FINAL REPORT

Facility Lifecycle Assessment Report
Oliver and District Arena

665 Mc Kinney Road

Oliver, British Columbia

Submitted to:
Oliver Parks and Recreation Society
6359 Park Drive
Oliver, BC, V0H 1T0
Attention: Ms. Carol Sheridan

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EXECUTIVE SUMMARY

Stephenson Engineering Ltd. (Stephenson) was retained by the Oliver Parks and Recreation Society (OPRS) to perform a Facility Lifecycle Assessment (FLA) in accordance with Stephenson's proposal dated October 18, 2017 of the property located at 665 McKinney Road in the Town of Oliver, British Columbia (the "Site").

The building provides approximately 2,462 m^2 (26,500 ft^2) gross floor area (GFA) according to information provided by the client and was constructed circa (1969) and is situated on a Site covering approximately 0.81 hectares (2,00 acres) of land. The building is a steel framed ice arena with a concrete masonry unit (CMU) shop addition on the east side. Two wood construction dressing rooms were added on the south side in 2012.

1.1. Summary of Findings

A cursory summary of findings of this Facility Lifecycle Assessment (FLA) is provided below. However, details are not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. To assess the physical condition of the site components and building, a Point of Contact was interviewed and a visual site review was conducted. No destructive or non-destructive testing was conducted. No calculations were performed to confirm the adequacy of the original design.

Based on the findings of this FLA, the following conclusions are made:

- **Architectural**

The site and the building were developed circa 1969. Two dressing rooms were added on the south side of the building in 2012. The sidewalks at the front of the property are constructed with cast-in-place (CIP) concrete. The vehicle access to the building is located at the west side of the property from Park Drive. Additional access is provided off of McKinney Road via the parking lot of the East Link Curling Centre that is located to the east of the property. The parking lot is shared with the adjacent recreation centre, therefore only the parts considered to belonging to the ice arena are a part of this report (see site map for details). The pavement throughout the drive lanes and the parking lot are asphalt. Based observations, there are approximately 79 surface parking spots on the ice arena portion.

The exterior cladding was reviewed visually from grade level. The building envelope is primarily clad with painted and prefinished corrugated metal panels, painted concrete masonry units (CMU) block and painted the concrete foundation along the base of the building. Exterior wall insulation was concealed and not directly reviewed but assumed to be provided with block fill and batt insulation and polyethylene vapour barrier where required. Windows consists of insulated glazing units set in vinyl or painted wood frames and glass block. The main entry doors are painted metal with glazed inserts in painted metal frames and the remaining doors are painted metal doors, set in painted metal frames.

Interior floor finishes are generally vinyl composite tiles (VCT), rubber and painted concrete. Interior walls are gypsum wall boards (GWB) or CMUs finished with paint, some areas are finished with ceramic tiles. The ceilings in the building are exposed insulation (arena) and painted GWBs in the remaining building sections.

The majority of the roof is a sloped prefinished metal roof above the arena and the dressing/mechanical rooms. A flat roof system finished with a modified bitumen roof membrane (SBS) is provided above the shop on the east side of the building. Water is drained from roof surfaces through external roof gutters and leaders. Prefinished metal and painted wood fascia is provided along the perimeter of the building. The soffits on the roof overhangs are painted plywood with vent holes on the original building and prefinished vented metal at the dressing room additions.

A cursory review was performed regarding the accessibility and barrier free compliance of the building. Generally, the building appears to not be barrier-free compliant.

The architectural components are in overall acceptable condition. No Immediate action items have been identified. Capital expenditures with respect to the site, the building envelope including the roof, interior elements and barrier free requirements are anticipated within the evaluation period. Additional investigation is recommended with respect to the site drainage, barrier free requirements, and suspected mould.

A detailed description of Site and building systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

- Structural

The foundation system is generally concealed by architectural flooring, wall and ceiling finishes; therefore, the foundation was not directly inspected at the time of the assessment. According to the drawings provided (incomplete), the building sub-structure consists of concrete pad foundations and concrete grade beams. The superstructure consists of pre-engineered perimeter steel columns and trusses and CMU blocks. Suspended floors above grade consist of plywood on wooden or steel joists and the main floor consists of concrete slab on-grade. The lateral support is likely comprised of structural metal framing and cross bracing. The roof of the arena is likely plywood sheathing or metal deck which is supported by structural steel trusses and beams. The roof's lateral support is likely comprised by plywood sheathing or metal decking, and cross bracing. Except on the ice rink slab, no significant cracking or excessive deflection, significant cracks, heaving or settlement was observed that could indicate structural distress.

The structural components are in overall acceptable condition. No Immediate action items have been identified. Capital expenditures with respect to ice floor system are anticipated within the evaluation period. No additional investigation is recommended at this time.

A detailed description of the Site and building structural systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

- Mechanical

Domestic water is supplied from the local service provider. Sanitary waste is disposed to the municipal mains. Storm water is drained trough overland absorption. Domestic water distribution piping is generally copper with some plastic in the new additions were observed. Sanitary drainage pipe was concealed an therefore not directly reviewed. Domestic hot water is provided by water heaters located in the referee change room, the shop and the two new dressing rooms.

Heating to the building is provided by electric unit and baseboard heaters as well as suspended natural gas fired unit heaters and radiators. Exhaust is accomplished by local in-line and wall mounted exhaust fans. An ice plant provides cooling for the ice rink flooring system. In general, the visual review of the premises revealed that the mechanical equipment and systems have had routine maintenance, and where equipment has failed it has generally been repaired and/or replaced

With the exception of the ice rink cooling loops, the mechanical components are in overall acceptable condition. No Immediate action items have been identified. Capital expenditures with respect to plumbing, heating, ventilation, fire protection and the ice plant as well as dehumidification are anticipated within the evaluation period. An additional investigation regarding the plumbing and exhaust is recommended.

A detailed description of the Site and building mechanical systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

- Electrical

Electrical service is provided to the building via overhead conductors from a pole-mounted transformer located north-east of the building and owned by the local service provider. Primary electrical distribution is accomplished by one 575 V, 400 Amp, 3-Phase, Tylor Electric main switch and four electrical sub-panels rated 240 V and in between 100 and 400 A three of them manufactured by Square D. The bigger mechanical equipment is provided with several variable frequency drives (VFDs). Interior lighting throughout the building is typically fluorescent T-8 fixtures with magnetic ballast and some LED. Exterior lighting is wall-mounted LED lighting controlled by photocell receptors. Building security is provided from motion detectors and door contacts. The building is equipped with battery packs emergency lighting and exit signs throughout.

In general, the visual review of the property indicates that the electrical equipment and systems are properly maintained.

Testing of the entire system - coordination, balancing, ground fault relays, and complete infrared scanning of switches and panels should be done as part of routine maintenance, on an annually basis and, all found deficiencies shall immediately be rectified.

The electrical components are in overall acceptable condition. Immediate action items with respect to emergency lighting are required. Capital expenditures with respect to the distribution

equipment, the lighting and fire alarm are anticipated within the evaluation period. No additional investigation is recommended at this time.

A detailed description of Site and building electrical systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

- **Remaining Expected Building Life Time and Replacement Cost**

The original elements present in the building are now 48 years old. The average life expectancy for the structural concrete foundation elements and the structural steel superstructure are approximately 75 years, provided the elements are maintained on a regular base.

The average life time expectancy for the metal cladding and metal roofing are both 40 years. The average life time expectancy for the SBS roofing materials are 25 years, while the windows and doors are expected to perform adequately as intended for 40 and 30 years respectively. Therefore, we anticipate that the cladding, roof systems, and both the windows and doors will all need to be replaced once before the entire building reaches the end of its life cycle over the next 27 years.

The replacement cost for the entire building is estimated to be $7,794,468 (based RSMeans* square foot cost in 2017).

*RSMeans is the north american standard tool for building cost estimation and costs were adjusted for location of the building.

1.2. Opinions of Probable Costs

The following tables summarize our opinion of budgets for capital expenditures above the threshold value of ($3,000) over the (10-Year) evaluation period that is identified by this report. Expenditures that are expected to be managed as part of normal operations are not shown. The budgets assume a prudent level of ongoing maintenance.

Table 1: Summary of Immediate and Capital Reserve Expenditures (uninflated)

Section	Description	Immediate	Reserve Years 1 to 5 (2018 to 2022)	Reserve Years 6 to 10 (2023 to 2027)	10-Year Reserve Total
3.0	Architectural	$750	$816,300	$231,500	$1,047,800
4.0	Structural	$0	$750,000	$0	$750,000
5.0	Mechanical	$0	$191,800	$47,300	$239,100
6.0	Electrical	$500	$267,000	$17,200	$284,200
TOTALS		**$1,250**	**$2,025,100**	**$296,000**	**$2,321,100**

Note: Immediate (2017) expenditures are not included in the Capital Reserve totals.

Table 2: Summary of Capital Reserve Expenditures per year (uninflated)

Year 1	Year 2	Year 3	Year 4	Year 5
$98,400	$270,000	$808,600	$0	$848,100

Year 6	Year 7	Year 8	Year 9	Year 10
$3,000	$26,500	$218,800	$39,700	$8,000

2. INTRODUCTION

2.1. Background

Stephenson Engineering Ltd. (Stephenson) was retained by the Oliver Parks and Recreation Society (OPRS) to perform a Facility Lifecycle Assessment (FLA) in accordance with Stephenson's proposal dated October 18, 2017 of the property located at 665 McKinney Road in the Town of Oliver, British Columbia (the "Site").

The building provides approximately 2,462 m^2 (26,500 ft^2) gross floor area (GFA) according to information provided by the client and was constructed circa (1969) and is situated on a Site covering approximately 0.81 hectares (2,00 acres) of land. The building is a steel framed ice arena with a concrete masonry unit (CMU) shop addition on the east side. Two wood construction dressing rooms were added on the south side in 2012.

The objective of the Facility Lifecycle Assessment (FLA) was to document the Site conditions at the time of the Site reconnaissance and, based on available sources of information and observations of surface conditions during the Site reconnaissance, to identify the exterior site improvements as well as the building structure, envelope, interior finishes, mechanical systems, electrical systems, fire/life safety systems, conveyance devices and visually obvious signs of non-compliance with respect to building code and barrier free accessibility.

2.2. Methodology

The Facility Lifecycle Assessment (FLA) was conducted in general accordance with the American Society for Testing and Materials (ASTM) "Standard Guide for Property Condition Assessments: Baseline Property Condition Process E 2018-15", as locally applicable and as stated in our Mandate and Report Resources in Appendix A.

Deviations and exceptions from the aforementioned ASTM are included in this report under section 2.4 ("Deviations from the Guide"). Limitations to our work are provided in Appendix B ("Limitations and Use of the Report").

Site Escort and general building information was provided by Slathe Wagner, (Recreation Facility Assistant Level 2) (hereafter referred to as the "Point of Contact"). Site reconnaissance was conducted by Tobias Link, Dipl.-Ing. (FH) of Stephenson on November 22, 2017. The FLA was completed by Tobias Link, Dipl.-Ing. (FH) and reviewed by Lawrence McSorley, Architect, AAA of Stephenson. The weather at the time of assessment was overcast with some rain and a temperature of ~+5°C with no conditions limiting access to Site. All areas of the site were accessible at the time of the assessment.

The scope of work did not include sampling or testing to identify the potential presence of hazardous building construction materials such as asbestos-containing materials (ACMs), lead-based paints (LBPs), polychlorinated biphenyl (PCB)-containing electrical equipment or other hazardous materials. Due to the age of the building (1969), it is (possible) that hazardous building construction materials may be present on Site.

2.3. Deviations from the Guide

The FLA was conducted and this report prepared in accordance with the scope of work outlined in accordance with Stephenson's proposal dated October 18, 2017 and executed by the Client on October 25, 2017.

The deviations from the ASTM used as a reference to complete the FLA and report for this project were as follows:

- Verification of number of parking spaces was not conducted.
- Verification of gross and net usable areas of the site buildings was not performed.

2.4. Evaluation Criteria

The FLA was completed in general accordance with OPRS stated scope of work as documented in the Facility Condition Assessment of Oliver & District Arena RFP (hereafter referred to as the "RFP"). The scope of the FLA was limited to identifying components, systems and potential concerns by visual examination of surface features and operating practices, and from available documented information sources. Only those items identified as being above the specified Capital Threshold will be addressed in the Capital Reserve Table. The Condition Rating system (CR) used throughout this report is based on the RFP:

Code	Description
1	**Critical Unsafe-** high risk of injury or critical system failure.
2	**Poor-** does not meet requirements, has significant deficiencies. May have high operating / maintenance costs.
3	**Marginal-** meets minimum requirements, has significant deficiencies. May have above average operating / maintenance costs.
4	**Acceptable-** meets present requirements, minor deficiencies. Average operating/maintenance costs.
5	**Good-** meets all present requirements. No deficiencies.
6	**Excellent-** as new/state of the art, meets present and foreseeable requirements.

The capital expenditures identified with respect to deficiencies or deferred maintenance shall be identified by the following categories ("Cat X"):

Category	Description
A	Code & Safety
B	Repair & Maintenance
C	Capital Expenditure
D	Modernization / Improvements
E	Other

Items identified with a CR rating of 1 and/or Cat A, shall be treated as "Immediate" action items, considered to have conditions that include deficiencies that require action in the next 60 to 90 days. Items identified with a CR of 2 or 3 and/or Cat B shall be considered to have conditions that include deficiencies that can be addressed within the next five years (2018 to 2022 in the Capital Reserve Table). Preventative Maintenance (PM) items may have been identified. These PM items are items anticipated to be required to maintain specific components/systems through to the end of their Expected Useful Life (EUL) and are considered to have CR of 4 or better that can be addressed at any time within the 10-year evaluation period (2018 to 2027 in the Capital Reserve Table).

Other non-urgent conditions identified with a CR of 4 to 6, are prioritized by their identification as Cat B to Cat E and are included in the Capital Reserve Table in an appropriate year. For items with no observed or reported deficiencies, a lifecycle replacement (LCR) cost estimate has been provided in the Capital Reserve Table spreadsheet in the year equal to the year of original installation plus that component's EUL. For example, if an item with no observed or reported deficiencies is nearing or has surpassed its EUL in the next 5 years (i.e., 2018 to 2022), an LCR cost estimate will be provided in the Lifecycle Plan spreadsheet in year 2022.

For similar components that have been replaced/installed at different times but where the age difference is equal to or less than 20% of the component's EUL, the average install year has been used in calculating the next lifecycle replacement event (i.e., for similar vinyl floor tile installed in 2004 versus 2006, each having a 20 year TDL, an average install year of 2005 has been used to calculate a single lifecycle replacement event in 2025).

No building material sampling or testing was conducted as part of this assessment.

2.5. Recommendations for Additional Investigation

RAI.1) Civil Drainage Study.

RAI.2) Barrier Free Study.

RAI.3) Mould Study.

RAI.4) Mechanical Study.

2.6. Desktop Data Collection

The following documents were reviewed:

- Cladding Diagram, prepared by Steel Built Industries Ltd., dated May 9, 1968.
- Anchor Bolt Setting Plan, prepared by Steel Built Industries Ltd., dated August 20, 1968.
- Erection Diagram, prepared by Steel Built Industries Ltd., dated August 21, 1968.
- Foundation Details (not complete), prepared by Steel Built Industries Ltd., dated July 9, 1968.
- Site Plan, prepared by True Consulting., dated July, 2017.

No other documentation was provided for review.

2.7. Outstanding Information

No outstanding information.

2.8. Building and Fire Code Compliance Overview

The Point of Contact reported that they were not aware of any outstanding work orders, building code violations or infractions, building ordinances or municipal health and fire safety by-laws violations.

2.9. Evidence of Mould Presence

No suspect mould was observed at the time of the site visit, however, the potential of mould in the staff room adjacent to the shop located behind the kitchen cabinets and in the ceiling space was reported.

2.10. Outline of the Report

The report that follows this section contains a summary description of the Site and building systems/components along with a detailed listing and description of systems/components. Furthermore, current, imminent or anticipated deficiencies above the Capital Threshold (if any) and excluding normal operating maintenance are presented with a CR, including a description of the risk/consequence of deferral, probability of imminent/anticipated failure and/or a further description of any failure if it has already occurred.

A more detailed Capital Reserve Table is presented in Appendix C outlining the specific systems/components, EUL, Install Date, Remaining Useful Life (RUL), replacement event type, basis of estimate and specific years for Capital Reserve planning.

2.11. Mandate and Report Resources

Please refer to Appendix A for the report General Purpose, Scope of Work and Reliance for this project and for additional resources related to the assumptions used in preparing this report such as:

Operating and Maintenance Items; and,

Discussions of Overall Concepts and Terminology.

3. SITE DESCRIPTION

3.1. Site Location and Setting

Stephenson Engineering Ltd. (Stephenson) was retained by OPRS to perform a FLA in accordance with Stephenson's proposal dated October 18, 2017 of the property located at 655 McKinney Road in the Town of Oliver, BC.

3.2. Site Physical Description

Table 3: Building Physical Description

Site Area	0.81 hectares (2.0 acres)
Number of Buildings on Site	one
Building (s) Footprint	(2,462 m^2) (26,500 ft^2)
Levels Above Grade	one
Levels Below Grade	none
Date of Building Construction	1969 (main building.) and 2012 (south side dressing rooms)
Date of Major Renovations	~1995
Percentage Site Coverage by Building(s)	30%
Percentage Site Coverage by Landscaped/Grassed/Bare Ground Areas	30%
Percentage Site Coverage by Paved or Other Sealed Surface Materials	40%

General view of the main entrance area.

Site plan including the building.

4. ARCHITECTURAL

The site and the building were developed circa 1969. Two dressing rooms were added on the south side of the building in 2012. The sidewalks at the front of the property are constructed with cast-in-place (CIP) concrete. The vehicle access to the building is located at the west side of the property from Park Drive. Additional access is provided off of McKinney Road via the parking lot of the East Link Curling Centre that is located to the east of the property. The parking lot is shared with the adjacent recreation centre, therefore only the parts considered to belonging to the ice arena are a part of this report (see site map for details). The pavement throughout the drive lanes and the parking lot are asphalt. Based observations, there are approximately 79 surface parking spots on the ice arena portion.

The exterior cladding was reviewed visually from grade level. The building envelope is primarily clad with painted and prefinished corrugated metal panels, painted concrete masonry units (CMU) block and painted the concrete foundation along the base of the building. Exterior wall insulation was concealed and not directly reviewed but assumed to be provided with block fill and batt insulation and polyethylene vapour barrier where required. Windows consists of insulated glazing units set in vinyl or painted wood frames and glass block. The main entry doors are painted metal with glazed inserts in painted metal frames and the remaining doors are painted metal doors, set in painted metal frames.

Interior floor finishes are generally vinyl composite tiles (VCT), rubber and painted concrete. Interior walls are gypsum wall boards (GWB) or CMUs finished with paint, some areas are finished with ceramic tiles. The ceilings in the building are exposed insulation (arena) and painted GWBs in the remaining building sections.

The majority of the roof is a sloped prefinished metal roof above the arena and the dressing/mechanical rooms. A flat roof system finished with a modified bitumen roof membrane (SBS) is provided above the shop on the east side of the building. Water is drained from roof surfaces through external roof gutters and leaders. Prefinished metal and painted wood fascia is provided along the perimeter of the building. The soffits on the roof overhangs are painted plywood with vent holes on the original building and prefinished vented metal at the dressing room additions.

A cursory review was performed regarding the accessibility and barrier free compliance of the building. Generally, the building appears to not be barrier-free compliant.

The architectural components are in overall acceptable condition. No Immediate action items have been identified. Capital expenditures with respect to the site, the building envelope including the roof, interior elements and barrier free requirements are anticipated within the evaluation period. Additional investigation is recommended with respect to the site drainage, barrier free requirements, and suspected mould.

A detailed description of Site and building systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

A01.0 SITE

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A01.1	**Site Servicing**	**Water**: Water is provided by the local service provider. **Sanitary Sewer**: Sanitary sewer is disposed to the municipal sewer mains. **Electrical**: power is fed to the building from a pole mounted electrical transformer owned by the local service provider through overhead conductors.	**4**	**-**	No concerns observed or reported.
A01.2	**Parking Lots & Drive Aisles**	**~1995:** The parking lot and drive aisles are finished with asphalt pavement. Prior patching was noted.	**3**	**C**	The asphalt is well beyond the end of its EUL and therefore is in marginal condition. Longitudinal and alligator cracking, edge breaks and potholes were observed throughout the parking lot and drive lanes.
A01.3	**Parking Lot Markings**	**~1995:** Parking stalls are marked with painted lines in the parking areas. Barrier-free stalls with signage is provided, though not fully compliant.	**3**	**C**	Markings are generally visible but show signs of deterioration throughout. They should be replaced at the same time the asphalt in the parking lot is replaced.
A01.4	**Concrete Sidewalks**	**1969/2012:** CIP concrete walkways are located along the building perimeter and leading to the entrances or from the parking lot.	**4**	**C**	The concrete original (1969) walkways are beyond their EUL, but are in acceptable condition apart for some minor cracking, heaving and settling.
A01.5	**Concrete Curbs / Pads**	**1969:** CIP concrete curbs and pads are provided throughout the parking lot and in front of the gate for the shop and the rink.	**4**	**C**	The concrete curbs and pads are beyond their EUL, but are in acceptable condition apart for some minor cracking, heaving and settling.
A01.6	**Parking Islands**	**1969:** An island is located at the parking lot to the west of the building.	**4**	**-**	The parking island is beyond its EUL, showing cracking, heaving and settling. The replacement cost is included in the replacement cost for the concrete curbs above. Therefore, no extra cost is indicated in the Capital Reserve Table.
A01.7	**Parking Bumpers**	Not present.	**-**	**-**	N/A

A01.8	**Pre-Cast Traffic Barriers**	**~1995:** Pre-cast concrete barriers are placed on the drive way to the north-east of the building and at the south-east corner of the building to direct traffic and protect the building and site elements.	**4**	**C**	No concerns observed or reported.
A01.9	**Site Drainage**	**2007:** One catch basin was identified to the east of the building in the snow pit.	**3**	**D**	Significant of water ponding was observed at the parking lot and throughout the rest of the property during the site visit. (See **Note 4B** and **RAI.1**)
A01.10	**Grassed Areas**	**1969:** Sodding, conifer and deciduous trees, shrubs and bushes as well as xeriscaped areas are located throughout the property.	**4**	**-**	No concerns observed or reported.
A01.11	**Fencing**	**2007:** Chain-link fencing is located to the east and north-east of the building to secure the yard and snow pit.	**4**	**-**	No concerns observed or reported.
A01.12	**CIP Retaining Walls**	**1969:** CIP concrete retaining walls are provided along the north and east property lines.	**4**	**C**	The retaining wall sections are beyond their EUL, but in acceptable condition apart for minor some cracking and settling.
A01.13	**Interlocking Retaining Wall Blocks**	**2007:** The snow pit to the east side of the building is created and supported by pre-cast interlocking concrete blocks.	**4**	**-**	No concerns observed or reported.
A01.14	**Exterior Stairs**	**1969:** A CIP concrete stair leads from the main entrance on the north side up to street level and the drop-off zone.	**4**	**C**	No concerns observed or reported.
A01.15	**Railings**	Not present	**A**	**1**	According to code, handrails are required on both sides of the stairs.
A01.16	**Guard Rails**	Not present	**A**	**1**	According to code, a guard rail is required along the retaining wall wherever the difference in between the sidewalk and the green space is more than 600 mm (~2 ft).
A01.17	**Amenities - Signage**	**2005:** A pole mounted wood sign is installed on the west side of the building. Two painted metal signs are installed on the buildings north elevation.	**4**	**-**	No concerns observed or reported, but the illuminated wall sign on the west building elevation will reach the end of its EUL within the time fame of this report. (See Note **4A**)

		1995: A wall mounted, illuminated plastic sign with a metal frame is installed on the buildings west elevation.			
A01.18	**Amenities - Site Furnishings**	**1995:** The site furnishing consists of one garbage receptacles and one painted wood bench at the main entrance, a picnic table for the staff on the east side of the building and another garbage receptacle on the south-east corner of the building.	**4**	**-**	No concerns observed or reported. (See Note **4A**)
A01.19	**Ancillary Buildings**	Not present.	**-**	**-**	N/A
A01.20	**Bollards**	**1995:** Painted metal bollards are installed on either end of the walkway leading along the north building elevation.	**4**	**-**	No concerns observed or reported. (See Note **4A**)

A02.0 EXTERIOR WALLS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A02.1	**Metal Siding**	**1969:** The building envelope is primarily clad with painted, corrugated metal siding. **2012:** The two dressing room additions on the south side are provided with pre-finished, corrugated metal siding.	**4**	**C**	The original siding (1969) is in working conditions, but have reached the end of its EUL. The siding has been repainted and shows severe denting and several metal repair patches. No concerns were observed or reported on the 2012 sections of the siding.
A02.2	**Exterior Paint**	**~1995:** The exterior CMU wall sections (main entrance and shop) and the exposed edge of the concrete slab as well as the metal siding are painted.	**4**	**-**	Apart from some minor flaking the exterior wall paint is in acceptable condition but reached its EUL. (See Note **4A**) The metal siding will not need to be repainted, as it will get replaced with prefinished metal siding instead.

A02.3	**Joint Sealers**	**1995:** Urethane –based sealants are provided at openings, expansion joints and material transitions.	**4**	**C**	No concerns observed or reported, but the joint sealers have reached the end of their EUL.
A02.4	**Louvers**	**1969:** Painted and prefinished metal louvers are provided for exhaust and ventilation located around the building exterior.	**4**	**-**	No concerns observed or reported, but the louvers have reached the end of their EUL. (See Note **4A**)
A02.5	**Insulation**	**1969/2012:** Concealed, but likely batt fiber glass insulation in the stud walls and block fill-insulation in the CMU sections.	**4**	**-**	No concerns observed or reported.
A02.6	**Vapour Barrier**	**1969/2012:** Concealed, but likely a polyethylene vapour barrier.	**4**	**-**	

A03.0 EXTERIOR WINDOWS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A03.1	**Exterior Windows**	**1969:** The window units in the main entrance area are non-operable, single pane, painted wood windows. **2012:** The dressing room addition on the south side of the building and the shop are provided with vinyl sliding windows with insulated glazing.	**2/4**	**D/-**	The wood windows have reached the end of their EUL and don't meet the current energy saving standards.
A03.2	**Glass Blocks**	**1995:** The former windows in the dressing rooms were replaced with glass blocks.	**4**	**-**	No concerns observed or reported.

A04.0 EXTERIOR DOORS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A04.1	Main Entrance Door	**~1995:** The main entrance to the building is located on the north elevation. The building entrance is equipped with a paired, painted metal door with security glazing, set in a painted metal frame. The door is equipped with an powered operator for barrier free access.	4	-	No concerns observed or reported.
A04.2	Secondary Doors	**1969/2012:** The emergency exits and secondary/delivery entrances are provided with painted single and paired metal utility doors, set in metal frames around the building.	4	C	No concerns observed or reported. The original doors have reached their EUL.
A04.3	Sliding Doors	**1969:** A pair of painted metal industrial sliding doors are installed on the west elevation and gives access to the ice rink.	4	C	No concerns observed or reported.
A04.4	Overhead Doors	**~2000:** A prefinished, insulated metal overhead door is installed in the shop on the east side of the building.	4	C	No concerns observed or reported.

A05.0 FASCIA AND SOFFITS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A05.1	Fascia	**1969/2012:** A prefinished metal fascia is provided along the roof perimeters of the ice rink and the new dressing rooms.	4	C	No concerns observed or reported.

		1969: A painted wood fascia is provided at the flat roof section of the shop on the east side of the building.			
A05.2	**Soffit**	**1969:** The roof overhangs on the original building are provided with painted wood soffits. **2012:** Prefinished vented metal soffits are provided along the underside of the roof overhangs of the new dressing room additions.	**4**	**C**	No concerns observed or reported. The original soffits have reached their EUL.

A06.0 INTERIOR WALLS AND PARTITIONS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A06.1	**Fixed Partitions**	**1969:** Interior partitions are generally a mixture of painted CMU block walls or wood studs provided with gypsum board or plywood sheathing.	**4**	**-**	No concerns observed or reported.
A06.2	**Interior Movable Partitions**	Not present.	**-**	**-**	N/A
A06.3	**Interior Paint**	**2016:** The interior CMU und gypsum board walls are painted.	**4**	**C**	No concerns observed or reported. (See Note **4C**)
A06.4	**Wallpaper**	Not present.	**-**	**-**	N/A
A06.5	**Ceramic Tiles**	**~1995:** The dressing room showers and men's washroom of the original building section are provided with ceramic wall tiles.	**4**	**-**	No concerns observed or reported.

A07.0 INTERIOR DOORS AND WINDOWS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A07.1	**Interior Doors**	**1969:** The interior doors are a mixture of painted metal doors, set in painted metal frames and painted solid core wood doors, set in painted wood frames. Some doors are provided with safety glazing.	**4**	**C**	No concerns observed or reported.
A07.2	**Interior Fire Rated Doors**	Not present.	**1**	**A**	It was observed that none of the interior doors were completely fire rated (door and frame). At a minimum, the compressor room, the shop and some of the storage rooms should be provided with fire rated doors.
A07.3	**Interior Windows**	**1969:** The interior windows in the group rooms and the audio room at the top of the bleachers are single pane windows with painted wood frames. **1995:** The interior windows at the ice rink level are set in a pre-finished metal frame and are provided with safety glass.	**4**	**C**	No concerns observed or reported. The original windows have reached the end of their EUL.

A08.0 CEILINGS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A08.1	**Gypsum Board**	**1969:** The majority of the ceilings in the rooms other than the ice arena itself are provided with painted gypsum boards.	**4**	**-**	No concerns observed or reported.

A08.2	**Plywood**	**2012:** The ceilings in the two dressing room additions on the south side are provided with painted plywood.	**4**	**-**	No concerns observed or reported.
A08.3	**Ceramic Tiles**	**1995:** The ceilings of the showers in the dressing rooms of the original building section are provided with ceramic tiles.	**4**	**-**	No concerns observed or reported.
A08.4	**Ceiling Paint**	**1995:** The plywood and gypsum board ceilings are painted throughout.	**4**	**C**	No concerns observed or reported.
A08.5	**Exposed Insulation**	**1995:** The ceiling above the ice rink and in some of the upper group areas are provided with exposed vapour barrier as part of the insulation system.	**4**	**C**	Some tears and holes were observed in the vapour barrier. A one-time allowance to repair damages is provided in the Capital Reserve Table.

A09.0 FLOORING

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A09.1	**Ceramic Tiles**	**1995/2012:** The floors of the showers are provided with ceramic tiles.	**4**	**-**	No concerns observed or reported.
A09.2	**Rubber Flooring**	**~2005/2012:** The floor areas around the ice rink and some of the dressing room areas are provided with skate proof rubber flooring.	**4**	**C**	No concerns observed or reported.
A09.3	**VCT Flooring**	**1995:** The majority of the floors are provided with VCT floor tiles.	**4**	**C**	No concerns observed or reported.
A09.4	**Resilient flooring (Sheet)**	**1995:** Some of the upper group rooms are provided with resilient sheet flooring.	**4**	**-**	No concerns observed or reported. (See Note **4A**)
A09.5	**Floor Paint**	**1995:** Some painted wood and concrete flooring is provided in the storage, mechanical and shop areas throughout the building.	**4**	**-**	Some damages of the wood floors in the upper storage rooms were observed. However, the painted floors have reached the end of their EUL. (See Note **4A**)

A10.0 FIXTURES

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A10.1	**Counter/Cabinets**	**1969:** A ceiling height wood display case is installed at the main entrance. Some painted wood base cabinets are installed in the concession area. Additional wood shelving for skates is installed in the rental area. **~2000:** plastic laminate base and upper kitchen cabinets with plastic laminate countertops are installed in the concession area and the staff room by the shop. The washrooms are provided with plastic laminate countertops.	**4**	**C**	The display had reached EUL. Some localized damages, mostly delaminating, were observed on the washroom counters. An allowance for repair and replacement was provided in the Capital Reserve Table.
A10.2	**Benches**	**1969/2012:** Painted wood benches are installed in all the dressing rooms and in the entrance area.	**4**	**C**	The original benches have reached the end of their EUL.
A10.3	**Lockers**	**~1995:** Prefinished locker are only provided in the referee dressing room and in one of the upper group rooms.	**4**	**-**	No concerns observed or reported. (See Note **4A**)
A10.4	**Washrooms Accessories**	**~2000:** The washrooms and dressing rooms are partly provided with mirrors; toilet paper, paper towel and soap dispensers and garbage receptacles.	**4**	**C**	Accessories are not barrier free compliant. No other concerns observed or reported.
A10.5	**Toilet Partitions**	**~1995:** Prefinished metal toilet partitions are installed in the wash and dressing rooms.	**4**	**C**	Partitions are not barrier free compliant. No concerns observed or reported.
A10.6	**Appliances**	**~2000:** Commercial and residential kitchen appliances in form of fridges, freezers and a range are provided in the building.	**4**	**C**	No concerns observed or reported.
A10.7	**Wayfinding**	**~2000:** One fire exit diagram was observed in the entire building.	**1**	**A**	Emergency exit diagrams should be provided throughout the building and not only on one location. A cost to provide

					and install the diagrams is provided in the Capital Reserve Table.
A10.8	**Bleachers**	**1969:** The arena is provided with painted wood benches for spectators.	**4**	**C**	No concerns observed or reported. However, the benches already reached the end of their EUL.
A10.9	**Dasher Boards**	**~2000:** Acrylic upper and lower dasher boards with access doors and gates are installed around the ice rink	**4**	**C**	No concerns observed or reported.
A10.10	**Handrails**	**1969:** The bleachers are provided with painted wood handrails.	**3**	**A**	The handrails don't meet the current building code, nor the do they meet barrier free requirements. They should get replaced with metal railings.
A10.11	**Window Blinds**	**~2000:** The window in the skate rental room is provided with metal window blinds	**4**	**-**	No concerns observed or reported. (See Note **4A**)
A10.12	**Tack Boards**	**~1995:** Framed and unframed tack boards with or without glazing are provided in the entrance area and the staff room.	**4**	**-**	No concerns observed or reported. (See Note **4A**)

A11.0 BARRIER-FREE REQUIREMENTS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A11.1	**Parking**	Altogether three designated barrier free parking stalls are provided on the north-west and south-east corner of the building. However, they appear to be non-compliant with barrier free regulations.	**2**	**D**	The stall located on the north-west corner of the building appears to be too small. It also lacks a vertical barrier free sign. (See Note **4D**) (See **RAI.2**)
A11.2	**Access Route and Building Entrance**	The access route from the parking lot to the main entrance appears to be barrier free. And an automatic door opener is provided on the entrance door.	**4**	**-**	The barrier free parking stalls on the south-east corner of the building are quite a bit away from the main entrance; however, access to the building via the parking mostly complies with barrier free requirements. (See **RAI.2**)

A11.3	**Interior Circulation**	The interior circulation appears to be mostly compliant with the barrier free regulations, except for the missing wheelchair accessible spectator spots,.	**4**	**-**	No concerns observed or reported. (See Note **4E**) (See **RAI.2**)
A11.4	**Washrooms**	The washrooms in building don't meet barrier free requirements.	**2**	**D**	The washrooms are not compliant with barrier free requirement due to space restrictions, not provided grab bars, wrong door hardware, no roll in showers, wrong mounting height of washroom fixtures and accessories etc. At least one barrier free unisex washroom should be provided in the building. We recommend to conduct a barrier free study to determine the needs to comply with barrier free standards. An allowance has been provided to convert the washrooms; however, the actual cost is dependant on the outcome of the study. (See **RAI.2**)

R01.0 ROOFING

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
R01.1	**SBS Roof**	**2013:** The flat roof sections above the shop area are provided with a SBS roofing membrane.	**4**	**-**	No concerns observed or reported.
R01.2	**Metal Roofing**	**1969/2012:** The main building section, the added dressing rooms and the main entrance area are provided with corrugated, pre-finished metal roofing.	**4**	**C**	The original roof sections have reached the end of their EUL and should get replaced. Two small roof leaks were reported above the ice rink. They should get repaired at a cost below the Capital Threshold.
R01.3	**Gutters and Downspouts**	**1969/2013:** The main building is provided with prefinished metal roof gutters.	**3**	**B**	The original and new, gutters and downspouts were observed leaking, disconnected and missing at serval locations.
R01.4	**Cap Flashing**	**2013:** The edges of the flat roof sections are provided with prefinished metal flashing.	**4**	**-**	No concerns observed or reported.

R01.5	**Skylights**	Not present.	**-**	**-**	N/A
R01.6	**Roof Ladder**	Not present.	**-**	**-**	N/A
R01.7	**Snow Guards**	**2013:** No snow guards are installed at the south dressing room additions.	**2**	**-**	The missing snow guards caused the snow to slide off the roof, taking down the roof gutters. (See Note **4A**)

A99.0 OTHER (STAIRS AND CONVEYANCE DEVICES)

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
A99.1	**Mould**	Potential mould was reported in the wall behind the kitchen cabinets in the staff room and in the ceiling of this room.	**2**	**E**	No mould was not observed at the time of the assessment. We recommend to conduct a mould study and therefore, we provided an allowance for remediation. The actual cost for the remediation is dependent on the outcome of the study. (See **RAI.3**)

NOTES:

4A) The cost associated with repairs/replacement of this item is expected to fall below the Capital Threshold; as such, no costing has been included in the Capital Reserve Table.

4B) Stephenson recommends to conduct a civil study for the entire property before the replacement of the parking lot to determine the issues and provided solutions. The cost for the study and the resulting improvements are provided in the Capital Reserve Table. The costs are only an allowance and the actual cost are depending on the outcome of the study.

4C) It was reported that the majority of the building gets painted annually as a result of the damages due to its usage as an ice arena. As not all rooms get repainted each year, a cost for repainting is only provided for every other year.

4D) No immediate action is required. However, the two barrier free parking stalls on the south-east corner of the building should be relocated closer to the main entrance at the same time the parking lot is replaced in year 2 of the Capital Reserve Table. During the parking lot replacement process, it is necessary to ensure the correct number of barrier free parking stalls are installed and comply with the regulations size wise and all the necessary horizontal and vertical markings are provided. It is assumed the cost for the work will be covered by the cost of the parking lot asphalt replacement. Therefore, no extra cost is provided in the Capital Reserve Table. (See **RAI.2**)

4E) It would be advised to provide a minimum amount of barrier free designated spaces in the spectator area at ground level. The cost for this is estimated to be below the Capital Reserve Table. In addition, we would like to mention, that the group rooms on the upper level behind the bleachers are not barrier free accessible, but this might not be required at this point. (See **RAI.2**)

IMMEDIATE ITEMS IDENTIFIED:

No immediate work items were identified.

CAPITAL RESERVE ITEMS IDENTIFIED:

A01.2) Resurface asphalt parking lot.
A01.3) Repaint asphalt markings.
A01.4) Replace pedestrian concrete walkways.
A01.5) Replace concrete curbs and gutters.
A01.8) Replace pre-cast concrete barriers.
A01.9) Make drainage improvements according to civil study.
A01.12) Replace retaining walls.
A01.14) Replace exterior concrete stairs.
A01.15) Install hand rails.
A01.16) Install guard rails.
A02.1) Replace exterior metal cladding.
A02.3) Replace joint sealers.
A03.1) Replace exterior wood windows.
A04.2) Replace exterior utility doors.
A04.3) Replace exterior sliding gate.
A04.4) Replace overhead door.
A05.1) Replace aluminum fascia.
A05.1) Replace aluminum fascia.
A05.2) Replace exterior soffits.
A06.1) Repaint interior walls.
A07.1) Replace interior metal doors.
A07.1) Replace interior wood doors.
A07.2) Replace interior fire doors.
A07.3) Replace interior windows.
A08.4) Repaint interior ceilings.
A08.5) Repair exposed rink insulation.
A09.1) Replace interior VCT flooring.
A09.2) Replace interior rubber flooring.
A09.3) Replace interior resilient sheet flooring.
A10.1) Replace fixed casework.
A10.2) Replace original dressing room benches.

A10.4) Replace washroom accessories.
A10.5) Replace fabricated washroom compartments.
A10.6) Replace appliances.
A10.7) Install emergency exit diagrams.
A10.8) Replace spectator benches.
A10.9) Replace dasher boards.
A10.10) Replace handrails on bleachers.
A11.4) Upgrade washrooms to comply with barrier requirements.
R01.2) Replace metal roofing.
R01.3) Replace roof gutters and downspouts.
A99.1) Remediate mould if necessary.
No other Capital Reserve Items above the threshold identified.

RECOMMENDED ADDITIONAL INVESTIGATION:

RAI.1) Conduct a civil study to provide solution for the site drainage issues.
RAI.2) Conduct a barrier free study to determine the needs to comply with all aspects of the barrier free standards.
RAI.3) Conduct a mould study.
No other additional investigations are recommended.

Photo #A1: Typical condition of the asphalt paving.

Photo #A2: Close-up of typical asphalt and curb damage.

Photo #A3: The stairs and retaining wall at the main entrance.

Photo #A4: Flat SBS roof section above the shop on the east side.

Photo #A5: Metal siding damages at the south-east corner of the building.

Photo #A6: Typical metal patches observed on metal siding.

Photo #A7: Exterior CMU wall on the south-east corner.

Photo #A8: Main entrance door on the north side of the building.

Photo #A9: Detail of a painted single glazing wood window.

Photo #A10: The sliding doors on the west elevation.

Photo #A11: Leaking downspout.

Photo #A12: Water pooling near the main entrance caused by leaking roof gutters or downspout.

Photo #A13: .Typical finishes in the entrance area and hallways.

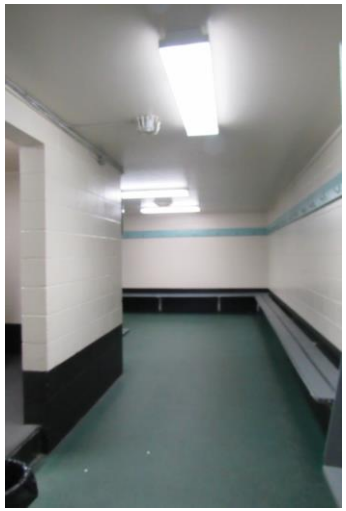

Photo #A14: Typical finishes in the original building dressing rooms.

Photo #A15: Typical finishes in the new (2012) dressing rooms.

Photo #A16: The finishes around the shower area in one of the original dressing room.

Photo #A17: Typical finishes in the toilet area of a new dressing room.

Photo #A18: Ice arena spectator benches and exposed roof insulation.

Photo #A19: Typical minor damage on arena ceiling (batt insulation).

Photo #A20: Typical finishes on the upper floor group room.

Photo #A21: Typical fixed counter in the original dressing rooms.

Photo #A22: Dasher boards at the ice rink.

5. STRUCTURAL

The foundation system is generally concealed by architectural flooring, wall and ceiling finishes; therefore, the foundation was not directly inspected at the time of the assessment. According to the drawings provided (incomplete), the building sub-structure consists of concrete pad foundations and concrete grade beams. The superstructure consists of pre-engineered perimeter steel columns and trusses and CMU blocks. Suspended floors above grade consist of plywood on wooden or steel joists and the main floor consists of concrete slab on-grade. The lateral support is likely comprised of structural metal framing and cross bracing. The roof of the arena is likely plywood sheathing or metal deck which is supported by structural steel trusses and beams. The roof's lateral support is likely comprised by plywood sheathing or metal decking, and cross bracing. Except on the ice rink slab, no significant cracking or excessive deflection, significant cracks, heaving or settlement was observed that could indicate structural distress.

The structural components are in overall acceptable condition. No Immediate action items have been identified. Capital expenditures with respect to ice floor system are anticipated within the evaluation period. No additional investigation is recommended at this time.

A detailed description of the Site and building structural systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

S01.0 FOUNDATIONS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
S01.1	**Footings**	**1969:** Concealed, but according to drawings consist of pad type CIP concrete footings.	**4**	**-**	No concerns observed or reported.
S01.2	**Grade Beams**	**1969:** Concealed, but according to drawings the building is provided with reinforced CIP grade beams at its perimeter.	**4**	**-**	No concerns observed or reported.

S02.0 FLOORS ON GRADE

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
S02.1	**Slab on Grade**	**1969:** The main floor and the ice rink consists of concrete slab-on-grade.	**3**	**D**	A continuous crack was observed along the middle line of the ice rink. Additional deteriorated concrete is located adjacent to the rink. We recommend the replacement of the existing rink slab and cooling loops at the same time. For further details please see **Note 5.A**. Please see also **M99.2** in the mechanical section.

S03.0 SUSPENDED FLOOR AND STAIRS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT

S03.1	**Suspended Floors**	**1969:** Concealed, but the upper rooms behind the spectator seats are likely supported by a steel structure and wood floor trusses or joists.	**4**	**-**	No concerns observed or reported.
S03.2	**Crawlspace**	Not present.	**-**	**-**	No concerns observed or reported.
S03.3	**Stairs**	**1969:** Concealed, but the stairs leading up the grandstand is likely a steel/wood structure.	**4**	**-**	No concerns observed or reported.

S04.0 ROOF STRUCTURES

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
S04.1	**Framing**	**1969:** The roof above the arena is supported by a pre-engineered structural steel construction and the roof above the shop and entrance area is likely supported by wood joists or steel purlins.	**4**	**-**	No concerns observed or reported.
S04.2	**Decking**	**1969:** Concealed, but likely plywood sheathing or metal deck.	**4**	**-**	No concerns observed or reported.
S04.3	**Lateral Resistance**	**1969:** Concealed, but likely roof sheathing or metal deck and cross bracing.	**4**	**-**	No concerns observed or reported.

S05.0 INTERIOR WALLS AND COLUMNS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
S05.1	**Interior Load Bearing Walls**	**1969:** The interior walls are mostly CMU with some wood stud walls.	**4**	**-**	No concerns observed or reported.

S05.2	**Interior Columns**	**1969:** The interior columns are structural steel columns.	**4**	**-**	Some oxidation at the bottom plate was observed in the #1 dressing room. (see **Note 5.B**)

S06.0 EXTERIOR WALLS AND COLUMNS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
S06.1	**Exterior Load-bearing Walls**	Not present.	**-**	**-**	N/A.
S06.2	**Exterior Columns**	**1969:** The exterior columns are structural steel columns.	**4**	**-**	No concerns observed or reported.

S99.0 OTHER

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
S99.1	**Specially Engineered Construction**	Not present.	**-**	**-**	N/A.

NOTES:

5A) The slab will not reach the end of it EUL within the time frame of this report; however, due to the freeze-thaw cycle and existing cracks, and spalling, it is prematurely failing. Because of this and, due to the fact that some of the cooling lines are already damaged, we recommend to replace the existing slab. The price indicated under this line item includes the demolition and disposal of the existing slab and cooling lines, the new installation of new cooling loops and a new concrete slab.

5B) The cost associated with repairs/replacement of this item is expected to fall below the Capital Threshold; as such, no costing has been included in the Capital Reserve Table.

IMMEDIATE ITEMS IDENTIFIED:

No immediate work items were identified.

CAPITAL RESERVE ITEMS IDENTIFIED:

S02.1) Replace ice rink floor system.
No other Capital Reserve Items above the threshold identified.

RECOMMENDED ADDITIONAL INVESTIGATION:

No additional investigation recommended at this time.

Photo #S1: Cracked SOG ice rink floor.

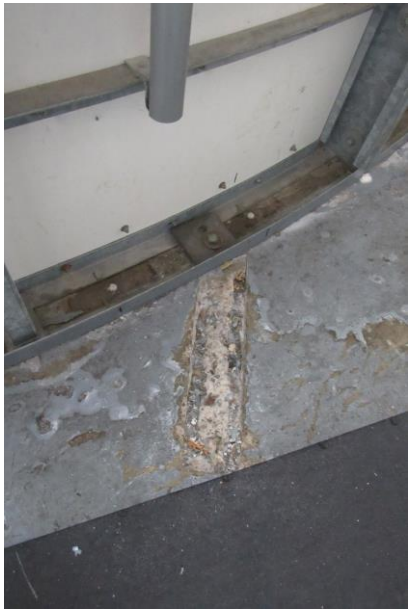

Photo #S2: Spalling concrete just outside the rink.

Photo #S3: Typical interior structural steel column.

Photo #S4: Bottom plate and top of concrete footing.

Photo #S5: Rusting observed in one of the change rooms.

Photo #S6: Roof structure above the ice rink.

6. MECHANICAL

Domestic water is supplied from the local service provider. Sanitary waste is disposed to the municipal mains. Storm water is drained trough overland absorption. Domestic water distribution piping is generally copper with some plastic in the new additions were observed. Sanitary drainage pipe was concealed an therefore not directly reviewed. Domestic hot water is provided by water heaters located in the referee change room, the shop and the two new dressing rooms.

Heating to the building is provided by electric unit and baseboard heaters as well as suspended natural gas fired unit heaters and radiators. Exhaust is accomplished by local in-line and wall mounted exhaust fans. An ice plant provides cooling for the ice rink flooring system. In general, the visual review of the premises revealed that the mechanical equipment and systems have had routine maintenance, and where equipment has failed it has generally been repaired and/or replaced

With the exception of the ice rink cooling loops, the mechanical components are in overall acceptable condition. No Immediate action items have been identified. Capital expenditures with respect to plumbing, heating, ventilation, fire protection and the ice plant as well as dehumidification are anticipated within the evaluation period. An additional investigation regarding the plumbing and exhaust is recommended.

A detailed description of the Site and building mechanical systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

M01.0 SITE SERVICES

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M01.1	**Domestic Water Supply**	Domestic waster is supplied by municipal mains.	**4**	**-**	No concerns observed or reported.
M01.2	**Sanitary Sewer**	Sanitary waste is disposed to municipal mains.	**4**	**-**	No concerns observed or reported.
M01.3	**Storm Sewer**	Storm water is drained through overland soil absorption and surface drainage.	**4**	**-**	No concerns observed or reported.
M01.4	**Natural Gas**	Gas is supplied into the building by the local service provider.	**4**	**-**	No concerns observed or reported.

M02.0 PLUMBING

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M02.1	**Water Distribution**	**1969:** Copper domestic water distribution piping is provided throughout the original building section. **2012:** The new dressing room additions on the south side are provided with a mixture of copper and plastic water distribution piping	**2/4**	**C/-**	Lots of pin holing was reported in the original building section. Moreover, it was reported that issues due to missing isolation valves and the distance the water heaters are located from the showers have resulted in a complete shutdown for even small repairs and wasting of excessive amounts of water. The 1969 sections should be replaced along with adding isolation valves. (see **RAI.4**)
M02.2	**Backflow Prevention**	**1969:** Backflow preventers are installed on the water mains in the mechanical room as well as in the shop.	**4**	**-**	No concerns observed or reported. They reached the end of their EUL, but were reported to be inspected annually (confirmed by tag). (see **Note 6A**)

M02.3	**Domestic Water Heaters**	**2004:** A natural gas fired, 76 US Gal water heater with a recovery rate of 193.8 US Gal/hr is installed in the referee dressing room. Count: 1 Make: Rheem Model: G76-200-1 Input: 199,900 Btu/Hr **~2008:** A instant water heater is installed in the shop. Count: 1 Make: Nortiz Model: N-0541MC Input: 199,200 BTU/Hr **2012:** The new dressing rooms on the south side of the building and the shop are provided with natural gas fired wall mounted, instant water heaters. Count: 3 Make: Rinnai Model: RU80i (REU-KB3530FFUD-US) Input: 15,200 to 152,000 Btu/Hr	**4**	**C**	No concerns observed or reported. Only the Rheem water heater need replacement within the time frame of this report. As mentioned in M02.1 the location of the water heater is not ideal, and should be reconsidered at the time of the replacement. (see **RAI.4**)
M02.4	**Waste Water Piping**	**1969:** Concealed, but likely cast iron and some ABS plastic piping in the new dressing rooms.	**4**	**-**	No concerns observed or reported.
M02.5	**Irrigation System**	**1969:** A irrigation system is provided along the north elevation of the building.	**4**	**C**	No concerns observed or reported.
M02.6	**Washrooms Fixtures**	**1969:** The washrooms in the original building section are provided with wall hung, vitreous china urinals with automatic flush valves, flush tank vitreous china toilets and a mixture of enamel	**4**	**C**	No concerns observed or reported.

		iron, stainless steel and vitreous china counter mounted sinks. **1995:** The original building section is provided with vitreous china, floor mounted flush tank toilets.			
M02.7	**Shower Fixtures**	**1995:** The dressing rooms in the original building are provided with three showerheads and valve sets in each shower section. **2012:** The new dressing rooms are provided with two shower heads and valves each.	**4**	**C/-**	No concerns observed or reported.
M02.8	**Drinking Fountain**	**1995:** An electric drinking fountain is installed n the entrance area.	**4**	**-**	No concerns observed or reported. (See **Note 6A**)
M02.9	**Sinks**	**~2000:** Counter mounted stainless steel double and single basin sinks are provided for the kitchens in the concession area and the staff room by the shop.	**4**	**-**	No concerns observed or reported.
M02.10	**Service Sink**	**1995:** A plastic service sink is installed in the shop.	**4**	**-**	No concerns observed or reported. (See **Note 6A**)
M02.11	**Emergency Shower**	**1995:** A emergency shower with eye wash station is installed in the vestibule to the compressor room.	**4**	**-**	No concerns observed or reported. (See **Note 6A**)

M03.0 HEATING

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M03.1	**Unit Heaters**	**2010:** Wall and suspended electrical unit heaters are installed throughout the building. **2012:** The new dressing rooms are heated by suspended, natural gas fired unit heaters.	**4**	**-**	No concerns observed or reported.

M03.2	**Baseboard Radiators**	**1969/1995:** Electrical baseboard radiators are provided throughout the building.	**4**	**C**	No concerns observed or reported.
M03.3	**Radiators**	**2000:** Suspended natural gas fired radiant heater are installed above the spectator benches and in the shop.	**4**	**-**	No concerns observed or reported.

M04.0 COOLING

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M04.1	**Chillers**	Not present.	**4**	**-**	N/A
M04.2	**Condenser**	Not present.	**4**	**-**	N/A
M04.3	**Air Handling Unit**	Not present.	**4**	**-**	N/A
M04.4	**Air Conditioner Unit**	Not present.	**4**	**-**	N/A

M05.0 VENTILATION

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M05.1	**Air Distribution**	**1969:** Air distribution in the washroom and dressing rooms of the original building section is accomplished by painted galvanized metal ductwork.	**4**	**-**	Some of the duct work was observed to be dented and damaged and should get repaired. (see **Note 6A**)
M05.2	**Ventilation**	**~1995:** Through wall mounted exterior ventilation fans are installed around the building exterior.	**4**	**C**	No concerns observed or reported.

M05.3	**Air Outlets & Inlets**	**1969:** Metal grilles with covers are provided throughout the building.	**4**	**-**	No concerns observed or reported.
M05.4	**Exhaust Fans**	**1969:** In-line and wall mounted exhaust fans are installed in the concession area, the washrooms and the original dressing rooms as well as in the arena.	**3**	**D**	It was reported that the dimension of the exhaust fan in the arena is not sufficient to meet demand. A cost for upgrading the existing one and installing one additional exhaust fan is provided in the Capital Reserve Table. (see **RAI.4**)

M06.0 FIRE PROTECTION

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M06.1	**Fire Extinguishers**	Portable dry-type ABC fire extinguishers are provided in the building.	**3**	**A**	It does not appear that the amount of fire extinguishers provided is enough to cover such a big building.
M06.2	**Sprinklers**	Not present.	**-**	**-**	N/A
M06.3	**Chemical Fire Suppression System**	**~2000:** The range in the concession area is provided with a dry chemical fire suppression system.	**4**	**C**	No concerns observed or reported.

M07.0 CONTROLS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M07.1	**Electric and Electronic Controls**	Analog and digital thermostats were observed to control internal temperature in the building.	**4**	**D**	The unit heaters in the dressing rooms are controlled by timers only which are turned on manually. These should get replaced with programmable thermostats. (See **Note 6A**)

M99.0 OTHER

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
M99.1	**Ice Plant**	A ammonium ice plant provides cooling for the rink slab. It includes compressors, a roof mounted condenser, heat exchangers, pumps, evaporators etc.	**4**	**B**	No concerns observed or reported. Some of the parts of the system (most of the pumps) were already replaced and others (such as the compressors) are still original, but got completely overhauled in the past. As it is not feasible to replace the entire plant at once, an allowance for periodical repairs, overhaul and replacement failed parts is provided in the Capital Reserve Table.
M99.2	**Cooling Loops**	**1969:** Metal cooling loops are provided under the rink slab.	**3**	**-**	Some of the cooling loops have failed and were repaired using liners inside the original lines. The added liner thickness now leads to a temperature difference across and at the top of the slab, resulting in an uneven ice surface quality. Therefore, we recommend to replace the existing cooling lines at the same time the concrete rink slab is replaced. The price for the replacement is included in the price for the slab replacement mentioned in **S02.1** of the structural section above.
M99.3	**Gas Detection System**	**~2010:** A ammonium detector and alarm system manufactured by Critical Environment Technology is installed outside the compressor room.	**4**	**-**	The system calls out in case of an ammonium leak to Prices Alarms.
M99.4	**De-humidifiers**	**~1995:** A dehumidifier for the arena is installed on top of the shop's flat roof. No tags or further information were available.	**4**	**C**	No concerns observed or reported.

NOTES:

6A) The cost associated with repairs/replacement of this item is expected to fall below the Capital Threshold; as such, no costing has been included in the Capital Reserve Table.

IMMEDIATE ITEMS IDENTIFIED:

No immediate work items were identified.

CAPITAL RESERVE ITEMS IDENTIFIED:

M02.1) Replace domestic water piping.
M02.3) Replace domestic water heater.
M02.5) Replace irrigation system.
M02.6) Replace plumbing fixtures.
M02.7) Replace shower heads and valves.
M03.2) Replace baseboard heaters.
M05.4) Replace and upgrade exhaust fans.
M06.1) Replace/upgrade fire extinguishers.
M06.3) Replace chemical fire suppression system.
M99.1) Ice plant maintenance and repairs.
M99.4) Replace dehumidifier.
No other Capital Reserve Items above the threshold identified.

RECOMMENDED ADDITIONAL INVESTIGATION:

RAI.4) Conduct a mechanical study to determine solution for the issues regarding the shut-off valves, the location of the water heaters and the capacity of the exhaust fan in the arena.
No other additional investigation recommended at this time.

Photo #M1: Instant water heater and typical plumbing lines.

Photo #M2: Typical plumbing fixtures.

Photo #M3: Unit heater (elec.) in the original dressing rooms.

Photo #M4: Unit heater (gas) in the new dressing rooms.

Photo #M5: Timer used to control the unit heaters in the dressing room.

Photo #M6: Damaged electrical baseboard heater.

	
Photo #M7: Condenser for the ice plant.	**Photo #M8: Wall mounted fan.**

Photo #M9: Chemical fire suppression system.

Photo #M10: Compressor room.

7. ELECTRICAL

Electrical service is provided to the building via overhead conductors from a pole-mounted transformer located north-east of the building and owned by the local service provider. Primary electrical distribution is accomplished by one 575 V, 400 Amp, 3-Phase, Tylor Electric main switch and four electrical sub-panels rated 240 V and in between 100 and 400 A three of them manufactured by Square D. The bigger mechanical equipment is provided with several variable frequency drives (VFDs). Interior lighting throughout the building is typically fluorescent T-8 fixtures with magnetic ballast and some LED. Exterior lighting is wall-mounted LED lighting controlled by photocell receptors. Building security is provided from motion detectors and door contacts. The building is equipped with battery packs emergency lighting and exit signs throughout.

In general, the visual review of the property indicates that the electrical equipment and systems are properly maintained.

Testing of the entire system - coordination, balancing, ground fault relays, and complete infrared scanning of switches and panels should be done as part of routine maintenance, on an annually basis and, all found deficiencies shall immediately be rectified.

The electrical components are in overall acceptable condition. Immediate action items with respect to emergency lighting are required. Capital expenditures with respect to the distribution equipment, the lighting and fire alarm are anticipated within the evaluation period. No additional investigation is recommended at this time.

A detailed description of Site and building electrical systems/components including (if any) current, imminent or anticipated deficiencies above the Capital Threshold and excluding normal operating maintenance are presented below.

E01.0 INCOMING SERVICES

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
E01.1	**Exterior Transformers**	Power to the building is fed from a pole mounted, utility owned transformer.	**4**	**-**	No concerns observed or reported.
E01.2	**Conductors**	Overhead power conductors connect the exterior transformer and the main electrical building shut-off switch located in the compressor room.	**4**	**-**	No concerns observed or reported.

E02.0 DISTRIBUTION EQUIPMENT

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
E02.1	**Primary Distribution (Switchgear, CDPs, splitters, disconnects)**	**1969:** The 575 V, 600 A, building main switch was manufactured by Taylor Electric MFG. Ltd.	**4**	**C**	No concerns observed or reported.
E02.2	**Interior Transformers**	**~1995:** Concealed (built-in). Therefore, assumed to be a 125-kVA model.	**4**	**C**	No concerns observed or reported.
E02.3	**Secondary Distribution (disconnects, splitters & sub-panels)**	**1969:** A original panel with no information on it is located besides the transformer in the arena. **1969:** A 120/240 V, 100 A sub-panel made by Square D is installed along the arena's south wall. **1995:** Two 240 V, 400 A electrical sub-panels made by Square D are located besides the transformer in the arena.	**4**	**C**	There are only a few free spaces for additional circuit breakers. We would recommend to replace the older (1969) panels with ones having a bigger capacity to ensure additional circuits can be provided if necessary in the future.

E02.4	**Switches**	**1969/1995:** Several electrical switches to disconnect the panels or building sections with a capacity of 30, 60 or 100 A and manufactured by Federal Pioneer or CEB are installed in the compressor room. **~2012:** A 600 V, 400 A industrial switch manufactured by Siemens is installed in the compressor room.	**4**	**C**	No concerns observed or reported.
E02.5	**Variable Frequency Drives**	**~2012:** Two Danfoss VFDs are installed in the compressor room to control the HVAC equipment.	**4**	**-**	No concerns observed or reported.
E02.6	**Branch Wiring**	**1969/1995:** Electrical branch circuit wiring is reportedly copper throughout the building.	**4**	**C**	An allowance for upgrades/replacements to the 1969 sections have been included in the Capital Table. No concerns observed or reported.
E02.7	**Receptacles**	**1969/1995:** Electrical receptacles are provided throughout the building.	**4**	**-**	The receptacles should be replaced at the same time the branch wiring is upgraded. The cost for replacement is included in the capital item above (E02.6).
E02.8	**Surge Protection**	Not present.	**-**	**-**	N/A

E03.0 LIGHTING

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
E03.1	**Interior Lighting**	**1969:** Some incandescent light fixtures were observed in the storage rooms underneath the grandstand. **2012:** Lighting is provided by ceiling mounted linear fluorescent fixtures with T-8 tubes. **2017:** Some of the light fixtures in the arena were recently upgraded to LED lighting.	**4**	**-**	No concerns observed or reported. (see **Note 7A**)

E03.2	**Lighting Controls**	**~1995:** Interior lighting is mostly controlled by in-line voltage switches. **2012:** Interior lighting in the new dressing room additions is controlled by motion sensors. **2017:** The exterior building lights are controlled by a photo cell.	**4**	**-**	No concerns observed or reported. The light switches should get replaced at the same time the branch wiring is replaced. We recommend to install motion sensors over manual switches where applicable. The cost for replacement is included in the capital item above (E02.6).
E03.3	**Emergency Lighting**	**2007/2016:** Battery packs with integral and remote lighting heads are provided throughout the building. About 40% are reported to be installed in 2007 and 60% in 2016.	**4**	**C/1**	A broken light head was observed on one fixture and should get replaced. (See **Imm.1**)
E03.4	**Exit Lighting**	**~1995:** Incandescent exist signs are provided at emergency exits and corridors.	**4**	**C**	No concerns observed or reported.
E03.5	**Exterior Lighting**	**2017:** Exterior lighting is provided by wall and ceiling mounted LED light fixtures.	**4**	**-**	No concerns observed or reported.

E04.0 GROUNDING

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
E04.1	**Grounding**	**1969:** Concealed, but assumed to be present on major electrical equipment and conduit systems.	**4**	**-**	No concerns observed or reported.

E05.0 FIRE ALARM

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
E05.1	**Fire Alarm Panel**	**2011:** The building is outfitted with an FireShield+ fire alarm system. There is an annunciator panel installed in the skate rental room near the main entrance to the building.	**4**	**-**	No concerns observed or reported. (see **Note 7A**)
E05.2	**Devices**	**~1995:** The fire alarm system monitors audible devices (bells), pull stations and heat/smoke detectors.	**4**	**C**	No concerns observed or reported.

E06.0 COMMUNICATIONS, DATA & SECURITY

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
E06.1	**Telephone**	**~1995:** Telephone services are provided by East link.	**4**	**-**	No concerns observed ore reported.
E06.2	**Internet Systems**	**~1995:** Internet services are provided by East Link.	**4**	**-**	No concerns observed ore reported.
E06.3	**Intrusive Systems**	**2011:** Door contacts and motion sensors are provided in the building. The system is monitored by Prices Alarms 24/7.	**4**	**-**	No concerns observed ore reported.
E06.4	**Surveillance Systems**	**2005:** The building is provided with a black & white closed-circuit television (CCTV) video surveillance system. The system records footage in colour up to three days.	**4**	**-**	No concerns observed or reported. It was reported that the system will be upgraded in 2018 and proper funding is already allocated towards this project. Therefore no cost are indicated in the Capital Reserve Table.
E06.5	**Access Controls**	Not present.	**-**	**-**	N/A

E99.0 OTHERS

I.D#	SYSTEM/COMPONENT	DESCRIPTION	CR	Cat.	COMMENTS/ASSESSMENT
E99.1	**Emergency Generators**	Not present.	-	-	N/A

NOTES:

7A) The cost associated with repairs/replacement of this item is expected to fall below the Capital Threshold; as such, no costing has been included in the Capital Reserve Table.

IMMEDIATE ITEMS IDENTIFIED:

Imm.1) Repair emergency lighting.
No other Immediate items were identified.

CAPITAL RESERVE ITEMS IDENTIFIED:

E02.1) Replace main switch.
E02.2) Replace interior electrical transformer.
E02.3) Replace electrical sub panels.
E02.4) Replace electrical switches.
E02.6) Replace electrical branch wiring.
E03.1) Replace interior lighting.
E02.4) Replace exit signs.
E05.2) Replace fire alarm devices.
No other Capital Reserve Items above the threshold identified.

RECOMMENDED ADDITIONAL INVESTIGATION:

No additional investigation recommended at this time.

	
Photo #E1: Encased interior transformer.	**Photo #E2: Main switch located in compressor room.**

	
Photo #E3: Original, electrical sub panel.	**Photo #E4: Electrical switches for equipment.**

Photo #E5: Typical fluorescent light fixture in the arena.

Photo #E6: Damaged emergency light.

	
Photo #E7: Typical exit/emergency light.	**Photo #E8: Wall mounted exterior LED lighting.**

	
Photo #E9: The fire alarm panel.	**Photo #E10: Fire alarm bell.**

8. HAZARDOUS MATERIALS REPORTS

No previous hazardous materials reports were made available for review. Based on the year of the construction of the building outlined in this report (1969), hazardous building construction materials such as ACMs (asbestos containing materials), lead based paint and/or PCBs (polychlorinated biphenyls) may be present in the building.

Report Signature Page

STEPHENSON ENGINEERING LTD.

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Report Author

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APPENDIX A

Mandate & Report Resources

MANDATE AND REPORT RESOURCES

Authorization

Written Notice of Award of "Request for Proposals, Facility Condition Assessment of Oliver and District Arena" was provided on October 25, 2017. A Facility Lifecycle Assessment (FLA) of the Site identified in the Introduction section of the report was subsequently conducted. The Site is currently owned by the Regional District of the Okanagan Similkameen and managed Oliver Parks and Recreation Society.

Purpose

The primary objective of the FLA was to visually examine and evaluate the present condition of the property elements, buildings and related structures. The FLA process is being undertaken to assist the Oliver Parks and Recreation Society in capital planning and evaluating the potential financial liabilities associated with the condition of the site elements, building and related structures on the sites. Stephenson Engineering understands that the Oliver Parks and Recreation Society will rely on the contents of this report for capital planning.

Scope

The FLA was conducted in general accordance with the American Society for Testing and Materials (ASTM) "Standard Guide for Property Condition Assessments: Baseline Property Condition Process E 2018-15", as locally applicable. The Stephenson Engineering Assessors (identified on the first page of the report) conducted the sites reconnaissance on the date shown. The Site reconnaissance was limited to a walk around the sites, a walk-through of the buildings and interview with personnel listed in the Introduction section of the report (referred to as the "Point of Contact" in this report). Copies of selected photographs documenting conditions at the time of the visit are provided throughout the report.

The purpose of the report is to communicate identified physical deficiencies, future capital projects, and the associated opinions of estimated costs where the cost is greater than the Capital Threshold and expected to occur within the time frame used for the report. In accordance with this agreed mandate, assumptions were required to delineate between capital items and routine maintenance. Please refer to the "Operating and Maintenance Item" list below. Also, please refer to the attached "Discussions of Overall Concepts and Terminology" for additional explanation of assumptions used.

The review of the structural elements was limited to a visual review of the accessible, exposed portions of the buildings and related structures during our visit to the building. The roofs, walls, floors and ceilings were visually reviewed to collect information in this regard.

The review of the mechanical, electrical and fire safety systems was performed by non-specialists in conjunction with discussions with the Point of Contact. A detailed assessment by a mechanical or electrical professional consultant should be conducted if further information regarding the condition, durability and/or expected future capital expenditures related to these systems is required.

Compliance with national and provincial building codes and/or fire codes is not part of the scope of this assessment.

The estimated costs outlined in this report are based on the conditions encountered and observations made during the reconnaissance. Estimates of quantities and areas are based on information supplied, field observations and/or interviews. Item repair/replacement costs are approximate only. Restoration costs are sensitive to local and overall economic factors and therefore, specific quotations from qualified contractors should be obtained when a specific deficiency is addressed or a capital project is to be implemented.

Operating and Maintenance Items

Stephenson Engineering assumes the following items will be maintained under normal operating budgets and are therefore not included in the Capital Reserve Table.

SITE
- Buried services
- Landscaping

STRUCTURE
- Foundations and footings

ROOF
- Periodic maintenance

WALLS AND WINDOWS
- Local periodic repairs and needle glazing
- Weather-stripping

INTERIORS
- Various common furnishings, specialty equipment
- Small residential appliances

MECHANICAL
- Motors, ductwork and in-duct equipment
- Oil supply systems
- HVAC distribution piping
- Air inlets and outlets

ELECTRICAL
- Disconnects and breakers
- Buried conductors

DISCUSSIONS OF OVERALL CONCEPTS AND TERMINOLOGY

Evaluation Period

The period of evaluation used for this report is 10 years. Capital repairs and replacement that are reasonably expected to be required within this evaluation period and that cost in excess of the Capital Threshold are included in the Capital Reserve Table.

Effective Age

The estimated age of a building component that considers actual age as affected by maintenance history, location, weather conditions, and other factors. Effective age may be more or less than actual age.

Expected Useful Life (EUL)

The average amount of time in years that an item, component or system is estimated to function without material repair when installed new and assuming routine maintenance is practiced.

Point of Contact (POC)

Client, client's agent, or client-identified person or persons knowledgeable about the physical characteristics, maintenance, and repair of the subject property.

Remaining Useful Life (RUL)

A subjective estimate based upon observations, or average estimates of similar items, components, or systems, or a combination thereof, of the number of remaining years that an item, component, or system is estimated to be able to function in accordance with its intended purpose before warranting replacement. Such period of time is affected by the initial quality of an item, component, or system, the quality of the initial installation, the quality and amount of preventive maintenance exercised, climatic conditions, extent of use, etc.

Capital Threshold

The Capital Threshold used for this report is $3,000 This threshold is used to determine whether a capital repair item is to be included in the Capital Reserve Table. Capital repairs identified and estimated to cost less than the threshold, or that will likely to be performed in phases, as a part of routine maintenance as required, at a cost less than the threshold are not included in the Capital Reserve Table.

Costs

Costs presented in this study for future capital repairs and replacement projects are our Opinions of Probable Budgets and are intended to include the work as per the description, taxes, permit fees, contingency and where appropriate, Engineering fees for design, specifications, tendering, project management and construction monitoring. We have generally assumed replacement will occur on a like-for-like basis except where obsolescence or technological advancements logically dictates an upgrade. More accurate costing in the future will require a condition assessment, choice and development of an appropriate repair option, designing and tendering the work to qualified contactors.

Recommended Work

Work that is required due to end of EUL, current condition, code or immediate health risks to keep the facility operating over the evaluation period of this report. This work is considered to be beyond normal or routine maintenance work or for maintenance procedures

that are currently not in force but are strongly recommended to maintain the system under consideration.

Immediate Items

Immediate repairs include deficiencies that require action in the next 60 to 90 days as a result of (i) existing or potentially unsafe conditions, (ii) negative conditions significantly impacting marketability or habitability, (iii) material building code violations, (iv) poor or deteriorated condition of a critical element or system, or (v) a condition that if left "as is" with extensive delay in addressing same, would result in or contribute to critical element or system failure within 12 months or a significant escalation in the repair cost.

Short Term Work (1 to 5 years)

Short term work includes work items that may not warrant immediate attention, but require repairs or replacement that should be undertaken on a priority basis in addition to routine preventive maintenance.

Mid Term Work (6 to 10 years)

Mid term work includes work items that require repair or replacement but do not have significant deficiencies or have not reached their EUL.

Long Term Work (10 years or more)

Long term work includes work items that require repair or replacement beyond the evaluation period of this report or those which under our opinion, with periodic scheduled maintenance, replacement can be deferred beyond the evaluation period.

Capital Reserve Analysis

The Capital Reserve Table includes a section that provides the average annual capital costs per square foot. Replacement Reserves include (i) deficiencies that may not warrant immediate attention, but require repair or replacement that should be undertaken on a priority basis over routine preventive maintenance work and (ii) components or systems that have realized or exceeded their Expected Useful Life (EUL) during the evaluation period (realization of EUL alone does not constitute an immediate repair). Replacement reserve costs are included in Appendix C.

Opinions of probable costs are provided for material physical deficiencies and not for repairs or improvements that could be classified as:

- Cosmetic or decorative;
- Part or parcel of a building renovation program or tenant improvement/finishes;
- Enhancements to reposition the asset in the marketplace;
- For warranty transfer purposes;
- Routine or normal preventative maintenance;

- Less than the capital threshold for this report; and
- Are expected to occur beyond the time frame of this report

Cost Inflation Rate

We have presented the costs in current year (2017) values. We have used 3% in the capital reserve table attached. Further sensitivity analysis using other inflation assumptions should be tested when projecting future cash-flows.

Life Expectancies

Our estimates of the life expectancy of common element components, systems and sub-systems are based on our opinion of the observed condition during our Site visit, experience with similar material at other buildings, published industry standards, articles and recommendations made by material suppliers and manufacturers. For some materials or systems, the history of use is not sufficient to predict life expectancy accurately. Monitoring and adjustments to the assumptions are required.

The year in which the capital work is required is estimated on the basis of the current observed conditions, or the construction methods and materials used. This may be shorter or longer than the remaining time in the standard estimated life cycle based on the current age of the item. Our estimates of life cycles reflect our understanding of the standards that the prudent long-term owners would maintain. Deferring and phasing of work is often possible keeping in mind that doing so could reduce building standards, increase disruption to residents, increase costs and risks.

APPENDIX B

Limitations and Use of the Report

LIMITATIONS

This report is intended to provide an assessment of the property conditions at the subject property, at the time of the site visit. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. Should additional parties require reliance on this report, Stephenson Engineering may be contacted to extend reliance to such parties. Stephenson Engineering disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs, which result from reporting the factual information contained herein.

The conclusions as presented represent the judgement of Stephenson Engineering based on the visual observations of the accessible, exposed building elements, supplemented by information and data obtained by Stephenson Engineering and discussions with the Point of Contact and other representatives of the owner identified. Except as otherwise may be requested, Stephenson Engineering disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to Stephenson Engineering after the time during which Stephenson Engineering conducted the FLA. No physical testing or intrusive investigations were conducted, and no samples of building materials were collected to substantiate the observations made.

In evaluating the Site, Stephenson Engineering has relied in good faith on information provided by other individuals noted in this report. Stephenson Engineering in certain instances has been required to assume that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the Point of Contact. Stephenson Engineering accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

Actual costs may vary from the opinions of probable cost outlined by Stephenson Engineering. Factors affecting actual cost may include, but are not limited to, type and design of suggested remedy, quality of materials and installation, manufacturer and type of equipment or system selected, field conditions, whether a physical deficiency is repaired or replaced in whole, phasing of the work (if applicable), quality of contractor, quality of project management exercised, market conditions, and whether competitive pricing is solicited, etc.

Stephenson Engineering makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation. These interpretations may change over time, thus any parties making use of this report should review these issues with appropriate legal counsel.

Should additional information become available with respect to the building elements or systems, Stephenson Engineering requests that this information be brought to our attention so that we may re-assess the conclusions presented herein.

APPENDIX C
Capital Reserve Table

Appendix D - Capital Reserve Table

Project Information

Total Gross Floor Area (m²)	5,000	Year Built	1989	Reserve Term (years	10
Number of Buildings	1	Age	28	Assumed Inflation	3%

Identified Costs

Report Section	Building Component	Expected Useful Life	Observed Age	Remaining Useful Life	Unit Rate	Quantity	Recommended Action		Short Term					Mid Term					
								Immediate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
								2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
4	**ARCHITECTURAL**																		
A01	**Site**																		
A01.2	Parking Lot, Asphalt Paving	25	48	2	$20 /m²	2,995 m²	Resurface			$59,900									**$59,900**
A01.3	Parking Lot, Pavement Markings	25	23	2	$16 /m	500 m	Replace			$8,000									**$8,000**
A01.4	Pedestrian, Concrete Pavement	25	22	3	$146 /m²	235 m²	Replace				$34,300								**$34,300**
A01.5	Parking Lot, Curbs and Gutters	25	23	2	$237 /m	225 m	Replace			$53,300									**$53,300**
A01.8	Pre-Cast Traffic Barriers	30	22	8	$750 each	8 units	Replace									$6,000			**$6,000**
RAI.1	Civil Drainge Study				Allowance		Study		$5,500										**$5,500**
A01.9	Drainage Improvements				Allowance		Upgrade			$15,000									**$15,000**
A01.12	Retaining Walls	35	30	5	$450 /m	70 m							$31,500						**$31,500**
A01.14	Exterior Stairs	40	35	5	$694 /riser	6 riser							$4,200						**$4,200**
A1.15	Hand Rails				Allowance		Code		$3,000										**$3,000**
A1.16	Guard Rails				Allowance		Code		$4,000										**$4,000**
A02	**Exterior Walls**																		
A02.1	Cladding, Metal	40	35	5	$95 /m²	1,150 m²	Replace						$109,300						**$109,300**
A02.3	Joint Sealers	20	15	5	$46 /m	150 m	Replace						$6,900						**$6,900**
A03	**Exterior Windows**																		
A03.1	Exterior Windows, Wood	35	33	2	$1,050 each	3 units	Replace			$3,200									**$3,200**
A04	**Exterior Doors**																		
A04.2	Exterior Utility Doors	40	35	5	$816 each	18 units	Replace						$14,700						**$14,700**
A04.3	Exterior Sliding Door	30	25	5	$6,000 each	1 unit	Replace						$6,000						**$6,000**
A04.4	Overhead Doors	25	17	8	$9,304 each	1 unit	Replace									$9,300			**$9,300**
A05	**Fascia and Soffits**																		
A05.1	Fascia, Aluminum	25	20	5	$96 /m²	125 m²	Replace						$12,000						**$12,000**
A05.1	Fascia, Wood	25	20	5	$97 /m²	35 m²	Replace						$3,400						**$3,400**
A05.2	Wood Soffits	40	35	5	$4 /m² GFA	2,462 m² GFA	Replace						$9,800						**$9,800**
A06	**Interior Walls and Partitions**																		
A06.3	Wall Finishes, Interior Paint	1	1	1	$8 /m² GFA	2,462 m² GFA	Replace		$19,700		$19,700		$19,700		$19,700		$19,700		**$98,500**
A07	**Interior Doors and Windows**																		
A07.1	Interior Metal Doors	30	25	5	$979 each	12 units	Replace						$11,700						**$11,700**
A07.1	Interior Wood Doors	30	25	5	$930 each	5 units	Replace						$4,700						**$4,700**
A07.2	Interior Doors, Fire			1	$1,152 each	4 units	New install		$4,600										**$4,600**
A07.3	Interior Windows	40	35	5	$435 each	8 units	Replace						$3,500						**$3,500**
A08	**Ceilings**																		
A08.4	Ceiling Finishes, Paint	15	27	0	$11 /m²	700 m²	Replace		$7,700										**$7,700**
A08.5	Exposed - Ice Rink Insulation				Allowance		Repair						$3,000						**$3,000**
A09	**Flooring**																		
A09.2	Rubber Flooring	20	12	8	Allowance		Replace									$7,500			**$7,500**
A09.3	Floor Finishes, Resilient Flooring	20	15	5	$43 /m²	550 m²	Replace						$23,700						**$23,700**
A10	**Fixtures**																		
A10.1	Fixed Casework	35	30	5	Allowance		Replace						$12,500					$5,000	**$17,500**
A10.2		30	25	5	$45 lft	225 lft	Replace						$10,100						**$10,100**
A10.4	Washroom Accessories	20	15	5	$2 /m² GFA	2,462 m² GFA	Replace						$4,900						**$4,900**
A10.5	Fabricated Compartments	30	22	8	$934 each	10 units	Replace									$9,300			**$9,300**
A10.6	Appliances	15	10	5	$2,500 each	4 units	Replace						$10,000						**$10,000**
A10.7	Emergency Exit Diagrams				Allowance		Code / Safety	$750											
A10.8	Spectator Benches	30	25	5	$75 lft	1,250 lft	Replace						$93,800						**$93,800**
A10.9	Dasher Boards	25	17	8	Allowance		Replace									$155,000			**$155,000**
A10.10	Handrails	25	22	3	$229 /m	20 m	Code / Safety				$4,600								**$4,600**
A11	**Barrier Free**																		
RAI.2	Barrier Free Study				Allowance		Study		$5,000										**$5,000**
A11.4	Barrier Free Washroom Upgrades				Allowance		Upgrade			$25,000									**$25,000**
R01	**Roofing**																		
R01.2	Roof, Sheet Metal	40	35	5	$53 /m²	2,450 m²	Replace						$129,900						**$129,900**
R01.3	Metal Gutters and Downspouts	30	29	1	$30 /m	190 m			$5,700										**$5,700**
A99	**Other**																		
RAI.3	Mould Study				Allowance				$5,000										**$5,000**
A99.1	Mould Remedation				Allowance					$7,800									**$7,800**
5	**STRUCTURAL**																		
S01	**Foundations**																		
	No Capital Items Identified																		

Report Section	Building Component	Expected Useful Life	Observed Age	Remaining Useful Life	Unit Rate	Quantity	Recommended Action	Immediate	Short Term Year 1	Short Term Year 2	Short Term Year 3	Short Term Year 4	Short Term Year 5	Mid Term Year 6	Mid Term Year 7	Mid Term Year 8	Mid Term Year 9	Mid Term Year 10	Total
								2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
S02	**Floors on Grade**																		
S02.1	Ice Rink Floor System				Allowance						$750,000								**$750,000**
S03	**Suspended Floors and Stairs**																		
S03.1	No Capital Items Identified																		
S04	**Roof Structures**																		
	No Capital Items Identified																		
S05	**Interior Walls and Columns**																		
	No Capital Items Identified																		
S06	**Exterior Walls and Columns**																		
	No Capital Items Identified																		
S99	**Other**																		
	No Capital Items Identified																		
6	**MECHANICAL**																		
M01	**Site Services**																		
	No Capital Items Identified																		
M02	**Plumbing**																		
M02.1	Domestic Water Piping	40	38	2	$38 /m² GFA	2,462 m² GFA	Replace			$93,600									**$93,600**
RAI.4	Mechanical Study				Allowance		Study		$6,500										$6,500
M02.3	Domestic Water Heaters	20	13	7	$6,750 each	1 unit	Replace								$6,800				$6,800
M02.5	Irrigation System	40	35	5	$2 /m²	1,500 m²	Replace						$3,400						$3,400
M02.6	Urinals	30	25	5	$1,104 each	3 units	Replace						$3,300						$3,300
M02.6	Lavatories	30	25	5	$768 each	8 units	Replace						$6,100						$6,100
M02.6	Toilets	30	22	8	$636 each	8 units	Replace									$5,100			$5,100
M02.7	Valves and Heads	30	22	8	$563 each	12 units										$6,800			$6,800
M03	**Heating**																		
M03.2	Base Board Heathers	40	35	5	Allowance		Replace						$3,000					$3,000	$6,000
M04	**Cooling**																		
	No Capital Items Identified																		
M05	**Ventilation**																		
M05.2	Ventilation Fan	30	22	8	$1,875 each	3 units	Replace									$5,600			$5,600
M05.4	Exhaust Fans	30	28	2	$2,099 each	2 units	Upgrade			$4,200									$4,200
M06	**Fire Protection**																		
M06.1	ABC Fire Extinguishers	15	22	0	Allowance		Upgrade		$3,800										$3,800
M06.3	Fire Extinguishing Systems, Dry Chemical	15	10	5	$15,491 each	1 unit	Replace						$15,500						$15,500
M07	**Controls**																		
	No Capital Items Identified																		
M99	**Other**																		
M99.1	Ice Plant	40	25	15	Allowance		Repair		$20,000				$20,000				$20,000		$60,000
M99.4	Dehumidifier	25	20	5	$12,350 each	1 unit	Replace						$12,400						$12,400
7	**ELECTRICAL**																		
E01	**Incoming Services**																		
	No Capital Items Identified																		
E02	**Distribution Equipment**																		
E02.1	Main Shut-Off Switch	30	25	5	$4,481 each	1 unit	Replace						$4,500						$4,500
E02.2	Electrical Transformer, Secondary	30	22	8	$6,800 each	1 unit	Replace									$6,800			$6,800
E02.3	Electrical Subpanels	30	25	5	$2,568 each	2 units	Replace						$5,100						$5,100
E02.3	Electrical Subpanels	30	22	8	$3,693 each	2 units	Replace									$7,400			$7,400
E02.4	Electrical Switches	30	24	6	$750 each	4 units	Replace							$3,000					$3,000
E02.6	Electrical Branch Wiring	30	25	5	$97 /m² GFA	2,000 m² GFA							$194,000						$194,000
E03	**Lighting**																		
E03.1	Interior Lighting, Fluorescent	20	27	0	$219 each	36 units	Replace		$7,900										$7,900
Imm.1	Emergency Light				Allowance		Code / Safety	$500											
E03.4	Exit Signs	20	15	5	$620 each	18 units	Replace						$11,200						$11,200
E04	**Grounding**																		
	No Capital Items Identified																		
E05	**Fire Alarm**																		
E05.2	Fire Alarm Devices	15	10	5	$18 /m² GFA	2,461 m² GFA							$44,300						$44,300
E06	**Communications, Data & Security**																		
	No Capital Items Identified																		
E99	**Conveyance**																		
	No Capital Items Identified																		

Capital Reserve Analysis

	Inflated	*Uninflated*
Average Cost / Year	$263,045	$232,110
Average Cost / Year / Sq. M.	$52.61	$46.42

Total Costs

	Immediate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
Totals *(Uninflated)*	$1,250	$98,400	$270,000	$808,600	$0	$848,100	$3,000	$26,500	$218,800	$39,700	$8,000	**$2,321,100**
Totals *(Inflated)*	$1,250	$101,352	$286,443	$883,579	$0	$983,180	$3,582	$32,592	$277,169	$51,799	$10,751	**$2,630,448**

Report Section	Building Component	Expected Useful Life	Observed Age	Remaining Useful Life	Unit Rate	Quantity	Recommended Action		Short Term					Mid Term					
								Immediate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
								2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	

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