulating pump.

Solar collector circulator pumps: two B&G series 60 @ 1/2hp, located in penthouse 1, which are no longer operational. (Solar collector system removed from service.)

System Condition & Anticipated Replacement

Booster pump system - Domestic Water - Basement Mechanical room: Both pumps are 30 years of age and do not appear to be used frequently. No issues observed.

Domestic water circulator between boilers and storage tanks: (x4) Pumps are in fair shape, no noticeable signs of leaking. Anticipate 2022 replacement for estimated 2005 installation date.

DWH Recirc pumps (x2): appear to be from 1979 and due for replacement. The 1.5 hp pump is starting to show signs of leaking and external deterioration.

Penthouse DCW booster pump - very good condition, appear to be replaced recently, units were not operating during the site review. Low usage estimated. Anticipate replacement in approximately 2037.

Elevator sumps: approximately 2005 installation - very good condition. Anticipate 2025 replacement.

Pond aerator pump: Pump in poor condition - to be replaced. System does not appear to be used - no Requirement applied.

Solar collector circulator pumps: solar system no longer in operation, units not used. No Requirement applied.

Condition Rating	Fair	Lifetime	20
Year Installed	1992	Years Remaining	0 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$4,120.83
Quantity	10	Units	ea
Replacement Cost	\$41,208		
Comments			

Requirement: (Renewal)

Replace 2 DHW pumps

Description

Replace 2 plumbing pumps.

Brief Description

Replace the two domestic hot water re-circulation pumps and all related equipment. Pumps are leaking and appear to be at the end of the pumps life.

Requirement Justification and Strategy

Work was not completed with last assessment. The pumps are at the end of their life.

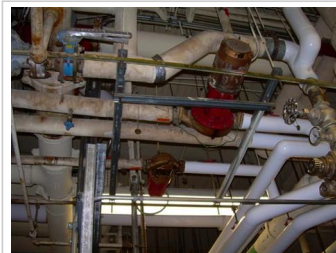
Implication of Requirement Deferral

The pumps are at the end of their life. The pumps will begin to fail and downtime will be an issue for the facility.

Priority	3- Year 3	Category	O - Maintenance
Estimated Cost	\$59,752	FY Action Date	2021

Requirement TypeCapital**Comments**

Plumbing Pumps - Domestic Water Booster Pumps



mech 007 (Small).jpg - Two domestic hot water re-circulation pumps, located in boiler room.



Plumbing Pumps

Deferral Reason? Explain Risk Mitigation

Not required at this time, Component performing well/Regular Preventive Maintenance being conducted and will continue to assess

- Domestic hot water storage recirculator pumps



Plumbing Pumps - Elevator sump pump



Plumbing Pumps - DCW booster control system



Plumbing Pumps - Pond Aerator Pump



Replace 2 DHW pumps - Domestic water pump (RHS)



Plumbing Pumps - DHW Recirculator pumps



Plumbing Pumps - Domestic Water Booster System



Plumbing Pumps - Penthouse DCW booster pump



Plumbing Pumps - Penthouse DCW booster pump



Plumbing Pumps - Domestic DCW Booster Pumps-
Basement mech rm

Requirement: (Non-Renewal)

Replace 4 hot water circulator pumps

Description

Replace 4 hot water circulator pumps.

Brief Description

Four domestic hot water circulator pumps to be replace based on lifecycle schedule.

DHWR pump 1 - Armstrong S35AB - tag 50-400-009

DHWR pump 2 - Armstrong S35AB - tag 50-400-007

DHWR pump 3 - Armstrong S35AB - tag 50-400-008

DHWR pump 4 - Armstrong S35AB - tag 50-400-013

Requirement Justification and Strategy

Replace hot water circulators based on lifecycle schedule.

Implication of Requirement Deferral

Excessive wait times for hot water may result in extents of the building.

Priority	5- Year 5	Category	O - Maintenance
Estimated Cost	\$18,792	FY Action Date	2023

Requirement TypeCapital

Comments

Deferral Reason? Explain Risk Mitigation



Replace 4 hot water circulator pumps - DHW pump 3



Replace 4 hot water circulator pumps - DHW pump

D2030 - Sanitary Waste - Sanitary Waste - Gravity Disch - Average**Description**

The building includes an average sanitary waste system, of cast iron piping, with gravity discharge to the municipal system.

System Description

Cast iron and copper system is original to the building. Over time the system has been modified by adding/replacing pipes with plastic pipes connected with mechanical joint connections.

System Condition & Anticipated Replacement

Overall the system is in good condition. No leaks or other concerns observed. With the replacement period approaching in 2029, as office zones are renovated, suggest reviewing the sanitary piping in the zone and including sanitary system renewal with other renovation projects.

Condition Rating	Good	Lifetime	50
Year Installed	1979	Years Remaining	12 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$34.21
Quantity	7,927.50	Units	SM
Replacement Cost	\$271,235		

Comments

Price per 1000 SF of building area.

Requirement: (Renewal)

Sanitary Waste - Gravity Disch - Average Renewal

Description

Auto generated renewal for Sanitary Waste - Gravity Disch - Average. System Description: The building includes an average sanitary waste system, of cast iron piping, with gravity discharge to the municipal system.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$339,044	FY Action Date	2029

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

D2040 - Rain Water Drainage - Roof Drainage - Gravity - Average**Description**

Cast iron rain water drainage includes interior piping, roof drains and discharge piping by gravity flow to a municipal main.

System Description

Cast iron rain water drainage.

System Condition & Anticipated Replacement

Average condition for rain water piping. No issues observed with rain water drains on the roof.

Condition Rating	Average	Lifetime	50
Year Installed	1979	Years Remaining	12 (Observed)
Adjustment Factor	1	Unit Cost	\$18.15
Quantity	7,927.50	Units	SM
Replacement Cost	\$143,853		

Comments

Price per 1000 SF of building area.

Requirement: (Renewal)

Roof Drainage - Gravity - Average Renewal

Description

Auto generated renewal for Roof Drainage - Gravity - Average. System Description: Cast iron rain water drainage includes interior piping, roof drains and discharge piping by gravity flow to a municipal main.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$179,816	FY Action Date	2029

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation****D2090 - Other Plumbing Systems - Water Treatment Systems****Description**

Water softeners are provided as one per penthouse to supply softened water to the humidifiers.

System Description

Each penthouse mechanical room is provided with one water softener, which supplies water to the humidifiers.

System Condition & Anticipated Replacement

The water softeners appeared in good condition. Penthouse 1 unit appeared to be new.

Penthouse 2 brine tank was completely empty. Use of unsoftened water in the humidifiers will require more frequent descaling and reduced operating life, and increase humidifier maintenance and operating costs.

Condition Rating	Good	Lifetime	30
Year Installed	2018	Years Remaining	30 (Age Based)
Adjustment Factor	0.3010	Unit Cost	\$3,742.59
Quantity	4	Units	sum
Replacement Cost	\$14,970		

Comments

RSMeans 2014 - approx. \$2500 for removal and replacement of hardness sensing water softener.

VFA base unit cost = \$12,025

$2500/12025 \times 1.45 = 0.301$ adjustment factor

D3011 - Oil Supply System - Aboveground Fuel Tank - Steel - 2000 liter**Description**

The asset includes a 2000 liter, double wall, steel, aboveground fuel oil storage tank. Leak detection unknown.

System Description

Double wall, above ground, 2000 litre tank. Leak detection not determined while on site. Tank surrounded by concrete walls, unknown if base is concrete with curbing, snow was hard packed and high off the ground.

System Condition & Anticipated Replacement

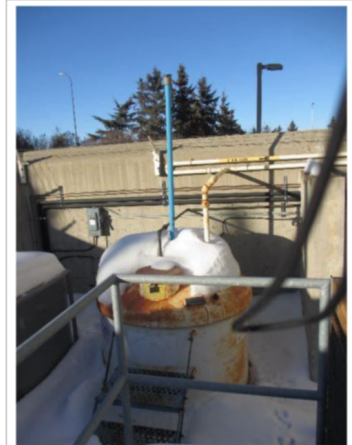
Exterior surface is showing signs of rusting and rusting on piping and fittings. Replace within 4 years.

Condition Rating	Fair	Lifetime	30
Year Installed	1991	Years Remaining	4 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$33,699.00
Quantity	0.25	Units	Each
Replacement Cost	\$8,425		

Comments

Price per each

Replacement cost based on 2000 gal(US) tank., assumed 25% of quantity to reflect 25% of standard tank size.



Aboveground Fuel Tank - Steel - 2000 liter - Generator diesel fuel tank-2000 liter

Requirement: (Renewal)

Aboveground Fuel Tank - Steel - 2000 liter Renewal

Description

Auto generated renewal for Aboveground Fuel Tank - Steel - 2000 liter. System Description: The asset includes a 2000 liter, double wall, steel, aboveground fuel oil storage tank. Leak detection unknown.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	4- Year 4	Category	I - Lifecycle
Estimated Cost	\$10,531	FY Action Date	2021

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Aboveground Fuel Tank - Steel - 2000 liter - Fuel tank - closeup



Aboveground Fuel Tank - Steel - 2000 liter - Fuel tank nameplate

D3012 - Gas Supply System - Gas Piping System**Description**

The building is supplied by a typical natural gas distribution system.

System Description

The building is provided with a natural gas piping distribution system, which supplies the hot water heating boilers, domestic hot water boilers, and humidifiers. Roof supports are raised rollers mounted to blocks placed on the roof.

System Condition & Anticipated Replacement

The gas piping system appeared in good condition for it's age however some rusting is starting to show through the paint on the exterior piping. To prevent deterioration an event is provided to repaint the piping.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$83.98
Quantity	300	Units	m
Replacement Cost	\$25,195		
Comments			

Requirement: (Non-Renewal)

Repaint exterior gas piping

Description

Repaint exterior gas piping to maintain service life.

Brief Description

Two coat brush painting of piping.

Requirement Justification and Strategy

With an expected 27 years remaining in the pipe service life, maintaining a painted layer provides protection against pre-mature rusting.

Implication of Requirement Deferral

As the existing paint coating ages, rusting can accelerate in compromised locations and reduce the lifespan of the piping.

Priority	3- Year 3	Category	O - Maintenance
Estimated Cost	\$2,132	FY Action Date	2021

Requirement Type Repair**Comments**

Pricing in meters.

Deferral Reason? Explain Risk Mitigation

D3020 - Heat Generating Systems - Heat Exchangers**Description**

Heat exchangers provide the temperature transfer between the boiler heated or chiller cooled fluid and the glycol loops exposed to the outside air.

System Description

Five heat exchangers were observed in the building:

Boiler Room: Plate heat exchanger (HE) - Armstrong PFX 20

Penthouse 1: Plate HE - B&G GPX151

Penthouse 2: Plate HE - B&G GPX151

Plate HE (RTU 8) - Armstrong PFX 20 (from building maintenance records)

Penthouse 3: Plate HE - installed 2012 - B&G GPX151

Penthouse 4: Plate HE - B&G GPX151

System Condition & Anticipated Replacement

The heat exchangers all appeared to be replaced in approximately 2012. No requirement provided for the replacements at this time.

RTU-8 heat exchanger was not found during the site review.

Condition Rating	Good	Lifetime	35
Year Installed	2012	Years Remaining	29 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$2,963.06
Quantity	10	Units	ea
Replacement Cost	\$29,631		

Comments

The heat exchangers are roughly the same size.

Requirement: (Renewal)

Replace 1 heat exchanger

Description

Brief Description / Brève description:

Replace 1 heat exchanger

Event Description:

Replace the shell & tube heat exchanger for the heating coil in AHU-8.

Event Justification and Strategy / Justification de l'événement et stratégie:

The shell and tube heat exchanger is at the end of its life.

Implication of Event Deferral / Incidence du report de l'événement:

The shell and tube heat exchanger is at the end of its life. The heat exchanger

will begin to fail and could result in AHU-8 not being able to supply adequate fresh air to the cafeteria and kitchen.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$29,631	FY Action Date	2027

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Low Risk/Working well at this time; maintenance through PM.

D3021 - Boilers - Boilers**Description****System Description**

Hydronic system boilers replaced approximately 2010 - four AERCO Benchmark 3.0 (3,000 MBH). Domestic water boilers replaced approximately 2003.
 - Kitchen DHW = AERCO Innovation 1060. No backup DHW supply. Kitchen was removed from service approximately Summer 2016.
 - Building DHW = AERCO KC Series

System Condition & Anticipated Replacement

All boilers were in good condition. Domestic water boiler had some mineral buildup on the piping connection on the back side, leak should be fixed and buildup removed. Kitchen DHW boiler has no load as the kitchen is currently not in operation.

Condition Rating	Good	Lifetime	30
Year Installed	2010	Years Remaining	23 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$381.32
Quantity	428	Units	bhp
Replacement Cost	\$163,205		

Comments**Requirement: (Renewal)**

Replace 2 domestic hot water boilers

Description

Brief Description / Brève description:
 Replace 2 domestic hot water boilers
 Event Description:
 Replace two Aerco model KC1000 domestic hot water boilers, located in boiler room, complete with all related equipment.
 Event Justification and Strategy / Justification de l'événement et stratégie:
 Domestic hot water boilers are at the end of their life.
 Implication of Event Deferral / Incidence du report de l'événement:
 Domestic hot water boilers are at the end of their life. Domestic hot water boilers will begin to fail and could result in a shortage of domestic hot water for the staff.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	7- Year 7	Category	I - Lifecycle
Estimated Cost	\$163,205	FY Action Date	2023

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

03.1A-050 Boilers - Heating system condensing boilers



mech 004 (Small).jpg - Two Aerco domestic hot water boilers, located in the boiler room.



03.1A-050 Boilers - Heating system condensing boiler



03.1A-050 Boilers - Heating system condensing boilers



03.1A-050 Boilers - DHW boiler



03.1A-050 Boilers - Corrosion on piping at DHW boiler



Replace 1 domestic hot water boilers - Existing domestic hot water boiler



03.1A-050 Boilers - Heating system condensing boiler

D3040 - Distribution Systems - Perimeter Heat System - Hydronic Fin Tube**Description**

HVAC distribution includes a two-pipe perimeter hot water heating system with cabinets.

System Description

Office and corridor spaces have heat provided by perimeter hydronic heating units under cabinets.

System Condition & Anticipated Replacement

Overall condition is good, some fin cleaning is recommended to improve health and performance. No issues were observed to require replacement.

Condition Rating	Good	Lifetime	30
Year Installed	1979	Years Remaining	0 (Observed)
Adjustment Factor	8.9400	Unit Cost	\$884.38
Quantity	378.41	Units	SM
Replacement Cost	\$334,659		

Comments

Approximately 1150 lineal meters of perimeter walls are hydronic fin tube heated. VFA defaults to 378 square meter. RSMMeans replacement cost closer to \$325 / lineal meter.

Adjustment factor: standard 1.45 factor x 1150/375 x \$325/111.49 = 8.94 (111.49 = unit cost at adjustment factor = 1.0)

VFA default of 18 years to replacement - changed to 30 years as typically observed lifespan.

Requirement: (Renewal)

Perimeter Heat System - Hydronic Fin Tube Renewal

Description

Auto generated renewal for Perimeter Heat System - Hydronic Fin Tube. System Description: HVAC distribution includes a two-pipe perimeter hot water heating system with cabinets.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	1- Year 1	Category	I - Lifecycle
Estimated Cost	\$374,818	FY Action Date	2017

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

D3040 - Distribution Systems - Duct Systems**Description**

The duct systems provide a path for the air from the air handling unit to the occupied spaces. The duct system includes grilles, registers and diffusers, fire and balancing dampers and duct insulation. Some flexible ductwork is located in the system as well.

System Description

The building is provided with a distribution duct system, which distributes the conditioned air from each air handling unit to the occupied space.

Various exhaust and supply air fans are also each equipped with duct systems.

Red coloured duct sealant contains asbestos. Removal and replacement of ductwork not required, however any changes to ductwork involving the sealant requires hazardous material remediation measures.

Supply ducts are covered in insulation throughout the building.

System Condition & Anticipated Replacement

The distribution duct systems appeared in good condition. The ductwork is likely to last much longer than the anticipated 65 year lifespan as the building is well maintained with insulated ductwork and proper temperature and humidity controls.

Penthouse ductwork was observed containing numerous holes and some duct seam separations.

Duct insulation has been damaged or removed over time, proper replacement and repair of the ductwork insulation is required to maintain energy efficiency and prevent metal deterioration.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1	Unit Cost	\$21.80
Quantity	31,700	Units	m2
Replacement Cost	\$691,060		

Comments

Pricing does not include asbestos abatement. Original ductwork sealant contains asbestos.

D3041 - Air Distribution Systems - Heating & Cooling Piping Systems**Description**

The building temperature control systems are based on transporting heated and cooled fluids through piping from generation source to the point of use. Piping systems include insulation, valves, hangers and other connected components integral to the piping system.

System Description

The building is provided with both a heating and cooling distribution piping system, which includes control valves for both systems.

Most piping is original to the building, however significant amounts of the mechanical room piping appears to have been renewed with the boiler replacement in 2010.

Recently installed piping insulation has been covered with PVC jackets and hangers with exterior saddles. Existing piping insulation is covered with painted canvas jackets.

System Condition & Anticipated Replacement

Both piping systems appeared in good condition, are both provided with chemical treatment and should have a long lifespan. Replacement date is estimated to be 2044 or beyond.

As mechanical equipment is replaced and connected piping is original to the building, consideration should be made to renew the connected piping.

Control valves were observed having been leaking or failing. Control valve renewal is typically 20 years. An event is provided to renew valves.

Significant amounts of piping insulation is deteriorating, damaged or missing. An event is provided to repair HHW and HCW piping insulation.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1	Unit Cost	\$1.19
Quantity	31,700	Units	m2
Replacement Cost	\$37,723		

Comments**Requirement: (Renewal)**

Heating & Cooling Piping Systems Renewal

Description

Brief Description / Brève description:

Install a Lakos Centrifugal Separator

Event Description:

Install a Lakos Centrifugal Separator on the chilled water system.

Event Justification and Strategy / Justification de l'événement et stratégie:

The Lakos Centrifugal Separator would remove any solids in the chilled water and extend the life of the piping system and cooling coils.

We have not used the Cost Line for this event. We estimate the cost to install a Lakos Centrifugal Separator, based on 1000 USGPM, is approximately \$35,000.00.

Implication of Event Deferral / Incidence du report de l'événement:

The Lakos Centrifugal Separator would remove any solids in the chilled water and extend the life of the piping system and cooling coils.

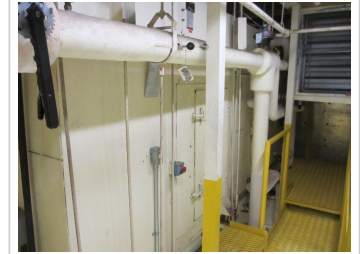
We have not used the Cost Line for this event. We estimate the cost to install a Lakos Centrifugal Separator, based on 1000 USGPM, is approximately \$35,000.00. The piping system and cooling coils will require additional maintenance.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$37,723	FY Action Date	2026

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Not required at this time, Component performing well/Regular Preventative



Heating & Cooling Piping Systems - Piping insulation - typical



mech 025 (Small).jpg - Chilled water piping located in boiler room.



Heating & Cooling Piping Systems - Insulation removed for maintenance, not replaced

Maintenance being conducted and will continue to assess

Requirement: (Non-Renewal)

Renew pneumatic control valves - long term renewal

Description

Renew control valves.

Brief Description

Pneumatic control valves can be repaired as they fail, however long term reliability improves with scheduled renewal.

Requirement Justification and Strategy

Replacement allows for controlled downtime of the control valve.

Implication of Requirement Deferral

Complete failure of control valves results in loss of temperature control to the zone served.

Priority	6- Year 6	Category	O - Maintenance
Estimated Cost	\$13,650	FY Action Date	2024

Requirement TypeRepair**Comments**

Price is each, based on demolition and installation. Renewal based on replacing half the air handling unit valves (15 air handling units with 2 valves each).

Deferral Reason? Explain Risk Mitigation

Renew pneumatic control valves - long term renewal - Leaking control valves.

Requirement: (Non-Renewal)

Repair piping insulation - chilled water piping.

Description

Repair piping insulation - chilled water piping.

Brief Description

Replace insulation and vapour barrier on chilled water piping.

Requirement Justification and Strategy

Uninsulated and vapour barrier compromised chilled water piping will deteriorate quickly as condensation rusts the iron piping.

Implication of Requirement Deferral

Future repair of compromised pipe may be required if failure occurs, unplanned failure would lead to loss of chilled water to affected mechanical equipment.

Exposed piping will pick up heat leading to some additional load on the chillers or loss of downstream mechanical equipment capacity. While a small section of compromised insulation may not noticeably affect performance, over time more sections become exposed through repairs or damage and those combined have an effect on system performance.

Priority	1- Year 1	Category	I - Reliability
Estimated Cost	\$1,349	FY Action Date	2019

Requirement TypeRepair**Comments**

Insulation based on average 1.5" pipe size, 1" insulation with jacket to match surrounding, 10 ft to repair in each of four penthouses and the boiler room.

Deferral Reason? Explain Risk Mitigation

Repair piping insulation - chilled water piping. - Uninsulated chilled water piping



Repair piping insulation - chilled water piping. - Poorly insulated chilled water piping in boiler room at exterior wall

Requirement: (Non-Renewal)

Renew three way pneumatic control valves - most at risk

Description

Renew three way pneumatic control valves - highest possibility of failure.

Brief Description

Pneumatic three way control valves can be repaired as they fail, however long term reliability improves with scheduled renewal.

Requirement Justification and Strategy

Replacement allows for controlled downtime of the control valve.

Implication of Requirement Deferral

Complete failure of the three way valve would result in loss of temperature control to the zone served.

Priority	2- Year 2	Category	O - Maintenance
Estimated Cost	\$21,206	FY Action Date	2020

Requirement Type Repair**Comments**

Price is each, based on demolition and installation. Renewal based on replacing half the air handling unit valves (15 air handling units with 2 valves each).

Deferral Reason? Explain Risk Mitigation**D3041 - Air Distribution Systems - Compressed Air Systems****Description**

The compressed air system service the pneumatic controls system.

System Description

The control air is supplied by two Devilbiss model HVDT 5060 air compressors and one Devilbiss 8025 air dryer, located in the boiler room.

System Condition & Anticipated Replacement

The two air compressors appear to be in good condition for their age, have been upgraded, with an anticipated replacement date of 2025.

The air dryer is from approximately 2000, appears in good condition, with an anticipated replacement date of 2025.

The compressed air system appeared clean and dry at all observed filter/regulator stations. No air leaks were noticed throughout the inspection.

Condition Rating	Good	Lifetime	25
Year Installed	2018	Years Remaining	25 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$77,762.69
Quantity	1	Units	ea
Replacement Cost	\$77,763		

Comments

This is based on a complete system including air compressors, piping, dryers and connected components.

D3042 - Exhaust Ventilation Systems - Ventilation Fans**Description****System Description**

No significant deterioration was observed on the fans. Some fans are still in place but out of service with lockouts or removed motors. No abnormal operational sounds or vibrations observed. Building asset list indicates all fans are active assets, even those that are out of service.

The building is provided with a number of ventilation fans, which include, supply, return and exhaust air, and they are as follows:

[NOTE: list modified from 2010 BCR. Current equipment tagging procedure uses asset tags, not F-x numbering. F-x tagging is legacy and will not be a referenceable item in the future as equipment is changed out]

Penthouse 1 contains:

F-1 is a Chicago Blower, design 34 @ 7641 L/S and provides return air for AHU-1.
 F-2 is a Chicago Blower, design 34 @ 8490 L/S and provides return air for AHU-2.
 F-3 is a Chicago Blower, design 34 @ 7640 L/S and provides return air for AHU-3.
 F-4 is a Chicago Blower, design 34 @ 7220 L/S, and provides return air for AHU-4.
 F-18 is a Chicago Blower AVS @ 1415 L/S and provides washroom exhaust - negative pressure side of duct is caving in.
 F-22 is a Chicago Blower AVS @ 1415 L/S, is located in the MCC room, and provides exhaust air for the truck dock.
 F-23 is a Chicago Blower AVS @ 475 L/S and provides electrical room exhaust - not operating
 F-24 is a Chicago Blower AVS @ 475 L/S and provides electrical room exhaust - not operating
 F-30 is no longer operational.
 F-33 is a Chicago Blower AVS @ 330 L/S and provides battery room exhaust - Class Y

Penthouse 2 contains:

F-5 is a Chicago Blower, design 34 @ 9340 L/S and provides return air for AHU-5.
 F-6 is a Chicago Blower, design 34 @ 4245 L/S and provides return air for AHU-6.
 F-7 is a Chicago Blower, design 34 @ 5095 L/S and provides return air for AHU-7.
 F-8 is a Chicago Blower, design 34 @ 8070 L/S and provides return air for AHU-8.
 F-16 is a Chicago Blower SQA @ 3915 L/S and provides kitchen exhaust.
 F-17 is a Chicago Blower SQA @ 1135 L/S and provides kitchen exhaust.
 F-19 is a Chicago Blower AVS @ 1415 L/S and provides washroom exhaust.
 F-25 is a Chicago Blower AVS @ 475 L/S and provides electrical room exhaust.
 F-31 is a Chicago Blower AVS @ 285 L/S and provides board room exhaust.
 F-34 is no longer operational.
 F-35 is no longer operational.

Penthouse 3 contains:

F-9 is a Chicago Blower, design 34 @ 8490 L/S and provides return air for AHU-9.
 F-10 is a Chicago Blower, design 34 @ 8490 L/S and provides return air for AHU-10.
 F-11 is a Chicago Blower, design 34 @ 5095 L/S and provides return air for AHU-11.
 F-20 is a Chicago Blower AVS @ 1415 L/S and provides washroom exhaust.
 F-26 is a Chicago Blower AVS @ 475 L/S and provides electrical room exhaust.
 F-27 is a Chicago Blower AVS @ 475 L/S and provides electrical room exhaust.
 F-32 is a Chicago Blower AVS @ 285 L/S and provides board room exhaust.

Penthouse 4 contains:

F-12 is a Chicago Blower, design 34 @ 5945 L/S and provides return air for AHU-12.
 F-13 is a Chicago Blower, design 34 @ 6370 L/S and provides return air for AHU-13.
 F-14 is a Chicago Blower, design 34 @ 6370 L/S and provides return air for AHU-14.
 F-15 is a Chicago Blower, design 34 @ 8070 L/S and provides return air for AHU-15.
 F-21 is a Chicago Blower AVS @ 1415 L/S and provides washroom exhaust.
 F-28 is a Chicago Blower AVS @ 475 L/S and provides electrical room exhaust.
 F-29 is a Chicago Blower AVS @ 475 L/S and provides electrical room exhaust.
 F-36 is a Chicago Blower, design 34 @ 9435 L/S, is located in room 1-102, and removes exhaust air for the transformer room.
 F-37 is a Chicago Blower, design 34 @ 9435 L/S, is located in boiler room, and supplies ventilation air for the boiler room.

System Condition & Anticipated Replacement

The ventilation fans appeared in average condition for their age, are 38 years of age, with an anticipated replacement date of 2024 based on expected lifecycle scheduled replacement. No significant issues observed.

Condition Rating	Average	Lifetime	45
Year Installed	2018	Years Remaining	45 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$13,393.56
Quantity	34	Units	ea
Replacement Cost	\$455,381		
Comments			

Requirement: (Non-Renewal)

Battery room exhaust fan - EF-33 - not operating during review



Ventilation Fans - F-18 (PH1)

Description

EF-33 - battery room exhaust - not operating.

Brief Description

Battery room exhaust fan was not removing air from the space during the site review with batteries being recharged. Exhaust fan should be on.

Requirement Justification and Strategy

Battery rooms need exhaust to ensure hydrogen produced during the recharge cycle does not concentrate in the room.

No exact requirement was found to determine how much was required during the literature review, however the fan is there for the safety of occupants.

Implication of Requirement Deferral

While the doors to the room appeared to be typically open, hydrogen gas can accumulate on the ceiling level and could be ignited.

Priority	1- Year 1	Category	O - Maintenance
Estimated Cost	\$2,175	FY Action Date	2019

Requirement Type Repair**Comments**

Pricing based on maintenance and materials estimated without knowing the actual issue and assuming it can be repaired instead of replaced..

Deferral Reason? Explain Risk Mitigation**D3045 - Chilled Water Distribution - Chillers****Description****System Description**

The three 250 ton chillers are in acceptable operating condition and appeared in good condition for their age, with an anticipated replacement date of 2034.

The majority of the cooling for the building is provided by three McQuay AG5250A37-ER1010 screw type chillers, located outdoors adjacent to the boiler room. These chillers operate with R-134A refrigerant and are each equipped with two 125 ton cooling compressors.

Each roof top unit is provided with a McQuay chiller, which is located outdoors adjacent to the roof top unit and has been included with each of the four roof top units.

System Condition & Anticipated Replacement

No existing issues observed. Standard scheduled asset replacement requirement to replace was entered based on lifespan only. Condensing unit insulation should be observed on occasion to see if it will deteriorate over time, there are some indications that the insulation is possibly deteriorating.

Condition Rating	Good	Lifetime	30
Year Installed	2018	Years Remaining	30 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$3,991.46
Quantity	750	Units	Cool tons
Replacement Cost	\$2,993,594		
Comments			

D3051 - Terminal Self-Contained Units - Terminal Units**Description****System Description**

The force flows appeared in average condition for their age

The VAV boxes appeared in average condition for their age - tag information indicated the VAVs were likely changed in approximately 2000.

The reheat coils appeared in average condition for their age.

Each of the 13 stairwells are provided with a Rosemex model R-70-3 force flow heater.

The building is equipped with approximately 300 VAV boxes, located in the drop ceiling space of each floor.

Approximately 25 VAV boxes are provided with a reheat coil.

System Condition & Anticipated Replacement

Force flows appeared to be operating functionally. Scheduled asset replacement in approximately 2019.

The VAV boxes appeared in average condition for their age - scheduled asset replacement in approximately 2019 for original VAV boxes and approximately 2040 for new boxes. All VAVs observed appeared to have been replaced approximately in 2000.

VAV reheat coils appeared to be operating functionally. Scheduled asset replacement in approximately 2019.

Condition Rating	Average	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	0.4200	Unit Cost	\$5,973.95
Quantity	313	Units	ea
Replacement Cost	\$1,869,846		

Comments

Based VFA cost per unit at \$13,755. Reasonable replacement is \$4000 per unit for demolition, controls, replacement, duct work, some asbestos remediation.

$\$4000/\$13755 \times 1.45 = 0.42 = \text{adjustment factor}$

Requirement: (Non-Renewal)

VAV unit replacement - 25%

Description

Local air distribution and temperature control provided by VAV units in occupied spaces with occasional reheat coil.

Brief Description

VAV units provide the air distribution and temperature control throughout the occupied spaces in the building. Approximately 300 VAVs and 25 reheat coils are installed. Most VAVs appear to have been installed approximately in 2000. Estimate of 25% of VAVs are original.

Requirement Justification and Strategy

Replacement of VAVs based on lifecycle schedule. No significant issues observed with the original

Implication of Requirement Deferral

Local loss of temperature control with non-functioning units.

Priority	2- Year 2	Category	I - Reliability
Estimated Cost	\$195,750	FY Action Date	2020

Requirement TypeCapital**Comments**

Pricing based on RSMeans 2014 for typical VAV and reheat coil, plus demolition allowance.

Quantity based on 25% replacement estimate of original VAV units. Action date based on 40 years from original installation.

Deferral Reason? Explain Risk Mitigation

D3052 - Package Units - Central Station AHU**Description**

The Air Handling Units supply conditioned fresh and return air to the ducted building zones.

System Description

Four penthouse mechanical rooms contain 15 air handling units (AHU), which supply ventilation air and air conditioning to the office spaces in the building via ductwork, VAV boxes and diffusers. The AHU consist of a centrifugal supply air fan, vane axial return air fan, mixed air dampers, filters, heating coil, cooling coil, and humidification distribution tubes. The supply air fans for AHU's 1 to 15 are controlled by variable frequency drives and the return air fan volume is controlled by inlet vanes, which allows the AHU to operate as a VAV system.

The AHU are as follows:

Penthouse 1 contains:

AHU-1 is a Sheldons model 270B @ 8490 L/S and services the N.W. second floor.
 AHU-2 is a Sheldons model 270B @ 9435 L/S and services S.W. second floor.
 AHU-3 is a Sheldons model 270B @ 8490 L/S and services the N.W. first floor.
 AHU-4 is a Sheldons model 270B @ 8020 L/S and services the S.W. first floor.

Penthouse 2 contains:

AHU-5 is a Sheldons model 300A @ 10380 L/S and services the N.W. centre second floor.
 AHU-6 is a Sheldons model 222B @ 4720 L/S and services the kitchen.
 AHU-7 is a Sheldons model 222B @ 6300 L/S and services the N.W. centre first floor.
 AHU-8 is a Sheldons model 300RB @ 8965 L/S and services the cafeteria and kitchen.

Penthouse 3 contains:

AHU-9 is a Sheldons model 300RB @ 9435 L/S and services the N.E. second floor.
 AHU-10 is a Sheldons model 300RB @ 9435 L/S and services the main entry first floor.
 AHU-11 is a Sheldons model 222B @ 5660 L/S and services the N.E. Centre first floor.

Penthouse 4 contains:

AHU-12 is a Sheldons model 245B @ 6605 L/S and services the S.E. second floor.
 AHU-13 is a Sheldons model 245B @ 8350 L/S and services the N.E. Second floor.
 AHU-14 is a Sheldons model 245B @ 7075 L/S and services the S.E. first floor.
 AHU-15 is a Sheldons model 300RB @ 8965 L/S and services the N.E. first floor.

AHU-16 is a Sheldons model 1-H-13-H @ 1415 L/S, is located in the front lobby area, and services the front entrance area.

AHU-17 is a Sheldons @ 1885 L/S located in a mechanical room adjacent to the cafeteria and services the cafeteria.

System Condition & Anticipated Replacement

All the AHUs are original to the building. Overall condition of the AHUs, fans and humidification is acceptable with a lifecycle schedule replacement date of 2024.

Heating and cooling coils appear to be original to all units. A number of coils were observed with holes cut through the fins to repair coil tubing. Coils should be replaced or the replacement of the AHU should coincide with coil replacement.

Condition Rating	Fair	Lifetime	45
Year Installed	2018	Years Remaining	45 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$107,143.68
Quantity	17	Units	ea
Replacement Cost	\$1,821,442		

Comments

BCR 2010 indicated installation date of 1996. Installation date revised to 1979.

Requirement: (Non-Renewal)

Test integrity and replace hydronic heating coils in air handling units

Description

Replace AHU heating coils.

Brief Description

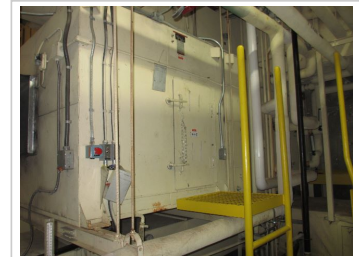
Test coil wall thicknesses and replace coils where tube thickness has worn.

Requirement Justification and Strategy

Heating coils were observed with missing fins from previous coil tubing repairs. The coils are original to the units and the tubing will wear away over time causing failures. Tubing wall thickness should be tested and coils replaced where air handling unit cabinet is not expected to be replaced.

Implication of Requirement Deferral

Loss of temperature control and increased maintenance will occur as coils are left in operation for too long.



Central Station AHU - AHU enclosure external



Test integrity and replace hydronic heating coils in air handling units - Fins removed from coil tube failure

Priority	3- Year 3	Category	I - Reliability
Estimated Cost	\$652,500	FY Action Date	2021

Requirement TypeCapital**Comments**

Replacement of coils based on removal, replacement and re-piping of roughly 1200x3000 coil.

Deferral Reason? Explain Risk Mitigation

D3060 - Controls and Instrumentation - DDC/Pneumatic System - Hybrid - Average**Description**

HVAC controls include average DDC system for system optimization, computer control, moderate sensor types and quantities. System includes pneumatic activation of control valves and dampers. Thermostats are digital.

System Description

The building is controlled by a Delta Controls system with graphical monitoring interface located in the building maintainer's office across from the boiler room. The system was installed by Control Systems Engineering who is no longer in business. Mikkelsen Coward is the current Delta representative in Manitoba.

The current Delta system was installed in 2002 and integrated with the existing pneumatically controlled system. Thermostats and sensors are electric/digital. Controls integrator indicated there were over 2000 points and provided the following list systems monitored and controlled:

- 15x Air Handling Units
- 6x Roof Top Units
- Boiler room ventilation
- Cafeteria AHU
- Chiller and Cooling Tower System
- 3x AC units monitoring for computer room
- DHW system
- Emergency generator
- Boilers and heating system
- Monitoring of misc power meters
- Monitoring of sump pits
- ~350 VAV boxes

System Condition & Anticipated Replacement

Overall the system is in good condition and controlling with few issues. The controls integrator (Mikkelsen Coward) indicates this system is as current as possible.

The DDC system is current with readily available controllers and replacement parts. The current firmware version is V3.4 and the installed firmware version is 3.33.

The building operator indicated the thermostats do not seem to maintain calibration and are locally set for relative comfort, but they do not necessarily trust the display readouts. No requirement entered as building operators adjust thermostats to local occupant comfort.

Numerous gauges on the penthouse mechanical system previously used to physically indicate and monitor conditions are in disrepair and unreliable as monitoring is now being done through the DDC system. There is no issue with leaving the gauges in place as backup measurement, however it is unknown which gauges are indicating correct information. An example was differential pressure gauges indicating filter pressure drop reading 0" WC with the system operating and filters in place.

The controls vendor indicated the controllers for RTU 1 and RTU 2 do not have Delta controllers because of water damage. The vendor suggests installing new controllers to re-establish control. A new requirement is provided. The controls vendor suggests changing from the currently installed PC based ORCAview software to the enteliWEB software for web based control. No requirement is added and suggestion was provided for information only.

Condition Rating	Good	Lifetime	25
Year Installed	2002	Years Remaining	10 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$74.27
Quantity	31,710	Units	SM
Replacement Cost	\$2,355,206		

Comments

Mikkelsen Coward (Delta) estimates system likely would cost \$300-\$600,000 to replace completely.

Requirement: (Renewal)

DDC/Pneumatic System - Hybrid - Average Renewal

Description

Auto generated renewal for DDC/Pneumatic System - Hybrid - Average. System Description: HVAC controls include average DDC system for system optimization, computer control, moderate sensor types and quantities. System includes pneumatic activation of control valves and dampers. Thermostats are digital.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$2,944,007	FY Action Date	2027

Requirement Type**Comments**

Deferral Reason? Explain Risk Mitigation**Requirement: (Non-Renewal)**

Replace damaged controllers with new

Description**Brief Description**

Existing RTU-1 and RTU-2 were damaged by water and no longer functioning (per the control vendor).

Replace damaged controllers (RTU-1, RTU-2) with new.

Requirement Justification and Strategy

The RTU-1 and RTU-2 control can not be established leaving operation of the system to manual control. System operation and feedback requires monitoring manually.

Implication of Requirement Deferral

Excess energy consumption by manual unattended operation and possible operating deviations outside of Treasury Board standards.

Priority	1- Year 1	Category	O - Maintenance
Estimated Cost	\$8,877	FY Action Date	2019

Requirement TypeRepair**Comments**

No adjustment factor provided - costing was based on a quote previously submitted by the controls vendor to the building operations management group as a supply and install price.

Deferral Reason? Explain Risk Mitigation**Requirement: (Non-Renewal)**

Carbon Monoxide detection required for updated building code

Description

Carbon monoxide detection required

Brief Description

Manitoba Building Code 6.2.4.2 requires a carbon monoxide alarm in all buildings. No carbon monoxide detector is located in the penthouses and mechanical room where fuel burning appliances are located.

Manitoba Code requires linking to a fire alarm if installed.

Requirement Justification and Strategy

Carbon monoxide can silently kill a person if fuel burning equipment in interior spaces spills products of combustion into the space. While the National Building Code carbon monoxide detection is only required where a building includes residency suites, and the Manitoba Code is not applicable to this building, the lack of CO detection puts building occupants at risk.

Implication of Requirement Deferral

A carbon monoxide leak into a space could kill an occupant with no detectable warning.

Priority	1- Year 1	Category	R - Building Code
Estimated Cost	\$29,000	FY Action Date	2019

Requirement TypeCapital**Comments**

Based on \$1000 per DDC point, \$1000 for CO detection, \$2000 for cable installation and unit calibration.

Deferral Reason? Explain Risk Mitigation

D3063 - Heating/Cooling Air Handling Units - Roof Top Units - RTU - heating and cooling**Description****System Description**

Four rooftop mounted ventilation units were installed in 1996 to condition outdoor air for the main air handling units. Each of these roof top units is ducted to the intake air duct of the air handlers in each penthouse. They deliver a fixed amount of pre-cooled outdoor air to the air handling units. These rooftop units utilize integral direct expansion cooling systems. In 2002 heating capability was added to the four rooftop air conditioners. A glycol heat exchanger was installed in each penthouse and a glycol piping loop provides a circulated hot glycol solution to the new pre-heat coils in the rooftop units. Each of the four roof top units is equipped with a filter, pre-heat coil, DX cooling coil and supply air fan. The units are as follows:

RTU-1 @ 8770 L/S, Racan RTU is provided with a McQuay RCS0606CYY chiller, and services Penthouse 1.

RTU-2 @ 6940 L/S, Racan RTU is provided with a McQuay RCS0606CYY chiller, and services Penthouse 2.

RTU-3 @ 4215 L/S, Racan RTU is provided with a McQuay RGS030CYY chiller, and services Penthouse 3.

RTU-4 @ 5190 L/S, Racan R2D-22DF is provided with a McQuay RCS0606CYY chiller, and services Penthouse 4.

In 2002 RTU-5 and RTU-6 were installed and each unit is equipped with filters, gas burner, humidification distribution wands, DX cooling system, supply & return air fans and variable frequency drives (VFD). These units are ducted to areas of the main and second floor to provide increased ventilation and cooling capacity to satisfy the existing cooling load.

The units are as follows:

RTU-5 is an Engineered Air FWB-323/DJE-100-0 @ 4220 L/S & 96 tons of cooling

RTU-6 is an Engineered Air FWB-403/DJE-100-0 @ 5675 L/S & 120 tons of cooling

The Roof Top Units RTU-1,2,3,4 provide preconditioned fresh air to the existing air handling systems and have been added into the original mechanical system.

The Roof Top Units RTU-5,6 condition zones under served by the original design with mixed fresh and recirculated air.

System Condition & Anticipated Replacement

RTU1,2,3,4 were not operating during site review.

RTU1,2 - building maintenance indicated units were not working.

Roof top units RTU-1, 2, 3 & 4 overall appeared in good condition with an anticipated replacement date of 2030. The units were being recharged with refrigerant during the site review and were not operating.

Roof top units RTU-5 & 6 appeared in good condition, with an anticipated replacement date of 2037.

Condition Rating	Good	Lifetime	35
Year Installed	2018	Years Remaining	35 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$10,411.09
Quantity	426	Units	Cool tons
Replacement Cost	\$4,435,123		
Comments			

Requirement: (Non-Renewal)

Repair and make RTU-1, -2 operational.

Description

Repair and make RTU-1, -2 operational.

Brief Description

Zone temperature and humidity control depends on RTU-1 and -2 operation. Building maintenance operator indicated they are currently diagnosing the problems.

Requirement Justification and Strategy

Zone temperature and humidity control and fresh air supply depends on RTU-1 and -2 operation.

Implication of Requirement Deferral

Lack of ventilation and control of air to the space is compromised without the units operating.

Priority	1- Year 1	Category	O - Maintenance
Estimated Cost	\$29,000	FY Action Date	2019

Requirement TypeRepair**Comments**

Roof Top Units - RTU - heating and cooling - RTUs shown together (Eng Air and Racan w/McQuay chiller)



Repair and make RTU-1, -2 operational. - Nameplate information of RTU

Deferral Reason? Explain Risk Mitigation**Requirement: (Non-Renewal)**

Replacement: Roof Top AHU - Heat&Cool - RTU 5 & 6

Description

Replace RTU-5 & 6

Brief Description

Replace RTU - 5 & 6 and all related equipment.

Requirement Justification and Strategy

Roof top units are at the end of their life by approximately 2035.

Implication of Requirement Deferral

Roof top units are at the end of their life by approximately 2035. The roof top units will begin to fail and result in increased maintenance and reduce the fresh air supplied to the spaces.

Priority	Not Time Critical	Category	I - Reliability
Estimated Cost	\$4,561,847	FY Action Date	2037

Requirement TypeCapital**Comments**

Carried over from BCR 2010
Base VFA @ \$3,042,651
50 ton condensing unit with average 15,000 cfm AHU with demolition,
approximately \$200,000

Deferral Reason? Explain Risk Mitigation

mech 049 (Small).jpg - Roof top unit 5.



Replacement: Roof Top AHU - Heat&Cool - RTU 5 & 6 - Rooftop unit

D3063 - Heating/Cooling Air Handling Units - Transformer Room Condensing Unit**Description****System Description**

The condensing unit is new since the last BCR report, R-410a refrigerant, 20 ton unit. Carrier 38AUDA25A0A1

The transformer room is provided with cooling by a split DX cooling system. A condensing unit is located outdoors and is piped to a DX cooling coil inside the transformer room. Fan F-36 circulates the air through the cooling coil and the transformer room.

System Condition & Anticipated Replacement

Condensing unit replaced, unconfirmed but assumed the coil is replaced also. Replacement in approximately 2032.

Condition Rating	Good	Lifetime	20
Year Installed	2017	Years Remaining	19 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$21,119.89
Quantity	2	Units	Cool tons
Replacement Cost	\$42,240		

Comments

RSMeans approx. \$1400/ton, VFA unit cost appears to indicate \$14,000 per 10 tons, adjusted to approximate 20 tons.

Requirement: (Renewal)

Transformer Room Condensing Unit Renewal

Description

Auto generated renewal for Transformer Room Condensing Unit. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$42,240	FY Action Date	2037

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation****D3063 - Heating/Cooling Air Handling Units - Self-Contained AHU - Cool****Description****System Description**

The garbage room is equipped with a Keeprite CCU05HW cooling unit, which is located in the garbage room. This unit operates with R22 refrigerant and uses domestic cold water to remove the heat.

The shift maintenance office contains a DX split condensing unit.

Self contained DX cooling units local to the space they are in. Condensing unit remote and exterior to the building, or water cooled.

System Condition & Anticipated Replacement

The garbage room air conditioning unit is outside of the scheduled life span but appears in average condition. The A/C unit uses domestic cold water to remove the heat, which should be considered a waste of domestic water, and therefore recommend this unit be replaced. Current asset list indicates asset number 6520324-25-030-009 is listed as Inactive. Unit was not operating during the site review.

The shift maintenance office AC appears in average condition. Some loss of temperature control would result if the unit failed, no requirement added to replace unit.

Condition Rating	Average	Lifetime	25
Year Installed	2018	Years Remaining	25 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$18,029.08
Quantity	1	Units	ea
Replacement Cost	\$18,029		

Comments

D3064 - Exhaust and Ventilating Systems - Stacks & Breaching**Description****System Description**

The 4 heating boilers, 2 domestic water boilers, and the 17 gas fired humidifiers are all equipped with a flue gas system.

Venting is provided to gas fired equipment for the removal of products of combustion.

System Condition & Anticipated Replacement

The boiler venting from the boiler room was renewed with the new boilers installed in 2012. Venting is separately ducted to the exterior with 45° upraised terminations.

The hot water boiler venting in the boiler room is through boiler room wall. New venting provided with recently installed DHW boiler. Existing boiler venting appeared acceptable.

The flue vents for the humidifiers were installed with the humidifiers and appeared in good condition. No moisture leaks or corrosion was observed on the vents reviewed. Humidifier replacement should consider replacement of the venting at the time of replacement.

Condition Rating	Good	Lifetime	40
Year Installed	2001	Years Remaining	24 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$7,596.99
Quantity	50	Units	m
Replacement Cost	\$379,849		

Comments**Requirement: (Renewal)**

Stacks & Breaching Renewal

Description

Brief Description / Brève description:

Replace flue vent system

Event Description:

Replace flue vent system for the 5 heating boilers and 2 domestic hot water boilers and all related components.

Event Justification and Strategy / Justification de l'événement et stratégie:

The flue vent system is at the end of it's life.

Implication of Event Deferral / Incidence du report de l'événement:

The flue vent system is at the end of it's life. Deferral could result in flue gases escaping into the building resulting in a hazardous condition for the staff.

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$379,849	FY Action Date	2027

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

D3090 - Other HVAC Systems and Equipment - HVAC Pumps - Heating Pumps**Description****System Description**

P-22&23 (primary heating water pumps) are both Armstrong model 8x8x11 @ 15hp, located in boiler room.

System Condition & Anticipated Replacement

The pumps are at the end of their life cycle. As only one pump operates at a time, their life cycle is approximately 25 years.

Condition Rating	Good	Lifetime	20
Year Installed	2018	Years Remaining	20 (Age Based)
Adjustment Factor	1	Unit Cost	\$610.71
Quantity	192	Units	hp
Replacement Cost	\$117,256		
Comments			

Requirement: (Renewal)

HVAC Pumps - Heating Pumps Renewal

Description

Auto generated renewal for HVAC Pumps - Heating Pumps. System Description:
N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$117,256	FY Action Date	2038

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

D3090 - Other HVAC Systems and Equipment - HVAC Pumps (Replace 4 HVAC Pumps)**Description****System Description**

The following HVAC pumps, which are original to the building, are 30 years of age, operate on a lead/lag basis, and are as follows:
 P-1&2 (primary chilled water pumps) are both Bell & Gosset (B&G) model 8x8x13 @ 25hp, located in boiler room.
 P-3,4,5 (originally condenser water pumps) located in the boiler room and are no longer operational.
 P-6&7 (secondary heating water pumps) are both B&G model 6x6x9 @ 20hp, located in boiler room.

These two HVAC pumps, have been overhauled in the past 2 years, operate on a lead/lag basis, and are as follows:
 P-22&23 (primary heating water pumps) are both Armstrong model 8x8x11 @ 15hp, located in boiler room.

The following HVAC pumps, were installed in 1995, and service the preheat coils in the roof top units via a plate heat exchanger, for their respective penthouse:

P-24 (hot glycol heating pump) is a B&G model 2.5x9.5B series 80-BF @ 3hp, located in penthouse 1.
 P-25 (hot water circulating pump) is a B&G model 3x7B series 80-BF @ 3hp, located in penthouse 1.
 P-26 (hot glycol heating pump) is a B&G model 2.5x9.5B series 80-BF @ 5hp, located in penthouse 2.
 P-27 (hot water circulating pump) is a B&G model 3x7B series 80-BF @ 3hp, located in penthouse 2.
 P-28 (hot glycol heating pump) is a B&G model 2.5x9.5B series 80-BF @ 3hp, located in penthouse 3.
 P-29 (hot water circulating pump) is a B&G model 2x2x7 series 60 @ 2hp, located in penthouse 3.
 P-30 (hot glycol heating pump) is a B&G model 2.5x9.5B series 80-BF @ 3hp, located in penthouse 4.
 P-31 (hot water circulating pump) is a B&G model 2x2x7 series 60 @ 2hp, located in penthouse 4.
 P-32&33 (secondary pre-heat coil pumps) are both Armstrong model 4x4x8 @ 10hp, located in boiler room.

Each air handling unit (AHU) is equipped with a secondary heating coil pump which were installed in 1995 and are as follows:

AHU-1,2,4,5,6,7,11,13,14 are equipped with an Armstrong H-51 pump @ 1/4hp.

AHU-9,10,15 are equipped with an Armstrong H-52 pump @ 1/3hp.

AHU-3 is equipped with an Armstrong H-32 pump @ 1/6hp

AHU-8 is equipped with two Armstrong H-53 pump @ 1/2hp, as this AHU is provided with a shell and tube heat exchanger.

AHU-12 is equipped with an Armstrong H-41 pump @ 1/6hp

Each shell and tube cooling heat exchanger, located in each penthouse, is equipped with a DX cooling system and a chilled water system. The chilled water is circulated through each AHU cooling coil for each penthouse. The pumps were installed in approximately 1995 and are as follows:

Penthouse 1 is provided with a Crane model 8B2 @ 7.5hp.

Penthouse 2,3&4 are each provided with a Crane model 8B2 @ 5hp.

System Condition & Anticipated Replacement

Pumps 1,2,6,7 are original pumps, appeared in fair condition, with an anticipated replacement/overhaul date of 2010.

Pumps 22&23 have been overhauled in the past 2 years, appeared in good condition, with an anticipated replacement/overhaul date of 2032.

The 30 HVAC pumps installed in 1995 appeared in good condition, are 14 years of age, with an anticipated replacement date of 2015.
 BPR Narrative (Mandatory if component rating is unsatisfactory):

Pumps 6&7 were replaced in 2010/11 as part of the boiler replacement project.

Overall condition for all HVAC pumps, as a whole, is Average.

Condition Rating	Average	Lifetime	20
Year Installed	1995	Years Remaining	6 (Observed)
Adjustment Factor	1	Unit Cost	\$1,832.14
Quantity	192	Units	hp
Replacement Cost	\$351,771		
Comments			

Requirement: (Renewal)

Replace 4 HVAC pumps

Description

Replace 4 HVAC pumps
 P1,P2, P6, P7

Brief Description

Replacement of HVAC pumps
 P-1&2 (primary chilled water pumps) are both Bell & Gosset (B&G) model 8x8x13 @ 25hp, located in boiler room.
 P-6&7 (secondary heating water pumps) are both B&G model 6x6x9 @ 20hp, located in boiler room.

Requirement Justification and Strategy

Replacement when the pumps are at the end of their life cycle. As only one pump operates at a time, their life cycle is approximately 25-30 years.

Implication of Requirement Deferral

The pumps will begin to fail and result in increased maintenance. Currently the pumps appear to be relatively new.

Priority	6- Year 6	Category	I - Reliability
Estimated Cost	\$87,943	FY Action Date	2024

Requirement TypeCapital

Comments

Adjustment reduced to reflect a more reasonable replacement of the pumps.

Deferral Reason? Explain Risk Mitigation

Not required at this time, component performing well/Regular PM being conducted and will continue to assess.

D3090 - Other HVAC Systems and Equipment - Penthouse Hydronics**Description****System Description**

The pumps, heat exchangers, control valves and glycol tanks are in new condition.

Penthouse hydronic equipment provides hydronic heating and cooling to the HVAC equipment. Hot water is supplied to the penthouse, passed through a heat exchanger and glycol is the fluid sent to the HVAC equipment.

System Condition & Anticipated Replacement

Replacement is based on the planning window. No change to the system appears to be required.

Condition Rating	Good	Lifetime	20
Year Installed	2018	Years Remaining	20 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$2,125.28
Quantity	192	Units	hp
Replacement Cost	\$408,054		

Comments

Exact date unknown.

Requirement: (Renewal)

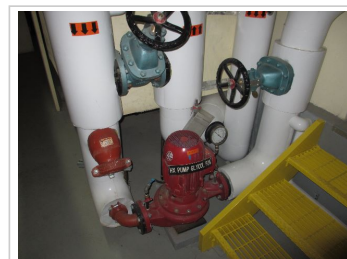
Penthouse Hydronics Renewal

Description

Auto generated renewal for Penthouse Hydronics. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$408,054	FY Action Date	2038

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Penthouse Hydronics - Typical heating/cooling loop arrangement



Penthouse Hydronics - Penthouse Hydronics



Penthouse Hydronics - Glycol heat exchanger



Penthouse Hydronics - Glycol feed system - typical



Penthouse Hydronics - Hydronic system treatment



Penthouse Hydronics - Glycol heat exchanger



Penthouse Hydronics - Hydronic system arrangement in penthouse



Penthouse Hydronics - Typical circulator pump.

D3092 - Special Humidity Control - Humidifiers**Description****System Description**

Gas fired humidifiers are paired with air handling units and roof top units to provide humidification to the occupied spaces to maintain minimum PWGSC MD15000 requirements of 30% ± 5% in winter.

PWGSC 2012 Mechanical Environmental standard MD15000 requires building to operate at 30%±5%.

Each air handling unit (AHU) as listed below is provided with a Dri-Steem gas fired humidifier, which are as follows:

7 - Dri-Steem model GTS99-200C located in AHU-3,5,7,10,11,12,14

7 - Dri-Steem model GTS99-300C located in AHU-1,2,6,8,9,13,15

1 - Dri-Steem model GTS99-400C located in AHU-4

HU-16: DriSteem GTS99-200 - PH2 - RTU5

HU-17: DriSteem GTS99-200 - PH3 - RTU6 (Eng Air unit)

System Condition & Anticipated Replacement

Most humidifiers were not operating in the middle of winter - either out of operation or undergoing maintenance. Humidity conditions were observed as around 10% in the general space and 20% in the paper handling spaces where they had portable humidifiers running as it affects their printing operations. These are well below document MD15000 operating conditions. The printing and mailing space operators indicated they thought humidity control was a significant issue for them that seemed frequent.

HU-1 - unit not on, gas and water are shut off.

HU-2 - out of service - cover off, insulation appears to have been overheated ("baked" appearance), boiler tubes had a fair bit of scale as they could be observed.

HU-3 - unit turned off

HU-4 - unit turned off

HU-5 - in alarm, not operating - alarm: fill time filter

HU-6 - operating, but 0% demand during site review (NOTE: no salt in water softener brine tank observed, unsure if calcification could be an issue in PH2)

HU-7 - not operating - unit in alarm (fill time filter)

HU-8 - operating but 0% demand indicated, unit indicated high RH limit, end of season

HU-9 - operating but in alarm with ML probe fault

HU-10 - operating

HU-11 - appeared to be operational, system indicated no water at low probe

HU-12 - not observed

HU-13 - not operating, cover removed, gas line valve locked out for gas train issue

HU-14 - not operating, cover removed

HU-15 - not operating, cover removed, not locked out

HU-16 - not turned on, heavily rusted

HU-17 - not turned on, cover removed

The Dri-Steem gas fired humidifiers, were installed in 2001, appeared in fair to poor condition, requiring maintenance with external appearances of degradation (rust, heat damaged insulation). Internally the rust appeared reasonable for the age and tube calcification is normal and requires planned maintenance.

Condition Rating	Poor	Lifetime	15
Year Installed	2018	Years Remaining	15 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$14,167.08
Quantity	17	Units	ea
Replacement Cost	\$240,840		
Comments			

Requirement: (Renewal)

Humidifiers Renewal

Description

Auto generated renewal for Humidifiers. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$240,840	FY Action Date	2033



Humidifiers - HU-1



Humidifiers - HU-2 Steam tube calcification - open for maintenance

Requirement Type

Comments

Deferral Reason? Explain Risk Mitigation



mech 055 (Small).jpg - A Dri-Steem humidifier, which services an AHU, and is located in one of the penthouses.



Humidifiers - HU-2 open cover (PH1)



Humidifiers - Humidifier piping labelled



Humidifiers - Typical name tag



Humidifiers - HU-5



Humidifiers - HU-9

D40 - Fire Protection - Fire Extinguishers - Dry Chem w/Cabinet (Each) - New**Description****System Description**

Fire extinguishers are located throughout the building and in most cases located in hose cabinets.

Approximately 102 fire extinguishers have been installed throughout the building.

Handheld type dry chemical fire extinguishers are located throughout the building.

Fire extinguishers are located in the hose cabinets in most publicly occupied locations. Fire extinguishers in penthouses, mechanical spaces, locations where higher density of extinguishers are required and the truck bay have wall mounted exposed units.

System Condition & Anticipated Replacement

The fire extinguishers appeared in good condition and are replaced as required. Extinguishers are replaced or tested and recertified cyclically as required based on the extinguisher tags observed. Extinguishers need to be examined or hydrostatically tested every 6 years (NFPA 10 7.3.2.1/7.3.6.5). Of the extinguisher sample observed, all had been installed or tested within the last 6 years.

Fire extinguishers must be mounted between 100mm to 1500 mm above the floor, no errors in placement were observed during the site review.

Condition Rating	Good	Lifetime	30
Year Installed	1979	Years Remaining	6 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$588.28
Quantity	112	Units	Each
Replacement Cost	\$65,887		

Comments

Price per each fire extinguisher and cabinet.

Not all extinguishers are located in cabinets.

Years remaining is based on years remaining between cylinder retest/recertifications.

Requirement: (Renewal)

Fire Extinguishers - Dry Chem w/Cabinet (Each) - New Renewal

Description

Auto generated renewal for Fire Extinguishers - Dry Chem w/Cabinet (Each) -

New. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	6- Year 6	Category	I - Lifecycle
Estimated Cost	\$69,182	FY Action Date	2024

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Requirement: (Non-Renewal)

Fire extinguisher end of life replacements

Description

Annual inspections to determine if extinguishers require replacement.

Brief Description

Approximately 102 extinguishers located throughout the facility. Estimate 10% of extinguishers are determined as unserviceable during the 6 year maintenance cycle.

Requirement Justification and Strategy

NFPA 10 (2013) 7.3 requires annual inspections of fire extinguisher which may find deficient units not to be put back into service. Every 6 years an extinguisher should be internally inspected and removed from service if deficiencies are found.

Implication of Requirement Deferral

Non-compliance with NFPA 10 (2013)

Priority	6- Year 6	Category	R - Life Safety
Estimated Cost	\$1,479	FY Action Date	2024

Requirement TypeRepair**Comments**

Approximately 102 extinguishers located throughout the facility. Estimate 10% of extinguishers are determined as unserviceable during the 6 year maintenance cycle.

Deferral Reason? Explain Risk Mitigation**Requirement: (Non-Renewal)**

Maintain fire extinguisher visibility

Description

Implement procedures and visuals to maintain fire extinguisher visibility.

Brief Description

A number of fire extinguishers located in hose cabinets were hidden behind the metal panel or behind an opaque tinted window (obscured from view) instead of being located in the transparent section.

Fire extinguishers located in hose cabinets are not marked to indicate extinguisher location. Photos attached show a hose cabinet and a symbol for a hose, but from a distance, no indication of a fire extinguisher exists at that location.

Requirement Justification and Strategy

NFPA 10-2013
 6.1.3.3.1 - "Fire extinguishers shall not be obstructed or obscured from view." General maintenance, procedures and visual awareness should be in place to ensure all fire extinguishers are visible.
 6.1.3.3.2 - "In large rooms and in certain locations where visual obstructions cannot be completely avoided, means shall be provided to indicate the extinguisher location"
 6.1.3.10.2 - "The location of fire extinguishers as described in 6.1.3.3.2 shall be marked conspicuously". Numerous locations were noted as having no markings indicating a fire extinguisher location.

Implication of Requirement Deferral

Non-compliance with NFPA 10, a NBC referenced standard.

Priority	1- Year 1	Category	O - Maintenance
Estimated Cost	\$5,100	FY Action Date	2019

Requirement TypeRepair**Comments**

Approximately 102 fire extinguishers have been installed throughout the building.
 Pricing assumed based on building maintenance doing the work - \$50 per unit for labour and materials.

Deferral Reason? Explain Risk Mitigation

D40 - Fire Protection - Wet Standpipe System - Light Hazard**Description****System Description**

The building is provided with approximately 18 standpipes, which supply fire hose cabinets located on both floors. Each fire cabinet is equipped with a 40mm fire hose.

The standpipe systems appeared in good condition with an anticipated replacement date of 2044.

The fire protection systems include a light hazard, wet fire standpipe system, with backflow protection.

System Condition & Anticipated Replacement

The fire hoses appeared in good condition, are checked regularly and are replaced when they fail, therefore an event has been created for the replacement of fire hoses every year.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$23.79
Quantity	31,710	Units	SM
Replacement Cost	\$754,326		

Comments

Light Hazard per NFPA 13 with NFPA 14 standpipes.

Requirement: (Non-Renewal)

Provide Access to Hose Cabinet

Description**Brief Description**

Clear access to the fire hose cabinet to be provided at all times.

Full access to fire hose cabinet is required at all times. Not to be used as a storage area.

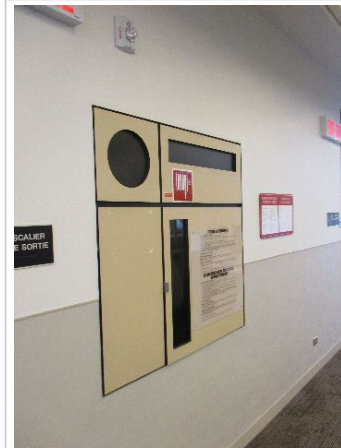
Requirement Justification and Strategy

Access is required by fire codes.

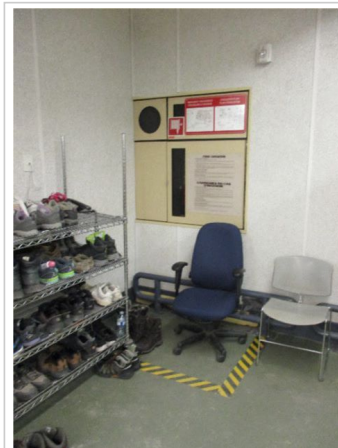
Implication of Requirement Deferral

In the event of fire emergency, access is impeded reducing response time.

Priority	1- Year 1	Category	R - Life Safety
Estimated Cost	\$0	FY Action Date	2019

Requirement Type Repair**Comments****Deferral Reason? Explain Risk Mitigation**

Wet Standpipe System - Light Hazard - Hose cabinet with integral fire extinguisher - typical throughout the office spaces



Provide Access to Hose Cabinet - Access to fire hose cabinets to be always clear

Requirement: (Non-Renewal)

Replace Fire Hoses

Description**Brief Description**

Annual replacement of a single hose.

Requirement Justification and Strategy

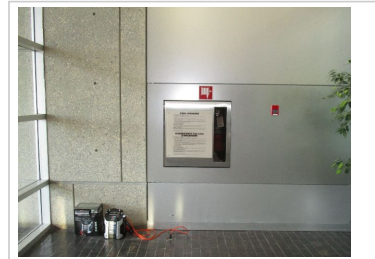
Deterioration of hoses should be accounted for.

Implication of Requirement Deferral

Hoses known to be deficient and not replaced violate NFPA 25 as referenced in the National Fire Code.

Priority 3- Year 3 **Category** I - Reliability**Estimated Cost** \$2,175 **FY Action Date** 2021**Requirement Type** Repair**Comments**

Average cost of 100 foot hose per vendor online catalog.

Deferral Reason? Explain Risk Mitigation

Replace Fire Hoses - Fire Hose Cabinet

D40 - Fire Protection - Wet Sprinkler System - Light Hazard w/Pump**Description****System Description**

The fire protection system is based on NFPA 13 and 14, includes a light hazard wet sprinkler system, backflow prevention, standpipes and fire pump. Sprinkler heads are typically semi recessed pendant. Glycol zones are located in the penthouses.

System Condition & Anticipated Replacement

Overall system is in good condition and with continued maintenance and inspections the system should last at least until the expected 50 year required re-evaluation per NFPA requirements.

Condition Rating	Good	Lifetime	35
Year Installed	1979	Years Remaining	12 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$80.01
Quantity	31,720	Units	SM
Replacement Cost	\$2,537,814		

Comments

Light Hazard per NFPA 13 with distributed glycol zones in the penthouses.

Requirement: (Renewal)

Wet Sprinkler System - Light Hazard w/Pump Renewal

Description

Auto generated renewal for Wet Sprinkler System - Light Hazard w/Pump.
System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$3,172,268	FY Action Date	2030

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Wet Sprinkler System - Light Hazard w/Pump - Sprinkler tree



Wet Sprinkler System - Light Hazard w/Pump - Sprinkler with local zone valve



Wet Sprinkler System - Light Hazard w/Pump - Typical sprinkler head in office area

Requirement: (Non-Renewal)

Testing of automatic sprinkler systems with glycol

Description

Annual inspection of glycol filled automatic fire suppression systems.

Brief Description

2014 NFPA antifreeze bulletin requires a qualified person to annually inspect glycol sprinkler systems for the antifreeze percentage to NFPA 25 requirements.

Requirement Justification and Strategy

Changes to the allowance for glycol sprinkler systems have changed a few times since 2010 with the latest revision being January 2014. High levels of glycol in a sprinkler system made a fire worse in one case and NFPA changed the allowance of glycol in systems.

As of January 2014, annual inspection of the glycol content is required and tested to NFPA 25 requirements unless a listed antifreeze solution is used.

Use of listed antifreeze solutions will be required by September 2022 (NFPA 25).

Implication of Requirement Deferral

Non-compliance with the National Fire Code - NFPA 25 is referenced by the National Fire Code for fire suppression system inspections.

Priority	1- Year 1	Category	R - Building Code
Estimated Cost	\$1,566	FY Action Date	2019

Requirement TypeCapital**Comments**

Cost estimate based on sprinkler contractor review at 2 hrs @ \$135 (general rate observed)

Deferral Reason? Explain Risk Mitigation

Testing of automatic sprinkler systems with glycol - Typical glycol filled automatic sprinkler

Requirement: (Non-Renewal)

NFPA inspection requirements

Description

NFPA 25 inspections of the sprinkler system are required on quarterly and annual basis per NFPA 25.

Brief Description

NFC 6.4.1.1 requires an NFPA 25 compliant inspection annually.

Requirement Justification and Strategy

Inspection tag noticed indicated a 2014 inspection tag and nothing newer.

Implication of Requirement Deferral

Non-compliance with NFC.

Priority	1- Year 1	Category	R - Building Code
Estimated Cost	\$7,250	FY Action Date	2019

Requirement TypeRepair**Comments**

Estimate annual inspections should cost approximately \$5000 to comply with NFPA 25

Deferral Reason? Explain Risk Mitigation

NFPA inspection requirements - 2014 inspection tag

Requirement: (Non-Renewal)

Revision to existing glycol sprinkler system per NFPA 25

Description

Replacement of glycol sprinkler system glycol solution with NFPA listed solution required by the year 2022.

Brief Description

The penthouses contain glycol filled wet sprinkler pipe systems which will be affected by recent changes to NFPA 25 (2014 version). No indication of antifreeze type used was indicated or available from the building maintenance operator.

Requirement Justification and Strategy

The National Fire Code references NPFA 25 for sprinkler system tests. NFPA 25-2014 5.3.4.2.1 requires changing to a listed antifreeze solution by September 30, 2022. Listed antifreezes currently do not meet the temperature requirements to withstand Manitoba temperature conditions in winter.

Implication of Requirement Deferral

A three year span was indicated to ensure there was some time to react to the 2022 deadline. If listed solutions do not become available in the temperature ranges required by September 2022, modifications to the system may be required to comply with the standard.

Priority	3- Year 3	Category	R - Building Code
Estimated Cost	\$69,600	FY Action Date	2021

Requirement TypeCapital**Comments**

Rough estimate to be based on estimate by sprinkler contractor. Amount provided assumes a change to a dry pipe system.

Affects 4 penthouses.

Deferral Reason? Explain Risk Mitigation

Revision to existing glycol sprinkler system per NFPA 25
- Glycol filled automatic sprinkler

D4022 - Pumping Equipment - Fire Pumps**Description****System Description**

The fire pumps are an integral part of the wet sprinkler system to deliver pressurized water in the event of a fire.

The fire protection system is provided with two fire pumps, located in the boiler room and they are as follows:

P-10 & 11 are Arthur Lietch model 5LCC @ 40 hp

The sprinkler tree in the boiler room is equipped with a jockey pump.

A second sprinkler tree, located in the mechanical room adjacent to the cafeteria, is also provided with a jockey pump.

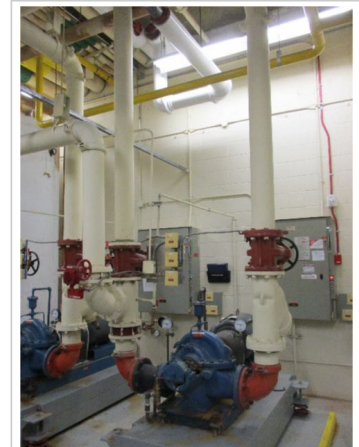
System Condition & Anticipated Replacement

Both fire pumps and the two jockey pumps appeared in acceptable condition for their age, and with proper maintenance and annual inspections, the anticipated replacement date is 2024.

Leaking from seals observed which is a normal part of fire pump seals, however the water is leaking around the tray and onto the floor.

The Arthur Lietch company was sold out to Taco and parts may be difficult to source without an existing manufacturer's support.

Condition Rating	Fair	Lifetime	45
Year Installed	2018	Years Remaining	45 (Age Based)
Adjustment Factor	1	Unit Cost	\$63,944.89
Quantity	2	Units	ea
Replacement Cost	\$127,890		
Comments			



Fire Pumps - Fire pump in mechanical room

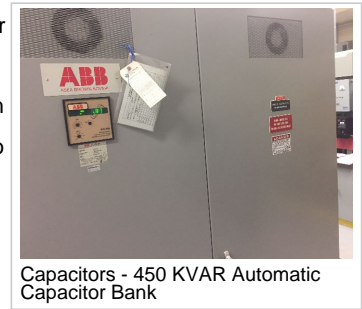
D5010 - Electrical Service and Distribution - Capacitors**Description****System Description**

A 450 KVAR Automatic Capacitor Bank is installed on the 600 volt main bus in 1994 to provide power factor correction for the building electrical supply.

System Condition & Anticipated Replacement

Maintenance should be kept up on a regular schedule. From the equipment work summary posted on front of the equipment, maintenance has been sparse since 2010. Regular maintenance and testing will prolong the life of the equipment and minimize failures. The Automatic Capacitor Bank appears to be in good condition but cannot be verified without proper testing. It is expected to last 40 years and therefore is scheduled for replacement in 2034.

Condition Rating	Good	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$705,940.91
Quantity	1	Units	sum
Replacement Cost	\$705,941		
Comments			



Capacitors - 450 KVAR Automatic Capacitor Bank

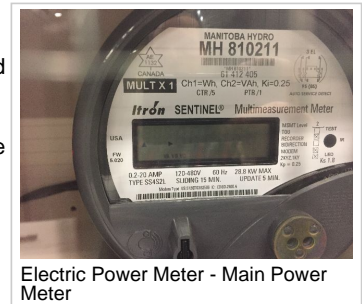
D5010 - Electrical Service and Distribution - Electric Power Meter**Description****System Description**

A single digital Itron Sentinel utility meter is installed in the 15 KV switchgear lineup to measure the electrical consumption and demand for the entire building. The power meter is owned and maintained by Manitoba Hydro. Manitoba hydro meter tag# MH 810211.

System Condition & Anticipated Replacement

The power meter is a newer style digital Itron Sentinel Meter and appears to be in good condition. The condition of the power meter is monitored by Manitoba Hydro and will be replaced on their timeline.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	N/A
Adjustment Factor	1.4500	Unit Cost	\$92,384.02
Quantity	1	Units	sum
Replacement Cost	\$92,384		
Comments			



Electric Power Meter - Main Power Meter

D5010 - Electrical Service and Distribution - Delete - Distribution Panels**Description****System Description**

Electrical distribution panels are located primarily in electrical rooms throughout the building.

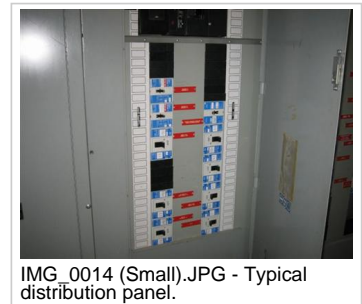
The following is an approximate count of the distribution panels:

- 6 - 347/600 volt Main Distribution Panels (CDP)
- 10 - 120/208 volt Main Distribution Panels (CDP)
- 19 - 347/600 volt Sub-distribution Panels
- 48 - 120/208 volt Sub-distribution Panels

System Condition & Anticipated Replacement

A visual review was made of the majority of the distribution panels and no major deficiencies were noted. Almost all panels were original and in good condition. Thermal scans are done on a yearly basis to determine loose connections and/or overloading.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$0.00
Quantity	83	Units	ea
Replacement Cost	\$0		
Comments			



IMG_0014 (Small).JPG - Typical distribution panel.

D5010 - Electrical Service and Distribution - Distribution System - Heavy Capacity**Description****System Description**

Electrical distribution panels are located primarily in electrical rooms throughout the building.

The following is an approximate count of the distribution panels:

- 6 - 347/600 volt Main Distribution Panels (CDP)
- 10 - 120/208 volt Main Distribution Panels (CDP)
- 19 - 347/600 volt Sub-distribution Panels
- 48 - 120/208 volt Sub-distribution Panels

System Condition & Anticipated Replacement

A visual review was made of the majority of the distribution panels and no major deficiencies were noted. Almost all panels were original and in good condition. Thermal scans should be completed on a yearly basis to determine loose connections and/or overloading. System is in good condition.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$147.23
Quantity	7,927.50	Units	SM
Replacement Cost	\$1,167,204		
Comments			



Distribution System - Heavy Capacity
- Distribution Panels

D5010 - Electrical Service and Distribution - Secondary Transformer**Description****System Description**

The following 600-120/208 volt dry type transformers are located throughout the building to provide 120/208 volt power for auxiliary power and small motor loads:

- 225 kVA transformer feeding CDP2 (kitchen)
- 45 kVA transformer feeding CDP6
- 45 kVA transformer feeding CDP6
- 75 kVA transformer feeding CDP8
- 112.5 kVA transformer feeding CDP9
- 45 kVA transformer feeding CDP1
- 45 kVA transformer feeding CDP3
- 45 kVA transformer feeding CDP4
- 45 kVA transformer feeding CDP5
- 45 kVA transformer feeding Emergency Distribution #1
- 75 kVA transformer feeding CDP10

System Condition & Anticipated Replacement

The transformers appear to be in good condition. Individual transformers will begin to experience failures and will be replaced over the next 10 to 30 years. The estimated cost for replacement is based on the replacement of all 11 transformers in 2029

Condition Rating	Good	Lifetime	50
Year Installed	2017	Years Remaining	49 (Age Based)
Adjustment Factor	0.1000	Unit Cost	\$19,723.09
Quantity	11	Units	sum
Replacement Cost	\$216,954		
Comments			



Secondary Transformer -
600V-120/208V Transformer

D5010 - Electrical Service and Distribution - Secondary Switchgear**Description****System Description**

The main distribution switchgear is located in the main electrical room and consists of a line-up of air circuit breakers broken into 2 sections with 4000 amp 347/600 volt bus connected together with a normally open tie breaker. A total of 13 air circuit breakers in the 2 separate buses feed the 347/600 volt distribution system for the building.

System Condition & Anticipated Replacement

The secondary switchgear appears to be in good condition. Regular maintenance is required and should be kept up to minimize outages and failures.

Main breaker #2 was in the tripped position at time of review and was apparently due to an under voltage relay. The trip should be investigated and corrected.

Equipment should last until 2044.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	5	Unit Cost	\$193,071.90
Quantity	1	Units	sum
Replacement Cost	\$193,072		
Comments			



Secondary Switchgear - Secondary Switchgear

D5010 - Electrical Service and Distribution - Primary Switch Gear**Description****System Description**

The main electrical service to the building consists of two 15 kV underground feeders terminating in two 600 amp load interrupter switches that are fused at 400 amps and feed a common 600 amp bus. The two switches are key interlocked to allow only one switch to be closed at a time. A single utility meter monitors the power consumption and demand for the entire building.

Two more 15 kV 600 amp load interrupter switches fused at 200 amps are connected to load side of the metering to feed the two 3000 kVA dry type transformers.

System Condition & Anticipated Replacement

The primary switch gear is in good condition and should be tested on a regular basis. Equipment should last until 2044.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$134,377.78
Quantity	1	Units	sum
Replacement Cost	\$134,378		
Comments			



Primary Switch Gear - Primary Switchgear

D5010 - Electrical Service and Distribution - MCC**Description****System Description**

There are 13 Motor Control Centres (MCC) located throughout the building primarily in the mechanical rooms.

The Motor Control Centres are in good condition. Most of the MCCs are original with a new section added to the units in the 4 mechanical penthouses in 1996. Complete replacement of the MCCs is not anticipated although individual starters may require upgrading. Since the replacement date is estimated to be 2044, and is beyond this BCR's 30 year replacement cycle, no event is offered.

System Condition & Anticipated Replacement

The Motor Control Centres are in good condition. Most of the MCCs are original with a new section added to the units in the 4 mechanical penthouses in 1996. Complete replacement of the MCCs is not anticipated although individual starters may require upgrading.

Condition Rating	Good	Lifetime	65
Year Installed	1996	Years Remaining	44 (Observed)
Adjustment Factor	7	Unit Cost	\$20,792.38
Quantity	13	Units	sum
Replacement Cost	\$270,301		
Comments			



MCC - MCC #1 Main Floor

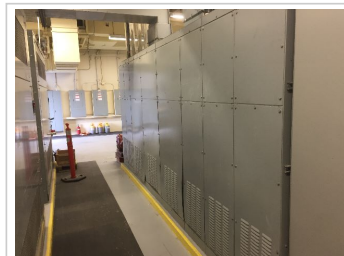
D5010 - Electrical Service and Distribution - Primary Transformer & Vault**Description****System Description**

Two Westinghouse 3000 kVA dry type transformers are located in the main electrical room to provide electrical service to the entire building. No new test data was available. Regular testing of transformers are required to prolong life and minimize failures.

System Condition & Anticipated Replacement

The transformers appear to be in good shape with no known issues. Equipment should last until 2044.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$103,582.16
Quantity	2	Units	sum
Replacement Cost	\$207,164		
Comments			



Primary Transformer & Vault -
Primary Transformers

D5021 - Branch Wiring Devices - Cabling Raceways & Bus Ducts**Description****System Description**

A cable tray system is installed in the main floor ceiling space of the building from the main electrical room in the north-west corner of the building along the main corridor to the east end of the building to feed the sub-electrical rooms with flexible cables. Wiring for receptacles loads is mainly installed in the main floor ceiling space utilizing utility posts for the 1st floor and floor boxes for the 2nd floor.

Feeders and branch circuit wiring is generally in good condition and should not require replacement unless major renovations and relocation of workstations are required. Since the replacement date is estimated to be 2044, and is beyond this BCR's 30 year replacement cycle, no event is offered.

System Condition & Anticipated Replacement

Feeders and branch circuit wiring is generally in good condition and should not require replacement unless major renovations and relocation of workstations are required.

Condition Rating	Good	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$2,312,425.08
Quantity	1	Units	ea
Replacement Cost	\$2,312,425		
Comments			

D5022 - Lighting Equipment - General Lighting**Description****System Description**

A variety of light fixtures are installed in the building. Fluorescent fixtures are used almost exclusively for the office areas with main fixture being a single tube fluorescent with a prismatic lens installed in a coffered acoustical ceiling. Some office areas and corridors have a 300mm by 1200mm recessed fixture. Service areas and equipment rooms utilize fluorescent strip lights. Recessed compact fluorescent fixtures are also used in the corridors and relaxation areas. Main area lighting control is located in the Commissionaires office. Front lobby lighting and all penthouse lighting replaced with energy efficient fixtures/bulbs in 2012.

System Condition & Anticipated Replacement

The light fixtures in general appear to be in good condition with the exception of light fixtures in the coffered acoustical ceiling which appear to be failing as netting has been installed to keep the lenses from falling on people.

A major upgrade was done to the lighting system in 1996 which consisted of conversion of the fluorescent lamps from T12 to T8 type and replacement of the magnetic ballasts with electronic. When the light fixtures are to be replaced, LED light fixtures and dimming control should be considered. It is anticipated that the next major upgrade which will require the replacement of most of the light fixtures in the building to improve energy efficiency will occur in 2017 to LED fixtures.

The approximate number of light fixtures in the building are as follows:

6791 Single tube fluorescent fixture in coffered ceiling
 601 Fluorescent recessed 300mm by 1200mm
 78 Fluorescent strip
 98 Decorative HID (Cafeteria)
 40 Decorative HID (main entrance)
 139 Recessed compact fluorescent

Condition Rating	Good	Lifetime	30
Year Installed	2017	Years Remaining	29 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$409.77
Quantity	7,747	Units	ea
Replacement Cost	\$3,174,488		
Comments			



General Lighting - Coffered lighting

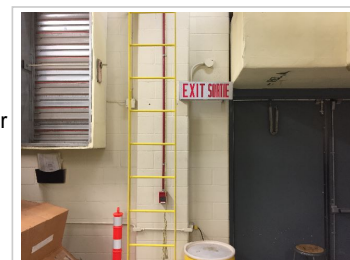
D5022 - Lighting Equipment - Exit Lighting**Description****System Description**

Bilingual exit signs are installed throughout the building along all exit paths to assist in orderly evacuation of the building.

System Condition & Anticipated Replacement

All red letter EXIT SORTIE signs appear in good condition. All signs on main and second floor appear to match. Exit signs in penthouses use smaller letters. When signs are replaced, they will be the green Pictogram signs to conform to the current code.

Condition Rating	Good	Lifetime	30
Year Installed	1996	Years Remaining	9 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$1,287.34
Quantity	70	Units	ea
Replacement Cost	\$90,114		
Comments			



Exit Lighting - Bilingual exit sign

Requirement: (Renewal)

Exit Lighting Renewal

Description**Brief Description**

Replace exit signs throughout the building to keep with current code.

Requirement Justification and Strategy

It is anticipated that the exit lights will require replacement with green pictogram signs to meet the current code.

Implication of Requirement Deferral

It is anticipated that the exit lights will require replacement. The exit lights will begin to fail and result in additional maintenance. Green pictogram signs will be installed to meet the current code.

Priority	Not Time Critical	Category	R - Building Code
Estimated Cost	\$130,665	FY Action Date	2026

Requirement TypeCapital

Comments**Deferral Reason? Explain Risk Mitigation**

Exit Lighting - Bilingual exit sign



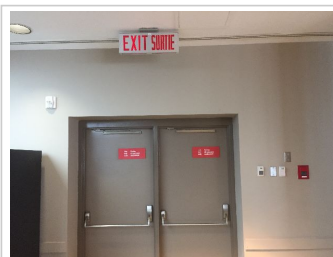
IMG_0051 (Small).JPG - Typical bilingual exit light fixture.



Exit Lighting - Bilingual exit sign in penthouse



Exit Lighting - Bilingual exit sign in penthouse



Exit Lighting - Bilingual exit sign



Exit Lighting Renewal - Red Letter Exit Signs



Exit Lighting - Bilingual exit sign



Exit Lighting - Bilingual exit sign in penthouse



Exit Lighting - Bilingual exit sign in penthouse



Exit Lighting - Bilingual exit sign

D5022 - Lighting Equipment - Exterior Lighting**Description****System Description**

Exterior lighting consists primarily of pole mounted HID fixtures for area lighting of the roadways, walkways, parking lots and the building perimeter. The following fixtures are installed:

36 Type T47 c/w 2-70W HPS lamps
 28 Type T48 c/w 1-250W HPS lamp
 85 Type 49 c/w 3-150W HPS lamps
 8 Type T53 c/w 1-400W HPS lamp
 6 Type T55 c/w 1-150W HPS lamp

It appeared that the exterior lighting was upgraded in 1995.

System Condition & Anticipated Replacement

Exterior light fixtures are presently in good condition but are expected to be replaced.

LED wall packs were installed in 2012.

Condition Rating	Good	Lifetime	30
Year Installed	2017	Years Remaining	29 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$2,962.34
Quantity	163	Units	ea
Replacement Cost	\$482,861		
Comments			



Exterior Lighting - Decorative pole mounted light

D5030 - Communications and Security - Communication Systems**Description****System Description**

The communication service to the building consists of 2 underground conduits for multi-pair telephone cables and fibre optic cables. Telephone demarcation rooms are located throughout the building. Enclosed server racks are located throughout the floor space of the working areas.

System Condition & Anticipated Replacement

Some pieces of equipment appeared to be dirty and dusty. Maintenance routines should be implemented to keep equipment clean, helping with cooling of equipment to prolong life and minimize failures. Equipment is rated as average but should last until 2044 with regular maintenance.

Condition Rating	Average	Lifetime	65
Year Installed	1979	Years Remaining	27 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$40.89
Quantity	31,700	Units	m2
Replacement Cost	\$1,296,213		
Comments			



IMG_0041 (Small).JPG - Communications service to the building.

D5036 - Clock and Program Systems - Clock Systems**Description****System Description**

A Simplex clock system is installed throughout most areas of the building.

System Condition & Anticipated Replacement

The clock system is working but is likely to require replacement in the next ten years.

Condition Rating	Fair	Lifetime	25
Year Installed	2017	Years Remaining	24 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$3,043.27
Quantity	10	Units	ea
Replacement Cost	\$30,433		

Comments

The clock system appears to be in good condition. Continued Maintenance will prolong the life of the system.



IMG_0066 (Small).JPG - Main control panel for clock system.

D5037 - Fire Alarm Systems - Fire Alarm System**Description****System Description**

A Notifier 3030 Series multiplex, 2 stage, multizone, fire alarm system was installed in the building in 2011. The system consists of smoke and heat detectors in critical areas, flow switches for monitoring sprinkler zones, manual pull stations at exits, door hold open devices, and horn, strobes and bells located throughout the building.

System Condition & Anticipated Replacement

The fire panel including end devices and wiring were upgraded in 2011/12 under PW127984. The warning devices include a horn and strobe.

At time of review there was a 'Trouble' signal noticed on the display of the panel. This was known to site staff and was in the process of being rectified. The last fire alarm test was reviewed with minor deficiencies that have been rectified according to site staff.

Overall the system is rated as good.

Condition Rating	Good	Lifetime	15
Year Installed	2017	Years Remaining	14 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$23.56
Quantity	31,700	Units	m2
Replacement Cost	\$746,931		
Comments			



Fire Alarm System - Manual Pull Station

Requirement: (Renewal)

Fire Alarm System Renewal

Description

Auto generated renewal for Fire Alarm System. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$746,931	FY Action Date	2032

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Fire Alarm System - Horn and Strobe Signalling Devices



Fire Alarm System - Fire Alarm Panel



Fire Alarm System - Remote Annunciator Panel



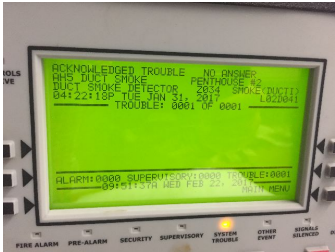
Fire Alarm System - Tamper and Flow Valves



Fire Alarm System - Horn and Strobe Signalling Devices



Fire Alarm System - Manual Pull Station



Fire Alarm System - Display on Fire Alarm Panel

D5091 - Grounding Systems - Grounding Protection System**Description****System Description**

The main service ground bus is connected the building grounding system located on the northwest corner of the building. An extensive grounding system is installed in the building connecting all distribution panels, motor control centres and ground buses located in communications rooms.

System Condition & Anticipated Replacement

The grounding system in the building appears to be in excellent condition. An extensive upgrade was done to the grounding system in 1996. An upgrade to the grounding system is not anticipated within this BCR's 30 year replacement cycle.

Condition Rating	Excellent	Lifetime	30
Year Installed	1996	Years Remaining	9 (Observed)
Adjustment Factor	0.5000	Unit Cost	\$4.59
Quantity	31,710	Units	SM
Replacement Cost	\$145,689		

Comments

Used lighting protection system since no grounding system available and then adjusted cost.

Requirement: (Renewal)

Grounding Protection System Renewal

Description

Auto generated renewal for Grounding Protection System. System Description:
N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$182,112	FY Action Date	2026

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

D5092 - Emergency Light and Power Systems - Emergency Lighting**Description****System Description**

Emergency lighting is provided by the emergency generator through selected general lighting fixtures that also act as night lighting. In addition, approximately 15 battery powered emergency light fixtures are installed at selected locations throughout the building. The last major action year of 1996 was chosen as an average of when the battery packs were installed.

System Condition & Anticipated Replacement

Battery packs appear to be end of life, are rated as poor and should be replaced. Emergency lighting battery packs should be tested regularly to confirm system is still able to provide 30 minutes of run time.

Condition Rating	Poor	Lifetime	18
Year Installed	2017	Years Remaining	17 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$1,416.53
Quantity	15	Units	ea
Replacement Cost	\$21,248		
Comments			

**Requirement: (Renewal)**

Emergency Lighting Renewal

Description

Auto generated renewal for Emergency Lighting. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$21,248	FY Action Date	2035

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Emergency Lighting - Emergency Battery Unit



Emergency Lighting - Emergency Battery Unit



Emergency Lighting - Emergency Battery Unit



Emergency Lighting - Emergency Battery Unit



Emergency Lighting - Emergency Light Remote Head

D5092 - Emergency Light and Power Systems - Emergency Power System**Description****System Description**

The emergency power system for the building consists of two 350 kW CAT diesel generators connected to dual 800 amp Thompson Technology transfer switches. The generators and transfer switches are located in the main electrical room with the radiators located outside.

A Liebert UPS also makes up the emergency power supply. The batteries are in a room off the main electrical room. A remote status indicator is in the Commissionaires office.

System Condition & Anticipated Replacement

The generators are in good condition and are tested monthly. The transfer switches were replaced in 1997 and are in very good condition. Since the replacement date is estimated to be 2047, and is beyond this BCR's 30 year replacement cycle, no event is offered.

Condition Rating	Good	Lifetime	50
Year Installed	1997	Years Remaining	30 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$1,139,415.15
Quantity	2	Units	sum
Replacement Cost	\$2,278,830		
Comments			



Emergency Power System - Diesel Generator

E1033 - Loading Dock Equipment - Loading Docks**Description****System Description**

There is an indoor loading dock with two large bays and a ramp for a refuse bin. The loading dock is comprised of a cast-in-place concrete structural slab supported on pre-cast driven concrete piles. Cast-in-place concrete walls surround the interior loading dock area. The traffic bearing membrane and overhead doors and operators are covered under other sections of this report. The loading dock includes two dock levelers, dock seals, bumpers and wheel chocks.

System Condition & Anticipated Replacement

The dock equipment is operable but is showing signs of wear through years of heavy use. It is rated as being in fair condition. Based on an anticipated remaining functional life of two years, the dock equipment should be replaced in 2019.

Condition Rating	Fair	Lifetime	40
Year Installed	2017	Years Remaining	39 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$38,881.34
Quantity	2	Units	ea
Replacement Cost	\$77,763		
Comments			



Oct.26-28 080 (Small).jpg - Two dock levelers in the shipping/receiving area.

E1093 - Food Service Equipment - Walk-in Freezer/Cold Storage**Description****System Description**

The kitchen is equipped with the following:

- 1 - Foster model WT-34-11 walk-in refrigerator.
- 1 - Foster model WJ-34-11 walk-in freezer.

The kitchen is no longer open and the walk-in refrigerator and freezer is not in use. The area is locked. According to a conversation with the Building Manager on March 29, 2017, there is no plan in place for the kitchen area and the equipment has been unplugged and/or disconnected.

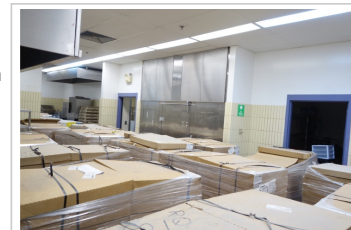
System Condition & Anticipated Replacement

Both the walk-in cooler and freezer appeared in fair condition, are 30 years of age, with an anticipated replacement past due. Both were not operational at the time of inspection.

Condition Rating	Fair	Lifetime	35
Year Installed	2017	Years Remaining	34 (Age Based)
Adjustment Factor	1	Unit Cost	\$49,077.26
Quantity	2	Units	ea
Replacement Cost	\$98,155		

Comments

The kitchen is no longer open and the walk-in refrigerator and freezer is not in use. The area is locked. According to a conversation with the Building Manager on March 29, 2017, there is no plan in place for the kitchen area and the equipment has been unplugged and/or disconnected.



Walk-in Freezer/Cold Storage - Walk-in refrigeration/freezer

E1095 - Unit Kitchens - Kitchen Equipment**Description****System Description**

The cafeteria servery including the kitchen is no longer open. The area is locked off but all kitchen equipment remains in place. Equipment could not be evaluated. According to a conversation with the Building Manager on March 29, 2017, there is no plan in place for the kitchen area and the equipment has been unplugged and/or disconnected. Part of the front area is planned to be converted for vending machines.

According to the 2012 BCR, the major kitchen equipment is as listed below:

- 1 - Foster model AE-4440 refrigerator - cold hold cabinet
- 1 - Canadian Rogers Western model FW-63 steam table
- 1 - Foster model XR-45-81Q1 hot hold cabinet
- 1 - Keeprite model CCU05HW refrigerating unit
- 1 - Stainless steel double compartment sink approximately 2 meters long.
- 1 - stainless steel triple compartment sink approximately 4 meters long.
- 1 - Hobart dishwasher.
- 1 - Garland range with 2 deep fryers, 2 flat tops, 2 ovens, 1 gas range
- 1 - Garland gas range with 2 deep fryers and 1 flat top.
- 2 - Garland range hoods approximately 4 meters long.
- 1 - Barbau cabinet with 1 heating drawer and 2 fridges.

System Condition & Anticipated Replacement

According to the 2012 BCR, the following kitchen equipment appeared in fair condition, approximately 30 years of age, with an anticipated replacement date of 2012:

- 1 - Foster model AE-4440 refrigerator - cold hold cabinet
- 1 - Canadian Rogers Western model FW-63 steam table
- 1 - Foster model XR-45-81Q1 hot hold cabinet
- 1 - Keeprite model CCU05HW refrigerating unit
- 1 - Hobart dishwasher.
- 1 - Garland range with 2 deep fryers, 2 flat tops, 2 ovens, 1 gas range
- 1 - Garland gas range with 2 deep fryers and 1 flat top.
- 1 - Barbau cabinet with 1 heating drawer and 2 fridges.

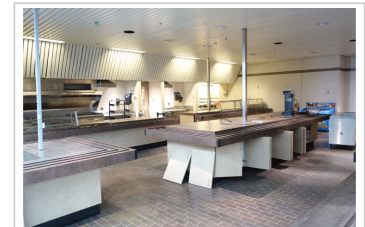
The following kitchen equipment was in good condition, approximately 30 years of age, with an anticipated replacement date of 2044, which is beyond the 30 year window cycle and therefore no event is offered:

- 1 - Stainless steel double compartment sink approximately 2 meters long.
- 1 - stainless steel triple compartment sink approximately 4 meters long.
- 2 - Garland range hoods approximately 4 meters long.

Condition Rating	Fair	Lifetime	25
Year Installed	2017	Years Remaining	24 (Age Based)
Adjustment Factor	1	Unit Cost	\$3,019.95
Quantity	178	Units	m2
Replacement Cost	\$537,551		

Comments

The cafeteria servery including the kitchen is no longer open. The area is locked off but all kitchen equipment remains in place. Equipment could not be evaluated. According to a conversation with the Building Manager on March 29, 2017, there is no plan currently in place for the kitchen area and the equipment has been unplugged and/or disconnected. Part of the front servery area is planned to be converted for vending machines.



Kitchen Equipment - Servery

G2014 - Guardrails and Barriers - Handrails and Railings-Site Related**Description****System Description**

The handrails are located at the exterior stairs and are fabricated from steel.

System Condition & Anticipated Replacement

The handrails at the exterior stairs appeared to be in average condition with no repair recommendation at this time and should last until at least 2022.

Condition Rating	Average	Lifetime	30
Year Installed	2017	Years Remaining	29 (Age Based)
Adjustment Factor	1	Unit Cost	\$515.11
Quantity	35	Units	m
Replacement Cost	\$18,029		
Comments			



Handrails and Railings-Site Related - Front entry exterior handrails

G2020 - Parking Lots - Paved Parking Lots - North & East**Description****System Description**

In addition to the south parking lot and drop-off drive aisle, the building is serviced with a cast-in-place concrete paved parking lot and service access to the loading docks on the north side of the building (17 parking stalls). There is also a small asphalt paved parking lot to the east of the building (10 parking stalls).

System Condition & Anticipated Replacement

The parking lot and service road on the north side of the building and the parking lot to the east of the building appeared to be in average condition. With continued maintenance, full replacement is not anticipated for another ten years until 2027.

Condition Rating	Average	Lifetime	20
Year Installed	2017	Years Remaining	19 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$40.64
Quantity	13,500	Units	m2
Replacement Cost	\$548,687		
Comments			

Requirement: (Renewal)

Paved Parking Lots - North & East Renewal

Description

Auto generated renewal for Paved Parking Lots - North & East. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$548,687	FY Action Date	2037

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

G2020 - Parking Lots - Paved Parking Lots - South**Description****System Description**

The south parking lot is a very large, extensively landscaped parking lot for approximately 760 employees. Of these 760 stalls, approximately 40 are designated as barrier-free stalls. The south parking area also features an independent drop off drive-aisle adjacent to the building.

System Condition & Anticipated Replacement

Generally the paved surfaces and related curbs are in average condition and appear to be well maintained. Given the age of these surfaces, it is recommended that they be monitored for deterioration on an annual basis. Based on the current condition, it is not anticipated that full replacement would be required for another ten years - 2027 - if ongoing maintenance is performed. Repairs to perimeter curbs where damaged by snow clearing equipment is recommended on an annual basis to prevent further deterioration and a requirement for more extensive replacement

Condition Rating	Average	Lifetime	20
Year Installed	2017	Years Remaining	19 (Age Based)
Adjustment Factor	1.4500	Unit Cost	\$155.31
Quantity	13,500	Units	m2
Replacement Cost	\$2,096,678		

Comments**Requirement: (Renewal)**

Paved Parking Lots - South Renewal

Description

Auto generated renewal for Paved Parking Lots - South. System Description:
N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$2,096,678	FY Action Date	2037

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

G2030 - Pedestrian Paving - Concrete Walkway & Areaways**Description****System Description**

Located at the front entrance of the building, on the south side, was an entrance plaza. The entrance plaza was comprised of multiple elevated cast-in-place concrete structural slabs supported on precast driven concrete piles in addition to a cast-in-place concrete slab-on-grade. The different elevations were connected in various locations with cast-in-place concrete structurally reinforced stairs and/or ramps. There are five stair locations, which are typically three treads high, and four cast-in-place concrete structurally reinforced ramps are placed throughout the front plaza area.

Cast-in-place concrete slab-on-grade sidewalks were located around various portions of the building's perimeter and throughout the extensive parking area to the south.

System Condition & Anticipated Replacement

The exterior concrete sidewalk and walk areas appeared to be in average condition. Minor cracks were observed, which may be due to shrinkage or the effects of freeze/thaw. The cracks do not appear to be a tripping hazard; therefore, no repair recommendations are made at this time for the concrete sidewalks and areas. The system has an anticipated replacement date of 2022.

Condition Rating	Average	Lifetime	25
Year Installed	1979	Years Remaining	5 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$513.24
Quantity	1,000	Units	m2
Replacement Cost	\$513,242		
Comments			



Concrete Walkway & Areaways -
Exterior view of concrete walkways

Requirement: (Renewal)

Concrete Walkway & Areaways Renewal

Description**Brief Description**

Maintain Concrete Walkway & Areaways

Maintenance of existing concrete sidewalks and areas

Requirement Justification and Strategy

Concrete surfaces are in relatively good condition and with ongoing maintenance, should be serviceable for another 10 years. Due to the high traffic in this public entrance zone, we recommend that the surfaces be maintained on an annual basis and that refurbishment of damaged areas be considered in five years time to extend the life of these areas.

Implication of Requirement Deferral

Deterioration may cause cracking and spalling of the existing structure, which may cause tripping hazards for the public and employees

Priority	5- Year 5	Category	O - Maintenance
Estimated Cost	\$256,621	FY Action Date	2023

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

G2033 - Exterior Steps - Stairs-Site Related**Description****System Description**

There are five stair and four ramp locations at the front entrance, consisting of cast-in-place concrete with unknown reinforcement.

System Condition & Anticipated Replacement

The stairs and ramps appeared to be in good condition with no repair recommendation at this time and should last until 2037.

Condition Rating	Good	Lifetime	75
Year Installed	1979	Years Remaining	20 (Observed)
Adjustment Factor	6	Unit Cost	\$6,434.88
Quantity	9	Units	ea
Replacement Cost	\$57,914		

Comments**Requirement: (Renewal)**

Stairs-Site Related Renewal

Description

Auto generated renewal for Stairs-Site Related. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$57,914	FY Action Date	2037

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

G2041 - Fences and Gates - Area Posts/Bollards**Description****System Description**

The building was observed to have four bollards located at the rear loading dock.

System Condition & Anticipated Replacement

The bollards appear to be in good structural condition. Annual review and touch-up of damage to paint finish is recommended. Unless unforeseen damage occurs to the bollards, they are expected to last the full life cycle until 2029.

Condition Rating	Good	Lifetime	40
Year Installed	1989	Years Remaining	12 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$40,783.61
Quantity	4	Units	ea
Replacement Cost	\$163,134		

Comments**Requirement: (Renewal)**

Area Posts/Bollards Renewal

Description

Auto generated renewal for Area Posts/Bollards. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$163,134	FY Action Date	2029

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Oct.26-28 023 (Small).jpg - Bollards at loading dock.

G2042 - Retaining Walls - Concrete Reinforced Retaining Wall**Description****System Description**

Cast-in-place concrete retaining walls were located in various locations around the site. Concrete retaining walls were observed at the east entrance to the building, around the feature pond and at the front entrance plaza. Landscaping drawings were available at time of inspect, which indicated that the retaining walls are supported on precast driven concrete piles.

System Condition & Anticipated Replacement

The retaining walls appear to be in good condition with no signs of distress observed where reviewed. No replacement recommendations are made at this time as the retaining walls are expected to last the full lifespan of the building.

Condition Rating	Good	Lifetime	100
Year Installed	1979	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$765.04
Quantity	150	Units	m2
Replacement Cost	\$114,756		

Comments

Concrete Reinforced Retaining Wall - View of exterior concrete retaining walls

G2042 - Retaining Walls - Concrete Wall**Description****System Description**

Cast-in-place concrete walls are provided on the exterior of the site as barrier elements around mechanical equipment and enclosing some areas outside the building. The reinforcing for these walls was not shown on the original plans reviewed.

System Condition & Anticipated Replacement

The walls appeared to be in good condition and thus no repair recommendations are made at this time.

Full replacement of the walls is not anticipated until end of life expectancy.

Condition Rating	Good	Lifetime	110
Year Installed	1979	Years Remaining	N/A
Adjustment Factor	1	Unit Cost	\$812.02
Quantity	70	Units	m2
Replacement Cost	\$56,841		
Comments			



Concrete Wall - View of exterior site concrete walls

G2044 - Signage - Signage - Exterior**Description****System Description**

There is an illuminated "Canada" word mark sign mounted high on the wall at the southwest corner of the building. There are also three identification/way finding signs along the street edge; one at the northwest corner of the site identifying the building; one at the north service access indicating "Deliveries" and one at the east entrance indicating the main staff parking area. These signs are horizontal format, each mounted on two steel posts with concrete pile foundations.

System Condition & Anticipated Replacement

All signs appear to be in good condition. No visible deterioration was noted. The illuminated sign is approximately 19 years old. The estimated replacement date is 2028. The street signage support posts should be maintained on an annual basis to ensure the steel does not deteriorate.

Condition Rating	Good	Lifetime	30
Year Installed	1998	Years Remaining	11 (Observed)
Adjustment Factor	1	Unit Cost	\$10,725.68
Quantity	4	Units	ea
Replacement Cost	\$42,903		
Comments			



Signage - Typical exterior sign

Requirement: (Renewal)

Signage - Exterior Renewal

Description

Auto generated renewal for Signage - Exterior. System Description: N/A

Brief Description**Requirement Justification and Strategy****Implication of Requirement Deferral**

Priority	9- Year 9	Category	I - Lifecycle
Estimated Cost	\$42,903	FY Action Date	2028

Requirement Type**Comments****Deferral Reason? Explain Risk Mitigation**

Oct.26-28 011 (Small).jpg - "Canada" sign

G2048 - Flagpoles - Flagpole

Description

System Description

There are three recently installed aluminum flagpoles located at the southeast corner of the site.

System Condition & Anticipated Replacement

The flagpoles are in excellent condition. There are no requirements or consideration for replacement within the 20 year systems planning window as they should last until 2042.

Condition Rating	Excellent	Lifetime	10
Year Installed	1995	Years Remaining	25 (Observed)
Adjustment Factor	0.2000	Unit Cost	\$12,226.39
Quantity	3	Units	ea
Replacement Cost	\$36,679		
Comments			



Flagpole - View of exterior flagpole

G2050 - Landscaping - Soft Landscaping**Description****System Description**

The site area is 10 hectares with approximately 75% covered with the building, paved surfaces and a large water retention pond. There is approximately 2.4 hectares of soft landscaping comprised of sod, shrubs, trees with wood and stone mulch. The trees and shrubs are both a mix of deciduous and coniferous species.

System Condition & Anticipated Replacement

Previous reports indicate problems with disease infestation of certain trees. It is unknown at this time if these trees have been replaced. Trees and shrubs should be monitored on an annual basis and maintained/replaced accordingly.

The pond features an antiquated aeration system that requires replacement. At this time, BGIS is planning to dredge the pond and to introduce new vegetation to control the goose population on the site. It is recommended that replacement of the aeration system be considered in conjunction with this project.

Overall rating is average. Yearly maintenance is expected.

Condition Rating	Average	Lifetime	1
Year Installed	2009	Years Remaining	1 (Observed)
Adjustment Factor	1.4500	Unit Cost	\$2.58
Quantity	24,000	Units	m2
Replacement Cost	\$61,944		
Comments			

Requirement: (Renewal)

Soft Landscaping Renewal

Description**Brief Description**

Replace trees and shrubs that are severely damaged by winter-kill, disease and infestation. Install new pond aeration system.

Requirement Justification and Strategy

Replacement is estimated to be approximately 4% of the trees and shrubs annually to maintain a healthy collection of landscape elements.

Replacement of the pond aeration system will result in improved performance with respect to water quality and algae growth.

Implication of Requirement Deferral

If the soft landscaping features are not maintained, disease of vegetation could become more extensive and the grounds could become unsightly in appearance. A poorly operating aeration system will result in a stagnant and algae infested pond. The soft landscape is an important feature of the facility given the huge employee population.

Priority	1- Year 1	Category	O - Maintenance
Estimated Cost	\$89,819	FY Action Date	2019

Requirement Type Repair**Comments****Deferral Reason? Explain Risk Mitigation**

Completed annually through operations.



Soft Landscaping - Winter view of exterior landscaping features



Oct.26-28 012 (Small).jpg - Shrubs located in planters along the South elevation.

UNCLASSIFIED - UNCLASSIFIED - Ladders**Description****System Description**

Roof access ladders are found on the roof to access the roofs over the mechanical penthouses.

System Condition & Anticipated Replacement

The ladders appear to be in good condition, solid and secure. The anticipated replacement date of 2054 is beyond the 20 year budget period. However, to ensure continued service, it is recommended that the metal surfaces be painted every ten years.

Condition Rating	Good	Lifetime	10
Year Installed	1979	Years Remaining	37 (Observed)
Adjustment Factor	1	Unit Cost	\$76.90
Quantity	30	Units	m
Replacement Cost	\$2,307		
Comments			



Oct.26-28 044 (Small).jpg - One of four ladders to each penthouse roof.



Requirement Forecast Report

By Name



Requirement Forecast Report

By Name

Region: Western/Région de l'Ouest

Property: 66 Stapon

Asset: Winnipeg Tax Centre Site Winnipeg P600009A

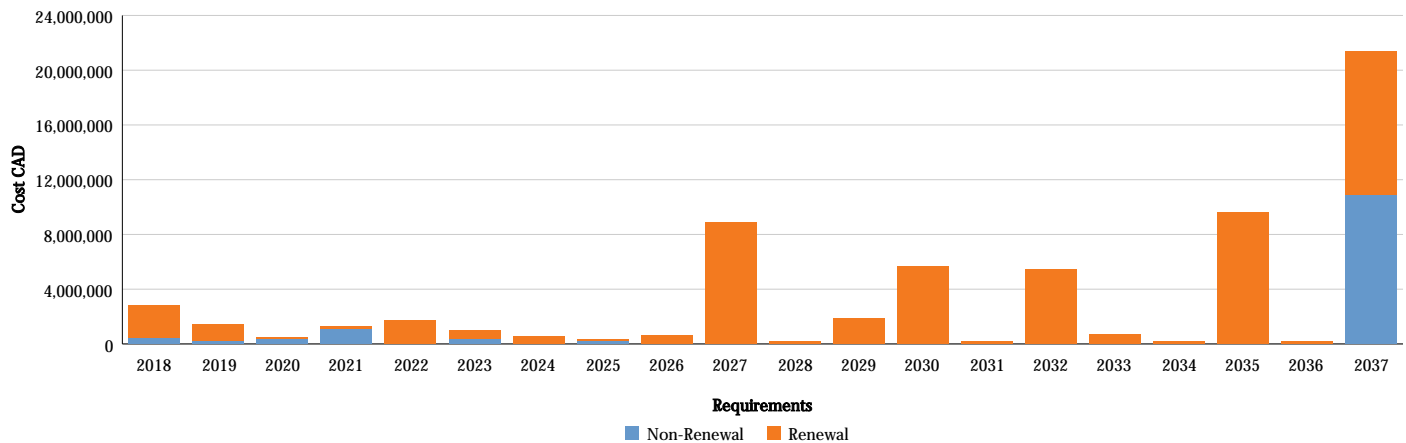
Currency: CAD

Period: 20 years

Inflation: 4.70%

The current year is always the Period start date. If "Include past due Action Dates/Renewals" is selected, the cost of those past due Requirements is included in the current year cost.

Summary of Funding Needed by Requirement Type and Year



Year	Renewal Requirements	Non-Renewal Requirements	Total
2018	2,412,206	462,343	2,874,549
2019	1,210,648	218,797	1,429,445
2020	98,460	385,817	484,278
2021	183,754	1,113,310	1,297,064
2022	1,724,946	12,017	1,736,962
2023	641,212	365,271	1,006,482
2024	566,129	19,929	586,059
2025	123,878	243,842	367,720
2026	635,829	0	635,829
2027	8,857,687	0	8,857,687
2028	210,091	0	210,091
2029	1,846,121	0	1,846,121
2030	5,660,512	0	5,660,512
2031	163,183	0	163,183
2032	5,445,618	0	5,445,618
2033	658,538	0	658,538
2034	187,290	0	187,290
2035	9,620,404	0	9,620,404
2036	205,309	0	205,309
2037	10,519,479	10,917,612	21,437,092
Total	50,971,294	13,738,939	64,710,232



Requirement Forecast Report

By Name

Region: Western/Région de l'Ouest

Asset: Winnipeg Tax Centre Site Winnipeg
P600009A

Property: 66 Stapon

Asset Number: P600009-101-60000321

Report is grouped by Year

Currency: CAD

Address 1	66 Stapon	Address 2	-
City	Winnipeg	State/Province/Region	Manitoba
Country	CANADA	ZIP	R3C3M2

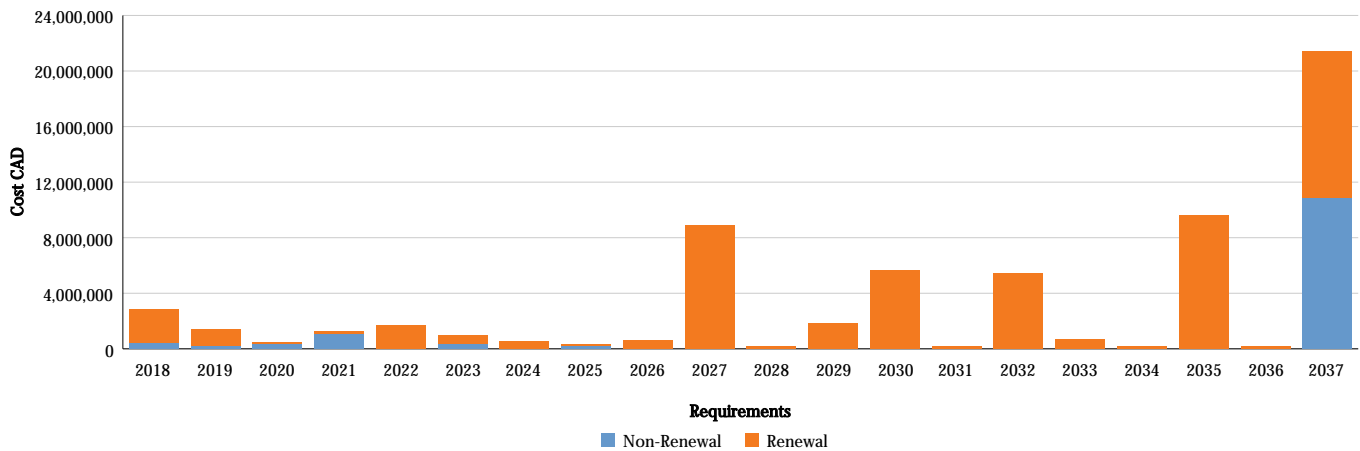
Current Replacement Value

71,814,300

Size

31,710 m2

Summary of Funding Needed by Requirement Type and Year



Year	Renewal Requirements	Non-Renewal Requirements	Total
2018	2,412,206	462,343	2,874,549
2019	1,210,648	218,797	1,429,445
2020	98,460	385,817	484,278
2021	183,754	1,113,310	1,297,064
2022	1,724,946	12,017	1,736,962
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2028	210,091	0	210,091
2029	1,846,121	0	1,846,121
2030	5,660,512	0	5,660,512
2031	163,183	0	163,183
2032	5,445,618	0	5,445,618
2033	658,538	0	658,538



Requirement Forecast Report

By Name

Year	Renewal Requirements	Non-Renewal Requirements	Total
2034	187,290	0	187,290
2035	9,620,404	0	9,620,404
2036	205,309	0	205,309
2037	10,519,479	10,917,612	21,437,092
Total	50,971,294	13,738,939	64,710,232

Detail of Funding Needed by Year

Year	System	Requirement Name	Renewal	Non-Renewal	Total
2018	D1010 - Elevators and Lifts	Upgrade both elevators -controllers	0	47,195	47,195
		Upgrade BMS front end	0	21,452	21,452
	D2020 - Domestic Water Distribution	Water Dist Complete - Average Renewal	1,575,804	0	1,575,804
	D1012 - Freight Elevators	Upgrade freight elevator - cylinder	0	58,993	58,993
	D1012 - Freight Elevators	Upgrade freight elevator - door & controller	0	34,323	34,323
	C3012 - Wall Finishes to Interior Walls	Replace deteriorated window glazing	0	14,232	14,232
		Paint Renewal	341,760	0	341,760
	D3040 - Distribution Systems	01.3-020C10 Exterior Wall - Metal & Glass panels	0	69,996	69,996
		Perimeter Heat System - Hydronic Fin Tube Renewal	374,818	0	374,818
	D2010 - Plumbing Fixtures	Water Coolers - Wall-Mounted Renewal	38,854	0	38,854
		01.3-020C10 Exterior Wall - Metal & Glass panels	0	21,873	21,873
	D1010 - Elevators and Lifts	Upgrade both elevators - doors & cylinders	0	165,179	165,179
	D2010 - Plumbing Fixtures	Custodial/Utility Sinks - Each Renewal	50,616	0	50,616
	D2010 - Plumbing Fixtures	Emergency Shower Units (Each) Renewal	9,259	0	9,259
		01.3-010C25 Exterior Wall - Concrete, precast panels	0	10,726	10,726
		Replace failed glazing units on annual basis	0	18,374	18,374
	B2030 - Exterior Doors	Revolving Door Renewal	0	0	0
	C3022 - Traffic Membranes	Floor Toppings & Traffic Membranes Renewal	21,095	0	21,095
	Subtotal for 2018		2,412,206	462,343	2,874,549
2019	D2010 - Plumbing Fixtures	Eye wash station plumbing	0	1,518	1,518
	D3060 - Controls and Instrumentation	Carbon Monoxide detection required for updated building code	0	30,363	30,363
	B2020 - Exterior Windows	Curtain Wall System Renewal	1,116,607	0	1,116,607
	D3041 - Air Distribution Systems	Repair piping insulation - chilled water piping.	0	1,412	1,412
	D3042 - Exhaust Ventilation Systems	Battery room exhaust fan - EF-33 - not operating during review	0	2,277	2,277
	D40 - Fire Protection	Testing of automatic sprinkler systems with glycol	0	1,640	1,640
	D40 - Fire Protection	Provide Access to Hose Cabinet	0	0	0
	B2020 - Exterior Windows	Replace Seals Exterior Windows - Curtain Wall System	0	123,743	123,743
	D3060 - Controls and Instrumentation	Replace damaged controllers with new	0	9,294	9,294
	D2023 - Domestic Water Supply Equipment	Replace DHW mixing valve.	0	4,554	4,554
	D2010 - Plumbing Fixtures	Protection of drinking fountain	0	38	38
	D40 - Fire Protection	NFPA inspection requirements	0	7,591	7,591
	G2050 - Landscaping	Soft Landscaping Renewal	94,040	0	94,040
	D2010 - Plumbing Fixtures	Install Backflow-Siphonage for utility sinks.	0	512	512
	D40 - Fire Protection	Maintain fire extinguisher visibility	0	5,340	5,340
	D2010 - Plumbing Fixtures	Repair janitor room eye wash station - main floor	0	152	152
	D3063 - Heating/Cooling Air Handling Units	Repair and make RTU-1, -2 operational.	0	30,363	30,363



Requirement Forecast Report

By Name

Year	System	Requirement Name	Renewal	Non-Renewal	Total
Subtotal for 2019			1,210,648	218,797	1,429,445
2020	B2020 - Exterior Windows	Replace Failed Sealed Glazing Units and Rough Opening Sealant.	0	147,988	147,988
	D3051 - Terminal Self-Contained Units	VAV unit replacement - 25%	0	214,583	214,583
	D3041 - Air Distribution Systems	Renew three way pneumatic control valves - most at risk	0	23,246	23,246
	G2050 - Landscaping	Soft Landscaping Renewal	98,460	0	98,460
Subtotal for 2020			98,460	385,817	484,278
2021	D40 - Fire Protection	Replace Fire Hoses	0	2,496	2,496
	G2050 - Landscaping	Soft Landscaping Renewal	103,088	0	103,088
	D3052 - Package Units	Test integrity and replace hydronic heating coils in air handling units	0	748,894	748,894
	C3022 - Traffic Membranes	Floor Toppings & Traffic Membranes	0	12,858	12,858
	B2010 - Exterior Walls	Removal and Installation of Panel Joint Sealant	0	266,733	266,733
	D3011 - Oil Supply System	Aboveground Fuel Tank - Steel - 2000 liter Renewal	12,087	0	12,087
	D40 - Fire Protection	Revision to existing glycol sprinkler system per NFPA 25	0	79,882	79,882
	D2023 - Domestic Water Supply Equipment	Replace 2 DHW pumps	68,579	0	68,579
	D3012 - Gas Supply System	Repaint exterior gas piping	0	2,447	2,447
Subtotal for 2021			183,754	1,113,310	1,297,064
2022	C3030 - Ceiling Finishes	Ceiling Paint Renewal	53,234	0	53,234
	G2050 - Landscaping	Soft Landscaping Renewal	107,933	0	107,933
	C3025 - Carpeting	Carpeting Renewal	1,127,745	0	1,127,745
	C3012 - Wall Finishes to Interior Walls	Paint Renewal	410,684	0	410,684
	C1020 - Interior Doors	Repaint Doors & Frames	0	12,017	12,017
	C3022 - Traffic Membranes	Floor Toppings & Traffic Membranes Renewal	25,350	0	25,350
Subtotal for 2022			1,724,946	12,017	1,736,962
2023	AUDIT - Audit and Assessments	All Life Cycle Activity - Building Condition Report	0	78,270	78,270
	G2050 - Landscaping	Soft Landscaping Renewal	113,006	0	113,006
	G2030 - Pedestrian Paving	Concrete Walkway & Areaways Renewal	322,868	0	322,868
	D3021 - Boilers	Replace 2 domestic hot water boilers	205,337	0	205,337
	C3030 - Ceiling Finishes	Ceiling Paint	0	58,320	58,320
	D2010 - Plumbing Fixtures	Replace: Water Coolers - Wall-Mounted Dual-Height (Each)	0	22,605	22,605
	D2020 - Domestic Water Distribution	Replace DCW thrust rods	0	182,432	182,432
	D2023 - Domestic Water Supply Equipment	Replace 4 hot water circulator pumps	0	23,643	23,643
Subtotal for 2023			641,212	365,271	1,006,482
2024	D40 - Fire Protection	Fire Extinguishers - Dry Chem w/Cabinet (Each) - New Renewal	91,132	0	91,132
	B2030 - Exterior Doors	Glazed Doors Renewal	240,835	0	240,835
	D3041 - Air Distribution Systems	Renew pneumatic control valves - long term renewal	0	17,981	17,981
	D40 - Fire Protection	Fire extinguisher end of life replacements	0	1,948	1,948
	G2050 - Landscaping	Soft Landscaping Renewal	118,317	0	118,317
	D3090 - Other HVAC Systems and Equipment	Replace 4 HVAC pumps	115,846	0	115,846
Subtotal for 2024			566,129	19,929	586,059
2025	G2050 - Landscaping	Soft Landscaping Renewal	123,878	0	123,878
	B2030 - Exterior Doors	DELETE - Glazed Door Replacement	0	243,842	243,842
Subtotal for 2025			123,878	243,842	367,720
2026	D5022 - Lighting Equipment	Exit Lighting Renewal	188,683	0	188,683
	G2050 - Landscaping	Soft Landscaping Renewal	129,700	0	129,700
	D3041 - Air Distribution Systems	Heating & Cooling Piping Systems Renewal	54,473	0	54,473
	D5091 - Grounding Systems	Grounding Protection System Renewal	262,973	0	262,973



Requirement Forecast Report

By Name

Year	System	Requirement Name	Renewal	Non-Renewal	Total
Subtotal for 2026			635,829	0	635,829
2027	D3060 - Controls and Instrumentation	DDC/Pneumatic System - Hybrid - Average Renewal	4,451,014	0	4,451,014
	D2010 - Plumbing Fixtures	Replace 147 plumbing fixtures	1,585,448	0	1,585,448
	D3064 - Exhaust and Ventilating Systems	Stacks & Breaching Renewal	574,290	0	574,290
	D3020 - Heat Generating Systems	Replace 1 heat exchanger	44,798	0	44,798
	C3030 - Ceiling Finishes	Ceiling Paint Renewal	66,977	0	66,977
	C3012 - Wall Finishes to Interior Walls	Paint Renewal	516,703	0	516,703
	G2050 - Landscaping	Soft Landscaping Renewal	135,796	0	135,796
	C3025 - Carpeting	Carpeting Renewal	1,418,875	0	1,418,875
	C3022 - Traffic Membranes	Floor Toppings & Traffic Membranes Renewal	31,894	0	31,894
	C3012 - Wall Finishes to Interior Walls	Vinyl Wall Covering Renewal	31,892	0	31,892
Subtotal for 2027			8,857,687	0	8,857,687
2028	G2044 - Signage	Signage - Exterior Renewal	67,913	0	67,913
	G2050 - Landscaping	Soft Landscaping Renewal	142,179	0	142,179
Subtotal for 2028			210,091	0	210,091
2029	D2040 - Rain Water Drainage	Roof Drainage - Gravity - Average Renewal	298,018	0	298,018
	D2030 - Sanitary Waste	Sanitary Waste - Gravity Disch - Average Renewal	561,914	0	561,914
	C1023 - Interior Door Hardware	Replace interior hardware on metal doors Renewal	566,957	0	566,957
	G2041 - Fences and Gates	Area Posts/Bollards Renewal	270,370	0	270,370
	G2050 - Landscaping	Soft Landscaping Renewal	148,861	0	148,861
Subtotal for 2029			1,846,121	0	1,846,121
2030	G2050 - Landscaping	Soft Landscaping Renewal	155,857	0	155,857
	D40 - Fire Protection	Wet Sprinkler System - Light Hazard w/Pump Renewal	5,504,654	0	5,504,654
Subtotal for 2030			5,660,512	0	5,660,512
2031	G2050 - Landscaping	Soft Landscaping Renewal	163,183	0	163,183
Subtotal for 2031			163,183	0	163,183
2032	C3030 - Ceiling Finishes	Ceiling Paint Renewal	84,267	0	84,267
	G2050 - Landscaping	Soft Landscaping Renewal	170,852	0	170,852
	C3022 - Traffic Membranes	Floor Toppings & Traffic Membranes Renewal	40,127	0	40,127
	B2020 - Exterior Windows	Aluminum Windows Renewal	1,246,973	0	1,246,973
	C3012 - Wall Finishes to Interior Walls	Paint Renewal	650,092	0	650,092
	C3025 - Carpeting	Carpeting Renewal	1,785,162	0	1,785,162
	D5037 - Fire Alarm Systems	Fire Alarm System Renewal	1,420,804	0	1,420,804
	C3024 - Flooring	Painted Concrete Floor Renewal	47,342	0	47,342
Subtotal for 2032			5,445,618	0	5,445,618
2033	G2050 - Landscaping	Soft Landscaping Renewal	178,882	0	178,882
	D3092 - Special Humidity Control	Humidifiers Renewal	479,656	0	479,656
Subtotal for 2033			658,538	0	658,538
2034	G2050 - Landscaping	Soft Landscaping Renewal	187,290	0	187,290
Subtotal for 2034			187,290	0	187,290
2035	D5092 - Emergency Light and Power Systems	Emergency Lighting Renewal	46,389	0	46,389
	B30 - Roofing	Modified Bitumen Renewal	9,377,923	0	9,377,923
	G2050 - Landscaping	Soft Landscaping Renewal	196,092	0	196,092
Subtotal for 2035			9,620,404	0	9,620,404
2036	G2050 - Landscaping	Soft Landscaping Renewal	205,309	0	205,309
Subtotal for 2036			205,309	0	205,309



Requirement Forecast Report

By Name

Year	System	Requirement Name	Renewal	Non-Renewal	Total
2037	G2020 - Parking Lots	Paved Parking Lots - South Renewal	5,017,862	0	5,017,862
	C3025 - Carpeting	Carpeting Renewal	2,246,007	0	2,246,007
	C3022 - Traffic Membranes	Floor Toppings & Traffic Membranes Renewal	50,486	0	50,486
	D3063 - Heating/Cooling Air Handling Units	Transformer Room Condensing Unit Renewal	101,090	0	101,090
	D3063 - Heating/Cooling Air Handling Units	Replacement: Roof Top AHU - Heat&Cool - RTU 5 & 6	0	10,917,612	10,917,612
	C3012 - Wall Finishes to Interior Walls	Paint Renewal	817,915	0	817,915
	G2020 - Parking Lots	Paved Parking Lots - North & East Renewal	1,313,142	0	1,313,142
	C3012 - Wall Finishes to Interior Walls	Special Wall Finishes -Plastic laminate panels Renewal	513,396	0	513,396
	G2033 - Exterior Steps	Stairs-Site Related Renewal	138,602	0	138,602
	C3030 - Ceiling Finishes	Ceiling Paint Renewal	106,021	0	106,021
	G2050 - Landscaping	Soft Landscaping Renewal	214,958	0	214,958
	Subtotal for 2037		10,519,479	10,917,612	21,437,092
Total		50,971,294	13,738,939	64,710,232	



System Renewal Requirement Crosstab Report

by Unifomat and Fiscal Year



System Renewal Requirement Crosstab Report

by Uniformat and Fiscal Year

Region: Western/Région de l'Ouest

Property: 66 Stapon

Asset: Winnipeg Tax Centre Site Winnipeg P600009A-P600009-101-60000321

Uniformat and Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	Summary
A10 - Foundations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUDIT - Audit and Assessments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B10 - Super Structure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B20 - Exterior Enclosure	0	1,117	0	0	0	0	241	0	0	0	0	0	0	0	1,247	0	0	0	0	0	2,604
B30 - Roofing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,378	0	0	9,378
C10 - Interior Construction	0	0	0	0	0	0	0	0	0	0	0	567	0	0	0	0	0	0	0	0	567
C20 - Stairs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C30 - Interior Finishes	363	0	0	0	1,617	0	0	0	0	2,066	0	0	0	0	2,607	0	0	0	0	3,734	10,387
D10 - Conveying	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D20 - Plumbing System	1,655	0	0	69	0	0	0	0	0	1,585	0	860	0	0	0	0	0	0	0	0	4,169
D30 - HVAC System	375	0	0	12	0	205	116	0	54	5,070	0	0	0	0	0	480	0	0	0	101	6,413
D40 - Fire Protection	0	0	0	0	0	0	91	0	0	0	0	0	5,505	0	0	0	0	0	0	0	5,596
D50 - Electrical System	0	0	0	0	0	0	0	0	452	0	0	0	0	0	1,421	0	0	46	0	0	1,919
E10 - Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G20 - Site Improvements	0	94	98	103	108	436	118	124	130	136	210	419	156	163	171	179	187	196	205	6,685	9,918
UNCLASSIFIED - UNCLASSIFIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Summary	2,393	1,211	98	184	1,725	641	566	124	636	8,858	210	1,846	5,661	163	5,446	659	187	9,620	205	10,519	50,952

Notes:

- All costs are based on the "Estimated Cost" of relevant Renewal Requirements.
- Fiscal Year is based on the Action Date of the relevant Renewal Requirements.

All costs are in thousands CAD. Renewal costs include 4.70% inflation rate.

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