Fire Hall and Equipment Study

Township of South Frontenac Fire & Rescue

Sydenham, Ontario

September 2013

Submitted by:
Emergency Management and Training Inc.
Barrie, Ontario
**Executive Summary**

This report is an overall analysis of the fire halls, staffing and equipment utilized by the South Frontenac Fire & Rescue (SFFR). During the review, Emergency Management and Training Inc. (EMT) has evaluated the 12 specific items as requested by the Township of South Frontenac. These 12 specific items relate to:

1. Evaluation of all Existing Fire Halls
2. Evaluate Response Areas
3. Evaluate Staffing Requirements
4. Determine the Number of Fire Halls Required
5. Determine the Location of Fire Halls
6. Assess the Impact of Changes to the number of or location of existing Fire Halls
7. Assess the Impact to Response Times
8. Determine any or all repairs to existing Fire Halls
9. Access all relevant legislation to ensure compliance
10. Provide detailed options to existing Fire Halls and agreements
11. Review OFM statistical data
12. Review existing simplified risk assessment

Through meetings with Township management, the Fire Chief, and other stakeholders, the consulting team was able to complete a thorough review of what is working well and what areas require improvement within the SFFR. During the project the consulting team conducted a review of staffing, fire facilities, vehicles and related operations. Data provided by the fire service was also reviewed in relation to all of the 12 previously noted items contained in the Township’s request for proposal (RFP). Based on the facilities, equipment and data review, EMT is submitting several recommendations that can be implemented in whole or in part by the Township as it sees fit.

**Recommendations:**

The information obtained during the four month review (June 2013 to September 2013) was carefully analyzed and weighed, which concluded in the following recommendations.

1) The fire department does not have a current strategic or master plan in place. One should be developed that takes into consideration the Township’s 2013 Growth Study and other related information such as population and demographics that will affect the demands and response challenges placed on the fire service.
2) To ensure that the fire department is meeting the needs of the community and the expectations of its Council; the Fire Chief should work towards identifying a baseline response criteria. This will assist in identifying future equipment and staffing requirements as the community continues to grow.

   a) A detailed review and annual update on response times should be reported and quantified to Township Council to offer them a clear understanding of how the fire service is meeting the expectations of the community.

3) Because fire prevention is the least costly way of providing loss control, additional focus on fire prevention is required, based on the Township’s size and forecasted growth.

   • To accomplish this volunteer firefighters should be utilized as much as possible to assume more responsibility for inspections of existing structures and for educating the public about fire safety.

4) Work on the present Simplified Risk Assessment should be started in 2014 to meet the SRA program’s goals and expectations of a three to five year review as recommended by the Ontario Fire Marshal’s Office.

5) A detailed review and annual update on response times should be reported and quantified to Township Council to offer them a clear understanding of how the fire service is meeting the expectations of the community.

6) Fire stations closings or relocations:

   Based on call volume and related response times; stations 1, 7 and 9, on the average, are responding to less than 10 calls (each) per year in their station’s area (based on the dispatch response data received, which only notes the primary station to respond). In fact station 9 is noted as not being the primary station to respond to any calls in its response zone in 2012. Based solely on this data, the following recommendations are being made.

   a) It is recommended fire station 9 be relocated from its present location and moved closer to a main roadway as noted in maps 2 and 5 In Appendix “C”. This would make station 9 more effective and useful in the overall response coverage for the Township.

      i) If this station is relocated; the health and safety recommendations noted in report are to be addressed in the new fire station

   b) If relocation of station 9 is not a consideration of Council then it is recommended that fire station 9 be closed due to the level of call volume and related volunteer firefighter staffing level. Station 8 is well situated to meet the present call demand. Volunteers from stations 9 should be retained (if possible) to work out of a station that is close to their homes for a more efficient level of response.
c) Station 1, (based on the primary station response data) responded to fewer than 10 calls in 2012, however due to its unique location in the upper northern area of the township, a need for this station still exists. If Council decides to close station 1 and adopt a 14 minute response standard for this area (as noted by NFPA 1720), it must be cognizant that station 2 will be the only station in this upper northern part of the Township.

i) A fire service “automatic aid” agreement could be entered into with the bordering departments.

7) The list of fire station repairs, upgrades and associated costs identified in Appendix “B” need to be evaluated and prioritized to ensure future functionality of the existing fire stations.

a) All health and safety related repairs/upgrades need to take precedence.

8) During the station visits it was noted that none of the fire stations contained an emergency backup power source. Each fire station or at the very least, “key” identified stations (i.e. one in each main geographical area) should have a backup power system installed.

9) At this time it would appear that the department is well set up to conduct the OFM Firefighter Curriculum program to its firefighters. However, the department should enhance its training programs in the areas of any specialized and officer training programs. This might require sending staff to the fire college.

As such, SFFR should work with neighbouring fire departments to bring any required programs to a regional facility whenever possible.

a) A general review and needs analysis should be conducted by the Fire Chief to identify future firefighter and officer training needs.

10) The Fire Chief should contact Kingston Fire Dispatch to request that the SFFR dispatch data reflects the primary and secondary units that are being dispatched to all types of calls. This will better reflect the actual number of responses from all stations.

11) In relation to vehicle life cycling, the Township should continue to adhere to an appropriate schedule for both the replacement and progression of the vehicles being moved from “first run” to “2nd run (back up)” units.

12) Based on the “a and b” points noted below, staffing levels need to be enhanced in many of the fire stations. Recruitment and retention is always a challenge for volunteer fire departments.

a) Fire stations 1, 2 and 9 have less than 10 volunteers each to respond to calls, with stations 1 and 9 being of greatest concern as they only have 4 and 5 respectively. This means that on average, there is less than an effective response force from each station. This necessitates a two station call out for all calls.

b) To be effective on even a minimal level, each station must be able to count upon 4
firefighters being able to respond at any given time.

13) In relation to the Capital Budget, SFFR should periodically review its replacement forecasts to ensure that the Township will be able to meet these targeted timelines.

   a) SFFR should establish a capital forecast for the renovation / replacement of fire stations

These recommendations are discussed in more detail in the body of this report.
**Purpose**

The key purpose of this Fire Station and Equipment review is to evaluate the present status of the fire department in relation to its present physical setup and ability to effectively respond to emergencies and other calls for service within the community of South Frontenac.

To ensure that this review was complete in its analysis, meetings were held with the Township’s CAO and Fire Chief; physical reviews of the fire stations and equipment located at each station were conducted; and a final interview was also conducted with the volunteer Deputy Chiefs of the department.

**Performance Measures**

This report has been generated by Emergency Management & Training Inc. (EMT) and is based upon key performance indicators that have been identified in standards and safety regulations such as:

- The Ontario Fire Marshal’s Office (OFM) Public Safety Guidelines,
- The Fire Prevention and Protection Act,
- The National Fire Protection Association (NFPA)
- The Commission on Fire Accreditation International
- The Ontario Health and Safety Act., NIOSH (national institute for occupational safety and health) and Ontario Fire Service – Section 21 Guidelines.

**Review Process**

This report has utilized a seven-step process in determining the present status of the South Frontenac Fire & Rescue facilities, staffing and related operations. Emergency Management and Training Inc. (EMT) has based its review process on the Township’s initial Request for Proposal and the response document submitted by EMT. This review covers the following areas:

1) A thorough review of fire station locations; their ability to meet the response needs of the community and needs of the firefighters themselves

2) Reviewing fire department statistics, station locations, infrastructure and equipment resources, staffing levels/structure and related budgets

3) Examining relevant supporting documents including current Simplified Risk Assessment, bylaws, population statistics and growth forecasts, business plans, and other pertinent and available documents

4) Engaging appropriate Township and Fire Department personnel through open communications including stakeholder consultation meetings
5) Completing a gap analysis using references to Occupational Health and Safety Act., the NFPA standards 1500, 1581, 1720, 1851, 1911 and 1989 along with the Ontario Fire Marshal’s (OFM) public fire safety guidelines to determine the steps required to move forward with plans for the future

6) Identifying options and making recommendations, including approximate budgetary implications and associated timelines for the recommendations

7) Ensuring the recommendations assists the Township of South Frontenac Fire and Rescue to be sustainable – from an economic, environment and people perspective.

As such, the final report will include comments/recommendations on the following key areas:

- Fire department organization and administration
- Fire prevention and public education
- A review of the most recent Simplified Risk Assessment
- Fire suppression response
- Fire station location and facilities
- Apparatus and equipment suitability and replacement
- Volunteer staffing
- Training
- Dispatching services
- Capital investment forecasts

**Project Consultants**

Although several staff at Emergency Management and Training were involved in the collaboration and completion of this report, the overall review was conducted by:

- Darryl Culley, President Emergency Management and Training Inc., and
- Lyle Quan, Senior Fire Consultant

Together, Darryl and Lyle have a combined emergency services experience of almost 60 years. Both have worked on many projects that range from service reviews, creation of strategic and master plans and development of emergency response programs for clients.

**Community Overview**

The Township of South Frontenac is located in the southern portion of Frontenac County. South Frontenac’s main bordering communities are – Central Frontenac to the north, the City of
Kingston to the south, Tay Valley Township, Rideau Lakes Township and the Township of Leeds and the Thousand Islands to the east and Stone Mills Township and Loyalist Township to the west.

The Township was amalgamated in 1998 and is home to approximately 18,300 residents (2011 Census). A 2013 Township of South Frontenac Growth Study projects the Township’s population to grow by approximately 6,700 people to approximately 25,000 by 2036. This 36% population growth forecast and accompanying development in the next 20 plus years must be factored into any long term fire service planning.

The Township’s fire department is comprised of nine fire stations that are referred to as the following:

- Station #1 – Bradshaw Rd
- Station #2 – Burridge Rd
- Station #3 – Hwy 38, Verona
- Station #4 – Holleford Rd, Hartington
- Station #5 – Stage Coach Rd, Sydenham
- Station #6 – Perth Rd Station
- Station #7 – Latimer Rd, Inverary
- Station #8 – Battersea Rd, Sunbury and
- Station #9 – Carrying Place Rd, Burnt Hills.

The department’s nine fire stations are staffed by volunteer firefighters, with a current total compliment of approximately 140+ volunteers. The only full time staff member of the department is the Fire Chief.

South Frontenac is a community that is approximately 65% land based and 35% water based which can present some unique challenges for the fire department when responding to calls for help.

There are 24 fire apparatus distributed amongst the nine fire stations. These apparatus include pumper trucks, tankers and rescue trucks. There is also some special rescue equipment, such as boats, ATV’s, utility trucks and a lighting unit.
FIGURE 1: South Frontenac – In relation to the County of South Frontenac
Fire Department Composition and Administration

The Fire Chief of South Frontenac Fire & Rescue reports to the Township’s Chief Administrative Officer (CAO) in a council-manager style of government. The Fire Chief serves as the head of the South Frontenac Fire & Rescue service and is supported by one (shared) administrative assistant; there is no full time deputy chief, fire prevention officer or training officer for the fire department.

The department’s organizational chart (fig #2) reflects the nine fire stations with a present strength of approximately 140+ positions. This is broken down into the Fire Chief and volunteer firefighters. As already noted, there is no full time deputy fire chief to assist with the day to day operations of the fire department.

FIGURE 2: Organizational/Fire Station Chart

There appears to be a good level of communication between the Fire Chief and the CAO. The CAO is aware of the ongoing issues facing fire management and the fire department itself in relation to the fire stations and related response challenges.
Assessment and Planning

Planning is a key function of any organization and should be done with a focus on the present needs of the community, coupled with its future growth and how this will affect the service demands on the fire service. The Ontario Fire Marshal’s Office has identified three lines of defense for communities in relation to fire and life safety. These three lines are:

1. Education – fire safety education is the key to mitigating the fire and life hazards before they start
2. Inspections and Enforcement – if the public education program does not prove effective then the next step is for the fire department to enforce fire safety requirements through inspections and possible charges
3. Emergency Response – if the first two lines of defense fail for whatever reason, the community, through its fire department should be prepared to respond in an efficient and effective manner to put the fire out and/or mitigate the emergency itself.

By conducting this fire service review, the department and the Township have demonstrated a genuine investment in the future of the fire service and the community they serve.

One document that plays a critical role in the future of any organization is its strategic or master plan. Presently, the fire department does not have a current strategic or master plan in place and as such should consider developing one which should be based on the outcomes of this report and future growth projections.

Components of a strategic or master plan would include such things as:

- Developing the Mission, Vision and Values of the department
- Conducting a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of the department
- Developing some short term and long term strategies
- Action plan for implementation
- A method to monitor the plan and implementation of related action items
- Financial requirements to implement components of the plan

Over the past 10 years, the Township of South Frontenac has witnessed many changes that equate to quite a few shifts in demographics; such as a reduction in industry, yet a growth in residential housing. As such, as thorough review of the Township’s and the Fire Service’s future planning documents, goals and related objectives should be evaluated to ensure proper alignment with the future needs.

Development of a strategic or master plan would be a three to four month project.
Recommendation:

- The fire department does not have a strategic or master plan in place. One should be developed that takes into consideration the Township’s 2013 Growth Study and other related information such as population and demographics that will affect the demands and response criteria on the fire services.

Associated Costs: - two options

1. This could be accomplished by the Fire Chief if given the time and resources to do it. However, based on the present demands on his time, the Fire Chief may not have the capacity to accomplish this as an internal project. Costs – staff related for this option.

2. Due to the present time restraints on the Fire Chief, if contracted out to a consulting firm an approximate cost of 20,000 to 40,000 dollars should be anticipated (depending on the scope of the program).

Goals and Objectives

The goal of any fire service is to ensure an efficient and effective response to the community’s needs when called. The National Fire Protection Association (NFPA) suggests that response times should be used as a primary performance measure in fire departments. Although South Frontenac Fire & Rescue (SFFR) has adopted the use of response time measurement as a guide to evaluate their capabilities, these times are not clearly identified in any official township document. NFPA standards recommend two levels of response criteria that relate to South Frontenac’s population densities, these are:

- In Suburban areas (population of 500 – 1000 per square mile), there should be a minimum response of **10 staff within 10 minutes** 80 percent of the time.
- In Rural areas (population of less than 500 per square mile), there should be a minimum response of **6 staff within 14 minutes** 80 percent of the time.

During the review of response times, it was noted that the Fire Chief does review the department’s responses and that he did demonstrate and voice a sincere interest towards ensuring that his department does embrace nationally recommended response standards as benchmarks to work towards in meeting the needs of the community.

Based on the response data received, the 2012 response times range from a minimum of approximately 2.5 minutes to a maximum of approximately 56 minutes; with an overall average of approximately 15 minutes. There will always be anomalies in response times based on such things as available staffing, time of day, weather and the actual location of the incident (due to geographical challenges).

*Note: none of the above noted numbers should be taken into isolation as they are on a*
general reflection of the upper, lower and average response times. No percentages have been affixed to them to determine if they are in line with the NFPA recommended standards.

In order to set its goals and objectives, the fire service must confirm: **what are the expectations of Council in relation to response time criteria, if any.** By knowing this, the Fire Chief will be able to better determine and identify the future requirements of the department in relation to staffing, fire stations and vehicle needs.

**Recommendation:**

- To ensure that the fire department is meeting the needs of the community and the expectations of its Council; the Fire Chief should works towards identifying a baseline and benchmark set of response criteria. This will assist in identifying future equipment and staffing requirements as the community continues to grow.

**Associated Costs:**

- There are no immediate costs associated with this recommendation. However, based on the level of response criteria that may be supported by Council, future costs relating to staffing and equipment could be a factor.
Programs

Six separate programs, each of which is integral to the mission and operations of the South Frontenac Fire & Rescue service, are discussed in this section:

1. fire prevention and public education
2. fire suppression/emergency response
3. fire stations
4. training
5. special operations
6. Communications

1. Fire Prevention and Public Education

The Fire Protection and Prevention Act (FPPA) notes that a community must supply fire safety education and fire prevention programs to its community. Along with this, there must be a public safety officer for the community. In many smaller communities, the fire chief is the one who wears both hats (fire chief and public safety officer).

In relation to having a fire department; the FPPA notes that once a fire department is established, it must maintained by the municipality.

To assist each community in identifying its goals and expectations in relation to fire safety, a fire department is expected to complete a Simplified Risk Assessment (SRA) of their Community every three to five years. This SRA is mandated by the Ontario Fire Marshal’s Office to help communities pinpoint the areas that are being addressed along with those which require improvement. The SRA identifies what the plan is to ensure compliance in the areas of fire education and safety.

The South Frontenac Fire & Emergency Services does not have an actual fire prevention division. This task is handled by the fire chief, the deputy chiefs and volunteer firefighters. Fire inspections and complaint inspections remain a key responsibility of the fire chief and his deputies, but the entire department works together when it comes to meeting other prevention activities, including educating the public about fire prevention.

The fire chief understands the need for expanding prevention activities but is under staffing restraints (due to available hours) in relation to expanding this program. National best practices suggest that prevention activities can pay huge dividends in the areas of reducing fires and fire related injuries through education and aggressive fire safety enforcement practices.

The Fire Underwriters Surveys have recommend (as a general guideline) that the staffing of the of the fire prevention division should be one full time fire prevention officer per 20,000 population. Based on the Township’s population, this would equate to one full time fire prevention office; or an identified person(s) whose main focus is fire prevention and public
safety education. The use of the volunteer firefighters in a manner to meet what would be an hourly equivalent to a full time firefighter would be a good measurement for the fire chief to utilize.

**Simplified Risk Assessment (SRA) and Public Fire Safety Officer/Team**

As noted in Public Fire Safety Guideline, PFSG 04-40-12A, a simplified risk assessment must be completed for the community to determine the needs and circumstances of the municipality along with establishing the level of fire prevention and public fire safety education required. Any significant risks identified through the analysis should be addressed. For example; if the risk assessment indicates a significant threat to life or fire loss in multi-unit residential buildings, a program that will adequately improve their fire safety - such as routine inspections - would be appropriate to address the specific need of the community.

As an accepted practice, an SRA should be completed every three to five years. However, if there is significant growth or change in the community an annual update should also be conducted to present a more realistic review and set of program upgrades/changes that are required to meet the needs of the community.

As a minimum requirement, a community fire safety program must include:

- a simplified risk assessment
- a smoke alarm program
- distribution of fire safety education materials, and
- participating in inspections upon complaint or when requested to assist with Fire Code compliance.

As each community is different, the simplified risk assessment and ensuing fire concern profile will assist in identifying the degree to which these activities are required in accordance with local needs and circumstances. The simplified risk assessment is made up of the following components:

- demographic profile
- building stock profile
- local and provincial fire loss profiles
- information analysis and evaluation
- priority setting for compliance
- implementing solutions

The most recent SRA for South Frontenac was completed in 2011, which means that it is coming to the end of its operational life. A new SRA study should be conducted and completed in 2014/15 to continue to meet the expectations of the Ontario Fire Marshal’s Office.
Within the 2011 SRA, the following areas were identified as concerns by the Ontario Fire Marshal’s Office:

1. Vulnerable groups such as seniors and those with physical difficulties
2. Certain barriers to public education due to such a high seasonal and transient population
3. Fire safety in campgrounds
4. Fires involving solid fuel burning systems and the disposal of ashes
5. That the “inspection upon complaint program” for non-residential high risk occupancies is not seen as adequate at the time the 2011 SRA was completed

Since 2011, SFFR has been working towards addressing the above noted areas of concern.

While working on the revised version of the Simplified Risk Assessment the fire department needs to note its successes in these areas and should also continue to incorporate these items in its new SRA to ensure that they continue to focus on these areas.

Community Fire Safety Officer/Team

While conducting a Simplified Risk Assessment and overview of the fire department and community’s needs, the question of whether or not a fire station is required or if other options present themselves to the community in possibly a more cost effective manner. One option is related to the first line of defense as noted by the Fire Marshal’s Office, which is education.

As noted in Public Fire Safety Guideline – PFSG 04-41-12; Municipalities are responsible for the provision of fire protection services within their area of jurisdiction. As a minimum, communities must establish and deliver programs which include public education with respect to fire safety, as well as certain components of fire prevention.

The Community Fire Safety Officer/Team is one method of providing a reasonable level of community fire safety, for certain circumstances in small communities that may lack traditional fire suppression resources. The primary focus of the Community Fire Safety Officer/Team is on fire safety, rather than on readiness for suppression.

Service Delivery Options:

- locally by the municipality
- purchased from another municipality, territory without municipal organization, or person
- jointly managed and operated with another municipality
- any combination of the above

The primary function of the Community Fire Safety Officer/Team is to ensure that each community provides an effective fire safety program. It is designed to supplement fire suppression activities, not replace them.
Recommendations:

- Because fire prevention is the least costly way of providing loss control, additional focus on fire prevention is encouraged based on the Township’s size and forecasted growth.
  - To accomplish this, volunteer firefighters, should be utilized as much as possible to assume more responsibility for inspections of existing structures and for educating the public about fire safety.
  - This would include an annual program that outlines fire prevention and fire safety initiatives to be accomplished within that calendar year.

- Work on an updated Simplified Risk Assessment should be started early in 2014 to meet the SRA program goals and expectations.

Associated Costs:

- Minimal costs that are based on the increased use of volunteer firefighters for public education and fire safety inspections.
  - Can be budgeted for based on the identified needs/recommendations made by the fire chief.
2. Fire Suppression/Emergency Response

When considering the response times and related needs for a community; the fire response curve (fig 3) presents the reader with a general understanding of how fire can grow within a room over a short period of time.

As noted in the fire propagation diagram, after eight minutes a small fire can grow beyond the room of origin; hence the need for initiating fire suppression activities as soon as possible. It must also be noted that within the “overall response time criteria” other times must be taken into consideration, such as:

- receiving the call (from the place in need)
- dispatching the call (sending out the message to the fire station)
- turnout time (once the tones are set off, how long does it take for the firefighters to arrive at the station, gear up and get the fire truck rolling out of the fire station. This time varies greatly between fulltime and volunteer firefighters)
- actual travel time to the scene
- time to assess the situation, gear up, advance hose lines (if an actual fire)

It must also be noted that SFFR responds to more than just fires. For example, with medical calls brain death can occur if the body is starved of oxygen for more than four minutes. Hence the reason to be as efficient and effective as possible in responding to calls for assistance. To address this, SFFR has implemented a tiered response program that has two fire vehicles responding to all calls (which is monitored by the fire chief).

FIGURE 3: Fire Response/Propagation Curve
Based on this fire response curve information; the overall goal of any fire department is to arrive at the scene of the fire and/or incident as quickly and as effectively as possible. In other words, if a fire truck arrives on scene in eight minutes or less, then there is increased potential to contain the fire by reducing further spread of the fire to the rest of the structure.

However, if the first arriving fire attack team arrives with only three firefighters on board then it is limited to what operations it can successfully attempt. Based on NFPA and Fire Health and Safety Section 21 Guidelines, no interior attack can be made by the firefighters until more staff arrive on scene. The initial expectation is that a minimum of three firefighters and one officer arrive on scene to make up the initial response team.

More information in relation to response times and fire station locations will be presented later in this report.

3. Fire Station Location and other Considerations:

Fire stations should be situated to offer the most efficient and effective response to the community they serve. Centering them within a determined response zone that is simply based on “timed” responses is not always the best option to implement. Fire station location depends on many factors such as key risks within the response zone, future growth of the community and even whether or not this will be a station that is staffed (in the future by) full time or by volunteer firefighters. Another consideration is the geographical layout of the community that can include natural barriers or divides, such as water that makes it necessary to have some stations located within close proximity of each other.

Public Fire Safety Guideline – PFSG 04-08-13 on Fire Station Location notes fire stations should be situated to achieve the most effective and safe emergency responses. Distance and travel time may be a primary consideration; however, if a basic expectation is set by the community’s decision makers, then a more realistic level of service and fire station location criteria can be identified.

For example; an expectation may be that the fire department will reach the core area of each hamlet within 5 minutes (travel time), the urban boundaries in 10 minutes, the rural area in 15 minutes and the remainder in 30 minutes. This topic of response times is noted further in this document and is supported by “response time maps” in Appendix “B”.

Presently, all stations are staffed by volunteer firefighters only. The fire chief works out of the Township’s offices, located in Sydenham. Being that this is where his (shared) administrative assistant is also located, this would appear to meet the fire chief’s needs at this time. This office location also allows the fire chief access to the CAO and Council on a regular basis.

However, as the Township’s population and staffing numbers grow, there may be the need to relocate the fire chief to the Sydenham station. This would still position the fire chief within close proximity of the Township offices, and would offer even closer contact with some of the
volunteer firefighters.

As noted in figure 4, the fire stations are located throughout South Frontenac in a manner that appears to offer a good level of coverage for the community. However, when considering fire station locations and response needs, it must be kept in mind that one station may not meet the needs of the response area that it is in because of its actual location, quick access by the volunteers and even the number of volunteer firefighters available to respond.

With this challenge in mind, a detailed review of each district’s response statistics needs to be evaluated to identify where changes can and should be made to find efficiencies within the department.

Figure 4 is a map of the fire station locations along with the locations of calls for service. As the reader will note; the bulk of the responses are along highways and the more populated areas of the township. This is of no surprise; however it does support the need for fire stations in certain locations, along with the question as to the value of other fire stations due to the low or non-existent call volume.
FIGURE 4: South Frontenac Fire Station Locations
As already stated, there is no Township document that makes note of any actual response time criteria. However, the National Fire Protection Association (NFPA) does identify a general standard for recommended response times for volunteer fire departments. As such, the challenge is to determine the best location for each fire station to address the NFPA recommendations as closely as possible.

The noted NFPA standard notes:

- **NFPA 1720 – section 4.3.2 “Staffing and Response Time notes that;**
  - In Suburban areas (population of 500 – 1000 per square mile), there should be a minimum response of **10 staff within 10 minutes** 80 percent of the time
  - In Rural areas (population of less than 500 per square mile), there should be a minimum response of **6 staff within 14 minutes** 80 percent of the time.

Appendix “B” presents different response maps that depict 10 minute “travel time” response zones from the fire stations, along with 14 minute “travel time” response zones, both of which are recommendations as noted by NFPA 1720 for volunteer fire departments.

- Maps 1 and 4 are colour representations of 10 and 14 minute response areas by the present 9 fire stations in relation to the Suburban and Rural area criterion.
- Maps 2 and 5 represent the coverage for the 10 and 14 minute response criterion with station 9 relocated to a new highway site.
- Maps 3 and 6 are of the 10 and 14 minute response zones with station 9 removed from the mix.

*Note: Even though station 1 also had a low number of responses for 2011 and 2012, its geographical location and related access issues (by other fire stations) to the response area make this station a required resource for the northern section of the Township; unless a service agreement can be entered into with other bordering fire departments.*

**Response Data**

To support the variations of the previously noted response maps, the following seven charts identify a comparison of response types and the response breakdown among the nine fire stations between 2011 and 2012. It must be noted that none of this information should not be taken in isolation as it simply reflects actual response data. Further discussion between senior management and Council is required to confirm if a fire station is still required in a certain zone or if two fire station response areas can be captured by one. As noted earlier in this document, there also needs to be a review of the future growth statistics and demographics of the community to understand where the potential future needs will be and where some efficiencies can be made.

The OFM definition of response time will, for the purposes of this study, be expanded to include identification of the fire/incident, dispatch time, preparation time and travel time.
Hence, it is the time from fire ignition of the fire or start of the emergency incident to the point at which the first fire truck and the initial response team arrives at the incident.

Having noted the OFM definition, fire departments have used two different methods of calculating response times. Many departments have adopted the OFM method which, as noted (for the purposes of statistical reporting) is defined as follows: "The elapsed time between receipt of the call by the department and the arrival of the first unit at the occurrence location." Other departments have adopted "response travel time" which is considered to be the time from when the vehicles leave the station until arrival at the occurrence location. Therefore those departments which have adopted the OFM definition will have greater average response time results than those adopting response travel time.

The South Frontenac Fire & Rescue service response times are calculated from “dispatch time, to time of arrival at the incident”.

Regardless of which definition is adopted, fire department response time is a function of various factors including, but not limited to:

- the distance between the fire department and response location
- the layout of the community
- impediments such as weather, construction, traffic jams, lack of roads
- notification time
- assembly time

These charts (through the use of the supplied data) help to identify the types of calls that are creating the bulk of response demands and which station(s) are called upon the most for these responses.
FIGURE 5: General Breakdown of Call Types and Percentages for 2012

This pie chart outlines the call types and related percentages:

1. Medical = 28%
2. Fire = 26%
3. Motor Vehicle Collisions (MVC’s) = 13%
4. Alarm calls = 13% each
5. Other (mutual aid and standby calls) = 9%
6. Assist (police assist and public assist calls) = 7%
7. Unauthorized burns 3%
8. Water rescues = 1%
FIGURE(S) 6: Comparison of Responses Data between Fire Stations – Based on Response Data Supplied by Kingston Fire Dispatch

2011 Response Data for ALL Stations

2011 Total Calls Per Station
2012 Response Data for ALL Fire Stations

2012 Total Calls Per Station
FIGURE(S) 6: Response Times for Fire Stations (minimum, maximum and average)

<table>
<thead>
<tr>
<th>2011 Response Times</th>
<th>Stn 1</th>
<th>Stn 2</th>
<th>Stn 3</th>
<th>Stn 4</th>
<th>Stn 5</th>
<th>Stn 6</th>
<th>Stn 7</th>
<th>Stn 8</th>
<th>Stn 9</th>
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</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>9.8</td>
<td>7.7</td>
<td>5</td>
<td>1.9</td>
<td>12</td>
<td>5.1</td>
<td>1.6</td>
<td>1.4</td>
<td>4</td>
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<tr>
<td>Maximum</td>
<td>34.7</td>
<td>42.5</td>
<td>37.8</td>
<td>23</td>
<td>42.7</td>
<td>24.4</td>
<td>16.8</td>
<td>53.6</td>
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</table>

<table>
<thead>
<tr>
<th>2012 Response Times</th>
<th>Stn 1</th>
<th>Stn 2</th>
<th>Stn 3</th>
<th>Stn 4</th>
<th>Stn 5</th>
<th>Stn 6</th>
<th>Stn 7</th>
<th>Stn 8</th>
<th>Stn 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>19.5</td>
<td>4.8</td>
<td>5.2</td>
<td>2.9</td>
<td>3.3</td>
<td>3.5</td>
<td>9.6</td>
<td>2.2</td>
<td></td>
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<tr>
<td>Maximum</td>
<td>19.5</td>
<td>56</td>
<td>18.7</td>
<td>38.4</td>
<td>49.5</td>
<td>51.5</td>
<td>10.8</td>
<td>42.9</td>
<td></td>
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<tr>
<td>Average</td>
<td>19.5</td>
<td>21.63974</td>
<td>12.15</td>
<td>10.61512</td>
<td>12.77033</td>
<td>13.325</td>
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<td>13.29244</td>
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Recommendations:

- A detailed review and annual update on response times should be reported and quantified to Township Council to offer them a clear understanding of how the fire service is meeting the expectations of the community.

Based on the “call per station” data; it would appear that stations 1, 7 and 9 are responding to the least amount of calls as compared to the other six stations.

- It is recommended fire station 9 be relocated from its present location and moved closer to a main roadway as noted in the maps in Appendix “C”. This would make station 9 more effective and useful in the overall response coverage for the township.

- If relocation of station 9 is not a consideration of Council then it is recommended that fire station 9 be closed due to the level of call volume and related volunteer firefighter staffing levels for each station. Station 8 is well situated to meet the present call demand. Volunteers from 9 should be retained (if possible) to work out of other stations.

- Station 1 responded to less than 10 calls (as the primary response station) in 2012, however due to its unique location in the upper northern area of the township, a need for this station still exists. If closing of this station is a consideration then a review of an automatic aid response agreement with a neighbouring fire department should be investigated.

Associated Costs:

- The estimated costs are as follows:
  - If station 9 is relocated then an approximate building cost of $200 - $300.00 per square foot should be expected – for example if a one bay 3,500 sq ft building is constructed, the cost would be approximately $700,000.00 - $1,050,000.00 with a build timeline of approximately one year.
    - *Further information on building considerations is noted below.*
  - If station 9 is decommissioned then a savings related to building taxes, services and maintenance would be realized along with the reduction of one fire truck to be replaced and maintained.
  - Any volunteer firefighters should still be retained and asked to respond from another station. Therefore no cost related to this part of the recommendations.

*Building Attributes for a Fire Station*
The above noted costs take into consideration major fire station functional areas such as:

- An apparatus bay: This is where the fire fighting and emergency response vehicles are stored.
- Apparatus bay support and vehicle maintenance: These industrial spaces are where the vehicles and other firefighting equipment are cleaned, maintained, and stored.
- Administrative and training areas: These include offices, dispatch facilities, and training and conference rooms.
- Residential areas: These include the day room/kitchen, and other areas such as showers and bathrooms.

The primary driver for a volunteer fire station layout and functional space is to separate the functions such as industrial maintenance spaces and residential spaces. These spaces need to be separated to eliminate the transmission of vehicle exhaust and other possible contaminates (such as dust and water) into the residential/office spaces.
**Fire Stations**

As previously noted, South Frontenac Fire & Rescue provides emergency service response from nine fire stations. Based on visits to the stations, the facilities appear to need varying levels of repairs, updating of facilities and even possible relocation.

Each station will be addressed individually.

**Notes:**
- Appendix “A” contains a copy of the building inspector’s reports
- Any health and safety related items have been **bolded and italicized**
- A further overview of general health and safety related issues with accompanying pictures is also included at the end of this station review section.

**Station #1 – Bradshaw**

Station #1 is located Anderson Rd. South, which is the northwest portion of the Township. This station was built in 1980 and contains two bays for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- **Addition and upgrade of washing facilities (Washroom, Shower and Laundry)** - Addition of new septic system may be needed due to increased flow (Budget $75,000.00 and 4 weeks work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $4,000.00 and 1 weeks work)
- Remove vegetation various locations of the building (Budget costs $1,000.00 and 2 days work)
- Major adjustments to the exterior grading adjacent to the building (Budget $25,000.00 and 3 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Repairs to concrete slab (no floor drainage) (Budget $20,000.00 and 3 weeks work)
- Various electrical and mechanical items (All small and too many to list) (Budget $5,000.00 and 1 weeks work)

Assign a working budget of $150,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

**Total approximate cost = $150,000.00**

**Total approximate time = 12 – 13 weeks.**

Additional item of concern at station 1

The exit noted in these two pictures has a fall hazard as it opens out into a bush area and the step down is approximately 8 – 10 inches. Consideration should be given to incorporating a more gradual step down where possible.
Station #2 – Burridge

Station #2 is located on Burridge Rd, which is the northeast portion of the Township. This station was built in 1970 and contains two bays for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- **Addition and upgrade of washing facilities (Washroom, Shower and Laundry)** (Budget $20,000.00 and 3 weeks work)
- **Separation of electrical systems for any exposure to water and enclosure of panels** (Budget $5,000.00 and 3 days work)
- Damage to siding, soffit, fascia and eave troughs at various locations (Budget costs of $3,000.00 and 2 days work)
- Remove Vines various locations of the building (Budget costs $1,000.00 and 2 days work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 weeks work)
- Storage solutions Upper Area and Exterior (Shelving etc) (Budget $20,000.00 and 3 weeks work)
- Misc repairs too many to list (Budget $20,000.00 and 4 weeks work)
- Concerns over Propane protection and gas filling station (Budget $30,000.00 and 4 weeks work)

Assign a working budget of 130,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.
Total approximate cost = $130,000.00

Total approximate time = 16 – 17 weeks.

Pictures noting some of the items for station 2 requiring repairs

Wind damage to the siding needs to be repaired

Electrical issues as noted in the picture were observed and should be addressed.
Station #3 – Verona

Station #3 is located on Highway 38, which is the midwest part of the Township. This station was built in 1998 and contains two bays for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- **Addition and upgrade of washing facilities and various repairs (Washroom, Shower and Laundry)** - Addition of new septic system may be needed due to increased flow (Budget $65,000.00 and 4 weeks work)
- **Separation of electrical systems for any exposure to water and enclosure of panels** (Budget $5,000.00 and 2 days work)
- Interior storage solutions Upper Area (Shelving etc) (Budget $2,000.00 and 3 days work)
- Damaged Mechanical Systems (Budget $3,000.00 and 2 days work)

Assign a working budget of $83,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

**Total approximate cost = $83,000.00  Total approximate time = 5 – 6 weeks.**
Picture noting the electrical panel that needs to be protected from water contamination at station 3
Station #4 – Hartington

Station #4 is located on Holleford Rd, which is the southwestern area of the Township. This station was built in 1958 and contains four bays for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- **Addition and upgrade of washing facilities (Washroom, Shower and Laundry)** - Addition of new septic system may be needed due to increased flow (Budget $65,000.00 and 5 weeks work)
- **Separation of electrical systems for any exposure to water and enclosure of panels** (Budget $8,000.00 and 1 weeks work)
- Damage to metal soffit, fascia and eave troughs at various locations (Budget costs of $2,000.00 and 2 days work)
- Remove vegetation various locations of the building (Budget costs $1,000.00 and 2 days work)
- Major adjustments to the exterior grading adjacent to the building (Budget $35,000.00 and 3 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Repairs to concrete slab (Floor is various Heights) (Budget $30,000.00 and 3 weeks work)
- Adjustments to overhead doors etc (Budget $2,000.00 and 3 days work)
- Various electrical and mechanical items (All small and too many to list) (Budget $10,000.00 and 2 weeks work)
- Open cistern in floor covered (adds much unneeded humidity to the building) (Budget unknown – work schedule unknown – more investigations might be needed)
Assign a working budget of $180,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

**Total approximate cost = $180,000.00**

**Total approximate time = 15 – 16 weeks.**

Pictures noting some siding damage due to water/grading issues along with some front driveway paving repairs required for station 4
Station #5 – Sydenham

Station #5 is located on Stage Coach Rd, which is the Southern area of the Township. This station was built in 1972. It contains three bays for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) - Addition of new septic system may be needed due to increased flow (Budget $55,000.00 and 4 weeks work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $5,000.00 and 3 days work)
- Repair worn floor tiles on stairs to second level (Budget $500.00 and 1 day work)
- Wind damage to metal soffit, fascia and eave troughs by radio tower (Budget costs of $2,000.00 and 2 days work)
- Remove Vines various locations of the building (Budget costs $1,000.00 and 2 days work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 week work)
- Interior storage solutions Upper Area (Shelving etc) (Budget $2,000.00 and 3 days work)

Assign a working budget of $85,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.
Total approximate cost = $85,000.00  Total approximate time = 7 – 8 weeks.

Pictures of some items noted in station 5 relating to storage and washing of gear

Storage issues were noted throughout the building but were most prevalent in the upper floor area of the station.

Industrial washer and dryers should be installed to deal with the cleaning of firefighter bunker gear. This type of washing system should be available in at least 3 stations to afford access by all firefighters.
Station #6 – Perth Rd

Station #6 is located on Perth Road, which is the central part of the Township. This station was built in 1950. It contains two bays for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- Repairs to building for mold (Daylight visible in exterior wall at corner on main room) (Budget $180,000 and 6 months work)
- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) - Addition of new septic system may be needed due to increased flow (Budget $85,000.00 and 5 weeks work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $8,000.00 and 1 weeks work)
- Damage to metal soffit, fascia and eave troughs at various locations (Budget costs of $2,000.00 and 2 days work)
- Remove vegetation various locations of the building (Budget costs $2,000.00 and 3 days work)
- Major adjustments to the exterior grading adjacent to the building (Budget $35,000.00 and 3 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Various electrical and mechanical items (All small and too many to list) (Budget $50,000.00 and 6 weeks work)

Assign a working budget of $400,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

Total approximate cost = $400,000.00

Total approximate time = 9 – 10 months.
Some major mold and water damage issues were noted during the inspection of this station. A full mold remediation program needs to be implemented with this station.
Station #7 – Latimer Rd

Station #7 is located on Latimer Rd, which is the southern part of the Township. This station was built in 1990. It contains one front bay and one side bay for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- **Structural reinforcement of cement block wall as door between fire truck bays** (Budget $5,000.00 and 1 weeks work)
- **Addition of washing facilities** (Washroom, Shower and Laundry) - **Addition of septic system needed** (Budget $60,000.00 and 4 weeks work)
- **Separation of electrical systems for any exposure to water and enclosure of panels** (Budget $2,000.00 and 1 weeks work)
- Wind damage to metal soffit, fascia and eave troughs to various locations of the building (Budget costs of $3,000.00 and 1 weeks work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Some deteriorate cement block foundation located on the rear corner by the oil tank (Budget cost of $6,500.00 and 1 1/2 weeks work)
- Adjustments to overhead door systems needed (Budget $1,500.00 and 1 days work)

Assign a working budget of $94,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

**Total approximate cost = $94,000.00**  **Total approximate time = 9 – 10 weeks.**
Pictures of some items of concern at station 7

Wind damage to the siding and downspouts were noted.

The picture below identifies an area that was cut out in a block wall that requires some structural reinforcement with angle iron.
Station #8 – Sunbury

Station #8 is located on Battersea Rd, which is the south eastern part of the Township. This station was built in 1977 and contains three front bays and one side bay for fire apparatus. This is not a drive through station.

The following areas were noted as requiring attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- **Addition and upgrade of washing facilities (Washroom, Shower and Laundry)**
- **Addition of new septic system may be needed due to increased flow (Budget $25,000.00 and 4 weeks work)**
- **Separation of electrical systems for any exposure to water and enclosure of panels (Budget $2,000.00 and 3 days work)**
- **Interior storage solutions Upper Area (Shelving etc) (Budget $2,000.00 and 3 days work)**

Assign a working budget of $35,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

**Total approximate cost = $35,000.00**  **Total approximate time = 4 – 5 weeks.**
There were no other unique issues noted with this station other than what is identified in the building inspector’s report. However, it was noted that during the winter months (November to March) the fire department is required to vacate this vehicle storage space to allow for snow plows to be parked.
Station #9 is located in the Seeley’s Bay area which is the south eastern part of the Township. This station was built in 1983 and contains only one bay for fire apparatus. This is not a drive through station.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)

- **Addition of washing facilities (Washroom, Shower and Laundry)** - Addition of septic system needed (Budget $80,000.00 and 4 weeks work)
- **Separation of electrical systems for any exposure to water and enclosure of panels** (Budget $2,000.00 and 1 week’s work)
- **Mold found in vehicle at station and signs of mold in station. More investigation required (budget and timing unknown)**
- Some deteriorate cement block foundation located at various locations (Budget cost of $6,500.00 and 1 1/2 weeks work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 week’s work)
- Damage to metal soffit and fascia to various locations of the building (Budget costs of $2,000.00 and 1 week’s work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Removal of vegetation at various locations around building (Budget $1,000.00 and 2 weeks work)
- Concerns of propane tank protection (Budget $10,000.00 and 2 weeks work)
Assign a working budget of $124,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

**Total approximate cost = $124,000.00  Total approximate time = 12 – 13 weeks.**

Additional pictures relating to concerns with station 9

During the review of station 9, electrical cords for the fire vehicle were found to be laid across the floor. There were also signs of mold found in the passenger cab of the vehicle.

As already noted, the health and safety related items for each fire station have been highlighted in *bold and italicized*. It is these items that need to be addressed first.

The overall cost to implement all of the noted repairs for the nine fire stations would be approximately = $1,281,000.00

Following is a general overview (pictures included) of associated health and safety related items requiring attention at most if not all of the fire stations. Most of these pictures support items already noted in the building inspector’s reports.
Review of General Health and Safety Items of Concern with MOST Stations

1) All of the fire stations lack suitable safe storage of the firefighter’s personal gear. With all of the gear left out in the open, it is susceptible to contamination by the exhaust fumes from the vehicles. This contamination from the vehicle exhaust fumes is a concern as it can degrade the efficiency of the gear and also create an inhalation hazard to the wearer.

2) There is a lack of “self-closing” doors leading from the apparatus floor to the working, training and eating areas of the fire stations. To reduce exposure to the exhaust gases from the vehicles, all of these areas should have self-closing doors and/or proper separations.

3) There was also a notable lack of proper storage areas/facilities for the equipment. This in
itself creates a tripping/safety hazard to the staff. Some of the product is also stored around the furnace system which is a hazard in itself.

4) The furnace systems for all of the fire stations are located on the apparatus (vehicle) bays. This means that exhaust fumes are being taken into the furnace systems and spread throughout the fire station. An assessment should be conducted to see what effect this has on the air quality of each station’s office/training areas.

5) Washroom facilities for both male and female firefighters were also an issue and should be addressed. However the main concern is the lack of shower/wash up facilities in all but one station – station 2.
With the exception of station 2, no other station has shower facilities for the firefighters. Based on the Occupational Health and Safety Act, workers who may come in contact with hazardous chemicals are to be afforded proper washing and clean up facilities.

Example of general washroom facilities found at most stations.

Example of shower facility found in station 2. At the very least a single shower facility should eventually be installed in ALL fire stations. A transitional period which offers “every other station” as a shower/wash up facility would still prove more effective that what is presently available.

Firefighters who have become contaminated with such things as bodily fluids or products of combustion should not be expected to drive home in their personal vehicles and risk the chance of spreading these contaminants.

6) The tour of the fire stations also identified a lack of Eyewash Stations for the firefighters. In
the chance that they get foreign matter in their eyes; there are no eyewash stations to flush the contaminant out.

7) Receptacle’s that are on the apparatus floor that are susceptible to water contamination should be outfitted with GFI’s.

8) Electrical panels should be properly covered and protected from any physical damage or contamination from water.

9) Electrical plug ins for the vehicles should have the cords properly secured and suspended so
as not to create a safety hazard

10) Space between vehicles must allow for safe and easy access between vehicles to as to reduce the possibility of persons becoming trapped between vehicles as they are being driven in and
out of the fire station.

Following is a compilation of health and safety related information that addresses the 10 comments/recommendations noted in this set of photos.

*Further information can be found in the building inspector’s report included Appendix “A”*

R.R.O. 1990, Regulation 851
Industrial Establishments

PART I – SAFETY REGULATIONS

PRE-START HEALTH AND SAFETY REVIEWS

7. (1) In this section
“Apparatus” means equipment or a machine or device (appareil”)

PREMISES

11. A floor or other surface used by any worker shall,
(a) be kept free of,
   i. obstructions,
   ii. hazards, and
   iii. accumulations of refuse, snow or ice; and

(b) not have any finish or protective material used on it that is likely to make the surface slippery.
Most fire stations have relied upon drains cut into the floor covered with metal grates (easily accessed floor clean outs) channeling the collected water into an oil/water separator. Currently some of the stations lack proper drainage or any type of drainage at all to aid in keeping the apparatus bay surfaces clear of any obstructions or hazards, such as snow, ice and water.

12. Clearances between a moving part of any machine or any material carried by the moving part of the machine and any other machine, structure or thing shall be adequate to ensure that the safety of any worker in the area is not endangered. R.R.O. 1990, Reg, 852, s. 12.

Some of the fire stations lack enough space between the vehicles to allow for safe passage between the vehicles. If a vehicle should be moved without the prior knowledge of the firefighter, an injury could occur.

PART III – INDUSTRIAL HYGIENE

124. Where a worker is exposed to a potential hazard of injury to the eye due to contact with a biological or chemical substance, an eyewash fountain shall be provided. R.R.O. 1990, Reg. 851, s. 124.

125. Where a worker is exposed to a potential hazard of injury to the skin due to contact with a substance, a quick-acting deluge shower shall be provided. R.R.O. 1990, Reg. 851, s. 125.

127. An industrial establishment shall be adequately ventilated by either natural or mechanical means such that the atmosphere does not endanger the health and safety of workers. R.R.O. 1990, Reg. 851, s. 127.

The firefighters have been at risk of exposure not only to themselves but also to the family who supports them when they return home. The current use of space in relation to washing and decontamination facilities should be updated to handle the contamination of the firefighters gear by diesel exhaust fumes and other contaminates.

The following are suggested options to help alleviate this exhaust contamination.

- Ensuring natural ventilation is supplied and maintained whenever a vehicle is started and moved
- Separations from the apparatus floor and the training/living areas of the station need to be installed and maintained
- Installation of mechanical ventilation systems designed for fire stations, and
- Adequate clothing storage should be provided for personnel.
134. Where workers are exposed to a substance that,
(a) is poisonous by ingestion; and
(b) can contaminate the skin,
Shower rooms and individual lockers for street and work clothes shall be provided. R.R.O. 1990,
Reg. 851, s. 134.

The following is the list of amenities suggested for proper decontamination areas and medical
clean up:

- **Proper hot water system for each station**
- **Separate shower and bathroom facilities must be provided. Some of the existing
  stations were designed to accommodate only men. To avoid potential problems men
  and women need separate showers and bathrooms. As a temporary fix, a system using
  prominent signs and an inside lock has worked in some situations.**
- **Adequate clothing storage should be provided for personnel.**

*Multiple waterproof GFI electrical outlets with 25 amp minimum capacity should be installed in
the apparatus floor where water contamination is possible.*

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**Generators/Emergency Power**

One final point noted with each fire station was the lack of an emergency power source in the
form of a generator. As an emergency response facility and a possible gathering place for
emergency responders and other assisting agencies; all stations should have a backup power
source in the event of a community power failure.
The Township should look at a gradual implementation plan for the installation of generators at “key” fire stations. These stations would be the gathering place for firefighters and other emergency personnel during a large spread power outage.

The cost for installing a permanent backup generator system would depend on the type of fuel and amount of kilowatts required at each station. However, a general estimate would be anywhere from $60,000.00 to $100,000.00 per station.

Recommendation:

- Each fire station or at the very least, “key” stations (one in each main geographical area) should have a backup power system installed

Associated Costs:

- Depending on power needs; costing could range from $60,000.00 to $100,000.00 per station.

### 4. Training

Although training was not a specific component of the initial study requested by the Township, a general review of this was conducted by Emergency Management and Training Inc.

During our interviews with the Fire Chief and his Deputies, it was noted that training nights for
the stations are regularly scheduled to ensure that all required training topics are completed by the firefighters. To ensure that they are following an approved program, the department follows the Ontario Fire Marshal’s (OFM) Firefighter Curriculum as their basis for training its firefighters.

It was also noted that the department has 10 Trainer Facilitators who are certified by the Ontario Fire Marshal’s Office to train and “sign off” the firefighters on the tasks associated with the Firefighters Curriculum.

To further ensure compliance with the OFM program, all related training hours are logged.

Recommendation:

- At this time it would appear that the department is well set up to conduct the OFM Firefighter Curriculum program to its firefighters. However, the department should enhance its training programs in the areas of any specialized and officer training programs. This might require sending staff to the fire college.
  - As such, SFFR should work with neighbouring fire departments to bring any required programs to a regional facility whenever possible.
  - A general review and needs analysis should be conducted by the fire chief to identify future firefighter and officer training needs.

Associated Costs:

- This would depend on programs available and related instructor costs or the cost of sending SFFR staff to take the program.

5. Special Operations

Special operations encompass such functions as hazardous materials response, water rescue, high angle and technical rescue. The department has response capability for water related incidents but does not conduct hazardous materials response to the technical level. If a hazardous incident occurs within the Township, Kingston Fire Department or another bordering fire department would be contacted to assist with the incident.
With the amount of calls related to these two areas of operations (hazmat and water rescue), there is no indication that further resources are required in this area.

Recommendation:

- At this time it would appear that the department is well set up to meet the needs of the community in relation to these types of calls.

Associated Costs:

- No new program costs recommended at this time.

6. Communications/Dispatch

Dispatch services for South Frontenac Fire & Rescue are provided by the Kingston Fire Department.

Presently, it would appear that the dispatching arrangement with Kingston Fire is meeting the needs and expectations of SFFR. However, it would be advantageous to more accurately track the station responses to all calls. For example, at this time the data received by Kingston Fire Dispatch notes only the primary station that responded to the call. To ensure that an effective response arrives at the scene, SFFR sends two stations for all calls. Therefore stations that appear to have a low call volume, may in fact respond to quite a few calls but the Kingston data does not presently identify this.

Recommendation:

- The fire chief should contact Kingston Fire Dispatch to request that SFFR dispatch data reflects the primary and secondary units that are being dispatched to all types of calls.

Associated Costs:

- No additional costs unless a service contract needs to be renegotiated to include the extra tracking of data.

Physical Resources

Fire Stations

Comments and recommendations in relation to the fire station locations and other
requirements have been already made under the headings of Fire Suppression and Fire Station Locations. Therefore no further discussion is required in this section.

Fire Vehicles

When assessing a fire department’s ability to respond and meet the needs of the community; the Fire Underwriters Survey utilizes the age of a fire truck as one of its guidelines. In the following chart, the highlighted area is what South Frontenac should be considering when it comes to forecasting its fire truck replacements.

Fire Underwriters Survey – vehicle replacement recommendations

(Green area reflect South Frontenac’s vehicle expectations for the community)

<table>
<thead>
<tr>
<th>Apparatus Age</th>
<th>Major Cities 3</th>
<th>Medium Sized Cities 4 of Communities Where Risk is Significant</th>
<th>Small Communities 5 and Rural Centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 15 Years</td>
<td>First Line</td>
<td>First Line</td>
<td>First Line</td>
</tr>
<tr>
<td>16 – 20 Years</td>
<td>Reserve</td>
<td>2nd Line</td>
<td>First Line</td>
</tr>
<tr>
<td>20 – 25 Years</td>
<td>No Credit in Grading</td>
<td>No Credit in Grading or Reserve 2</td>
<td>No Credit in Grading or Reserve 2</td>
</tr>
<tr>
<td>26 – 29 Years</td>
<td>No Credit in Grading</td>
<td>No Credit in Grading or Reserve 2</td>
<td>No Credit in Grading or Reserve 2</td>
</tr>
<tr>
<td>30 Years 1</td>
<td>No Credit in Grading</td>
<td>No Credit in Grading</td>
<td>No Credit in Grading</td>
</tr>
</tbody>
</table>

1. All listed fire apparatus 20 years of age and older are required to be service tested recognized testing agency on an annual basis to be eligible for grading recognition (NFPA 1071)
2. Exceptions to age status may be considered in a small to medium sized communities and rural centre conditionally, when apparatus condition is acceptable and apparatus successfully passes required testing
3. Major cities are defined as an incorporated or unincorporated community that has:
   a. a populated area (or multiple areas) with a density of at least 400 people per square kilometre; AND
   b. a total population of 100,000 or greater.
4. Medium Communities are defined as an incorporated or unincorporated community that has:
   a. a populated area (or multiple areas) with a density of at least 200 people per square kilometre; AND
   b. a total population of 1,000 or greater.
5. Small Communities are defined as an incorporated or unincorporated community that has:
   a. no populated areas with densities that exceed 200 people per square kilometre; AND
   b. does not have a total population in excess of 1,000.

The Fire Underwrites Survey (FUS) is reviewed by insurance companies and as long as the fire department adheres to the recommended replacement timelines through an identified capital replacement schedule, then the department will retain its fire rating (in relation to this area).

By ensuring that the vehicles are being replaced on a regular schedule, the Township is also
demonstrating its due diligence towards ensuring a dependable response fleet for the fire department and the community it serves. This in turn will keep the community’s fire rating in good stance, which subsequently reflects on commercial and residential insurance rates.

Another standard that supports a regular replacement schedule of fire vehicles is the NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus. This standard includes guidance on retirement criteria for fire apparatus. This standard recommends that all front run vehicles are replaced on a 15 year cycle. It should be noted that this replacement cycle is an industry recommendation that is not always consistently adhered to throughout the fire service.

A brief survey (of other fire departments) noted that some departments are replacing their front run units as early as 12 years up to a maximum of 20 years. The only vehicles that are kept longer than 20 years are “back up” units that are put into service on a very sporadic basis.

There is no national standard that legally mandates the replacement of emergency vehicles, but it must be kept in mind that it is critical to replace these and other apparatus before they become unreliable. Over the long term, delaying the replacement is inadvisable because it will add to the overall costs of the apparatus. But more importantly, when these vehicles are needed to perform; they are needed.

For the most part, the SFFR is well equipped with pumper trucks, rescues and tankers. There also appears to be a good level of support vehicles and equipment to meet the general needs of the department.

Replacement schedules are identified in the capital forecast for the fire trucks and large cost items.

Recommendations:

- The Township should maintain a schedule that compiles with the FUS recommendations on the replacement of vehicles from a first line to a 2nd line unit.

Associated Costs:

- None, other than continued financial forecasting of equipment replacement

**Volunteer Staffing**

The South Frontenac Fire & Rescue organization chart identifies a present strength of approximately 140+ positions. This equates to one full time fire chief to manage 140
volunteer firefighters.

Volunteer firefighters are a dedicated group but due to job, family and other non-fire department demands or opportunities, retention of volunteer firefighters is an ongoing issue. The fire chief had noted that the department’s turnover rate is approximately 30% over the past years. This turnover is not an isolated incident as all communities with volunteer firefighters are faced with this challenge of retention. This in itself creates a strain on the SFFR service in relation to being able to respond in an efficient and effective manner on an ongoing basis.

This turnover of staff also creates a training issue, in that all responding personnel must be trained to a level that allows them to effectively meet the demands of the job in a safe manner.

Recommendations:

- Staffing levels need to be enhanced in many of the fire stations. Recruitment and retention is always a challenge for volunteer fire departments.
  - Fire stations 1, 2 and 9 have less than 10 volunteers each to respond to calls, with stations 1 and 9 being of greatest concern as they only have 4 and 5 respectively. This means that on average, there is less than an effective response force from each station. This necessitates a two station call out for all calls.
  - To be effective on even a minimal level, each station must be able to count upon 4 firefighters being able to respond at any given time.

Associated Costs:

- Depending on the approved staffing levels as supported by council; the per-firefighter average costing could be applied by the fire chief in his report to council.

Finance
Operating Budget

The South Frontenac Fire & Rescue has an annual operating budget of approximately one million dollars and a capital forecast that fluctuates based on the equipment that has been identified for replacement.

Capital Forecasts

The capital forecast for the department has identified a replacement cycle for all of the larger ticket items such as fire trucks, utility vehicles and small equipment.

Recommendation:

- SFFR should periodically review its replacement forecasts to ensure that the Township will be able to meet these targeted timelines.
- SFFR should establish a capital forecast for the renovation / replacement of fire stations

Associated Costs:

- Required upgrades/repairs for the fire stations as noted in this report. Refer to pages 30 – 40.

External Relationships and Partnerships

South Frontenac Fire & Rescue has good working relationships with other fire departments in the Region and surrounding jurisdictions. Mutual aid agreements, which provide aid to South Frontenac and other agencies when requested, are in place. Some related training in relation to mutual aid is conducted with other fire agencies in the region.

Recommendation:

- None – external relationships and partnerships are reported to be working well.

Associated Costs:

- No additional costs identified at this time.

Final Summary of Recommendations and Possible Efficiencies

The following chart provides further overview of the recommendations found throughout this
report along with any related costs that can be realized in the associated areas.

<table>
<thead>
<tr>
<th>Recommendation Number</th>
<th>Subject</th>
<th>Description</th>
<th>Solution</th>
<th>Estimated Time Line</th>
<th>Estimated Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strategic or Master Plan</td>
<td>The fire department does not have a current strategic or master plan in place.</td>
<td>One should be developed that takes into consideration the Township’s 2013 Growth Study and other related information such as population and demographics that will affect the demands and response criteria on the fire services</td>
<td>3-4 months</td>
<td>$20,000 - $40,000</td>
</tr>
</tbody>
</table>
| 2                      | Identify a baseline response criteria | Baseline and Benchmarks for response times are not formally recognized. | • To ensure that the fire department is meeting the needs of the community and the expectations of its Council; the fire chief should work towards identifying a baseline and benchmark set of response criteria.  
• A detailed review and annual update on response times should be reported and quantified to Township Council to offer them a clear understanding of how the fire service is meeting the expectations of the community. | Ongoing with annual updates | No direct costs to this item |
| 3                      | Fire prevention                | Fire prevention is the least costly way of providing loss control, additional focus on fire prevention is required, based on the Township’s size and forecasted growth. | Volunteer firefighters, should be utilized as much as possible to assume more responsibility for inspections of existing structures and for educating the public about fire safety. | Ongoing with annual review | Depends on level of increase usage of volunteer firefighters |
| 4                      | Simplified Risk Assessment     | The Simplified Risk has identified concerns within the Community            | Work on the updated Simplified Risk Assessment Should be started in 2014 to meet the SRA program’s goals and expectations. | Ongoing – every 3 to 5 years | No cost |
| 5                      | Response Data                  | Reviewing of the SFFR response times is critical to ensuring timely responses. | A detailed review and annual update on response times should be reported and quantified to Township Council to offer them a clear understanding of how the fire service is meeting the expectations of the community. | Ongoing – annual updated | No cost |
| 6                      | Fire station closings and/or relocations | Based on call volume and related response times; stations 1, 7 and 9, on the average are responding to less than 10 calls (each) per year (as the primary response station). | • It is recommended fire station 9 be relocated from its present location and moved closer to a main roadway as noted in the maps in Appendix “C”. This would make station 9 more effective and useful in the overall response coverage for the township.  
• If relocation of station 9 is not a consideration of Council then it is recommended that fire station 9 be | Dependant on option chosen | Depends on option chosen |
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fire Hall and Equipment Study</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>fact station 9 did not respond to any calls in 2012. Based simply on this data, the following recommendations are being made.</td>
<td>closed due to the level of call volume and related volunteer firefighter staffing levels for each station. Station 8 is well situated to meet the present call demand. Volunteers from 9 should be retained (if possible) to work out of other stations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Fire Station repairs</td>
<td>The list of Fire station repairs, upgrades and associated costs located in the body of this report and in Appendix “B” need to be evaluated and prioritized to ensure future functionality of the existing fire stations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Emergency Power</td>
<td>Each fire station or at the very least, “key” identified stations (i.e. one in each main geographical area) should have a backup power system installed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Training</td>
<td>At this time it would appear that the department is well set up to conduct the OFM Firefighter Curriculum program to its firefighters. However, the department should enhance its training programs in the areas of any specialized and officer training programs. This might require sending staff to the fire college.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Communications</td>
<td>The fire chief should contact Kingston Fire Dispatch to request that SFFR dispatch data reflects the primary and secondary units that are being dispatched to all types of calls.</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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### Fire Station repairs

Numerous upgrades and repairs for the fire stations were noted during the station visits.

- All health and safety related repairs/upgrades need to take precedence.

Refer to inspection reports

### Emergency Power

None of the fire stations contained an emergency backup power source.

Depending on program

$60 - $100k Per station

### Training

Ongoing training of the firefighters and officers is a requirement by the Occupational Health and Safety Act.

- As such, SFFR should work with neighbouring fire departments to bring any required programs to a regional facility whenever possible.
- A general review and needs analysis should be conducted by the fire chief to identify future firefighter and officer training needs.

Ongoing

### Communications

Dispatch operations are conducted by the Kingston Fire Dispatch

Depending on dispatch software to track information

No additional Costs – depending on dispatch contract.
| 11 | Fire Department Apparatus | Appropriate schedule for vehicle replacement is recommended by FUS and the NFPA | In relation to vehicle life cycling, the Township should continue to adhere to an appropriate schedule for both the replacement and progression of the vehicles being moved from “first run” to “2nd run (back up)” units. | Replace as identified by FUS | Depends on vehicle as noted in budget |
| 12 | Staffing levels | Staffing levels need to be enhanced in many of the fire stations. Recruitment | Recruitment and retention is always a challenge for volunteer fire departments due to the firefighters moving due to career of family pressures.  
- Fire stations 1, 2, 7 and 9 have less than 10 volunteers each to respond to calls. This means that on average there is less than an effective response force from each station. This necessitates a two station call out for all but the simplest of calls.  
- To be effective on even a minimal level, each station should be able to count upon 4 firefighters being able to respond at any given time. | Ongoing issue | Ensure budget support to keep staffing levels as required |
| 13 | Finance | Capital budget |  
- SFFR should periodically review its replacement forecasts to ensure that the Township will be able to meet these targeted timelines.  
- SFFR should establish a capital forecast for the renovation / replacement of fire stations | Ongoing | As Required |
Conclusion

During the review conducted by Emergency Management and Training Inc., it was noted that the volunteer firefighters are truly dedicated to the community they serve. It was further noted that the Council, CAO and fire chief are sincerely committed to ensuring the safety of the community and the firefighters of SFFR.

Based on the present staffing, equipment and fire stations locations, South Frontenac Fire & Rescue is endeavoring to offer the most efficient and effective service possible.

As noted in the recommendations (throughout this report), there are some savings that can be realized by the reduction of a fire station, however, the present compliment of volunteer firefighter staffing should be retained and increased if possible as this would help to ensure a more fulsome response to incidents.

The key concerns noted in this report are more related to the state of some of the fire stations. Some suggestions are there to increase the overall efficiency of each fire station in relation to meeting the needs of the firefighters. Whereas other recommendations are items that affect the health and safety of the firefighters and must be addressed.

All costs and associated times are approximate estimates that can implemented through prioritization between the Fire Chief, CAO and Council. As noted in this report, any health and safety related issues need to be at the top of the list.

The community of South Frontenac is served by dedicated group of volunteers that for the most part are well equipped to meet the response needs of the community.
Definitions and References

Automatic Aid Agreements – Fire Prevention and Protection Act, 1997 (FPPA 1997)

4. For the purposes of this Act, an automatic aid agreement means any agreement under which,
   a) a municipality agrees to ensure the provision of an initial response to fires, rescues and emergencies that may occur in a part of another municipality where a fire department in the municipality is capable of responding more quickly than any fire department situated in the other municipality; or
   b) a municipality agrees to ensure the provision of a supplemental response to fires, rescues and emergencies that may occur in a part of another municipality where a fire department situated in the municipality is capable of providing the quickest supplemental response to fires, rescues and emergencies occurring in the part of the other municipality. 1997, c. 4, s. 1 (4).
   • Automatic aid is generally considered in other jurisdictions as a program designed to provide and/or receive assistance from the closest available resource, irrespective of municipal boundaries, on a day-to-day basis.

National Fire Protection Association (NFPA) Documents:

- NFPA 1851 – Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2008 edition
- NFPA 1500 – Standard on Fire Department Occupational Safety and Health Program, 2013 editions

Municipal responsibilities (FPPA 1997)

2. (1) Every municipality shall,
   a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and
   b) provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.

Mutual Aid

a) Mutual aid plans allow a participating fire department to request assistance from a neighbouring fire department authorized to participate in a plan approved by the Fire Marshal.

b) Mutual aid is not immediately available for areas that receive fire protection under an agreement. The municipality purchasing fire protection is responsible for arranging an
acceptable response for back-up fire protection services. In those cases where the emergency requirements exceed those available through the purchase agreement and the backup service provider, the mutual aid plan can be activated for the agreement area.

Public Fire Safety Guidelines:

- PFSG 04-40A-12, Fire Prevention and Public Safety Education; Simplified Risk Assessment March 2001
- PFSG 04-41-12, Fire Prevention and Public Safety Education; Community Fire Safety Officer/Team, January 1998
- PFSG 04-08-13 on Fire Station Location, September 2004

Shared Responsibilities (FPPA 1997)

FPPA notes that;

1. Two or more municipalities may appoint a community fire safety officer or a community fire safety team or establish a fire department for the purpose of providing fire protection services in those municipalities
Appendix “A”

Fire Station Repair Recommendations and Associated Costs
August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Bedford District Station #1

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 15 years of age and is single storey wood building; exterior is clad in metal siding with wood roof trusses. Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in fair to reasonable good condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Remove vegetation various locations of the building (Budget costs $1,000.00 and 2 days work)
- Major adjustments to the exterior grading adjacent to the building (Budget $25,000.00 and 3 weeks work)
- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) – Addition of new septic system may be needed due to increased flow (Budget $75,000.00 and 4 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $4,000.00 and 1 weeks work)
- Repairs to concrete slab (no floor drainage) (Budget $20,000.00 and 3 weeks work) - Various electrical and mechanical items (All small and to many to list) (Budget $5,000.00 and 1 weeks work)
What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested valve in over all budget)
- No Building Roof Inspection Was Completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of $150,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On Request.

Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
91 Exeter Drive
Ottawa, Ontario
K2J 1V6
(613) 323-4136
August 12, 2013

Green Earth Contracting
o/o by Curby’s Technical Inc.
91 Exeter Drive, Ottawa, Ontario
(613) 323-4136
curbytec1@gmail.com

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Bedford District Station #2

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 30 years of age and is single storey wood building with wood trusses and vinyl siding, with a wood addition. Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in good to better than good condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Damage to siding, soffit, fascia and eave troughs at various locations (Budget costs of $3,000.00 and 2 days work)
- Remove Vines various locations of the building (Budget costs $1,000.00 and 2 days work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 weeks work)
- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) (Budget $20,000.00 and 3 weeks work)
- Storage solutions upper area and exterior area at back of station (Shelving, etc) (Budget $20,000.00 and 3 weeks work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $5,000.00 and 3 days work)
- Misc repairs too many to list (Budget $20,000.00 and 4 weeks work)
- Concerns over Propane protection and gas filling station (Budget $30,000.00 and 4 weeks work)

What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested valve in over all budget)
- No Building Roof Inspection was completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of 130,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On

Request. Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
91 Exeter Drive
Ottawa, Ontario
K2J 1V6
(613) 323-4136
Green Earth Contracting

o/o by Curby’s Technical Inc.
91 Exeter Drive, Ottawa, Ontario
(613) 323-4136
curbytec1@gmail.com

August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Verona Station #3

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 10 years of age and is single storey steel building, exterior is clad in metal siding and brick. Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in good to better than good condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Addition and upgrade of washing facilities and various repairs (Washroom, Shower and Laundry) – Addition of new septic system may be needed due to increased flow (Budget $65,000.00 and 4 weeks work)
- Interior storage solutions Upper Area (Shelving etc) (Budget $2,000.00 and 3 days work) - Separation of electrical systems for any exposure to water and enclosure of panels (Budget $5,000.00 and 2 days work)
- Damaged Mechanical Systems (Budget $3,000.00 and 2 days work)

What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested valve in overall budget)
- No Building Roof Inspection was completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of $83,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On Request. Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
91 Exeter Drive
Ottawa, Ontario
K2J 1V6
(613) 323-4136
August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Portland District Station #4

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 25 years of age and is single storey steel “Butler” building, exterior is clad in metal siding with multiple additions of concrete blocks and various style of roof trusses. Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in fair to reasonable good condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Damage to metal soffit, fascia and eave troughs at various locations (Budget costs of $2,000.00 and 2 days work)
- Remove vegetation various locations of the building (Budget costs $1,000.00 and 2 days work)
- Major adjustments to the exterior grading adjacent to the building (Budget $35,000.00 and 3 weeks work)
- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) – Addition of new septic system may be needed due to increased flow (Budget $65,000.00 and 5 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $8,000.00 and 1 weeks work)
- Repairs to concrete slab (Floor is various Heights) (Budget $30,000.00 and 3 weeks work)
work)
- Adjustments to Overhead doors etc (Budget $2,000.00 and 3 days work)
- Various electrical and mechanical items (All small and to many to list) (Budget $10,000.00 and 2 weeks work)
- Open cistern in floor (covered adds much unneeded humidity to the building) (Budget unknown – work schedule unknown – more investigations might be needed)

What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested valve in overall budget)
- No Building Roof Inspection was completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of $180,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On Request. Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
91 Exeter Drive
Ottawa, Ontario
K2J 1V6
(613) 323-4136
August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Sydenham Station #5

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 25 years of age and is single storey steel “Butler” building, exterior is clad in metal siding. Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in good to better than good condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Wind damage to metal soffit, fascia and eave troughs by radio tower (Budget costs of $2,000.00 and 2 days work)
- Remove Vines various locations of the building (Budget costs $1,000.00 and 2 days work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 weeks work)
- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) – Addition of new septic system may be needed due to increased flow (Budget $55,000.00 and 4 weeks work)
- Interior storage solutions Upper Area (Shelving etc) (Budget $2,000.00 and 3 days work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $5,000.00 and 3 days work)
- Repair worn floor tiles on stairs to second level (Budget $500.00 and 1 days work)
What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested valve in over all budget)
- No Building Roof Inspection was completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of $85,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On Request. Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
91 Exeter Drive
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K2J 1V6
(613) 323-4136
Green Earth Contracting
o/o by Curby’s Technical Inc.
91 Exeter Drive, Ottawa, Ontario
(613) 323-4136
curbytec1@gmail.com

August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Perth Road Station #6

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 40 years of age and is single storey wood building, exterior is clad in metal siding with multiple additions and wood roof trusses (I am assuming it was a repair garage). Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in very condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Damage to metal soffit, fascia and eave troughs at various locations (Budget costs of $2,000.00 and 2 days work)
- Remove vegetation various locations of the building (Budget costs $2,000.00 and 3 days work)
- Major adjustments to the exterior grading adjacent to the building (Budget $35,000.00 and 3 weeks work)
- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) – Addition of new septic system may be needed due to increased flow (Budget $85,000.00 and 5 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $8,000.00 and 1 weeks work)
- Repairs to building for mold (Daylight visible in exterior wall at corner on main room) (Budget $180,000 and 6 months work)
- Various electrical and mechanical items (All small and to many to list) (Budget $50,000.00 and 6 weeks work)

What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested valve in over all budget)
- No Building Roof Inspection was completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of $400,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On

Request. Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
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August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Latimer Station #7

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 25 years of age and is single storey concrete block with wood trusses style structure, exterior is clad in metal siding. Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in fair to good condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Wind damage to metal soffit, fascia and eave troughs to various locations of the building (Budget costs of $3,000.00 and 1 week work)
- Some deteriorate cement block foundation located on the rear corner by the oil tank (Budget cost of $6,500.00 and 1 1/2 weeks work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 weeks work)
- Addition of washing facilities (Washroom, Shower and Laundry) – Addition of new septic system needed (Budget $60,000.00 and 4 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Adjustments to overhead door systems needed (Budget $1,500.00 and 1 days work)
- Structural reinforcement of cement block wall as door between fire truck bays (Budget $5,000.00 and 1 weeks work)
What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested valve in overall budget)
- No Building Roof Inspection was completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of $94,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On Request. Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
91 Exeter Drive
Ottawa, Ontario
K2J 1V6
(613) 323-4136
August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Sunbury Station #8

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 30 years of age and is multi storey steel and concrete building, exterior is clad in metal siding and brick (Township Yard Garage and Library Building). Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in good to better than good condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Addition and upgrade of washing facilities (Washroom, Shower and Laundry) – Addition of new septic system may be needed due to increased flow (Budget $25,000.00 and 4 weeks work)
- Interior storage solutions Upper Area (Shelving etc) (Budget $2,000.00 and 3 days work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $2,000.00 and 3 days work)

What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested value
in overall budget)
- No Building Roof Inspection was completed and this report does not make statements on any condition
- No assessment of Life Emergency Systems (Emergency Lighting and Smoke Detectors etc)

I would assign a working budget of $35,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On Request. Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
91 Exeter Drive
Ottawa, Ontario
K2J 1V6
(613) 323-4136
August 12, 2013

Emergency Management and Training Inc.
65 Cedar Pointe Drive, Suite 144
Barrie, Ontario
L4N 9R3

Re: Suggested List of Maintenance for South Frontenac Township – Fire Department – Burnt Hills Station #9

Attn: Lyle and Darryl,

After my site visit, I am pleased to offer options for consideration. I have based my budget on the following:

General Observations:
This building is approximately 35 years of age and is single storey concrete block with wood trusses style structure, exterior is clad in metal siding. Based on a general visual review of the structure and surrounding areas, that did not include any destructive investigation or testing; the building was found to be in fair condition.

The Following Areas Were Noted As Requiring Attention: (All Costs are plus H.S.T. and are approximate and include a possible construction period)
- Damage to metal soffit and fascia to various locations of the building (Budget costs of $2,000.00 and 1 weeks work)
- Some deteriorated cement block to the foundation located at various locations (Budget cost of $6,500.00 and 1 1/2 weeks work)
- Some adjustments to the exterior grading adjacent to the building (Budget $10,000.00 and 1 weeks work)
- Addition of washing facilities (Washroom, Shower and Laundry) – Addition of new septic system needed (Budget $80,000.00 and 4 weeks work)
- Interior storage solutions (Shelving etc) (Budget $1,000.00 and 2 days work)
- Separation of electrical systems for any exposure to water and enclosure of panels (Budget $2,000.00 and 1 weeks work)
- Removal of vegetation at various locations around building (Budget $10,000.00 and 2 weeks work)
- Concerns of propane tank protection (Budget $10,000.00 and 2 weeks work)
What was not included in review and budgets:
- BCIN and Structural review if required (available at additional cost)
- Destructive investigation to confirm existing building structure
- Bonding (available at additional costs if required)
- Professional Costs (Architects and Engineers and Building Permits, but suggested value in overall budget)

I would assign a working budget of $124,000.00 + H.S.T. to cover the cost professional fees, plans, permits and construction costs.

I thank you for the opportunity to provide quote to you on your project. If you have any questions, please feel free to contact me. I look forward for the opportunity to work with you in the future.

Client References Available On Request.

Warmest Regards,

Gregg Buscombe,
Project Manager / Proprietor
Green Earth Contracting (o/o by Curby’s Technical Inc.)
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K2J 1V6
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Appendix “B”

Response Time Maps
Map #1 – 10 Minute Response Zones
Demonstrates NFPA 10 Minute “Suburban” Response Recommendation
With Present Station Configuration
Map #2 – 10 Minute Response Zones

Demonstrates NFPA 10 Minute “Suburban” Response Recommendation

With Station 9 Moved to a Highway Location for Better Response Ability
Map #3 – 10 Minute Response Zones
Demonstrates NFPA 10 Minute “Suburban” Response Recommendation
With Station 9 Removed

South Frontenac Fire & Rescue
10 Minute Response
Station 9 Removed
Map #4 – 14 Minute Response Zones
Demonstrates NFPA 14 Minute “Rural” Response Recommendation
With Present Station Configuration

South Frontenac Fire & Rescue
14 Minute Response
Present Station Configuration

LEGEND
- Province
- Census Subdivision
- 2009 Incidents
- 2010 Incidents
- 2011 Incidents
- 2012 Incidents
- Station Locations

[Travel Time] (Minutes)
0.00 to 14.00
0 1.5 3 4.5
Miles
Map #5 – 14 Minute Response Zones

Demonstrates NFPA 14 Minute “Rural” Response Recommendation

With Station 9 Moved to a Highway Location for Better Response Ability
Map #6 – 14 Minute Response Zones

Demonstrates NFPA 14 Minute “Rural” Response Recommendation

With Station 9 Removed

South Frontenac Fire & Rescue
14 Minute Response
Station 9 Removed