Westmeath Recreation Centre

Building Condition Assessment

September 2011

Project No. 2112629A

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APPENDICES

1. BACKGROUND

1.1 General

The Westmeath District Recreation Association (WRDA) retained Jp2g Consultants Inc. to conduct a building condition assessment of the Westmeath Recreation Centre and to prepare a report outlining needed repairs and upgrades and to provide estimated costs and timelines for the proposed work.

1.2 Building Description

The Westmeath Recreation Centre is an existing complex consisting of a single ice pad arena with locker rooms and shower facilities and a small community hall with a commercial kitchen and bar area.

It was originally constructed in 1975. The 2 level front section, consisting of community hall (upper level) and change rooms (lower level) was damaged by fire in 1984 and subsequently restored.

The arena operates from the first week in October to the last week in March. The community hall is used year round for social events.

The building is a pre-engineered structure fabricated from corrugated galvanized steel (Behlen building). The main steel structure has no insulation, only two inches of spray-on acoustic insulation above the arena board height. The community hall is above the main entrance and locker rooms and has stud walls with insulation installed within the main steel structure. The Ice Plant and Resurfacer Room is located on the opposite side of the rink in a block building.

1.3 Previous Reports

Previous reports dealing with the Westmeath Recreation Centre which were reviewed as part of this Study include:

- Westmeath Recreation Centre Energy Audit , September 2008
- Westmeath Arena and Community Center Structural Review, April 29, 2009

1.4 Methodology

- A visual inspection of building elements was conducted. All the common rooms were inspected and all spaces in the building were reviewed. This included the service areas, mechanical electrical areas, office areas, and public areas.
- There was a visual inspection of the exterior of the building from the ground level, which included the roof, the walls and the exterior areas. A visual inspection was also conducted in the attic space above the ice surface and recreation hall.
- Photographs were taken to document and illustrate the condition of the building elements encountered during the investigation. These photographs have been included in this report.
- There were discussions with the staff responsible for operating and maintaining the building.
- Quantity estimates were based on our review of site conditions.
- Technical assessments were based on non-invasive techniques.

- Major repair work and capital improvements are identified as part of the building condition assessment based on a 20 year planning period.
- Cost estimates are provided for major repair work and capital improvements that are identified. Cost estimates are not provided for minor repair work and routine maintenance items that are normally carried out on an annual basis.
- Cost estimates provided in this study are projected for the next 20 years and are summarized in spreadsheet format in Appendix A.
- The dollar amounts used in the building condition report and spreadsheet are in 2011 dollars.
- Our findings are documented in this Building Condition Assessment Report.

1.5 Definitions

Building Condition Assessment
A Building Condition Assessment (BCA) is a snap shot in time of the condition of various building elements and should not be considered an exhaustive survey and analysis on a "bolt-by-bolt" basis. The BCA provides an estimated cost in present value (2011) dollars to repair or replace a building element and the year that the repair or replacement is likely to occur.

Life Expectancy
The normal expected life span estimate of the building element in terms of years.

Estimated Remaining Life
The useful life of the building element remaining from the date of the visual condition assessment and assuming a normal level of maintenance.

Effective Age
Is the effective age estimate of the element, which is an observed condition assessment judgment in terms of years. Not necessarily the actual age of the element.

Cost Estimates
The total current replacement cost estimate of the building element. In the case of finishes, the cost may be an allowance for total replacement. Capital Costs reflected in the building condition assessments are indicative only of straight replacement costs.

Capital Work
Capital work is an improvement that extends the useful life of the building element. Repairs that maintain the functionality of the building element but do not extend the life of the building element are not capital work. Partial replacements can be capital work if they are substantial enough that they would be left in place when the rest of the building element is replaced some time in the future.

Life Cycle
The estimated time from the installation of the system or component until the replacement of that component is a life cycle. Life cycles expressed in building condition assessments represent average conditions, historical information from the industry, and the experience of the professionals involved. The actual date that a component or system will fail, even partially, cannot be predicted.

Good Condition
Reasonable condition, not expected to require capital expenditure within the scope of this report.

Fair Condition
Deteriorating condition, likely to become "poor" within five to ten years if not addressed.

Poor Condition
Observable deterioration requiring immediate capital repair.

Replacement Prioritization System

- Priority A - Life Safety:
  Hazardous conditions which cannot be deferred and which could lead to loss of life or critical or extremely severe injury must be corrected or removed as a first priority.

- Priority B - Structural Integrity:
  Conditions which lead to the deterioration of structural elements of a building must be investigated and corrected if necessary; structural integrity must be maintained at all times. Failure to do so will lead to unsafe, life threatening conditions and will eventually render the building structurally unsound and physically obsolescent, incapable of performing the task it was designed to do.

- Priority C - Legislative Requirements:
  All buildings and building systems must be upgraded so that they comply with revisions to existing legislation or to the requirements of newly adopted legislation.

- Priority D - Building Functionality:
  Included within this priority is the repair or replacement of building elements, which have reached the end of their useful life. This work is necessary in order to maintain tenants' quality of life and to prevent the building from becoming physically or functionally obsolescent. Priority D includes all building systems which are scheduled for replacement at the end of their useful life in a planned and systematic fashion including; roofing systems, electrical systems, fire alarm systems, fire suppression systems, elevators, heating systems, domestic water supply systems and sanitary and/or storm water removal systems.

- Priority E - Cost-Effective Initiatives:
  Included in this priority is the repair or replacement of building elements principally to obtain a savings in the future operating of the building. Generally the payback period should be 5 years or less.

1.6 Sources for Replacement Costs

The replacement costs for the various components detailed in this report are based on the unit rates detailed in the Hanscomb Yardsticks for Costing manual, combined with the experience of the consultants gained in the repair and renovation of buildings.

The estimated replacement and major repair costs contained in this report are based in part on information and quantities obtained by a visual inspection of the property and in part from a review of the available documentation.

The estimates of the remaining life are based on an assessment of the current condition as made by the consultants during the visual examination of the property.

The effective age is based on the observed condition of the building element. It is not necessarily the actual age (chronological age) of the building component. This is especially true where there has been a severe environment and the building component is prematurely aged.

1.7 Assumptions

The estimates provided are the installed cost of completing the major repair or replacement indicated in the report. These costs are in 2011 dollars and include the contractor's overhead and profits and additional design or contract management fees, which may be required on some work.

The replacement cost of each component implies:

- Standard building materials or systems will be used;
- Current construction techniques will be used in replacement or repair of building components; and
- Construction will be in accordance with the edition of the Ontario Building Code, which is current at the time of preparation of the BCA.

It is essential that a program of maintenance work be carried out on an annual basis to maintain the property elements in a condition such that they will achieve the life expectancies detailed in this report. The building condition assessment results assume that the owner will adopt and implement proper maintenance practices for the property.

1.8 Limitations

The analysis recognizes a number of factors that can influence the findings in this report. Historically, building costs have been rising at various rates from year to year, depending on business cycles, economic conditions, interest rates, etc. In boom periods, cost increases were fairly pronounced, whereas in times of recession, cost increases were only nominal or costs even declined. As many of the building elements covered by the building condition assessment (BCA) report involve aesthetic qualities, there is an element of judgment in identifying costs and life cycles for certain elements, particularly finishes.

The costing and budgeting program developed/recommended in this report should be considered no better than a Class 'D' costing estimate and limited to conditions which were apparent at the time of the site visit and based on the access to different parts of the buildings. A Class 'D' estimate is strictly an indication (rough order of magnitude) of the total project cost; the expected degree of accuracy is +/-25%.

Code Compliance is based on the requirement to meet code at the time of building construction and as such, does not necessarily ensure that all elements meet current codes. Only elements that represent potential life safety hazards, are raised as non-compliance issues for the current analysis.

The building condition assessment results assume that the owner will adopt and implement proper maintenance practices for their facility.

2. SITEWORK

2.1 Parking Areas

There is minimal asphalt parking along the north side of the building for handicap and general public. Additional parking is provided along the adjacent streets and across the road at the municipal ball field. The paved area in front of the main entrance was replaced in 2010 and has a life expectancy of 20 years.

Although parking adjacent to the arena is minimal, parking on the adjacent street ROW is not a concern.

2.2 Sidewalks/Walkways

There are no defined sidewalks/walkways leading from the parking areas. The parking area along the north side leads directly to the main entrance. Access to the east handicapped entrance is provided from the adjacent road ROW with no handicapped parking available. Handicapped parking is available at the north entrance with wheelchair ramps to second floor access. As noted in item 3.4 East Side Ramp and Stair Entrance, it is recommended that the entrance ramp be replaced due to its' condition.

2.3 Site Drainage

Drainage Away From Building

Drainage from the building is problematic on all sides with exception of recently completed north wall. The road along the east side is considerably higher than the arena floor and all ground surface drainage from the road ROW goes to a shallow ditch beside the arena which has a minimum slope. Consideration should be given to providing a more pronounced ditch grade with an in ground drainage system complete with yard drains. The drainage system would outlet to the adjacent drainage creek.

Cost Estimate: $8,000

The west side of the building is a flat grassed landscaped area with minimal slope from building perimeter. This area should be re-graded by the addition of fill material to provide positive drainage away from the building.

Cost Estimate: $2,000

A new drainage tile was installed in 2010 along the west building foundation/footing which has reduced the amount of subsoil water adjacent to the foundation wall. This drain tile outlets to the adjacent drainage creek.

3. STRUCTURE

3.1 Foundation Walls

The top 8-12" of the exterior foundation walls are exposed and therefore were the only portion visually inspected. The west exterior portion of the foundation has areas of moderate to severe spalling and disintegration underneath the sill of the steel superstructure. The concrete sills under the south-west and south-east man doors also showed the same types of deterioration. The east, north, and south foundation walls are in fair condition.

Visually the foundation walls are in "fair" condition. Recommended repair involves properly cleaning the damaged areas of walls from loose debris and dirt, then application of an epoxy mortar compound over the damaged areas until flush with original thickness of wall.

Quantity Estimate: $45m^2$
Unit Cost Estimate: $\$200/m^2$
Cost Estimate: $10,000

Life Span Analysis: Expected Life: 50 years
Effective age: 28 years
Remaining Life: 5 years

3.2 Concrete Block Walls

All interior concrete block walls were visually inspected and no major cracking or deterioration was detected.

The block walls are in "good" condition and there are no recommendations for repair.

Life Span Analysis: Expected Life: 50 years
Effective age: 28 years
Remaining Life: 22 years

3.3 Roof Structure

The roof structure is a Behlen corr-span. This is a heavy gauge corrugated steel roof supported by a steel truss system. The steel truss system had no signs of cracking twisting, or deflection. The galvanized coating on the truss members is in excellent condition. The corrugated steel roof has surface rust forming on the exterior surface however the rust is not currently detrimental to the strength of the structural. There are several areas at the seams of the metal roofing where leakage may be occurring due to gaps in the connection points.

Visually the roof structure is in "Good" condition. Recommended repair involves the application of a bituminous membrane to ensure seams and connection points do not leak onto the interior components of the structure.

Cost Estimate: $60,000

Life span analysis:
Expected Life: 50 years
Effective age: 28 years
Remaining Life: 15 years

3.4 East Side Ramp and Stair Entrance

The structure on the east side of the building is constructed of steel framing and a concrete deck for a ramp. The entire underside of the frame for the ramp is covered with moderate to severe corrosion. The steelwork under the stairs appears to have been patched on multiple occasions. The galvanized grating is in good condition and may be salvaged if possible.

The steel frame for the stairs and ramp are in "poor" condition. Recommended repair involves a complete replacement of the entrance structure with either a galvanized steel or concrete structure.

Cost Estimate: $40,000

Life Span Analysis:
Expected Life: 30 years
Effective age: 28 years
Remaining Life: 2 years

3.5 Interior Floor Systems

The interior second floor systems are wood joist and plywood construction. No visible signs of deformation or degradation were noted during our visual assessment.

Visually the floor structure is in "Good" condition. No recommendation for repair to the second floor system was observed.

To meet the original design of the 1Hr. fire rated floor assembly, all exposed wood and steel structural members supporting the second floor ie: beams, columns etc. should be clad with 5/8" fire rated gypsum. Areas with lay-in ceiling tile should be checked to ensure that it is all a fire rated system and tie down clips installed.

Cost Estimate : $4,000.00

Life Span Analysis:	Expected Life:	50 years
	Effective age:	28 years
	Remaining Life:	22 years

3.6 Rink Slab

The concrete rink slab showed no signs of major movement or any irregular cracking. Recent repairs along the outside edge of the slab where the boards are located were detected.

Visually the rink slab is in "Good" condition. No recommendations for repair.

Life Span Analysis:	Expected Life:	50 years
	Effective age:	28 years
	Remaining Life:	22 years

3.7 Ice Plant Structure

The concrete block structure which houses the Zamboni and ice plant is in good condition. Repairs are required to localized cracks as well as sealing between the concrete block structure and the arena metal siding.

The roofing membrane consists of insulation overlaid with a built-up tar and gravel and modified bituminous flashing capped with metal. No test cuts were done to inspect the insulation and vapour barrier, however, overall condition appears good and should last the duration of the study.

4. BUILDING EXTERIOR

4.1 Eaves Troughs and Downspouts

The building does not have eaves troughs and downspouts except that there is approximately a 16'-0" length at the second floor entrance on the east side of the building. This section of eave trough has caused problems over the years with ice damming and runoff discharge. Consideration should be given to modifying the roof slope to provide drainage to both sides of the entrance stairs/ramp allowing for a safer entrance.

4.2 Soffit and Fascia and Gable Vents

Due to the type of building construction, no soffit and fascia was installed. Ventilation of the attic area is provided by gable vents at the north and south end.

The present condition of the gable vents and motorized fan is poor. Recommended repair involves replacement of the existing vents with a weatherproof type complete with thermostatic control dampers and sealing existing slotted siding.

Unit Cost Estimate:	$2,000	
Cost Estimate:	$6,000	
Life Span Analysis:	Expected Life Span:	30 years
	Effective Age:	28 years
	Remaining Life:	2 years

4.3 Caulking and Weather Stripping

There are very few windows and doors, hence caulking is a minor item that should be completed as part of annual maintenance work.

4.4 Windows

There are very few windows in this building. The offices and recreation hall at the north side of the building have double pane, non-thermal windows which were installed in 1985. The existing windows are close to the end of their service life and therefore consideration should be given to replacing them with thermal units.

Unit Cost Estimate:	$1,000	
Cost Estimate:	$7,000	
Life Span Analysis:	Expected Life Span:	30 years
	Effective Age:	26 years
	Remaining Life:	4 years

4.5 Doors

The current doors are hollow metal type and meet the current fire duration of ¾ hour in areas required. The fire rating label has been covered by paint and should be uncovered.

4.6 Walls – Common and Service Areas

Most of the public corridors and the walls in the arena are painted concrete block and are in good condition. Continued maintenance should be conducted to ensure its clean look.

4.7 Floors - Common and Service Areas

The flooring in the area exposed to skate traffic, ie: change rooms, lower viewing, washrooms, etc. has a 3/8" rubber matting. The second floor recreation hall has hardwood flooring with all other second floor rooms having vinyl tile.

All flooring appears in good condition and should last the duration of the study period with continued maintenance being carried out after use.

4.8 Stairs

The stairs are metal pan and concrete. Aside from painting they should last the duration of the study period.

4.9 Stairway and Corridor Handrails

The hand rails are painted steel and should last the duration of the study period.

4.10 Interior Doors – Common and Service Areas

The interior service doors are steel and expected to last the duration of the study period. Fire rated labels should be kept exposed and not painted over.

5. ELECTRICAL SYSTEM

5.1 Distribution Systems Service Entrance

The building service entrance consists of a main disconnect, meter cabinet and splitter with the splitter feeding sub-panels and equipment disconnects (see photograph). The equipment appears to be original to the building and remains serviceable. Due to its' age, and potential degradation of plastic components such as insulators and loosening of connections, annual thermographic inspection of the system is recommended.

Visually, the equipment is in "average" physical condition. Although the equipment should last the life of the building, as it ages, 5% of the total cost should be budgeted for upgrades and repairs every 5 years.

Quantity Estimate:	1 system	
Unit Cost Estimate:	$5,000	
Cost Estimate:	$20,000	
Life Span Analysis:	Expected Life:	35 years
	Effective Age:	28 years
	Remaining Life:	5, 10, 15, 20 Years

Main Electrical Service Entrance Gear showing Some Distribution Gear.

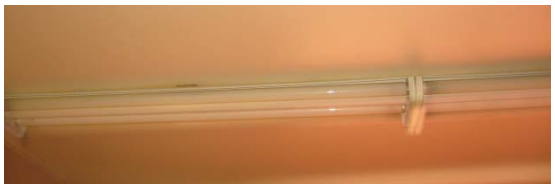
5.2 Distribution Systems Sub-Panels

The distribution system consists of several breaker panels, motor starters and disconnects located at the main service entrance and throughout the facility. Visually, the equipment is poor to average condition with plates bolted over opening left when removing breakers, and marking on covers to indicate circuit use. The equipment is a mix of original and newer equipment with differing life expectancies. Breakers will need to be replaced as they age or wear out and as replacement parts become difficult to obtain, may require replacement of complete panels. The cost of these replacement breakers and panels is included in Section 5.1 Distribution Systems Service Entrance.

Typical breaker panel.

5.3 Lighting

Generally the lighting throughout the hall, washrooms, change rooms etc. are T12 or T8 type fluorescent fixtures. Most fixtures are older, with some of the lenses beginning to crack or deform or missing. As noted in the Energy Audit Report (2008), the T12 fixtures should be replaced with T8 or T5 fixtures.

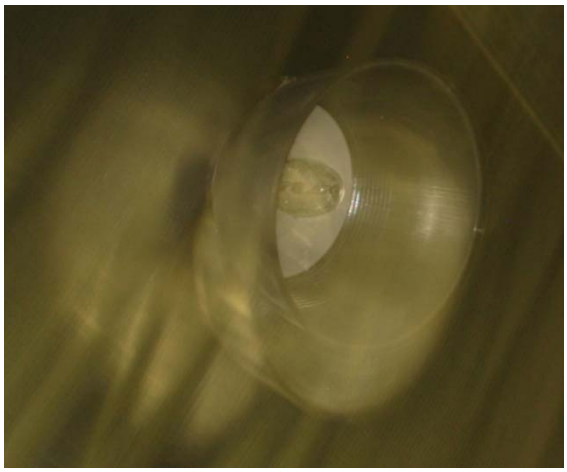


Typical T12 light fixture

Unit Cost Estimate: $75 (2 lamp, surface mount)
Cost Estimate: $3,000

The rink lighting is with metal halide fixtures and should be replaced with T5HO fixtures as recommended in the Energy Audit Report (2008). The T5HO bulbs can last over ten years before needing to be replaced due to loss of brightness or color shift. T5HO can only be used if the rink is heated to above minus 17 Celsius.

Cost Estimate: $27,000



Typical Rink Light Fixture

5.4 Electric Heating

The draft barriers and auxiliary heat is accomplished by electric base board and unit heaters. The life expectancy of these heaters is approximately 40 years. Even though the heaters are functional, one or two heaters can expect to fail every year or so due to age.

Unit Cost Estimate:	$500	
Cost Estimate:	$5,000	
Life Span Analysis:	Expected Life:	40 years
	Effective Age:	28 years
	Remaining Life:	12 years

Typical Baseboard Heater

Typical Wall Unit Heater

Typical Industrial Heater

5.5 Non-Compliant Outlet/Switch Installations

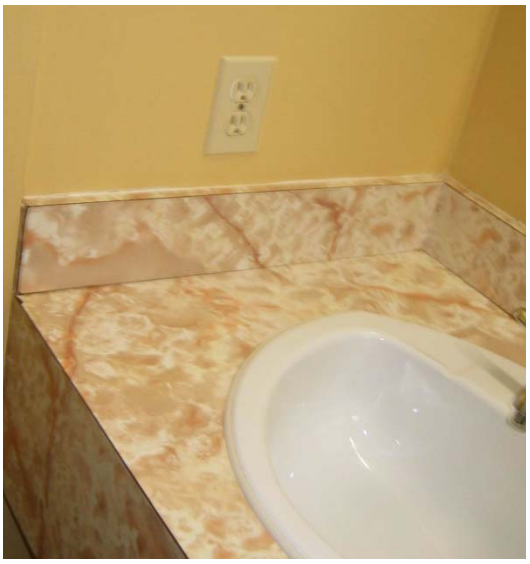
In several washrooms, standard electrical outlets were located within 1.5 m of the sink. By Electrical Safety Code requirements, these should be replaced with GFI Class A type outlets.

Cost of GFI outlets: $500
Required immediately

Unsafe Outlet/Switch Installation

The switch controlling the stove exhaust fan is mounted on the face of the hood and could be subjected to high vapour (steam) when the stove is in use. The wiring technique does not comply with code and re-location of the switch to the back wall adjacent to the stove is recommended.

Cost of Relocation: $500
Required immediately



Unsafe Outlet Installation

5.6 Emergency Lighting

Emergency lighting is provided by low voltage battery pack systems spread through the facility. These units appear to be reasonably new, and in good condition. It is recommended that an allowance be carried for replacement of the battery packs on approximately a 10-year cycle. Individual lamp replacements would be expected to come from the regular maintenance budget.

Unit Cost Estimate:	$200	
Cost Estimate:	$200	
Life Span Analysis:	Expected Life Span:	10 years
	Effective Age:	5 years
	Remaining Life:	5, 15 years

Units should be inspected, tested and maintained in conformance with CAN/CSA-C282, “Emergency Electrical Power Supply for Buildings.” These tests include visual, operational, and duration on a monthly, semi-annual and annual basis. A log book is available from CSA for recording these tests.

Typical Emergency Light with Battery Pack

5.7 Fire Alarm

The fire alarm system is an Edwards EST 6616 series, with current verification. The main panel is located at the lower entrance at front entrance lobby of the building. This system appears to be in good physical condition and is regularly tested as required by a specialist contractor for this type of equipment. These systems are generally very reliable; however, as they age, the detectors do fail occasionally and replacement of one detector every year or so can be expected.

A number of the pull stations are not at handicapped accessible height (1.2 m aff). The affected pull stations should be re-located as required by current regulations. To reduce costs, relocation could be performed as part of the annual re-verification contract.

Cost Estimate: $15,000

Life Span Analysis:
- Expected Life Span: 20 years (to be verified)
- Effective Age: 5 years (to be verified)
- Remaining Life: 15 years (to be verified)

6. MECHANICAL SYSTEMS

6.1 HVAC Systems

6.1.1 Water Furnace Heat Pumps in Community Hall and Kitchen

The community hall, washroom area and kitchen are heated and cooled by 4 "Water Furnace" open ground loop coupled heat pumps. Wall mounted thermostats control operation. Return air filtration is with one inch thick re-usable (washable) filters.

Water Furnace Heat Pump In Kitchen Ceiling Space

Life expectancy of the units is approximately 25 years before replacement is required. Establishment of a reserve fund of approximately $10,000 to cover un-expected failure of major components (i.e. compressor, or heat exchanger) should be considered.

Open loop units can develop problems with scaling in the heat exchanger after approximately 15 years depending on water quality. The units should be inspected and cleaned as needed. Estimated costs will range from $1500 to $5000 per unit

The filters originally installed on the units are 1 inch thick and subsequently were replaced with re-usable, washable filters. These filters do not catch very fine fibers and dust, leading to clogging of the heating/cooling coil. For long change-out intervals, the filter carrier should be replaced with a holder for 4 inch thick filters, and MERV4 pleated throw away filters used. The coil should be inspected and cleaned as needed. Approximate cost per unit $3000. Until the 4 inch filters can be installed, the one inch replaceable filters should be minimum MEVR4 and inspected weekly and replaced as needed.

Unit Cost Estimate:	$25,000	
Cost Estimate:	$100,000	
Life Span Analysis:	Expected Life Span:	25 years
	Effective Age:	10 years
	Remaining Life:	15 years

Access to the Water Furnace through the "Bar" is very limited. As a minimum, the door swing into the mechanical room should be changed to permit a service technician a means of escape in case of accident. Consideration should be given to providing access from the men's washroom, to avoid passing through the "Bar".

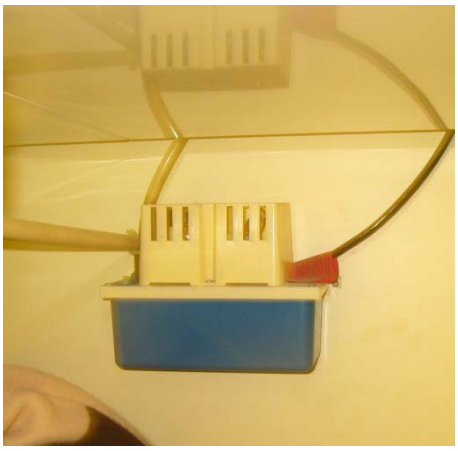
6.1.2 Heat Recovery Units in Community Hall

The outdoor air for the community hall is provided by two LifeBreath HRV units. Top-up heat for the supply air to the hall is provided by electric heaters. Life expectancy for these units is 20 to 25 years. Regular changing of filters to avoid clogging of heat exchanger is recommended.

Typical Heat Recovery Unit

The condensate from the heat pump and HRV located beside the stairs is removed by a small condensate pump. To avoid flooding damage, an alarm connected to the building security system is recommended.

Unit Cost Estimate:	$2,000	
Cost Estimate:	$4,000	
Life Span Analysis:	Expected Life Span:	25 years
	Effective Age:	10 years
	Remaining Life:	15 years



Condensate Pump serving WaterFurnace and Heat Recovery Unit

6.1.3 Kitchen and Canteen Exhaust Hoods

The commercial range has a commercial exhaust hood above the range, with a switch to control the fan mounted on the unit face. A hood of this type should have an exhaust flow rate of approximately 150 to 250 cfm per linear foot of length, or in the range of 1000 to 1500 cfm. With the fan running, very little air could be felt moving through the baffles, or it is unlikely that the hood is extracting cooking fumes as required. For the hood to function properly, a source of make-up air is required. Cost of such an installation for Type II system (no deep frying) will be approximately $20,000 or for a Type I system (deep fryers with fire suppression system, etc.) approximately $50,000. Either system will require approximately $5,000 to $6,000 in Engineering fees for design of system.


Exhaust Hood and Range (Partial)

Cost Estimate: $60,000 for kitchen exhaust hood (Type II)
$25,000 for canteen exhaust hood (Type I)

6.1.4 Washrooms

Lower Floor Washrooms

The washrooms are heated by electric baseboard and ventilation is provided by small residential style exhaust fans. The exhaust fans did not turn on when the lights were on and therefore did not appear to be functional The exhaust hoods for these fans are bent, preventing the dampers from fully opening and should be repaired. Cause of the fans not working should be identified and repaired. Life expectancy of a small exhaust fan is approximately 5 to 10 years depending on use. Replacement cost of the small fans is approximately $250


Typical Damaged Exhaust Hood

Upper Floor Washrooms

The washrooms are provided with conditioned supply air from heat pumps, and exhausted by fan. To avoid returning air from the washroom to the community hall and to comply with current ventilation code requirements, exhaust flow rate should exceed supply flow rate. This requires the exhaust fan to run (i) when heat pump is running with the exhaust fan capacity exceeding supply air flow rate and (ii) when space is in use. It is beyond the scope of this project to verify the flow rate, normally carried out by an air balancing company. If there are odour complaints or odours escaping the washrooms, the owner should have an air balancing company verify flow rates. Approximate cost for such an investigation is $2,000.

6.1.5 Change Rooms

The change rooms and common area are not ventilated, and should be to reduce odour and potential for mould due to humidity and provide outdoor air for occupants as required by current ventilation codes (ASHRAE 62). One or more HRVs should be provided for each group of rooms.

Cost Estimate: $50,000

6.1.6 Rink

There is no heat or forced ventilation in the rink zone. The ice is maintained by a propane powered "Zamboni." For purposes of health and safety reasons, CO and combustible gas detectors must be installed to sense air over ice surface (i.e. through boards), near entrances to rink area and in ice cleaner storage room. On detection of excessive exhaust gas levels, an alarm would signal and powered ventilation fans would start.

Cost Estimate for detectors and forced ventilation system: $20,000

The rink does not have a de-humidifier, which leads to "fog" over the ice when the air above the ice is warmer than the ice. If there is "fog" over the ice, condensation will form on all chilled surfaces, leading to corrosion and possibly a build-up of mold, therefore, a dehumidifier is recommended.

Cost Estimate for a dehumidifier: $40,000.

6.2 Plumbing

The plumbing system appears to be original to the building and for the large part, is still serviceable.

The showers are required to be protected by a pressure or thermostatic balancing valve which limits the maximum water temperature at the shower head to 49^{o} C. This valve can be located at the shower, group of showers or at the hot water heaters. Similarly, good practice indicates that the sinks accessible by the public should be similarly protected. Therefore, a balancing valve should be installed at the hot water heaters. (Note: A separate supply to the kitchen may be required for dishwashing).

The hot water heaters have an installed date of 2004 and have a 15 year life expectancy. Approximate cost for a balancing valve at the hot water heaters supply is $2,000 and replacement cost for hot water heater is approximately $1,000.

Cost Estimate – Balancing Valve:	$2,000
Cost Estimate - Hot Water Heater:	$1,000

Life Span Analysis:	Expected Life Span:	15 years
	Effective Age:	7 years
	Remaining Life:	8 years

Typical Shower

Typical Hot Water Heater

The 13 L per flush round bowl style water closets (toilets) are no longer permitted by code for public use; however, the porcelain is durable, in good condition and the water closest are still functional. Only one water closet was found leaking water through the flap valve, hence whole scale replacement is not recommended. Should a water closet break or crack, a current elongated bowl water closet with open front seat as required by code is recommended. Minimum flush capacity of 500 gms using 6 L of water as per the Veritec or Toronto test program is recommended. Approximately half of the water closets required holding the handle down to complete the flushing action and should be repaired to ensure a complete flush even if user leaves the stall. The cost of repairing or replacing the a flap valve or adjusting a chain is mostly labour and about half an hour per water closet and as a result, no cost has been provided.

Typical Older Water Closet

Estimated costs for replacement are as follows:

Unit Cost Estimate:	$1,000	
Cost Estimate:	$12,000	
Life Span Analysis:	Effective Life Span:	20 years
	Effective Age:	20 years
	Remaining Life:	4, 8, 12, 16

6.3 Wells

Current regulation requires that well head be a minimum of 18 inches above the surrounding ground and be graded to drain away from the well head. None of the wells meet this requirement and need re-grading. As noted under Site Works, lot grading needs work to solve the drainage issues.

The facility falls under the local board of health for ensuring water quality and has not been required to provide disinfection equipment. Should a poor water test result occur or be repeated, the health unit may require installation of a disinfection system. This could cost as little as $2500 if a UV unit alone is required and up to $100,000 if a full filtration system is required and will depend on well pump capacity, and water quality condition.

Drinking Water Well head, with asphalt sloping past well casing

6.4 Sewage Disposal

The sewage disposal system was not reviewed. The tank should be pumped regularly as recommended by the contractor.

7. SUMMARY

In general, based on our building condition review, the building is deemed to be in fair to good condition.

The total capital funding requirement over the 20 year study period is estimated to be $534,400 in present value dollars.

The building elements requiring renewal/upgrading and the associated costs over the next 20 years are summarized in spreadsheet format in Appendix A.

Most of the costs are associated with the building mechanical/electrical systems, the replacement of the east side ramp and stair entrance and sealing the joints and bolt penetrations on the exterior membrane of the roof structure.

APPENDIX A

PROJECT ASSESSMENT AND CAPITAL FORECAST SUMMARY

Project Assessment and Capital Forecast Summary
Westmeath Recreation Centre
Present Value Dollars

Project # :	2112629A	**Project Name:**	Westmeath Recreation Centre Report	**Municipality:**	Whitewater Region
Building Type :	Arena Complex	**Building #'s:**	1		
Date Prepared :	September 2011	**Prepared By:**	Jp2g Consultants Inc		

Building Elements	Estimated Remaining Life (Years)	Capital Priority	Estimated Capital Funding Required																			
			2012 1	2013 2	2014 3	2015 4	2016 5	2017 6	2018 7	2019 8	2020 9	2021 10	2022 11	2023 12	2024 13	2025 14	2026 15	2027 16	2028 17	2029 18	2030 19	2031 20	Total
SITEWORK																						
Parking Areas	20																					$0
Sidewalks/Walkways																						$0
Site Drainage		D	$10,000																			$10,000
General Landscaping																						$0
TOTAL SITEWORK			$10,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,000
STRUCTURE																						
Foundation Walls	5	B					$10,000															$10,000
Concrete Block Walls	20+	B																				$0
Roof Structure	15																$60,000					$60,000
East Ramp and Stair Entrance	2			$40,000																		$40,000
Interior Floor Systems	20+	B	$4,000																			
Rink Slab	20+	D																				$0
Ice Plant Structure			$2,000																			$2,000
TOTAL STRUCTURE			$6,000	$40,000	$0	$0	$10,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$60,000	$0	$0	$0	$0	$0	$116,000
BUILDING EXTERIOR/INTERIOR																						
Eaves Troughs and Downspouts																						$0
Soffit and Fascia and Gable Vents	2			$6,000																		$6,000
Caulking and Weather Stripping																						$0
Windows	4	D				$7,000																$7,000
Doors																						$0
Walls - Common and Service Areas																						
Floors - Common and Service Areas																						
Stairs																						
Stairway and Corridor Handrails																						
Interior Doors - Common and Service Areas																						
TOTAL BUILDING EXTERIOR/INTERIOR			$0	$6,000	$0	$7,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,000
ELECTRICAL SYSTEMS																						
Distribution Systems Service Entrance		D					$5,000				$5,000				$5,000				$5,000			$20,000
Distribution Systems Sub-Panels																						$0
Lighting - General		D	$3,000																			$3,000
Lighting - Rink		E		$27,000																		$27,000
Lighting - Exterior																						$0
Electric Heating	12	D												$5,000								$5,000
Non-Compliant Outlet/Switch Installations		A	$1,000																			$1,000
Emergency Lighting	5	D					$200										$200					$400
Fire Alarm	15	C															$15,000					$15,000
TOTAL ELECTRICAL			$4,000	$27,000	$0	$0	$5,200	$0	$0	$0	$5,000	$0	$0	$5,000	$5,000	$0	$15,200	$0	$5,000	$0	$0	$0	$71,400
MECHANICAL SYSTEMS																						
Heat Pump Systems	15	D					$10,000										$100,000					$110,000
HRVs (Community Hall)	15	D															$4,000					$4,000
Kitchen/Canteen Exhaust Hoods		C	$85,000																			$85,000
HRVs (Change Rooms)		D	$50,000																			$50,000
Rink Ventilation System		C	$20,000																			$20,000
Rink Dehumidifier		D	$40,000																			$40,000
Hot Water Balancing Valve		C	$2,000																			$2,000
Hot Water Heaters		D								$1,000												$1,000
Water Closets		D				$3,000				$3,000				$3,000				$3,000				$12,000
TOTAL MECHANICAL SYSTEMS			$197,000	$0	$0	$3,000	$10,000	$0	$0	$4,000	$0	$0	$0	$3,000	$0	$0	$104,000	$3,000	$0	$0	$0	$0	$324,000
GRAND TOTAL			$217,000	$73,000	$0	$10,000	$25,200	$0	$0	$4,000	$5,000	$0	$0	$8,000	$5,000	$0	$179,200	$3,000	$5,000	$0	$0	$0	$534,400