

Building Condition Assessment and Reserve Fund Study



**Port Nelson United Church
3132 South Drive
Burlington, Ontario**

By:



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EXECUTIVE SUMMARY

Byrne Engineering Inc. (Byrne) has performed a Building Condition Assessment (BCA) and Reserve Fund Study (RFS) for Port Nelson United Church (PNUC) located at 3132 South Drive, Burlington, Ontario. This report summarizes the findings and recommendations of the Building Condition Assessment and Reserve Fund Study.

A condition survey of the building and site elements was conducted on May 3, 2010 in order to determine their present condition and estimate their remaining life expectancy. This survey included architectural, structural, mechanical and electrical building systems.

A Reserve Fund Study and Cash Flow Projections for twenty-five years are presented in the report. A print out of the RFS and associated tables and charts representing a twenty year study is also supplied; however as discussed, the written report will reflect the twenty-five year period. The report outlines the recommended repairs or replacements and the year in which the work should be undertaken. The estimated costs are further discussed in the body of the report and the attached spread sheets. With the absence of any significant bank balance and no annual contributions to a reserve fund, the attached charts immediately reflect a deficit.

Please note that there are many possibilities for the Reserve Fund Analysis and small changes can have significant impact on the results. *It is recommended that the PNUC Building Committee (the Committee) review the study and discuss the desired results. It can be beneficial for a Committee Representative to attend a meeting at our office to modify the spreadsheet in real time and review other options to achieve a desired result.*

Byrne recommends that the Committee review this study every year and has it updated every three years to ensure cost data, building deterioration and repair and replacement records are kept current and relevant.

Five Year Summary

		2011	2012	2013	2014	2015
3.1.1	Foundation Wall - Study - Allowance	\$2,500				
3.2.1	Flat Roof (Central Section)		\$80,000			
3.2.2B	Pitched Roof (Auditorium) - Asphalt Shingles	\$28,000				
3.2.3	Soffit and Fascia	\$20,400				
3.2.4	Eaves Troughs	\$2,680				
3.3.1	Masonry Cladding Repairs – Re-point					\$4,000
3.3.3	Sealant/Caulking Replacement - Building Envelope	\$7,200				
3.3.5	Windows			\$0	\$129,000	
3.3.6	Doors - Wood			\$16,000		
3.3.7	Doors - Metal			\$4,000		
3.4.2	Exit & Emergency Light Systems (Allowance)	\$500		\$500		\$500
3.4.4	Fire Extinguishers (allowance)	\$125	\$125	\$125	\$125	\$125
3.5.2	Vinyl Composite Tile	\$10,920				
3.5.4B	Kitchens Upgrades - C					\$4,000
3.5.5B	Washrooms Upgrades - Low Flow Toilets	\$2,000				
3.6.2	Chimneys: Vitrified Clay Liner Inspection	\$4,725				
3.6.7	Exhaust Fans - Washroom	\$150	\$150	\$150	\$150	\$150
3.6.8	Exhaust Fans - Sanctuary	\$1,000				
3.6.9	Fuel Distribution	\$1,000				
3.6.10	Air Conditioning Units (Allowance)		\$500			\$500
3.7.2	Domestic Water Distribution	\$500	\$500	\$500	\$500	\$500
3.8.2A	Interior Light Fixtures Fluorescent (4% Allowance)	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050
3.8.2B	Interior Light Fixtures Incandescent (4% Allowance)	\$675	\$675	\$675	\$675	\$675
3.8.3	Exterior Wall Mount HPS Lights	\$3,500				
3.8.4	Exterior Light Fixtures (Under Stained Glass Windows)	\$5,600				
3.9.1A	Parking Lots - Asphalt Paved					\$150,480
3.9.1B	Parking Lots - Curbs - Asphalt Paved					\$4,000
3.9.4	Metal Railing (allowance to paint)		\$4,000			
3.9.5	Landscaping - Trees - Trimming			\$500		
3.9.6	Landscaping - Grading			\$5,000		
3.9.7	Sidewalks - Concrete	\$3,575				
3.9.8	Ramp - Concrete			\$1,000		
3.9.9A	Cast-in-Place Concrete Steps - Replace	\$20,000				
3.9.9B	Cast-in-Place Concrete Steps - Repair	\$5,000				
3.9.10	Storm Water Drains				\$800	
3.10.1	Engineering Fees (10% of Construction)	\$12,110	\$8,700	\$2,950	\$13,230	\$16,598
3.10.2	Contingency Allowance (10% of Total)	\$13,321	\$9,570	\$3,245	\$14,553	\$18,258
	Total:	\$146,531	\$105,270	\$35,695	\$160,083	\$200,836

1.0 INTRODUCTION

1.1 Terms of reference

As requested, Byrne has provided a Reserve Fund Study (RFS) for PNUC. This report summarizes the findings and recommendations of the RFS.

The Terms of Reference are contained in the Scope of Work included in Byrne Proposal No. 210069.

1.2 Scope of Work

The detailed scope of work for the RFS is briefly summarized below:

- Review all information regarding previous repairs
- Conduct a visual inspection of the building and site elements in order to determine their present condition and estimate their remaining life expectancy. This survey will include architectural, structural, mechanical and electrical building systems
- Prepare a preliminary assessment of the cost and timing of future anticipated work as outlined in the existing RFS
- Provide the committee with three copies of the report

1.3 Description of the Site

PNUC is a church complex containing a total of three (3) distinct buildings. The original church building referred to as the Education Wing / Lloyd Auditorium was constructed in 1953. The present day church, referred to as the Sanctuary, the Upper Narthex, administration / offices and the O'Brien Room were constructed in 1960. The Lower Narthex was constructed in 1988.

Parking is provided as one large asphalt paved lot located on the south side of the property.

1.4 Additional Information

The following information was provided to Byrne by the building committee:

- The current reserve fund balance is: \$ 0
- The current annual contribution is: \$ 0

1.5 Documentation

The following documents were provided to Byrne for review:

- Original drawings
- Detailed roof evaluation report
- Proposed solar array installation
- Replacement cost new appraisal report
- Window replacement quote

- Maintenance history
- Electrical service upgrade quote
- Boiler custodian manual

2.0 METHODOLOGY

2.1 Condition Survey

A general condition survey was conducted on May 3, 2010 to confirm the present condition of the building elements in order to estimate their remaining life expectancy. The survey included exterior architectural, structural, mechanical and electrical building systems. The condition of the elements was documented in photographs and field notes.

2.2 Review of Drawings

The drawings provided a basis for obtaining quantities and other relevant information necessary for the preparation of the estimates.

2.3 Reserve Fund Spreadsheet

In the reserve fund spreadsheet, we have used our standard layout that will display all the necessary data and information. The spreadsheet can be found in Appendix A.

2.4 Cost Estimates

Cost estimates are generally based on one of the following methods:

- Quotations from suppliers
- Extrapolation of cost or quotes for previous work
- Direct estimation by the consulting engineer
- Information provided by the committee

While every effort has been made to establish the appropriate costs, it must be recognized that the figures represent an estimate. The actual costs may vary even with standard types of construction. Prices from contractors for a fully defined project may vary +/-20%. For non-standard work the variation may be greater.

Commodity prices, namely petroleum and metals, which are extensively used in construction materials, have undergone severe fluctuations over recent years. The differences on a year to year basis may result in increases of over 100%. The price of nickel (stainless steel) and copper (electrical wiring and plumbing piping) have increased significantly in recent years. The cost of petroleum which is used in roofing, waterproofing, paint and asphalt materials has also increased significantly. Although it is suggested to have the study updated every 3 years, during times when the commodities marketplace fluctuates excessively, it may be advisable to update the study more frequently.

2.5 Life Expectancies

Life expectancies for the property elements are derived from knowledge of life expectancies under normal conditions and with information on product and workmanship quality gathered from the site visits. Care and maintenance of elements can also affect the life expectancy. Estimated remaining life expectancies of the property elements have been adjusted to reflect their current condition.

3.0 BUILDING COMPONENT ASSESSMENT

3.1 Structure

3.1.1 Foundation Walls

Most of the foundation walls are conventional reinforced cast-in-place concrete for all buildings with some interior foundations being 8" concrete block. There were two main areas of water infiltration which are both located in the original church building. One area is quite evident by dried efflorescence on the kitchen masonry wall and rust around an electrical outlet in the south east corner of the building. It appears that the exterior concrete stairs may be the source of water making its way in. These stairs have cracked, delaminated and shifted away from the foundation wall.

The other area of water infiltration is on the west side of the lower Auditorium. It is unclear whether the infiltration is through the wall or the window.

An allowance has been made for further in-depth engineering investigation to determine the source of the water filtration at the window area. It is recommended that the exterior stairs at the south east corner of the building be repaired and all joints with the foundation wall be sealed. As a safety precaution, it is recommended that this electrical outlet be disconnected until the source of the water is determined and the leak stopped.



3.2 Roofing

3.2.1 Flat Roof – Central Administration Buildings (Upper and Lower Narthex)

Access to the roof of the Administration Building was obtained via ladder. This was the only flat roof that was accessible. The roof is in poor to fair condition with insufficient slope to roof drains, exposed bubbling bituminous material and moss. It was reported that all flat roofs are original to the construction of the buildings having had only repair work done in recent years. Since life expectancy of built-up roofs is about 20 years and the



newest of the roofs is already 22 years old. It is recommended that all flat roofs be replaced in Year 2.

A concise roof report was done for the Committee by an independent roof consultant. The report offers some good roof replacement type alternatives for consideration.

3.2.2 Pitched Roof – New Sanctuary and the Auditorium (original church)

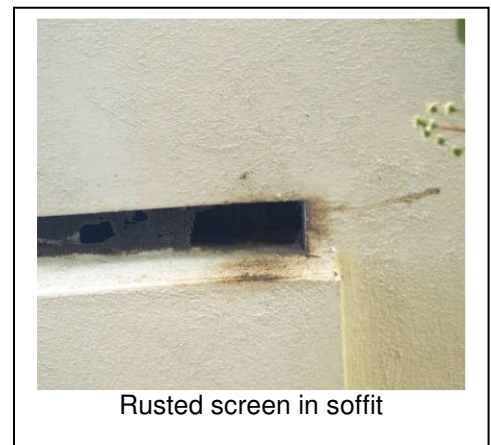
The pitched roofs have been finished with asphalt shingles. The shingles on the Auditorium are in poor condition and members of the committee report that the roof leaks. The effective service life of these shingles has been exceeded. It is recommended that the shingles be replaced in Year 1.

The shingles on the New Sanctuary were replaced in 1999 and appear to be in fair condition. The shingles of the New Sanctuary should be replaced at the end of the expected service life.



3.2.3 Soffit and Fascia

Soffit and fascia on all roofs, except the new Sanctuary, are a mix of aluminum and painted wood and appear to be in fair to good condition. The soffit and fascia on the new Sanctuary are in poor condition with birds nesting in the damaged screening of the soffit. The soffit and fascia have an expected service life of 40 years. The buildings are at least 50 years old. It is recommended that all soffit and fascia be replaced in Year 1 and 2 with the respective roofs.



3.2.4 Eaves Troughs

All aluminum eaves troughs and down spouts appear to be in fair condition. Aluminum eaves troughs have an expected service life of 40 years. The buildings are at least 50 years old. It is recommended that all eaves troughs and downspouts be replaced in Year 1 and 2 with the respective roofs.

3.3 Cladding

3.3.1 Masonry Cladding Re-point Allowance

The building is finished with various sizes of architectural brick and concrete block masonry units.

All architectural brick masonry units appear to be in good condition. No significant mortar joint or unit deterioration was identified on the building. Most concrete block masonry units are in good condition with the exception of three cracks on the outer wall of the south east wall of the original church kitchen. These appear to be old settlement cracks due to lack of necessary control joints and are not a threat to structural integrity. An allowance for brick re-pointing and unit repair has been made on a 5 year interval throughout the study.

3.3.2 Aluminum Siding

Original wood panels have been replaced with aluminum siding. Skylights over the washrooms in the administration area were clad over with metal siding in 2002. Both the aluminum siding and the metal cladding are in good condition and are expected to last the duration of the study.

3.3.3 Sealant/Caulking Replacement – Building Envelope

Sealants and caulking have been installed on the building at the following locations:

- Control joints in the brick
- Joints in metal flashing
- Joints between brick and aluminum siding

It was reported that sealants and caulking have never been replaced with exception to minor areas of repair. Some caulking has separated and cracked. Regular replacement of caulking is recommended at intervals of 10 years.

3.3.4 Sealant/Caulking Replacement – Windows and Doors

Sealants and caulking have been installed on the building at the following locations:

- At all windows and doors

All sealants and caulking are original to the construction of the buildings except where some windows were recently replaced in the Auditorium lower level. Some caulking has separated and cracked. Regular replacement of caulking is recommended at intervals of 10 years. All caulking will be replaced with the window replacement.

3.3.5 Windows

The windows on the original church are original aluminum except for windows on the lower level of the Auditorium on the east elevation. These windows were replaced with vinyl windows in 1998. The windows on the other buildings are also aluminum and are original. The upper stained glass windows in the Sanctuary are to be excluded from the study. It is recommended that all interior windows also be excluded from the study as they bear no impact on the integrity or efficiency of the buildings. All original windows are in poor to fair condition and are at the end of service life. It is recommended that original windows be replaced with new thermal pane aluminum windows in Year 4.

3.3.6 Doors – Wood

The exterior entrance doors of the Upper and Lower Narthex are solid wood with full lights (glass) in wood frames. The exterior doors of the Sanctuary are solid wood and original to the construction of the building. They appear to be in good condition. There are painted wood doors with full panel lights at the lower level of the Sanctuary. It is recommended that they be replaced at the end of expected service life.

3.3.7 Doors – Metal

There are hollow core metal insulated doors on the Auditorium that are original to the construction of the building and are generally in good condition. Replacing the doors at the end of expected service life is recommended.

3.4 Fire Safety

3.4.1 Heat Detectors

Heat detectors are located in the primary service rooms within the property including the boiler and electrical rooms as well as the kitchens. Heat detectors are hard wired and inspected regularly. They appear to be in good condition and it is recommended that an allowance be allocated to cover the cost of replacement every 10 years.



Typical heat detector

3.4.2 Exit & Emergency Light Systems

Illuminated emergency exit signs and emergency lighting is located throughout the property. The equipment appears to be in fair to good condition. It was reported that the emergency lights are tested regularly and batteries replaced as required. Lights should be replaced after they are 15 years old. It is recommended that an allowance be maintained for regular replacement of this equipment.



Typical emergency lights

3.4.3 Fire Alarm System

The property is equipped with fire alarm pull stations and bells. The system was upgraded approximately 2 years ago and appeared to be in good condition. It was reported that the system is inspected monthly and monitored by a private monitoring service.



Typical pull station

3.4.4 Fire Extinguishers

There are fire extinguishers located throughout the property. This equipment has been recently inspected, and appears to be in good condition. An allowance has been allocated to cover the cost of replacing fire extinguishers once they are over 10 years old.



Typical fire extinguisher

3.5 Interior Finishes

3.5.1 Carpets

There is closed pile carpeting in various locations (upper level of the Sanctuary, Upper and Lower Narthex, offices of the administration area and lower Auditorium) with installation dates ranging between the years of 1995 to 2003. All carpeting is in good condition. It is recommended that carpets be replaced at the end of expected service life.

3.5.2 Vinyl Composite Tile

Most of the corridors, stairs, washrooms, upper Sanctuary under the pews, upper Auditorium and the kitchen floors are finished in vinyl composite tile and sheet vinyl. The age of the flooring is unknown but is in good condition and is expected to last the duration of the study period.

3.5.3 Laminate Flooring

Laminate flooring was found in one of the administration offices only. According to the maintenance history, this flooring was installed in 2002. It is expected to last the duration of the study.

3.5.4 Kitchen Upgrades – Cabinets and Countertops

There are five kitchen / kitchenettes; one in the O'Brien Room of the Upper Narthex, one in the basement of the Auditorium, two in the lower level of the Sanctuary (Montessori School) and one on the upper level next to the Chapel between the Auditorium and the Lower Narthex.

- A. The oak cabinetry, hardware, counter top and stainless steel double sink in the O'Brien Room kitchen is new (within the last 8 years) and is in good condition. This kitchen is expected to last the duration of the study period.
- B. The kitchen in the lower level of the Auditorium has pressboard cabinetry, metal hardware, double stainless steel sink and counter top all circa 1980s. All items are in good condition. It is recommended that this kitchen be upgraded with new cabinetry, hardware, sink and counter



Kitchen cabinets in fair condition

top in Year 15.

- C. The pressboard cabinetry, hardware, double stainless steel sink and counter top in the Montessori kitchen appears to be circa 1980s and is in fair condition. Cabinetry is showing signs of wear through de-lamination. It is recommended that this kitchen be upgraded with new cabinets, hardware, sink and counter top in Year 5.
- D. The other smaller kitchen in the lower level of the Sanctuary is used for flower arrangements / cutting. The cabinetry is painted wood with mixed hardware. The single stainless steel sink and counter top are all circa 1960 but counter top, sink, cabinetry and hardware are all in good condition. Upgrading this kitchen in Year 15 is recommended.
- E. The largest of the kitchens is in the upper level next to the Chapel. The pressboard cabinetry, plastic hardware, double stainless steel sink and countertops are circa 1980s and in good condition. It is recommended that this kitchen be upgraded with new cabinetry, hardware, sink and counter top in Year 15.

3.5.5 Washroom Upgrades

There are a total of nine washrooms in the complex with a total of eleven lavatories, twelve toilets of which two are 6 litre low flow types and three urinals.

The washrooms are in fair to good condition. An allowance has been allocated to cover the costs of renovating these washrooms in Year 15. These renovations could be spread out over a number of years. It is recommended that all high volume flushing toilets be upgraded to 6 litre low flow types to reduce water consumption.

The washrooms located on the lower level of the Auditorium are designated Accessible. Generally it appears that they were designed to meet with the Accessibility guidelines of the Ontario Building Code (OBC), however due to the physical limits of the space, the washrooms are not in complete compliance. It is recommended that an OBC accessibility specialist (Engineer / Architect) be consulted for design options that will bring the building into compliancy. The washrooms adjacent to the O'Brien Room are not specifically designated as Accessible and while there are some provisions made for accessibility, they are not in compliance with the current OBC. An allowance has been made for consultation in Year 1.

3.5.6 Drinking water fountains

There are two drinking water fountains in the complex. They appear to be in good condition and are expected to last the duration of the study.

3.5.7 Refrigerators

Refrigerators have typically been donated to the church from the congregation. When an appliance fails, a call usually goes out to all members of the church in search of a replacement. As a result, no financial analysis has been included for these appliances.

3.5.8 Stoves

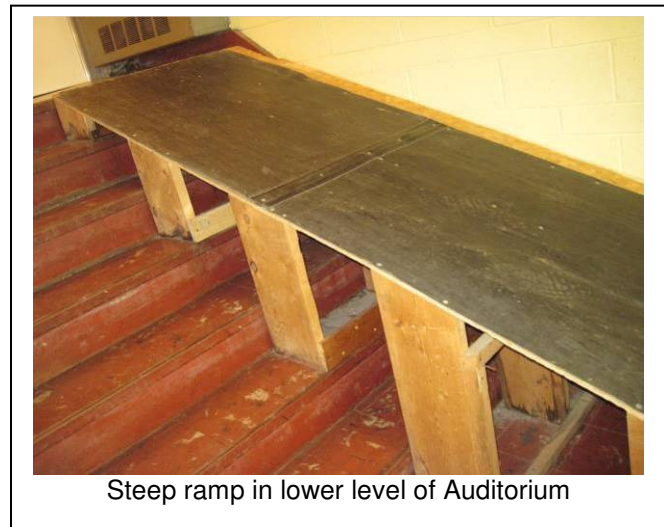
Stoves have typically been donated to the church from the congregation. When an appliance fails, a call usually goes out to all members of the church in search of a replacement. As a result, no financial analysis has been included for these appliances.

3.5.9 Interior Doors

Interior doors are a mix of hollow core wood; solid wood and fire rated doors and are original to the construction of the buildings. They appear to be in good condition but should be replaced at the end of their expected service life.

3.5.10 Interior Stairs, Ramps and railings

The access ramp, which is located in the Lower Narthex is in good condition and should last the duration of the study. There is a steep ramp located in the lower level of the Auditorium. This ramp is not suitable for wheelchair access and should be removed unless its use is intended as an equipment ramp. If such is the case, it is recommended that a sign be affixed to indicate that the ramp is not intended for wheel chair access. All interior stairs are well maintained and in good condition. Handrails are well affixed and in good condition. Freestanding handrails are expected to last the duration of the study. Wall mounted handrails are a maintenance / operating budget item not considered a capital expense.



Steep ramp in lower level of Auditorium

3.5.11 Elevators and Lifts

This property is equipped with a Garaventa Stair-Lift, model GSL. This lift is rated at 225 Kg (395 lbs) and was installed in 2002. The lift appears to be in good condition and should be able to meet its expected service life. It was reported that the lift is temperamental and sometimes has difficulties when lifting a modern electric wheelchair and passenger. This is not an indication that the lift has exceeded its expected service life and should be replaced. The operators of this lift need to be aware of the load limit, and need to make sure the limit is not exceeded.

As the age of the congregation grows and the popularity of electric wheelchairs increases, a larger capacity lift or perhaps a vertical lift may need to be considered.

3.6 Heating, Ventilation and Air Conditioning

3.6.1 Boilers

The property is equipped with two boiler rooms. Boiler Room #1 has two 848,000 BTU boilers and Boiler Room #2 has two 685,000BTU boilers. These boilers were replaced in 1979 and 1981 respectively. A Boiler Life Report was conducted in 2004; however this report was not available at the time of this study. Based on the supplied Maintenance History Report, a significant amount of money has been spent on maintenance of the boilers in the last five years including the replacement of the boiler refractories. Although these boilers have exceeded their life expectancy and are not the most efficient equipment, they are very robust. Replacement should be considered and planned for; however budgetary constraints will likely dictate that this equipment update be postponed until absolutely necessary. New high efficiency boilers should contribute towards savings of maintenance and fuel costs. An allowance has been made to replace these boilers in Year 8. Both boiler systems have been fitted with a water filter / treatment system. The filter in Boiler Room #1 appeared to have had a leak, and looked in poor condition. The filter in Boiler Room #2 appeared to be in good condition with no visible signs of leakage. These items would typically be covered in the maintenance budget.



Typical boiler

3.6.2 Chimneys: Vitrified Clay Liners

It was reported that the liners of the chimneys have not been inspected in over five years. It is recommended that these liners be inspected by a qualified inspector. An allowance has been allocated to cover the cost of the inspection. When the boilers are replaced, modifications or replacement will likely be required.

Update:

On June 08, 2010 Chimney Top Masonry performed a video assessment of the two chimneys on the property. At a meeting on June 24, 2010 the results of the inspection were presented to Byrne. Byrne was asked that the financial figures be added to the BCA/RFS. The associated estimated costs have been added to the RFS spreadsheet and shown in year one.

3.6.3 Hydronic Distribution System

The piping and radiators are all original to the construction of this property. Where visible, the piping appears to be in fair condition. The condition of the radiators varied from fair to poor. The concern with a system as old as this one is that once components start to fail, a cascading effect may happen, and the owner has to be prepared to address a solution in the form of ongoing maintenance or replace the whole system at once. An allowance has been allocated to replace this system in Year 10.



Typical finned heater with electric motor

3.6.4 Auxiliary Air Handling Units (AHU)

Various areas are heated with stand alone finned radiators with electric fans. These finned units receive hot water from the boilers and an electric fan circulates air across the fins and into the area being heated. Four of these units were observed: two in the ceiling of the Upper Narthex, one in the main kitchen and one in the hall below the original Sanctuary. These units and the electric motors appear in fair condition and to be about thirty to forty years old. Replacement is factored in with the Hydronic distribution system.

3.6.5 Auxiliary Air Handling Unit (AHU), Electrical

Located in the ceiling of the Lower Narthex is a single ducted system similar to the one described above. This system is heated with electricity. It is suspected that this heater is as old as the Lower Narthex which was constructed in 1988. This equipment should have no problem reaching the end of its expected service life.

3.6.6 Controls and Instrumentation

According to the Maintenance History Report, the Honeywell boiler controls were replaced in 2004. Most offices and common areas have thermostats to control the heat in various areas. Some thermostats have been recently upgraded with programmable units, and some are quite old. It is recommended to continue to upgrade these units.

3.6.7 Exhaust Fans - Washroom

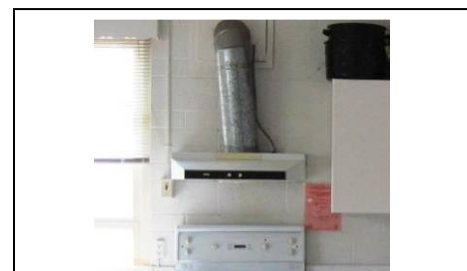
Exhaust fans in the washrooms under the New Sanctuary are vented by a main fan located in the electrical room. This system is on a timer and operated during business hours. The fan and motor appeared to be in good condition. With regular maintenance this system should last for many years.

Washrooms in the administration area and the Auditorium are vented with traditional washroom fans. All fans were operational and in fair condition.

Kitchen range hoods are vented in two of the three kitchens. The kitchen below the Auditorium (Creation Café) does not have a range hood. The kitchen in the O'Brien Room has one range hood, and there are two range hoods in the main kitchen. All are vented to the exterior and are in good operating condition.

An allowance should be allocated to cover the cost of replacing this equipment as it fails.

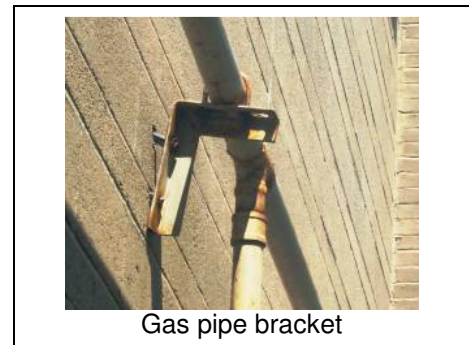
3.6.8 Exhaust Fans - Sanctuary



Air can be exhausted from the New Sanctuary by means of a large evacuation fan located in the basement. This fan is controlled by switches located in the pulpits. Operation of this exhaust fan is manual, and the windows of the Sanctuary must be opened in order to allow for air to flow. This fan and housing is in good condition. The only parts that are likely to require repair or replacement are the motor and bearings. The age of the motor was unknown, however the frame size on the nameplate pre dates 1955. An allowance will be allocated to replace this motor within the next 5 years.

3.6.9 Fuel Distribution

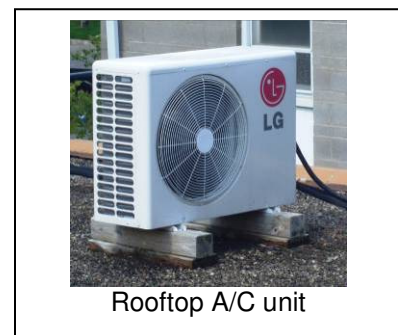
Natural gas is supplied by the local gas utility provider. The meter is at the rear of the building and appears to be in fair condition. The mounting bracket supporting the piping is getting pulled from the concrete block wall. This bracket should be repaired as it could pose a safety threat if it broke from the building and affected the integrity of the gas pipe. As this issue occurs after the meter, this repair is the responsibility of the building owner. It is recommended that a gas pipe fitter be called to service this.



3.6.10 Air Conditioning Units

There is a single roof top air conditioner on the roof of the administration building. This unit serves two offices. The unit appears to be in good condition and is about four to five years old.

There are five window air conditioners. The units varied in condition from good to fair and were reported to be four to five years old. An allowance is allocated to cover the cost of equipment replacement / repair every 3 years.



3.7 Plumbing

3.7.1 Domestic Hot Water Heaters

Domestic hot water is supplied by two tanks. One full size natural gas heater is located in Boiler Room #2 and a small electric water heater has been added to boost the water temperature in the west end of the building in Boiler Room #1. There are no reports or evidence of leaking at any of the piping. According to the records provided, the heater in Boiler Room #2 was installed in 2002 and appeared to be in fair condition. An allowance should be allocated to replace this tank in Year 7.

In Boiler Room #1, the tank is in good condition and expected to last until the end of its life expectancy. An allowance should be allocated to replace this tank in Year 13.



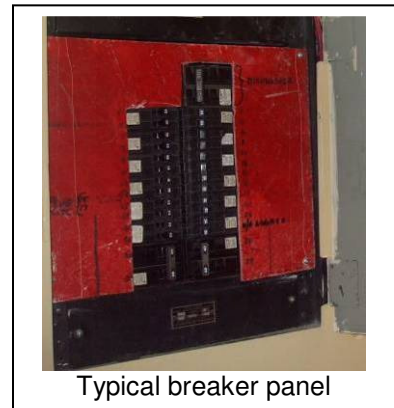
3.7.2 Domestic Water Distribution

There are no reports or evidence of leaking at any of the piping. An allowance has been made for replacing the piping as needed with type 'L' copper or equivalent.

3.8 Electrical Systems

3.8.1 Electrical Panels

The service on site is a 400 Amp 120/240 volt installation. The distribution equipment is original to the construction of the buildings and is in fair condition; however it has reached the end of its expected service life. As indicated in the Electrical Service Report conducted in 2002, the equipment is obsolete and would be difficult to repair if required. As a result, an allowance has been allocated to replace this distribution equipment. The allowance has been allocated to Year 6 of the study, however it may have to be moved up if the electrical load from the building changes significantly.



Individual circuit breaker panels located throughout the buildings are original and have exceeded their life expectancy. These would also be replaced at the time of the distribution equipment.



In the event that this work is not able to be done in the first few years following the study, it is recommended to have all equipment inspected annually by a licensed inspector, at which time thermal inspections are recommended.

3.8.2 Interior Light Fixtures

It was reported that most of the 48" fluorescent lights have been upgraded to T8 fixtures and bulbs. Most of the single incandescent fixtures have been equipped with compact fluorescent lights (CFLs). It is recommended that any remaining fixtures be upgraded and CFLs be used throughout. A 4% allowance (of total system) has been allocated for the continued replacement of fixtures.



3.8.3 Exterior Wall Mount High Pressure Sodium Lights (HPS)

There are wall packs mounted at the rear of the building. The current wall packs appear to be in good condition. It is expected that these lights will last to the end of their expected service life.

3.8.4 Exterior Light Fixtures

There are fluorescent lights located under the eaves of the New Sanctuary. These lights shine on the stained glass windows that are tucked up under the eaves of the roof. These fixtures appear to be quite old, and should be upgraded. It is recommended that these fixtures be upgraded to exterior grade high efficiency T8 fluorescent lights.



3.8.5 Exterior Fixtures – Pole Standards

There are currently two light pole standards overlooking the parking area. Both lights appear to be in fair to good condition. The labels indicate they were installed in 1994. These lights should be able to reach the end of their expected service life. These lights are on electric timers. The timers appear to be in good condition.

3.8.6 Branch Wiring

No apparent recent updates to the wiring were visible. The wiring is well routed and protected with conduit and should not require replacement within the period of this study.

3.9 Site

3.9.1 Parking Lots and curbs – Asphalt Paved

The parking lot is located on the south east side of the property. Asphalt is original to the construction of the original church building. Repairs were made in 2002. Asphalt is in poor condition exhibiting many cracks that appear when asphalt is about to break up and create pot holes. It is recommended that the asphalt be completely replaced in Year 5. Concrete curbs are in poor condition with rebar exposed on many units. Concurrently replacing the concrete curbs and asphalt is recommended.



3.9.2 Driveways – Asphalt Paved

Access to the parking lot is gained via an entrance on Rossmore Blvd. and a long driveway from South Drive. Asphalt is original to the construction of the original church building. Repairs were made in 2002. Asphalt is in poor condition exhibiting many cracks that appear when asphalt is about to break up and create pot holes. It is recommended that the asphalt be completely replaced in Year 3.



3.9.3 Fencing – Wood Privacy

The pressure treated wood privacy fencing that borders the east property line is owned and maintained by the committee. The age of the fencing is unknown; however, all fencing is in good condition. Replacement at end of estimated service life is recommended.

3.9.4 Metal Railing

There are painted metal hand rails at all exterior concrete stairs and ramps providing access to the buildings. The railings are mostly in good condition and all connections are secure except for the handrail located at the south west corner of the Sanctuary. Replacement of this railing is recommended when the handrail curbs are replaced. Refer to section 3.9.9. There is minor paint chipping in some areas. It is recommended that an allowance be made to paint all railings every 10 years. The railings are expected to last the duration of the study period.



3.9.5 Landscaping – Tree Trimming

An allowance of \$500 every 3 years has been made to keep trees and bushes trimmed back from buildings and help eliminate any potential damage to roofs.

3.9.6 Landscaping – Grading

Slopes are retained on the east and west sides of the Sanctuary by the use of pressure treated milled lumber and landscaping rocks and grass. A 30" wide strip of gravel and drains help to divert water away from the foundation walls and basement windows. There is no evidence of water infiltration at these areas. Replacing pressure treated 2x6 lumber with pressure treated 6x6 timber is recommended as the position of the lumber is being altered over time.



3.9.7 Sidewalks – Concrete

Three concrete sidewalks approach the buildings from the street. The concrete is original to the construction of the buildings and is in poor condition with cracking and breaking down to the aggregate. It is recommended that the sidewalks be replaced with the driveway paving in Year 3.



3.9.8 Ramp – Concrete

The concrete accessibility ramp, which is located at the east side of the Lower Narthex from the parking lot, was last repaired in 2002 and is generally in good condition. The ramp is expected to outlast the study period. An allowance has been made to seal the concrete to protect from applications of salt during winter and to make periodic repairs to settlement cracks.



3.9.9 Cast-in-place Concrete Steps

Access to the buildings is provided by four sets of cast in place concrete stair sets and two concrete step pads. The stairs are original to the construction of the buildings and are generally in poor to good condition. Completely replacing the stairs located at the south east corner of the Auditorium in Year 1 is recommended. Repair foundation wall in this area before constructing the new stairs; see Section 3.1.1. Complete replacement of the handrail curb walls on the stair accessing the south west corner of the Sanctuary is recommended. Repair of all remaining stairs and pads in Year 4 is recommended.



3.9.10 Storm Water Drains

There are main storm water grates in the parking lot. It was reported that these drains have not been cleaned out in quite a while. Storm water from the roofs that drains to the rear of the buildings is directed into the storm water drains. In front of the below-grade windows of the new Sanctuary is an area equipped with storm water drains. These drains as well as the drains at the bottom of the below grade concrete stair wells are completely filled with sand and silt. It is recommended that all the storm water drains be professionally serviced and cleaned with an allowance for regular maintenance.



3.10 Miscellaneous

3.10.1 Engineering Fees

Engineering fees will also be withdrawn from the reserve fund. The amounts vary per year and are based on the construction costs during said year.

3.10.2 Contingency Allowance

A contingency is included to account for any unforeseen expenditures. The amounts vary per year and are based on the total costs during said year.

4.0 RESERVE FUND CALCULATIONS

4.1 Annual Contribution

The items included in the RFS are outlined in Table 1 in Appendix A. Descriptions of the column titles used in Table 1 are presented in Appendix B.

The annual contribution to the reserve fund has been estimated using the future cost method that illustrates the significance of interest rates and inflation on the sufficiency of funds. In this method, the future value formula and estimated interest and inflation rates are used to estimate the future cost of each element.

Assume that an average construction cost rate of inflation will be in effect over the remaining life of the building. A value of 2.5% has been used as the annual inflation rate. Also, a value of 0% has been used as an annual rate of return. Typically a positive value is used for annual rate of return on investments to account for the interest a reserve fund will earn on deposits. However in this case, it is assumed that there will be a cash flow neutral scenario. That is, as funds are required, they will be raised via fund raising efforts, and the accounts will not incur significant borrowing interest charges, nor will there be a significant amount of money in investments earning income. In our opinion, the inflation and interest rates used are conservative and will not result in under funding of reserves.

The future values of all the costs are determined and summed for each year over the next 25 years. A required annual contribution necessary to offset these costs using an iterative process is then utilized. The object is to determine the minimum annual contribution that will result in a positive cash flow, i.e. no deficit which is maintained for the life of the complex. An annual contribution is assumed and then lowered or increased depending on the cash flow until a minimum annual contribution is determined. This process takes into account the existing reserve fund balance. To allow for unforeseen repairs requiring emergency expenditures, the reserves are not permitted to drop below a "zero" balance over the duration of the RFS.

This reserve fund update has allowed for the next 25 years. No allowance is made for major expenditures beyond this study period. Within this period, all components requiring some form of remedial work have been accounted for by determining the year in which repair / replacement is expected to occur and the future value of the remedial work.

4.2 Cash Flow Analysis

The projected cash flow for the reserve fund is shown in Table 2 and Figure 1 in Appendix A. Descriptions of the row titles used in Table 2 are presented in Appendix B. Note that the cash flow allows for all anticipated expenditures over the next 25 years.

One of the most difficult tasks is establishing the amounts necessary to properly fund the reserve. Based on an engineered approach, the estimates in the tables provide a conservative plan for accumulating a reserve for future repairs and replacement. It relies on costs based on the available information, the current state of knowledge of performance of building systems, present technology and on commonly used economic factors.

As is evident from the revised projected cash flow, no contribution amount has been suggested at this time.

Since the actual economic conditions experienced during the 25 year cash flow period will vary, the Projected Cash Flow Table should only be used for planning purposes. It is also likely that some work may be postponed because of good performance of the system component. Postponing replacement will tend to lower the annual contribution.

Due to the many assumptions involved in developing a 25 year repair / replacement forecast, a RFS cannot be expected to be 100% accurate. We recommend that the committee review this study every year and have it updated every 3 years to ensure that cost data, building deterioration and repair / replacement records are current and relevant.

APPENDIX A
TABLES AND FIGURES

Table 1	Components List
Table 2	Projected Cash Flow
Table 3	Contribution Table
Table 4	Expenditure List
Figure 1	Projected Cash Flow

APPENDIX B
DESCRIPTION OF TABLES

Description of Table 1 Columns

Column No.	Column Title	Description
1	Item No.	Reference number for items included in the Reserve Fund Study. These items included in the study represent a substantial list of all major common element items not otherwise included in maintenance or service contracts.
2	Description	A short descriptive name for items included in the Reserve Fund Study.
3	Replacement/Repair Cost	The estimated cost to carry out the repair / replacement work in 2010 dollars.
4	Present Age	This is the chronological age of the item from when it was last installed or repaired / replaced.
5	Estimated Remaining Life	Number of years remaining until the item is to be repaired / replaced.
6	Normal Life Expectancy	The estimated normal life of the item after which the major repair / replacement would be required. The life expectancies are based on industry standards for the individual items.
7	Annual Replacement Contribution	Amount of money which should be contributed each year for this item so that the replacement / repair cost for the item is available when the estimated life of the item is finished.
8	Present Reserve Fund	Amount of money of the current total reserve fund available for this item.
9	Present Reserve Fund Required	Amount of money which should be in the reserve fund for this item such that, with the annual replacement contribution over the remaining life of the item, the replacement / repair cost of the item will be in the reserve fund when the life of the item is finished.
10	Current Shortfall	The amount of money the present reserve fund is short from the reserve fund required for the item. A negative number means that there is a current surplus for this item in the reserve fund.
11	Remaining Life Annual Catch-Up	The amount of money required each year for the remaining life of the item to make up the current shortfall for the item.

Description of Table 2 Rows

Row Title	Description
Beginning Balance	This is equal to the ending balance of the previous year.
Annual Contribution	This is the minimum required annual contribution. We have assumed that the annual contribution is deposited in twelve equal payments, each at the end of the month.
Expenditure (\$Present)	This is the anticipated expense for the year in question in 2010 dollars.
Expenditure (\$Future)	This is the anticipated expense for the year in question in that year's dollars. The dollar value is determined using the future value formula.
Interest	This is generated from interest on monies already on deposit in the reserve fund plus interest on the annual contributions minus interest on the expenditures (\$Future).
Ending Balance	This is the sum of the beginning balance, annual contributions and interest less the expenditures (\$Future).