

**Town of Lakeshore
Fire Master Plan
Final Report
June 2011**

Submitted To:
The Town of Lakeshore
Fire Department



07-8343

Submitted By:
Dillon Consulting Limited



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CONSULTING

June 22, 2011

Town of Lakeshore
Fire Department
419 Notre Dame Street
Belle River, ON NOR 1A0

Attention: Mr. Don Williamson, Fire Chief

Town of Lakeshore Fire Master Plan Report – Final Report

Dear Chief Williamson:

We are pleased to submit twenty (20) copies of our final report for the Town of Lakeshore Fire Master Plan. A digital copy will be provided via email. It has been a pleasure working with you and all of the fire department and other town staff involved in this project.

We hope this document serves you well in the years to come and we remain available to assist in anyway we can.

Yours truly,

DILLON CONSULTING LIMITED



Claudio Covelli, MA
Partner

SLC:ct

Encl.



235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

**Dillon Consulting
Limited**



EXECUTIVE SUMMARY

The Town of Lakeshore initiated this Fire Master Plan study to strategically guide its fire department through the next fifteen years of population and employment growth. The Fire Master Plan included a review of all aspects of the fire department to ensure that performance standards and guidelines reflect industry best practices and are in compliance with the *Ontario Fire Protection and Prevention Act (1997)*.

The overarching goal of this report is to gain a clear understanding of the fire department's existing and future needs and requirements by setting key objectives for it to evolve as the Town experiences growth. This is essential in order to meet the municipality's present and future needs in a fiscally responsible manner. The report includes many recommendations, some of which will require additional resources to implement. The intent of the plan is to describe the needs of the fire department and then suggest an implementation plan based on the current understanding of these needs and the municipality's growth. The plan has a degree of flexibility which allows it to be customized to the needs of the department over time, as the demands of municipal growth are experienced.

Dillon Consulting Limited carried out this Fire Master Plan in association with Mr. Bruce Griffin, a sub-consultant in the role of fleet specialist. The Town's Project Management Team included the Fire Chief, Deputy Fire Chief, Assistant Deputy Fire Chief and the Director of Community and Development Services. This team played a key role in directing the study and providing relevant data, reports and other background information.

As part of the study several interviews were conducted with Town staff, fire department staff and key stakeholders to gather background information. Stakeholder consultation activities were also held with the volunteer firefighters to gather feedback from these key stakeholders.

The Town of Lakeshore manages its fire department under the permission and requirements of the Province of Ontario. The most important legislation regarding fire protection services is the *Ontario Fire Protection and Prevention Act (FPPA)*, which was introduced in 1997. Other industry guidelines are set by the Office of the Fire Marshal Ontario, the *Emergency Management and Civil Protection Act, 1990* and the *National Fire Protection Association (NFPA)*. The main objectives of the Lakeshore Fire Department, based on the requirements of the FPPA, are:

- *to prevent fires through education of the public with regards to fire related risks;*
- *to enforce fire safety standards; and*
- *to respond to emergencies, including suppressing fires whenever they may occur.*

The Town of Lakeshore Fire Department management and administration is made up of five full-time administrative personnel: the Fire Chief, Deputy Chief of Operations, Assistant Deputy Chief of Fire Services, Fire Inspector and an Administrative Assistant. The Deputy Fire Chief is responsible for department operations while the Assistant Deputy Chief is responsible for fire prevention inspections and public education activities. The three senior management personnel are responsible for budget management, purchasing, facility and equipment maintenance programs in addition to numerous administrative responsibilities.

The Fire Chief reports through the Director of Community and Development Services to the Town's Chief Administrative Office (CAO) and Town of Lakeshore Council. The Chief is responsible for the management of approximately 105 staff and an annual budget of \$1.6 million.



Fire Suppression

Fire suppression operations of the Lakeshore Fire Department combine the challenges typical of a suburban town with those of more rural localities.

As identified in the *Fire Protection and Prevention Act* (FPPA), 1997, the Office of the Fire Marshal, Ontario (OFM) has the authority to issue guidelines to municipalities with respect to fire protection services and related matters. The guidelines are to be used by local municipalities to determine the level of fire protection services as it determines may be necessary in accordance with its needs and circumstances.

Performance measures for fire suppression response are typically measured in two parts:

- *First Response – getting the first crew on scene in an accepted time frame; and*
- *Depth of Response – assembling the appropriate crewing resources on scene to begin mitigation of the emergency in an accepted time frame.*

For analysis purposes within this Fire Master Plan, the municipality was assessed against the OFM 10-in-10 performance measure. This is the minimum response performance measure typically used for Ontario municipalities to benchmark against. For emergency response, the OFM 10-in-10 guideline recommends:

- *Minimum of 4 firefighters initially responding;*
- *Minimum of 10 firefighters within 10 minutes for fire attack team, choosing either aggressive interior fire suppression or rescue operations for 90% of reported fire emergencies; and*
- *Assembly of the 10 firefighters is calculated from the time the fire department receives the emergency alarm until that fire attack team has arrived at the emergency scene.*

In the Town of Lakeshore, responses to all reported structural fires consist of an automatic two station response. If the staffing is insufficient, a third station may be dispatched as well. Ten firefighters are generally able to respond to structural fires. However, they typically do not arrive within 10 minutes from the time of the emergency call.

A response coverage assessment was completed as an important part of the suppression review within the Fire Master Plan prepared for the municipality. Several different methods were employed to assess the department's response coverage capabilities for the existing conditions, as well as for projected future town and department scenarios. A review of historical call data was carried out to determine the department's success in meeting established response targets. The analysis was carried out using Network Analyst, a Geographic Information System (GIS) program developed specifically for assessing networks.

Included in the assessment of the historical call data for the department was a review of historical dispatch and assembly times for the volunteer firefighters. This data was then incorporated into the modelling exercise. A six-minute total for dispatch and assembly time combined was assumed for the volunteer force. This resulted in four minutes of available travel time within the 10 minute period of the OFM 10-in-10 performance measure. The four minute travel time was mapped as a "response polygon" to represent the coverage each volunteer firefighting crew can provide from each fire station.



For the staffing component of the performance measure, it was assumed (based on historical call data) that six volunteers would respond within the six minute dispatch and assembly time. From the modelled results, it is evident that the only area where the OFM 10-in-10 performance measure can be met using existing staffing is where the response polygons for two stations overlap. This only occurs in one small area of the municipality between Station 3 and Station 1.

The OFM 10-in-10 performance measure should be the target for the urbanized Station 1 and 3 coverage areas, while recognizing a reduced response for the rural areas.

Fire Prevention and Public Education

The Fire Prevention and Public Education Division is also influenced by the FPPA, as follows:

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

The Office of the Fire Marshal, Ontario describes the minimum requirement for a community fire safety program as including:

- *a smoke alarm program with home escape planning;*
- *the distribution of fire safety education material to residents/occupants;*
- *inspections upon complaint or when requested to assist with code compliance (including any necessary code enforcement); and*
- *a simplified risk assessment.*

Community Safety Program

The Lakeshore Fire Department carries out a successful fire prevention enforcement and public fire safety education program. The Town is meeting the minimum requirements of the FPPA through the distribution of fire safety education brochures, provision of a smoke alarm program and promotion of home escape planning. However, the FPPA emphasizes that other fire protection services should be provided as community needs and circumstances dictate.

The Lakeshore Fire Department ensures that risks identified in the community are addressed by targeting vulnerable population groups with a number of programs and activities. The department's public education program size and scope cannot expand beyond current levels based on the restricted capacity of the existing administrative staffing and on-call fire fighter resources.



Fire Inspection Program

The Fire Inspector and the Assistant Deputy Fire Chief are both certified to conduct inspections. Inspections are carried out based on the building's risk; the industrial buildings are the first priority, followed by schools and senior centres, among others. Inspections are conducted in conjunction with the Simplified Risk Assessment. As of early 2010, the department had conducted an inspection of almost every non-residential building (excluding outbuildings, such as barns) within the Town of Lakeshore at least once since 2006. This accomplishment almost completes the first full cycle of fire prevention inspections.

Limited pre-fire planning is currently completed by the department where practical. The resources and time have not yet been available to complete comprehensive pre-fire planning throughout the town. The department aims to improve the depth of pre-fire planning in the next level of fire prevention inspections and initiatives.

Emergency Services Provided

The Lakeshore Fire Department is a large volunteer service comprising of five full-time administrative staff, including one Fire Inspector and 100 on-call volunteer firefighters. The department services a geographically large municipality that is divided into five fire districts, each with an associated fire station and a complement of approximately 20 volunteer firefighters.

As with most municipal fire departments, the Lakeshore Fire Department assumes responsibilities for intervention in a number of emergency situations other than those that are fire-related. These include assistance to the Emergency Medical Service (EMS), automobile extrication, hazardous materials response, ice and water rescue along with other miscellaneous categories. The department responds to approximately 600 emergency calls per year.

In a growing community, such as Lakeshore, the need for emergency response services is expected to increase. Challenges related to an aging population, growth and intensification, new hazards, emergency medical demands, technological change, traffic, and other elements of growth are challenging the resources of the fire department.

Staffing Scenarios Considered

The results of the analysis for the existing department and a range of alternative station location and staffing scenarios are included in the Fire Master Plan report. The options assessed included:

- The addition of volunteer and scheduled volunteer firefighters;
- The addition of full-time training / fire prevention staff;
- The addition of full-time firefighters;
- The amalgamation of fire stations; and
- Combinations of the above.



Training

The Lakeshore Fire Department Training Committee is composed of one captain from each of the five fire stations and is chaired by the Deputy Chief. The training committee's primary responsibility is to provide training programs that meet the legislative requirements of the Ontario Fire Prevention and Protection Act (FPPA) and the Occupational Health and Safety Act of Ontario.

To accomplish training goals, the following activities are carried out by the fire department:

- *Development of training schedules for the fire suppression division;*
- *Development and delivery of specialized training programs;*
- *Management of medical training;*
- *Records management for personnel files;*
- *Preparation of classification exams and participation in the recruitment process;*
- *Reviewing and updating Standard Operating Guidelines (SOGs);*
- *Provision of officer training to meet succession goals; and*
- *Investigation of new equipment/technical request and delivery of associated training.*

Fleet

The Lakeshore Fire Department's fleet was reviewed in 2007. At that time the fleet was in a state of transition. The department has embarked on a replacement program since amalgamation, including an order of four apparatus with an add-on order of two additional apparatus. This has significantly improved the average years in service for the department's apparatus, allowed for the removal of some older apparatus from the fleet, and resulted in a relatively modern fleet of trucks. The fleet analysis, completed by the administration of the department, has resulted in the correct placement and sizing of vehicles to better suit the needs of the department moving into the future.

Dispatch

Emergency calls from the public are received at the Windsor Fire and Rescue Emergency Communications Services centre located in the City of Windsor. The current system for dispatching calls is meeting the needs of Lakeshore Fire Department. As growth occurs, both in Lakeshore and Windsor, as well as the surrounding municipalities, the demands on the dispatching service will increase. Lakeshore should continue to monitor and assess the service in coming years.



Summary

Recommendations for fire suppression, operations and fire stations resulted from the response coverage assessment and the associated results. Based on industry performance measures and best practices, it is recommended that Lakeshore Fire Department work toward the objective of staffing Station 3 with one crew of firefighters, 24 hours a day, seven days a week. This level of staffing will not likely achieve the OFM 10-in-10 performance measure, but it will significantly improve service levels within the municipality. It is recognized that this requires a significant increase in operating costs to hire 20 full-time firefighters, as well as the capital costs for equipment, station construction and station amenities; however, this option can be implemented in stages over a number of years. Staged increases in staffing resources would initiate improvements to the response capabilities of the department, while phasing the growth of the department to match the financial capabilities of the municipality.

Developing a phased implementation strategy will provide Lakeshore Fire with the resources to address current challenges, as well as the flexibility to adjust as the community grows and the requirements of service delivery change. Implementing the recommendations of the Fire Master Plan will ensure that the best practice for the staffing of front line vehicles is achieved in the short-term, while allowing the fire department to maintain the provision of adequate service to the expanding Town of Lakeshore.

The Fire Master Plan report presents a recommended timeline and ball-park cost estimates for the implementation of the major recommendations of the study.

The complete long term scenario would ideally consist of a new Station 1 located to the west of the existing Puce Station to provide coverage in future urban growth areas; conversion of Station 3 in Belle River to career to provide the industry best practice of four minute first response in part of the urban area¹ and an increase in the depth of response and increased coverage of rural area within 10 minutes. The career company allows for flexibility and an assured response in responding to calls and provides additional manpower depth on every call plus there are an additional 15 firefighters not on shift available to respond if called. This option requires greater investment in the short term, in order to renovate or rebuild Stations 1 and 3, however, in the long-term; this option is considered to be suitable and financially responsible in terms of municipal growth.

With the move to a career company in Station 3 (and the related assured response), consideration could be given to the closure of Station 4. This station currently experiences a limited volunteer response due to the surrounding area. As well, Station 4 responds to a limited amount of calls, which could in turn be serviced with the assured response from Station 3 and or some redistribution of the coverage area to other stations.

Implementing a new centralized headquarters station, and closing the existing Stations 1 and 3, is a feasible option. It provides short term cost savings with regard to fleet and volunteer complement staffing. For geographic coverage, a small two-bay station, equipped with one response vehicle, staffed with a full-time crew would be required to cover future growth areas. However, the present two station model (Station 1 and Station 3) is predicted to provide better response coverage of the urban areas and growth areas. The long term cost savings of the centralized station model would not be significantly greater than under the two station option.

¹ Urban areas are indicated on all response coverage maps for ease of reference. See **Sections 5.1.2** and **5.6.1**.



It needs to be emphasized that the implementation strategy can be tied to future growth, but commitment to the plan will ensure investments that are made are consistent with the long term vision for the department. Implementation of the elements of the plan should see incremental improvements in the ability to achieve the OFM 10-in-10 performance measure.



CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations are provided for each divisional review completed during the fire master planning process. The conclusions and recommendations listed below are a summary only. The full details of the analysis follow under the same headings and in the same sequence in the report.

Administration

Conclusions

- Lakeshore Fire Department participates in Essex County Mutual Aid Plan and Program. The Lakeshore Fire Chief is one of the key participants in the plan that provides for cross-municipality responses.
- The department is in the process of reviewing, updating and developing policies and procedures and standard operating guidelines.
- Lakeshore is currently meeting the requirements of the *Emergency Management and Civil Protection Act*.
- Future growth may require changes to station locations and staffing to meet industry best practices. This will require additional administrative and management resources.

Recommendations – Fire Administration

- Complete the administrative review initiative by assessing and selecting an appropriate records management software solution that meets the fire administrative requirements. Upon completion, bring forward recommendations for implementation.
- Review and update by-laws pertaining to the fire department, including those that still require introduction. The fire department should ensure that these by-laws are updated as needed.
- Continue the systematic review, development and revision of fire department operational guidelines.

Recommendations – Lakeshore Council

- Consider options to improve constrained office space at Headquarters station. Interim options should be considered to resolve space constraint issues currently facing the department, until new station facilities are provided as a permanent solution.
- Address workspace concerns as new facilities for the department are planned and built (e.g. station relocations or new stations). Headquarters is an aging structure and the current workspace will continue to be an issue if additional administrative or emergency management staff is hired over the coming years.
- That a non-fire department staff member be appointed as the alternate CEMC, to take on key tasks and be in the Emergency Operations Centre while fire department staff members are at the emergency site.



Fire Prevention and Public Education

Conclusions

- The Town is meeting the minimum requirements of the FPPA through the distribution of fire safety education brochures, provision of a smoke alarm program and promotion of home escape planning.
- Lakeshore Fire Department carries out a number of activities in Public Education, such as school visits, TAPP-C Arson Prevention Program for Children, open houses, Smoke Alarm Program and visits to Windsor/Essex County's Safety Village. In addition, the department has a fire safety trailer that is used during public education activities in schools and other locations for community events.
- As of early 2010, the department has conducted an inspection of almost every non-residential building (excluding outbuildings, such as barns) within the Town of Lakeshore at least once since 2006. This accomplishment completes the first full cycle of fire prevention inspections.
- Volunteer firefighters assist with the workload, as they deliver most of the public education programs.
- The department's public education program capabilities cannot expand beyond current levels due to restricted capacity of the existing administrative staffing and on -all fire fighter resources.

Recommendations – Fire Administration

- Continue process of updating the Simplified Risk Assessment to establish priorities, address demographic risks and develop an implementation plan for public education and fire prevention activities.
- Continue to assess the workload and time commitment required to carry out inspections. This has been improved with the addition of the Fire Inspector position, but will need to be continuously evaluated as the Town grows.
- Conduct annual presentations to seniors groups and clubs. Consider implementing organized programs such as Older and Wiser.
- Improve the tracking of public education activities and fire prevention inspections using the selected data management solution. Consider community risks, fire prevention and public education opportunities relating to the Town's seven marinas in the Simplified Risk Assessment.
- Continue the practice of having the volunteer firefighters actively involved in public education programs.
- Implement pre-fire planning of key buildings as time and resources allow.
- Continue the process of developing and approving policies for Fire Prevention and Public Education as one of the priorities of the department.



Recommendations – Town Council

- Consider additional administrative support for the Fire Prevention and Public Education Division. This would improve the staff resources available to improve and expand the public education and fire prevention coverage and would help to improve the frequency of which the scheduled inspections can be carried out.

Fire Suppression

Conclusions

- Fire suppression operations of the Lakeshore Fire Department combine the challenges typical of a suburban town with those of more rural localities.
- All known structural fire responses consist of an automatic two station response. If the staffing is insufficient, a third station may be dispatched as well. Ten firefighters are able to respond to structural fires just over half of the time with the initial two station response, but may not arrive within 10 minutes from the time of call, as prescribed by the OFM 10-in-10 guideline.
- The Chief, Deputy Chief and Assistant Deputy Chief provide an assured weekday suppression crew response that contributes staff towards meeting the OFM 10-in-10 performance measure.
- After regular office hours the Chief, Deputy Chief and Assistant Deputy Chief share the on-call responsibilities, which ensures at least one Chief Officer is always available as a resource and to monitor all calls.
- Typically two Chief Officers will respond directly to any structure fire. This leaves the third Chief Officer available for other call assignments, as required.

Recommendations – Lakeshore Council

- Adopt performance targets for the department. No current mandatory standard or legislative requirement exists for fire suppression performance measures in Ontario. Town Council should determine the level of service desired from the Lakeshore Fire Department. Policies should be developed to reflect these decisions and measure performance annually against performance targets. It is recommended that the OFM 10-in-10 performance measure be adopted as the performance target for the urbanized parts of the municipality. A reduced response can be targeted for rural areas.
- Target to have a minimum of four firefighters initially responding.
- Aim to reduce assembly times of suppression staff within the department.
- Continue the practice of the Chief, Deputy and Assistant Deputy taking their department vehicles home and rotating duties as the on-call Chief.
- Continue to place emphasis on firefighter safety, first response (four firefighters) and depth of response (10 firefighters in 10 minutes), in particular for more urbanized areas like Belle River.



- Consider staffing improvements to achieve a minimum of 10 firefighters within 10 minutes for either aggressive interior fire suppression or rescue operations 90% of the time. Currently, the number of firefighters typically responding within the ten minute window is less than the OFM guideline.
- Implement staffing recommendations over a number of years and time improvements to match growth in financial resources brought on by development growth. This could include working toward the objective of staffing Station 3 with one crew of firefighters, 24 hours a day, seven days a week as per industry performance measures and best practices.
- Council could also consider interim measures such as hiring an additional staff member for department training public education as these would help mitigate the inherent risks being adopted.

Training

Conclusions

- The National Fire Protection Association (NFPA) Training Standards and the Ontario Fire College Curriculum are used as the basis for core training.
- Every firefighter is registered in the Ontario Fire College Curriculum.
- WHMIS (Workplace Hazardous Materials Information System), CPR and defibrillator training is done every year.
- The department has established partnerships for joint training opportunities with local industry and agencies.
- The training division is currently in the process of updating their Standard Operating Guidelines (SOGs).
- The department is challenged with consistency in training delivery using multiple instructors to deliver the message at five different stations.
- Training facilities are located at each station. Training areas are adequate at all stations, excluding Station 1. Care must be taken to ensure that training space is secured as the fire department grows and demand for training increases.

Recommendations – Fire Administration

- Continue to follow OFM Firefighter Certification Program.
- Develop a policy which prioritizes the focus of specialized training programs towards the most probable events. Partnering opportunities should be investigated with adjacent municipalities to deliver specialized training.



- Identify crucial programs and develop a long range plan to deliver these programs. Such a plan would outline expected training levels, staffing requirements, records management needs and budget projections and consider future growth of the Town.
- Investigate opportunities for live fire training.

Recommendations – Lakeshore Council

- Consider one additional full time administrative assistant that could be shared between public education, fire prevention, training and emergency planning as an interim measure.
- Consider one full-time trainer / public educator that would develop and deliver all Lakeshore fire suppression training, including delivery of public education programs. This would provide one additional full-time fire administrative staff member available for emergency response, provide consistency in departmental training, provide capacity to enhance public education programs and prepare for the training needs of future full-time firefighters.
- Consider options to develop a central training facility or training sessions including cross training between stations.

Fleet Review

Conclusions

- The department's fleet replacement program has significantly improved the average years in service for the department's apparatus, allowed for the removal of some older apparatus from the fleet, and resulted in a relatively modern fleet of trucks. The fleet analysis, completed by the administration of the department, has resulted in the correct placement and sizing of vehicles across all stations to better suit the needs of the department moving into the future.
- A 15-year apparatus age is accepted in the industry as the service life of a front line vehicle, with up to five additional years of service as a reserve vehicle. The department generally follows these guidelines.
- The average age of the fleet was 17 years in 2007. The updated fleet now has an average age of 7.5 years.
- The fire apparatus fleet is maintained by the Windsor Fire and Rescue apparatus division. The fleet has an annual Certified Vehicle Operator's Registration (CVOR) as required by the Ministry of Transportation of Ontario (MTO).
- Regular in-house inspection and upkeep of the fleet is done by the firefighters.

Recommendations

The recommendations outlined below offer an opportunity to improve the overall condition of the fleet.

- Continue the planned fleet replacement program.



- Continue the practice of having the air quality in the fire department's breathing apparatus and compressor system checked twice per year.
- Continue the present small equipment budget at the current rate to allow for replacement of equipment that is older and/or out for repair.
- Continue the practice of maintenance being performed by Windsor Fire and Rescue Services mechanical shop, as they are well accustomed to and familiar with the specialized nature of fire apparatus.
- Replace the aerial ladder at Station 1. The aerial ladder response procedure should be regularly reviewed and revised as necessary as growth and development within Lakeshore continues.
- Rust proof the fire fleet. Each year the fleet should be inspected to check if reapplication is necessary.
- Continue the department's small vehicle replacement program as it is within acceptable standards of most municipalities. Monitor mileage and maintenance costs and alter the replacement program in place if a particular vehicle starts to have recurring problems.

Communication & Technology

Conclusions

- In 2005 Council approved the purchase of new radios for the Lakeshore Fire Department. This new system retains the town's current 400 MHz frequency. This ensures radio interoperability during joint exercises and major emergencies.

Recommendations

- Continue to monitor and assess the dispatch service provided as growth occurs in coming years.

The Fire Master Plan report includes the detailed methodology, analysis, results, findings, conclusions and recommendations summarized above. The report provides a detailed assessment of each division of the Lakeshore Fire Department as well as details of the public consultation activities held over the course of the study.

COLLECTIVE SUMMARY OF RECOMMENDATIONS FOR LAKESHORE COUNCIL

ADMINISTRATION

- Consider options to improve constrained office space at Headquarters station. Interim options should be considered to resolve space constraint issues currently facing the department, until new station facilities are provided as a permanent solution.
- Address workspace concerns as new facilities for the department are planned and built (e.g. station relocations or new stations). Headquarters is an aging structure and the current workspace will continue to be an issue if additional administrative or emergency management staff is hired over the coming years.



FIRE PREVENTION AND PUBLIC EDUCATION

- Consider additional administrative support for the Fire Prevention and Public Education division. This would improve the staff resources available to improve and expand the public education and fire prevention coverage and would help to improve the frequency of which the scheduled inspections can be carried out.

FIRE SUPPRESSION

- Adopt performance targets for the department. No current mandatory standard or legislative requirement exists for fire suppression performance measures in Ontario. Town Council should determine the level of service desired from the Lakeshore Fire Department. Policies should be developed to reflect these decisions and measure performance annually against performance targets. It is recommended that the OFM 10-in-10 performance measure be adopted as the performance target for the urbanized parts of the municipality. A reduced response can be targeted for rural areas.
- Target to have a minimum of four firefighters initially responding.
- Aim to reduce assembly times of suppression staff within the department.
- Continue the practice of the Chief, Deputy and Assistant Deputy taking their department vehicles home and rotating duties as the on-call Chief.
- Continue to place emphasis on firefighter safety, first response (four firefighters) and depth of response (10 firefighters in 10 minutes), in particular for more urbanized areas like Belle River.
- Consider staffing improvements to achieve a minimum of 10 firefighters within 10 minutes for either aggressive interior fire suppression or rescue operations 90% of the time. Currently, the number of firefighters typically responding within the ten minute window is less than the OFM guideline.
- Implement staffing recommendations over a number of years and time improvements to match growth in financial resources brought on by development growth. This could include working toward the objective of staffing Station 3 with one crew of firefighters, 24 hours a day, seven days a week as per industry performance measures and best practices.
- Council could also consider interim measures such as hiring an additional staff member for department training and public education as these would help mitigate the inherent risks being adopted.

TRAINING

- Consider one additional full time administrative assistant that could be shared between public education, fire prevention, training and emergency planning as an interim measure.



- Consider one full-time trainer / public educator that would develop and instruct all Lakeshore fire suppression personnel including delivery of public education programs. This would provide one additional available full-time fire administrative staff member for emergency response, provide consistency in departmental training, deliver of specialized public education programs and prepare for the training needs of future full-time firefighters.
- Consider options to develop a central training facility or training sessions including cross training between stations.



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1.0 INTRODUCTION

By initiating a Fire Master Plan study, the Town of Lakeshore seeks to strategically guide its fire department through the next fifteen years of population and employment growth. The Fire Master Plan included a review of all aspects of the fire department to ensure that performance standards and guidelines reflect best practices and are in compliance with the *Ontario Fire Protection and Prevention Act (1997)*.

The overarching goal of this report is to gain a clear understanding of the fire department's existing and future requirements by setting key objectives for it to develop and evolve as the Town experiences growth. The purpose of this is to meet the municipality's present and future needs in a fiscally responsible manner. The report includes many recommendations, some of which will require additional resources to implement. The intent of the plan is to describe the needs of the fire department and then suggest an implementation plan based on the current understanding of the department's needs and the municipality's growth.

The Lakeshore Fire Master Plan study includes an assessment of the following:

- Administration
- Fire prevention and public education
- Training and education
- Fire protection operational services and staffing
- Fleet and maintenance
- Technology and communications
- Future Departmental Needs Strategic Plan
- Financial implications

Dillon Consulting Limited carried out this Fire Master Plan in association with Mr. Bruce Griffin, a sub-consultant retained to fill the role of fleet specialist. As part of the fire master planning process, the study team conducted interviews with Town staff from the fire department, Community and Development Services Department and Town Council. Other relevant departments, such as Planning Services and Police Services were contacted to gather study background information. The study team also conducted stakeholder consultation activities with the volunteer firefighters to gather feedback from these key stakeholders.

The Town's Project Management Team included the Fire Chief, Deputy Fire Chief, Assistant Deputy Fire Chief and the Director of Community and Development Services. This team played a key role in directing the study and providing relevant data, reports and other background information. The reporting process involved presenting study findings and recommendations to the internal Project Management Team, Senior Town Staff Members and Town Council, to provide direction and insight at critical points in the study.



2.0 BACKGROUND

2.1 Lakeshore Fire Department

The main objectives of the Lakeshore Fire Department are to prevent fires, to educate the public with regards to fire related risks, to enforce fire safety standards and to respond to emergencies including fighting and suppressing fires whenever they may occur. These services are provided to the Town's 33,245² residents, its business community, as well as adjoining communities through various agreements.

The Lakeshore Fire Department employs 105 individuals within two divisions: Operations & Emergency Planning and Support Services. The Town's firefighters work from five stations located throughout the Town's sizeable 530 square kilometre area. In the northwest quadrant the Town of Lakeshore has experienced rapid growth recently, with a 15.7% growth in population from 2001 to 2006 which is well above the provincial (6.6%) and national (5.4%) averages. Current Town of Lakeshore growth projections estimate a 2011 population of 40,630 people, which is an approximate 22% increase in population over the last five years.

2.1.1 Department History

The Town of Lakeshore was established in 1999 as a product of the amalgamation of five former municipalities: Town of Belle River, Township of Maidstone, Township of Rochester, Township of Tilbury North and Township of Tilbury West. The five fire stations in Lakeshore were constructed before the 1999 amalgamation, and therefore were part of the former fire departments of Maidstone, Rochester, Belle River and Comber. As a result of this amalgamation, fire services were joined to form the Lakeshore Fire Department. A Fire Chief was appointed at the inception of the department, as well as an Administrative Assistant. In 2003, the current Fire Chief, Don Williamson, was hired as the Deputy Chief. In 2005 he transitioned to the role of Chief, following municipal restructuring. In 2005, a Fire Prevention Officer was hired. This position became the Assistant Deputy Chief position, to assist the Fire Chief with administrative duties prior to the replacement of the Deputy Chief position in April 2006. A Fire Inspector position was approved by Council towards the end of 2007, and the position started in 2008.

² Statistics Canada, 2006 census data



Since 2005, a large investment has been made to improve the department's fleet. An internal fleet analysis was conducted by the department's administration in 2006. This study considered many aspects of the fleet vehicles, including station assignments, life cycle replacement schedule, replacement values, apparatus types and apparatus roles (i.e. front line / reserve). The results of the study indicated that the average age of the fleet was 18.6 years. At the time of the study only two of the three rural stations had tanker capability. The study also revealed that the varying sizes and models of pumps within the department's fleet presented a challenge for cross-training suppression staff. As well, at the time of the fleet study, the department only had vehicle capacity to transport 54 of the 100 department firefighters. It was also noted that aging apparatus were experiencing significant downtime associated with maintenance. The opportunities and constraints identified within the fleet analysis led to the addition of four new Spartan Fire Pumper Engines, as well as two Spartan Fire Pumper / Tankers to the fleet in 2008. These new apparatus replaced a number of aged apparatus, which had surpassed the recommended service life. Some of the command vehicles were also recently replaced, including the Fire Chief's Vehicle (2009), the Fire Prevention Minivan (2007), the Support Pickup at Station 3 in Puce (2005) and the Assistant Deputy Chief's Minivan (2005). The new apparatus resulted in a standardization of the fleet, with six matching chassis, pumps and vehicle compartments. As well, the seating capacity of the fleet increased to 76 and the cost of the fleet decreased by approximately \$700,000 through vehicle selection that meets the needs of the Lakeshore Fire Department.

This recent evolution of the department has shown willingness on the part of Council and staff to provide the department with the resources and equipment necessary to fulfill its mandate. While the investments made were necessary, they may not fully address the long term needs of the municipality. Here again Council directed the completion of this fire master plan to address the overall strategic direction for the department to serve the future needs of the communities within the Town of Lakeshore.

2.2 Industry Guidelines

The Town of Lakeshore manages its fire department under the permission and requirements of the Province of Ontario. The most important legislation, as it pertains to fire protection services, is the Ontario *Fire Protection and Prevention Act* (FPPA) introduced in 1997. Other industry guidelines are set by the Office of the Fire Marshal Ontario and the *Emergency Management and Civil Protection Act, 1990*. These both fall under the jurisdiction of the Ministry of Community Safety and Correctional Services.

Under the Ministry of Labour's *Occupational Health and Safety Act*, Section 21 committees have been established to help improve health and safety in the workplace. One such committee has been working through issues related to firefighting. Guidance notes related specifically to firefighting have been produced to help meet existing health and safety requirements. This is an ongoing effort with new guidelines regularly being suggested for implementation in the areas of fire scene management, training, protective equipment and communication.

The National Fire Protection Association (NFPA) is an international industry association that aims to "reduce the worldwide burden of fire and other hazards on the quality of life" by providing and advocating consensus on codes and standards, research, training, and education. NFPA publications are commonly referenced in Canada when other guidelines or standards are not available.



2.3 Context

2.3.1 Population and Employment

The Lakeshore Fire Department operates its mandate within a unique region which is steadily expanding in population and related residential, commercial and employment development. The Fire Master Plan is a long-term planning document, developed for the 15-year municipal growth forecasts. The growth forecasts and population targets for the Town of Lakeshore may be slightly extended into the future, as a result of the 2008 to 2010 recession. Population and employment growth projections developed for the Town of Lakeshore’s new Official Plan are summarized in **Table 2.1 – Population and Employment Growth Projections**. These numbers predict that the population and number of households within Lakeshore will nearly double from 2006 to 2031. These projections also estimate that the numbers of jobs in the town will more than double from 2006 to 2031.

Table 2.1 – Population and Employment Growth Projections						
Year	2006	2011	2016	2021	2026	2031
Population	33,245	40,630	46,380	52,030	57,205	59,095
Household	11,630	14,135	16,135	18,110	19,935	21,560
Employment	9,930	12,750	15,780	18,080	20,565	21,325

Table 2.2- Population by Municipality and Population Change presents Lakeshore’s population compared to neighbouring communities based on the 2006 Statistics Canada census. This table also identifies the population change for each municipality over the past five years.

Table 2.2 - Population by Municipality & Population Change		
Municipality	Population	% Change (Last 5 Yrs)
Lakeshore	33,200	15.7
Windsor	216,500	3.4
Tecumseh	24,200	-0.3
LaSalle	27,600	9.4
Amherstburg	21,700	6.5
Essex	20,000	-0.3
Kingsville	20,900	6.6
Leamington	28,800	6.2

Source - Statistics Canada, 2006 Census



According to the *Town of Lakeshore Population, Household and Employment Forecast (2006)*, the Town is forecast to experience a strong population growth over the long-term period (2005-2031), ranging from approximately 52,000 (low growth scenario) to 71,000 (high growth scenario). Similarly, it is projected that the Town of Lakeshore's population will grow to 45,233 (medium growth scenario) by 2015³. This represents an average growth rate of 2.4% per year, which is more than double Essex County's forecast annual growth rate of 1.1%. Correspondingly, employment is expected to increase from 9,300 persons to 13,210 by 2016 and 20,945 by 2027⁴. The Town of Lakeshore's population growth is expected to occur largely due to strong net migration levels, originated by its proximity to the City of Windsor employment market.

An average of 383 housing units per year is expected to be constructed over the long-term period³. Similarly, the employment forecast provides a range of approximately 20,000 to 25,000 employees by 2031, which represents an increase from approximately 11,000 to 15,000 over the forecast period. It is estimated that more than 80% of the projected population and employment growth will be located in the Maidstone Urban Area (including the Wallace Woods future Expansion Area) and Belle River Urban Area. Moreover, residential expansion is also planned around the town centres of Stoney Point and Comber.

In terms of the long term land needs forecast, the Town of Lakeshore's key growth areas provide the minimum of 20 years residential land supply required by the Provincial Policy Statement. The exception is Maidstone, where the residentially designated lands are anticipated to be exhausted within approximately 17 years. In Maidstone's case, it will be required to add an additional 698 acres (282 ha) to the designated residential lands to accommodate the Town's long-term population forecast (based on the medium growth scenario).

Regarding the employment growth, it is projected that 33% of the growth forecast by 2031 will occur within the Maidstone Urban Area, while another 9% will occur in the Town's remaining key growth areas. During the preparation of the Town of Lakeshore's new Official Plan, a shortfall was identified in the current amount of designated employment areas. It was estimated that the town will exhaust its existing employment land supply by approximately 2014 - 2015. Consequently, the new Official Plan proposed to undertake an Employment Lands Strategy that will identify and designate the additional lands required to allocate the employment growth. The new employment areas are proposed for the Patillo/Advance area and Manning Road – West.

It is essential that the Lakeshore Fire Department be prepared to accommodate this expansion of both population and employment.

³ Town of Lakeshore Population, Household and Employment Forecast (2006)

⁴ Town of Lakeshore Official Plan (Final Draft, 002007)



2.3.2 Land Uses

In terms of Lakeshore land uses, the majority of the residential areas are located along the Lake St. Clair waterfront, with the exception of Comber and hamlets located along County Road 27. Similarly, the main concentration of commercial uses and services are along the County Road 22 corridor. There are two major employment areas under study to be located along the western portion of the Highway 401 corridor and north of Comber. The majority of the Town's lands are designated "agricultural", which consist entirely of prime agricultural lands. The community structure of the Town of Lakeshore is detailed in *Appendix A – Lakeshore Community Structure*.

2.4 Stakeholders

There are a variety of stakeholders within the regional landscape that have cooperation agreements, especially in regards to mutual aid and emergency preparedness. Fire service agreements are in place between the Town of Lakeshore Fire Department and the County of Essex lower-tier municipalities.

2.4.1 Fire Service Agreements

The Office of the Fire Marshal, Ontario developed a Mutual and Automatic Aid Plan and Program for Essex County, including the Town of Amherstburg, Town of Essex, Town of Kingsville, Town of Lakeshore, Municipality of Leamington, Town of LaSalle, Town of Tecumseh and the City of Windsor. The current agreement was issued in October 2005. Within this Mutual Aid Agreement, each municipality agrees to provide help during a major emergency, where the home fire department is committed and/or the situation cannot be contained or controlled with available resources. In addition, each participating municipality commits to activate the provincial response system, activate the automatic aid program, activate the hazardous material support response and activate specialized rescue support response. The Town of Lakeshore approved its participation under Bylaw 118-2005 which was passed December 13, 2005.

In addition, the Lakeshore Fire Department participates in aid agreements with the Municipality of Chatham-Kent (By-Law 77-2005 passed July 5, 2005) and the County of Essex Land Ambulance Division (By-Law 5-2007 passed January 9, 2007). Besides allowing firefighting and emergency response upon request, these agreements also give the legal authority to provide aid to the relevant municipalities.

2.5 Documentation and References

Recent studies and reports which relate to the fire department and its functions include:

- Five Year Master Plan – Lakeshore Fire Services (2002)
- Fire Department Vehicle Replacement Plan
- Lakeshore Fire Department Organizational Chart
- Mutual Automatic Aid Plan & Program (Essex County)



- Town of Lakeshore Growth Study (2006)
- Town of Lakeshore Development Charge Background Study (2005)
- Town of Lakeshore Emergency Response Plan (2006)
- Town of Lakeshore Population, Household and Employment Forecast (2006)
- Town of Lakeshore Fire Department, Simplified Risk Assessment (2006)
- Official Plan (2008)
- Lakeshore Fire Inspector Business Plan (2007)

These reports were provided by the Town of Lakeshore's Fire Department and were used as resources for this Fire Master Plan study.

Online References:

The following online references were also used as resources for this Fire Master Plan study.

- Town of Lakeshore's Bylaws Laser-fiche Web-link – Electronic Municipal Documents.
<http://www.lakeshore.ca/counciladministration/bylaws.asp>
- Emergency Management Ontario (2009).
<http://www.emergencymanagementontario.ca/english/residents/management/emo.html>
- Emergency Management and Civil Protection Act: Chapter E.9 (1990).
http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90e09_ev002.htm#BK36
- Emergency Management and Civil Protection Act: Ontario Regulation 380/04 (1990).
http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_040380_e.htm
- Statistics Canada 2006 Census.
<http://www.census2006.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>
- Town of Lakeshore Fire Department Website.
<http://www.lakeshore.ca/residentservices/fire.asp>



3.0 ADMINISTRATION

3.1 Overview

The Town of Lakeshore Fire Department management and administration is made up of five administrative personnel: the Fire Chief, Deputy Chief of Operations, Assistant Deputy Chief of Fire Services, Fire Inspector and an Administrative Assistant. The Deputy Fire Chief is responsible for department operations while the Assistant Deputy Chief is responsible for fire prevention inspections and public education activities. The three senior management personnel are responsible for budget management, purchasing, facility and equipment maintenance programs in addition to numerous administrative responsibilities.

The Fire Chief reports through the Director of Community and Development Services to the Town's Chief Administrative Office (CAO) and Town of Lakeshore Council. The administrative division includes one Administrative Assistant to the Fire Chief. The organization chart for the Lakeshore Fire Department is included in *Figure 3.1 – Lakeshore Fire Department Organizational Chart*.

The goals and objectives of the department administration include:

- Providing advice and direction to Lakeshore Town Council on fire protection and prevention/education requirements;
- Managing the levels of service, budgets, collective agreements and safety issues of the fire department;
- Managing the department's communication and dispatching services; and
- Providing input into provincial fire legislation, municipal by-laws and standards which affect the delivery of fire protection.

3.2 Current Analysis

Based on a review of past evaluations, feedback from members of Lakeshore Fire Department and a broad understanding of the administrative requirements of a fire department, the following elements have been noted for review.

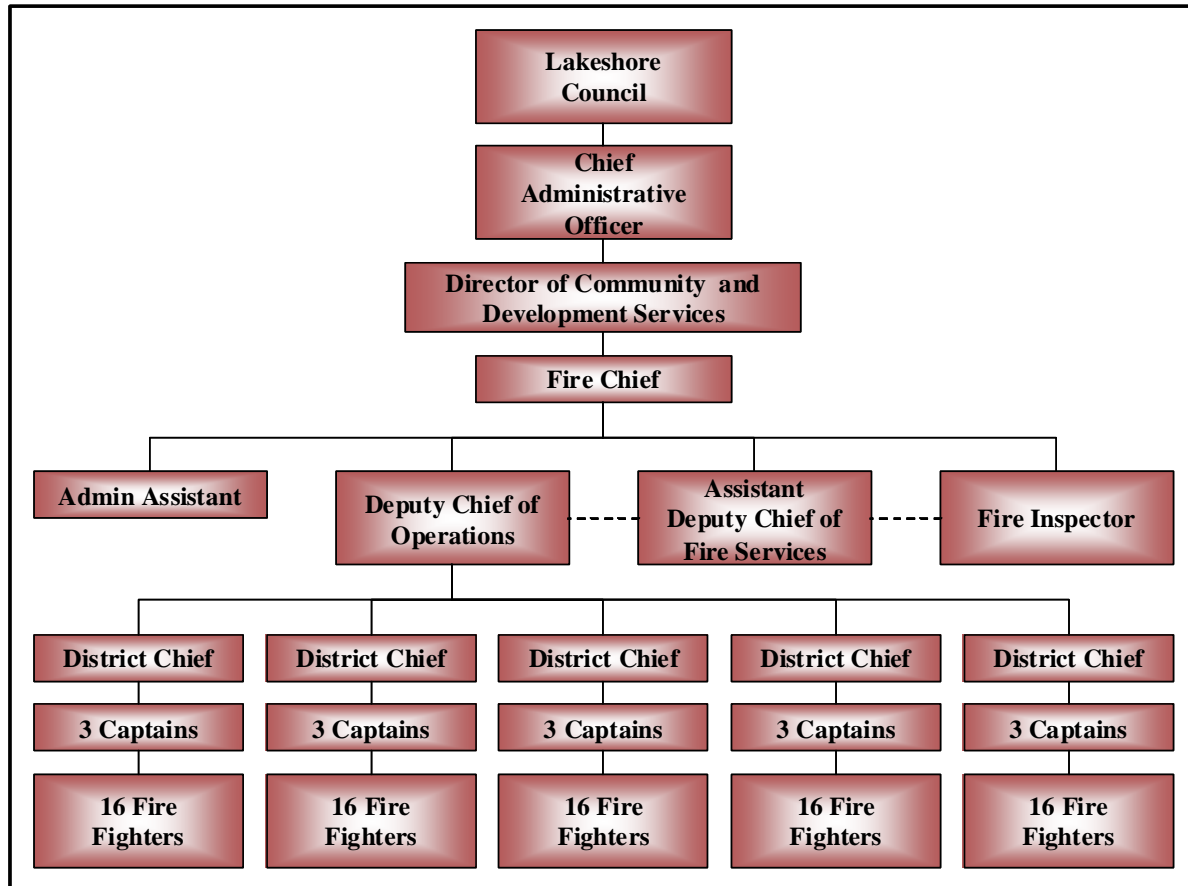
3.2.1 Staffing

The Lakeshore Fire Department is currently functioning with three non-union management employees: the Fire Chief, the Deputy Fire Chief and the Assistant Deputy Fire Chief. In addition, there are two unionized positions; a clerical support position and a recently hired Fire Inspector.



Each of the five stations' crews are divided into four groups that are supervised by a Captain or a District Chief, and each group is assigned one week per month of 'hall duty'. Hall duty consists of performing checks on all trucks for radio performance, equipment inventory and overall operation. As well, each station must complete a checklist for each piece of apparatus and report the results to headquarters on a weekly basis. Any problems requiring repair or replacement are dealt with by the Deputy Chief of Operations. Station maintenance is done on a needs basis.

Figure 3.1 – Lakeshore Fire Department Organizational Chart



3.2.2 Duties and Responsibilities

With an annual budget of \$1.6 million the Fire Chief is responsible for the management of approximately 105 staff, as outlined in *Figure 3.1 – Lakeshore Fire Department Organizational Chart*. The department responds to approximately 600 emergency calls per year.





Current administrative responsibilities include, among others, human resource issues (promotions, overtime, leave, hiring), purchasing, financial records management, department statistics management and correspondence. There are not enough staff resources to keep all administrative activities updated; the Chief and Deputy Chief have not enough time to handle all the administrative issues as well as study internal problems and start to correct them. The administrative support needs to be evaluated in the context of all administrative needs. An organizational structure with additional administrative staff would allow the management more time for budget management as well as strategic and long range planning.

At the onset of the Fire Master Plan study, a need for an administrative review of the department was identified. Since that time, the Fire Chief has progressed through the majority of the administrative review. The only remaining component of the review is to determine an appropriate records management software package for the department. The FirePro software package, currently being used as the department's records management software, was identified as an administrative constraint. The department is seeking a flexible and reliable records management software program which would best serve all divisions of Lakeshore Fire Department. Crisys Xpert Fire Systems Software is being assessed and considered for the department's records management program. This program is used by the department's dispatch provider (City of Windsor), and therefore call data could be easily integrated, saving clerical data entry time. The department still needs to ensure that the software is appropriate for the needs of the fire prevention, public education and training divisions. Completion of the administrative review, including the review of the records management system needs, may identify increased administrative needs and workload, either in the short term or at some point in the near future. The Fire Chief should bring forward the results of the administrative review and department requirements upon completion.

3.2.3 By-laws and Agreements

The Town of Lakeshore has a number of by-laws that pertain to the fire department. These include:

- By-Law 12-99 To Establish a Fire Department;
- By-Law 5-2009- To Appoint the Statutory Officers, and Enforce Personnel of the Corporation of the Town of Lakeshore and to Repeal By-Law 3-2005, 75-2005, 23-2006 and 54-2006 Respecting Previous Appointments;
- By-Law 121-99 To Adopt an Emergency Plan for the Corporation of the Town of Lakeshore;
- By-Law 114-2001 To Adopt a Policy and Fee Schedule Relating to Fire Department False Alarm Responses;
- By-Law 100-205 To Adopt an Emergency Plan and Program for the Town of Lakeshore;
- By-Law 118-205 Authorizing The Town of Lakeshore Fire Department to Participate in the County of Essex Mutual Aid Plan and Program;
- By-Law 5-2007 to Authorize the Execution of the Amended Medical Aid First Response Understanding Agreement; and



- By-Law 61-2010 to Regulate the Setting of Open Air Burning and Identify the Precautions Observed for such fires within the Town of Lakeshore.

The *Fire Department Establishing and Regulating* by-law should be regularly reviewed and revised as required. The appointment of the Fire Chief, Deputy Fire Chief and Assistant Deputy Chief is mandated in a *By-law to Appoint the Statutory Officers, and Enforce Personnel of the Corporation of the Town of Lakeshore*. The fire department should ensure that these by-laws are updated as needed (i.e. new staff positions added to the department).

The Lakeshore Fire Department participates in the Essex County Mutual Aid Plan and Program. The Lakeshore Fire Chief is one of the key participants in the plan that provides for cross-municipality responses. In addition to allowing firefighting and emergency response assistance upon request, it also provides the legal authority to provide aid in other municipalities.

To ensure that by-laws are compliant with the *Ontario Fire Protection and Prevention Act (FPPA) 1997* it is recommended that the Lakeshore Fire Department communicates with the Town of Lakeshore Legal Services and consults appropriate *Public Fire Safety Guidelines* from the Office of the Fire Marshal, Ontario (OFM). These guidelines provide key direction to municipalities with respect to fire protection. In the absence of other regulations, they represent the best available direction upon which fire departments in Ontario base their service.

The Tariff for Fees By-law (By-law Number 1-2010) was updated in 2010. Schedule “E” of the by-law lists the fees for fire services division activities, including Letters of Compliance, Fire Inspections and False Alarms.

3.2.4 Policies and Procedures

At the initiation of the Fire Master Plan study, many of the fire department’s operating guidelines, policies and procedures were either out of date or did not exist. Depending on the subject matter, this can be a management and/or occupational health and safety concern. Since 2007, many of the department operating guidelines have been developed and instituted, while others are in draft for approval and others are on a prioritized list awaiting development. Updated operating guidelines must be consistent with the *Office of the Fire Marshal’s Public Fire Safety Guidelines* and with the *Occupational Health and Safety Act Section 21 Guidance Notes*.

The process of updating and maintaining policies, operating guidelines and standard procedures for a fire department is very time consuming. In addition to subject matter expertise, it requires communication and consultation with internal and external stakeholders to ensure that legal, risk management, training and occupational health and safety requirements are met. The department’s Senior Staff are currently working to review and or create up-to-date standard operating guidelines (SOGs). This review should include, but not be limited to, a complete analysis of the current operating guidelines, policies and procedures for all department sections. Since the onset of the study, the department has progressed with the development and implementation of several SOGs. These efforts should continue in a strategic and steady manner to ensure the development of all required SOGs.

It is recommended the review of department policies and procedures continue in a systematic manner which reviews, develops, implements and maintains all department operating guidelines, policies and procedures. This system would outline an on-going process that ensures that the operating guidelines, policies and procedures are current and relevant to the meet the Town’s needs.



Once up-to-date the system can be centralized, or be assumed by each of the department areas (e.g. Administration, Training, Fire Prevention, Public Education) with each being responsible for ensuring that their respective operating guidelines, policies and procedures are up-to-date.

3.2.5 *Records Management*

A computer-based records management system is currently in use by the department. Using the Fire Pro Software, calls and inspections are tracked and recorded. However, the program is not being used to its full potential. A new records management software (RMS) program is being considered for the department. The records management software program selected by the department should be used to record the details of all responding incidents, as well as to track staff attendance to calls. This helps to automate the payroll process. Currently, attendance is tracked manually, which is time-consuming. It is therefore suggested that the payroll features of the new RMS be used.

Some data, such as training records, are recorded using spreadsheets. All records, such as this, are saved on a shared drive, where applicable. All digital information is backed-up on Municipal Servers. This is discussed further in **Section 8.0 Communication & Technology**.

3.2.6 *Administrative Workspace*

At present, the administration offices are located in Headquarters in Belle River (Station 3). The current offices in Headquarters are small, and storage space is very limited. The meeting room doubles as the training room and kitchen, creating very cramped conditions. With the addition of a full-time fire inspector, space has become even more limited. The department is considering converting one of the truck bays at Station 3 to an office. The bay is currently used by one of the department's pickup trucks. The pickup could alternatively be parked outside.

Headquarters is an aging structure and the current workspace will continue to be an issue, especially if additional administrative or emergency management staff is hired over the coming years. Workspace concerns should be addressed as new facilities for the department are planned and built (e.g. station relocations or new stations). Temporary considerations may be necessary to create more available office space at the existing stations. Interim options should be considered to resolve space constraint issues currently facing the department, until new station facilities are provided as a permanent solution.

3.2.7 *Fire Suppression Management*

As the Town grows, the fire department will want to consider different operating schemes to cover the territory as well as increased staff resources. The current department is a combination of the separate departments, as they were before amalgamation. This set-up is difficult to administer and may be partially redundant in the rural areas. The department has considered combining or reducing the number of stations.

The Fire Underwriters Survey (FUS) completed a fire insurance classification grading for the Town of Lakeshore in November 2010. The FUS evaluation of the Town's Public Fire Protection Classification (PFPC) indicated a betterment of classification related to significant improvements made to the fire department in recent years. This is largely a result of the efforts of the Administration Division to improve the fire protection services provided by the Lakeshore Fire Department.



3.2.8 Lakeshore Emergency Management

All municipalities are required to have an emergency management program. The *Emergency Management and Civil Protection Act* and its supporting *Ontario Regulation 380/04* are the legislated documents that describe the requirements for municipal emergency planning. Emergency Management Ontario provides emergency management planning support to municipalities through advice, assistance, guidelines, training and other tools.

Under the *Emergency Management and Civil Protection Act*, the Solicitor General has authority to make regulations, setting standards for the development, implementation and maintenance of emergency management programs required by communities. It is the responsibility of every municipality, minister of the Crown and designated agency, board, commission and other branches of government to ensure that their respective emergency management plans conform to the standards set within the Act. The Act also requires every municipality to adopt the emergency management program by by-law.

Emergency Management Ontario (EMO) has developed a core emergency program, with elements focused on supporting emergency preparedness and response activities. The program requires designating an emergency management coordinator (EMC), having a written emergency response plan and forming a program committee. Part II of *Ontario Regulation 380/04* lays out the Municipal Standards for emergency management. There are six main standards, relating to:

- Emergency Management Program Co-ordinator;
- Emergency Management Program Committee;
- Municipal Emergency Control Group;
- Emergency Operations Centre;
- Emergency Information Officer; and
- Emergency Response Plan.

With the introduction of the *Emergency Management and Civil Protection Act*, the Deputy Chief of Operations and the Fire Chief have both been assigned the role of Emergency Management Program Co-ordinator (EMPC). This requires on-going involvement in maintaining, testing and training of the emergency response plan, as well as mandatory *Emergency Management and Civil Protection Act* (EMA) requirements. The Deputy Chief is meant to devote approximately 20% of his time to emergency planning. However, as the Town Council has assigned the fire department to carry-out the entire emergency management plan for Lakeshore, a smaller proportion of his time is currently being used for these tasks.



There is a lack of available time and resources to review and update the Emergency Management Program that currently exists. To ensure that there is a successful emergency management program, it is necessary to either assign an employee to the sole function of emergency management, or distribute the recurring tasks of training, testing, practice exercises, public awareness, evacuation procedures, schedule maintenance, agency coordination and regular program reviews to a number of staff to ensure that the Town of Lakeshore is fulfilling its requirements under the *Act*. It is also recommended that a non-fire department staff member be appointed as the alternate CEMC, to take on key tasks and be in the Emergency Operations Centre while fire department staff members are at the emergency site.

3.2.9 *Emergency Plan*

The emergency plan is designed in a generic fashion which allows it to respond to situations that are unexpected and require a coordinated response and recovery. The plan is based on a hazard identification and risk assessment (HIRA), which is a required component under the *Emergency Management and Civil Protection Act*. The plan is described within By-law 100-205 “*To Adopt an Emergency Plan and Program for the Town of Lakeshore*”.

At the present time the Town of Lakeshore has an emergency management program and is meeting the requirements of the *Emergency Management and Civil Protection Act*. The department should continue to ensure that an acceptable level of emergency management exists and future legislated requirements are thoroughly developed, implemented and maintained.

3.2.10 *Fire Department Management*

Workload for the fire department management staff currently exceeds capacity and strategic initiatives are not being addressed. Some of the significant demands that must be planned include staffing, continuation of the administrative review and implementing records management capabilities within the department. The fire department should re-assess workload and responsibilities for all senior positions once activities related to growth are fully underway (e.g. relocation/construction of new stations and hiring of new staff).

3.3 Summary of Conclusions and Recommendations

3.3.1 *Conclusions*

1. Lakeshore Fire Department participates in Essex County Mutual Aid Plan and Program. The Lakeshore Fire Chief is one of the key participants in the plan that provides for cross-municipality responses.
2. The department is in the process of reviewing, updating and developing policies and procedures and standard operating guidelines.
3. Lakeshore is currently meeting the requirements of the *Emergency Management and Civil Protection Act*.
4. That a non-fire department staff member be appointed as the alternate CEMC, to take on key tasks and be in the Emergency Operations Centre while fire department staff members are at the emergency site.



5. Future growth may require changes to station locations and staffing to meet industry best practices. This will require additional administrative and management resources.

3.3.2 Recommendations

1. Complete the administrative review initiative by assessing and selecting an appropriate records management software solution and administrative staff requirements. Upon completion, bring forward recommendations for implementation.
2. Increase data management capabilities using the selected records management software solution, to be determined by the department. In addition to recording the details of all responding incidents, the program is able to keep track of staff attendance to calls. This helps to automate the payroll process. Currently, attendance is tracked manually, which is time-consuming. It is therefore suggested that the payroll features of the selected RMS be used.
3. Review and update by-laws pertaining to the fire department, including those that still require introduction. The fire department should ensure that these by-laws are updated as needed.
4. Communicate with the Town of Lakeshore Legal Services and consult appropriate Public Fire Safety Guidelines from the Office of the Fire Marshal of Ontario (OFM) to ensure that by-laws are compliant with the Ontario Fire Protection and Prevention Act (FPPA) 1997.
5. Continue the systematic review, development and revision of Standard Operating Guidelines, policies and procedures for all department sections. The department's progress in developing and implementing SOGs should continue in a strategic manner to ensure that all operating guidelines, policies and procedures are up-to-date and implemented on a priority basis.
6. Consider options to improve constrained office space at Headquarters station. Interim options should be considered to resolve space constraint issues currently facing the department, until new station facilities are provided as a permanent solution.
7. Address workspace concerns as new facilities for the department are planned and built (e.g. station relocations or new stations). Headquarters is an aging structure and the current workspace will continue to be an issue if additional administrative or emergency management staff is hired over the coming years.

Re-assess workload and responsibilities for all senior positions once activities related to growth are fully underway (e.g. relocation/construction of new stations and hiring of new staff).

4.0 FIRE PREVENTION AND PUBLIC EDUCATION

Over the past few years important changes have occurred within the fire service industry in Ontario. The biggest change for fire prevention and public education was the introduction of legislation in 1997: the Fire Protection and Prevention Act (FPPA). Under the FPPA:

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

The Office of the Fire Marshal, Ontario describes the minimum requirement for a community fire safety program as including:

- a smoke alarm program with home escape planning;
- the distribution of fire safety education material to residents/occupants;
- inspections upon complaint or when requested to assist with code compliance (including any necessary code enforcement); and
- a simplified risk assessment.

The Lakeshore Fire Department carries out a successful fire prevention enforcement and public fire safety education program. The Town is meeting the minimum requirements of the FPPA through the distribution of fire safety education brochures, provision of a smoke alarm program and promotion of home escape planning. However, the FPPA emphasizes that other fire protection services should be provided as the community needs and circumstances dictate.

The Lakeshore Fire Department ensures that risks identified in the community are addressed by targeting vulnerable population groups with the following programs and activities:

- Windsor and Essex County Children's Safety Village
- Lakeshore Fire Safety Trailer
- TAPP-C (The Arson Prevention Program for Children)
- Older and Wiser Program
- Smoke Alarm Program
- "Learn not to Burn Program" during the Annual Fire Prevention Week
- Fire Prevention Inspections
- Fire Extinguisher Training



- Presence at Community Events

In July 2006, the Lakeshore Fire Department completed the Office of the Fire Marshal Ontario’s Simplified Risk Assessment. This assessment provides background information to create a community fire profile (e.g. demographic outline, building stock analysis and fire loss and injury statistics). Once a community fire profile is created, the fire department can establish its priorities and develop an implementation plan. The fire department annually reviews and updates the Simplified Risk Assessment for the Town of Lakeshore, as required by the Office of the Fire Marshal Ontario.

According to the 2006 census data from Statistics Canada, the median income of all private households in 2005 in Lakeshore was \$81,556, which was higher than the provincial average of \$60,455. According to the Municipal Study 2006, completed by BMA Management Consulting Inc., the estimated average Lakeshore household income was \$90,400 in 2006. Population density was reported at 62.7 persons per square kilometre, and the average value of an owned dwelling in Lakeshore in 2006 was estimated to be \$270,371, which is lower than the provincial average of \$297,479. Out of a total of 11,630 dwellings, census 2006 tables show that 92% are owned and 8% are rented, which is higher than the provincial average of 71% ownership. Further, 53% of all dwellings were built prior to 1986, which is 16% lower than the provincial average. In addition, it is forecasted that Lakeshore residents will be constructing an average of approximately 383 housing units per year from 2005 to 2035⁵.

In terms of community profile, **Table 4.1 – Community Age Profile** compares Lakeshore’s age characteristics with provincial averages. The vulnerable populations are children less than 15 years of age and seniors 65 years of age and older. In Lakeshore, the proportion of children under the age of 15 is 3% higher than the provincial average, while the senior population is 4% lower. The median age is 37.5 years, which is slightly lower than the provincial average, 39 years.

Table 4.1 - Community Age Profile				
Age Characteristics of the Population	Lakeshore		Ontario	
	Total	% Total	Total	% Total
Total - All persons	33,245	100%	12,160,285	100%
Age 0-4	2,160	6.5%	670,770	5.5%
Age 5-14	4,990	15.0%	1,540,035	12.7%
Age 15-19	2,435	7.3%	833,115	6.9%
Age 20-24	1,810	5.4%	797,255	6.6%

⁵ Town of Lakeshore Population, Household and Employment Forecast (2006)





Table 4.1 - Community Age Profile				
Age Characteristics of the Population	Lakeshore		Ontario	
	Total	% Total	Total	% Total
Age 25-44	9,570	28.8%	3,452,055	28.4%
Age 45-54	5,265	15.8%	1,861,370	15.3%
Age 55-64	3,800	11.4%	1,356,515	11.2%
Age 65-74	1,910	5.7%	868,190	7.1%
Age 75-84	1,040	3.1%	589,180	4.8%
Age 85 and over	285	0.9%	191,810	1.6%
Median age of the population	37.5	–	39.0	–
% of the population ages 14 and under	–	21.5%	–	18.2%
% of the population ages 65 and over	–	9.7%	–	13.6%

Source - Statistics Canada, 2006 Census

The population growth forecast for the Town of Lakeshore, in terms of population age structure, indicates that the percentage of children (0-18) and young adults (19-29) are forecast to decline from 28% to 17% and from 13% to 7% respectively, from 2001 to 2031⁶. Conversely, the percentage of empty nesters between 55-64 and seniors (age 65+) are forecast to increase considerably during the forecast period from 9% to 16% and 9% to 18% respectively. In absolute numbers, the Town's empty nesters and seniors are projected to increase by a total of 7,761 and 8,540 respectively.

These forecast trends have a major relevance in the planning of public education and fire prevention activities, since more efforts are going to be needed to create programs focused on seniors and empty nesters. Addressing demographic risks through public education becomes an important component of any municipal fire service.

⁶ Ibid



4.1 Public Education Programs

The Town of Lakeshore’s Fire Public Education needs are designed and supervised by the Assistant Deputy Chief while volunteer firefighters run the programs. Public education and fire prevention are considered to be a community’s first line of defence within the Ontario Fire Safety and Protection Model.

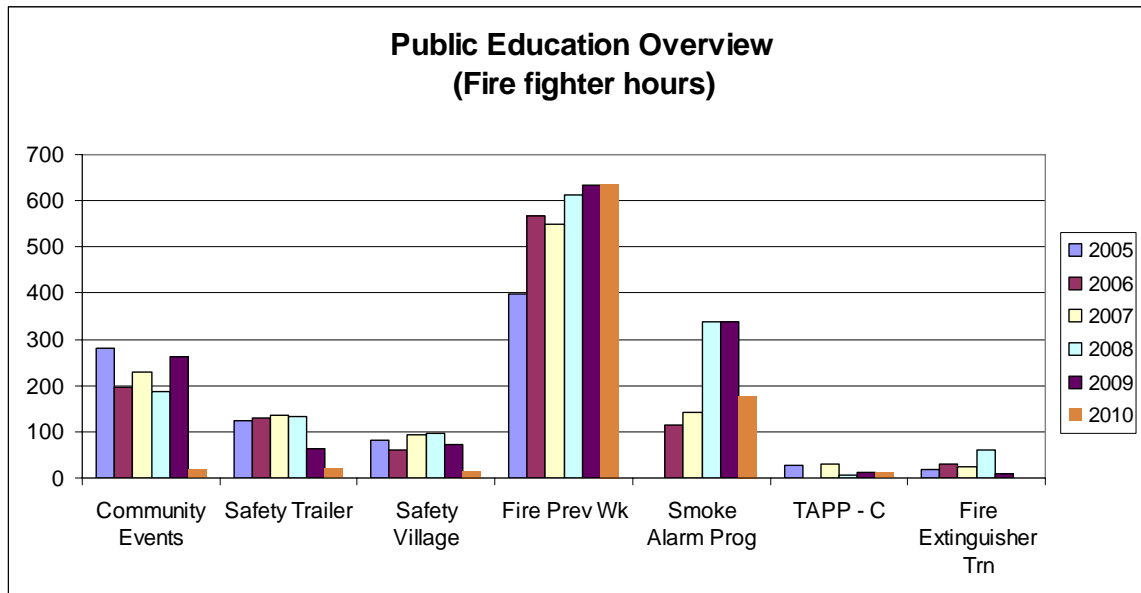
*Current programs and activities delivered by the Lakeshore Fire Department are listed in **Table 4.2 – Public Education Activities**. This table also summarizes the time commitment, provided by the volunteer firefighters, for public education activities. Lakeshore Fire Department carries out a number of activities in Public Education, such as school visits, TAPP-C (The Arson Prevention Program for Children), open houses, Smoke Alarm Program and visits to Windsor/Essex County’s Safety Village. In addition, the department has a fire safety trailer that is used during the public education activities in schools and other locations for community events.*

Figure 4.1 – Public Education Hours by Program Type shows the breakdown of hours per program. The greatest time commitment for public education occurs during Fire Prevention Week, but there is also significant effort for the Fire Safety Trailer, Smoke Alarm Program and other community events.

Table 4.2 – Public Education Activities						
Activity	Time Commitment (Hrs)					
	2005	2006	2007	2008	2009	2010
Community Events	280	196	229	186	261	86
Safety Trailer	123	131	136	133	62	100
Safety Village	81	62	94	98	71	16
Fire Prevention Week	399	568	550	612	634	637
Smoke Alarm Program	0	116	142	337	338	178
TAPP-C	27	0	31	7	13	13
Fire Extinguisher Training	18	30	25	60	8	50
Total Time Committed	928	1103	1207	1433	1386	1079



Figure 4.1 – Public Education Hours by Program Type



Fire safety education programs have great value in reducing the loss of life and burn injuries. For the most part these programs are delivered at the school level and become life-long behaviours, further enhancing the goal of fire safe homes and communities.

The Lakeshore Fire Department initiated a five year Smoke Alarm Program in 2007. The goal of the program was to conduct door-to-door visits of all high risk residential units (mobile homes, residences in remote areas and multi-unit residential facilities) to check for smoke alarm compliance. A group of volunteer firefighters were trained on proper etiquette and procedures to conduct the visits and inspections. **Figure 4.2 – Smoke Alarm Program Results (2007-2010)** summarizes the results of the first four years of the program. Overall, the results indicate a 67% compliance rate. The smoke alarm program checked to ensure that smoke alarms were installed on every level of residential units, installed outside sleeping areas and had working batteries. The deficiencies noted during the program are summarized in **Figure 4.3 – Smoke Alarm Deficiency Analysis**.



Figure 4.2 – Smoke Alarm Program Results (2007-2010)

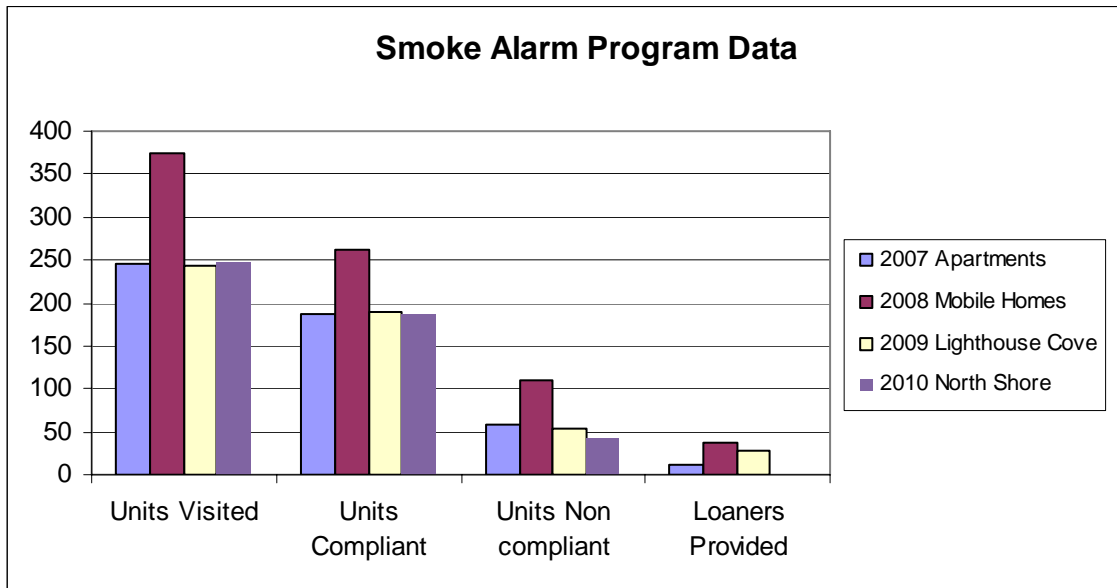
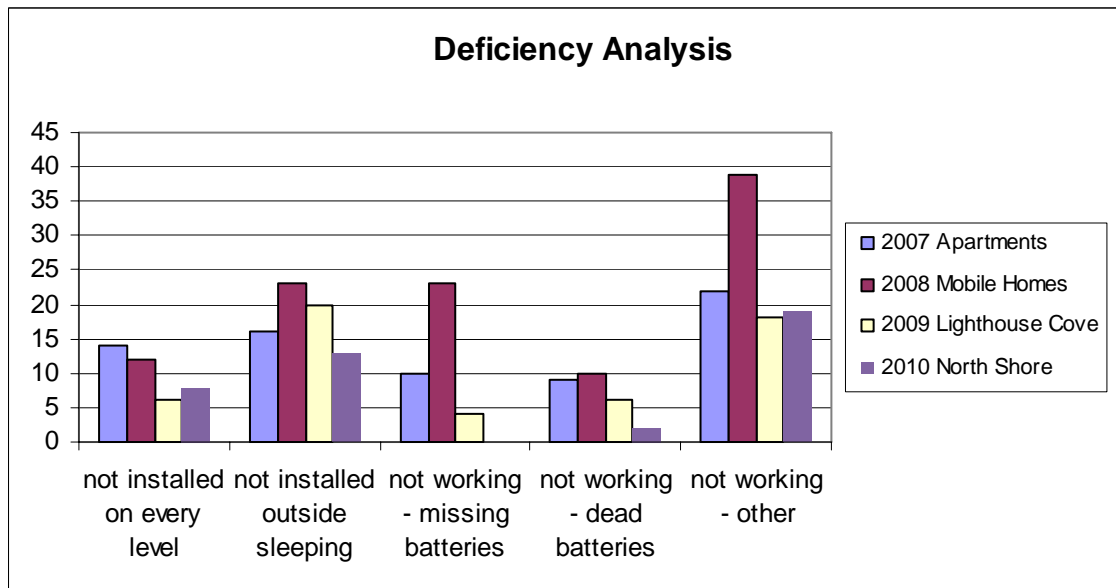


Figure 4.3 – Smoke Alarm Deficiency Analysis





4.1.1 Fire Prevention and Public Education Priorities

Lakeshore Fire Department is committed to improving and expanding their programs and activities, but is limited by financial resources and available paid on-call firefighter resources. **Table 4.3 - Priority Setting Worksheet** summarizes the department's priorities in terms of fire prevention and public education.

While the department currently has programs in place to convey safety information to children and seniors, a large percentage of the population, those aged 15 to 64, does not have a program in place. As outlined in the Simplified Risk Assessment, it is essential that the department plan and implement a program to convey fire safety awareness to this segment of the population. Additional public fire safety information should continue to be conveyed by way of school visits, use of the fire safety trailer at community events, by including flyers in water bills, and by advertising in local newspapers. In order to provide additional programs more resources are required. This could be accomplished by adding a full-time trainer / public educator that would develop and deliver all Lakeshore fire suppression training as well as the delivery of public education programs.

The Fire Inspector and the Assistant Deputy Fire Chief are both certified to conduct inspections. Inspections are carried out based on the building's risk; the industrial buildings are the first priority, followed by schools, and senior centres, among others. Inspections are conducted in conjunction with the Simplified Risk Assessment. Currently there are five F1 occupancies identified within Lakeshore. The Town has a large industrial base, mostly with automotive assembly and parts processing plants. As of early 2010, the department has conducted an inspection of almost every non-residential building (excluding outbuildings, such as barns) within the Town of Lakeshore at least once since 2006. This accomplishment completes the first full cycle of fire prevention inspections. The summary of inspections completed by the department during the past four years is shown in **Figure 4.4 – Summary of Inspections by Occupancy**.

One of the biggest issues in the past has been the large time commitment that carrying out building inspections requires. This put a large strain on the staff. In 2006, only 64 inspections were conducted out of the 445 buildings identified as priority in the Simplified Risk Assessment. To address this low inspection rate and to comply with the department's goals, Town Council approved the hiring of a new full-time inspector in 2007. The fire inspector, who started with the department at the start of 2008, has improved available time for the other staff members to carry out their duties. This position was also instrumental in completing the first full cycle of fire prevention inspections.

Limited pre-fire planning is currently completed by the department where practical. The resources and time have not yet been available to complete comprehensive pre-fire planning throughout the town. Pre-fire planning is a time consuming process. It provides a firefighting plan for a given location that takes into account building construction type, gas and hydro locations and shut-offs, closest water supplies and available flows, fire truck placement, alarm systems, chemical storage, hazards and predicted water, equipment and staffing requirements. It requires inspections, time to develop the plan and resources to make the information available to the fire response units. The department aims to improve the depth of pre-fire planning in the next level of fire prevention inspections and initiatives. Adding fire prevention staff, or freeing up the time of current prevention staff resources (as a result of enhanced administrative support) could assist in this initiative.



Table 4.3 - Priority Setting Worksheet

Priority	Status	Effectiveness, Goals/Objectives			
Fire Safety Priority <i>(In order of Priority)</i>	Current fire prevention / public education programs that address the fire safety priority	Do existing programs adequately address the fire safety priority & ensure compliance with minimum FPPA requirements?			
		If No, how should this change?			
	Fire Prevention (Inspection) Activities	Public Education Activities	Y/N	Fire Prevention (Inspection) Activities	Public Education Activities
1) Children	Day Care Inspections done by request or complaint School Inspections done by request or complaint	<ul style="list-style-type: none"> • Learn not to Burn - Annual Fire Prevention Week • School Visits - Windsor and Essex County Children’s Safety Village • TAPP-C 	Y	Inspect Day care facilities annually Inspect Schools annually	TAPP-C arson prevention Fire Safety Trailer Fire Dept. presence in Safety Village
2) Seniors	Inspection of care facilities (Homes for the Aged, and Nursing Homes) done annually	Old and Wiser Program	Y		Presentations to seniors groups/ seniors clubs Older and Wiser



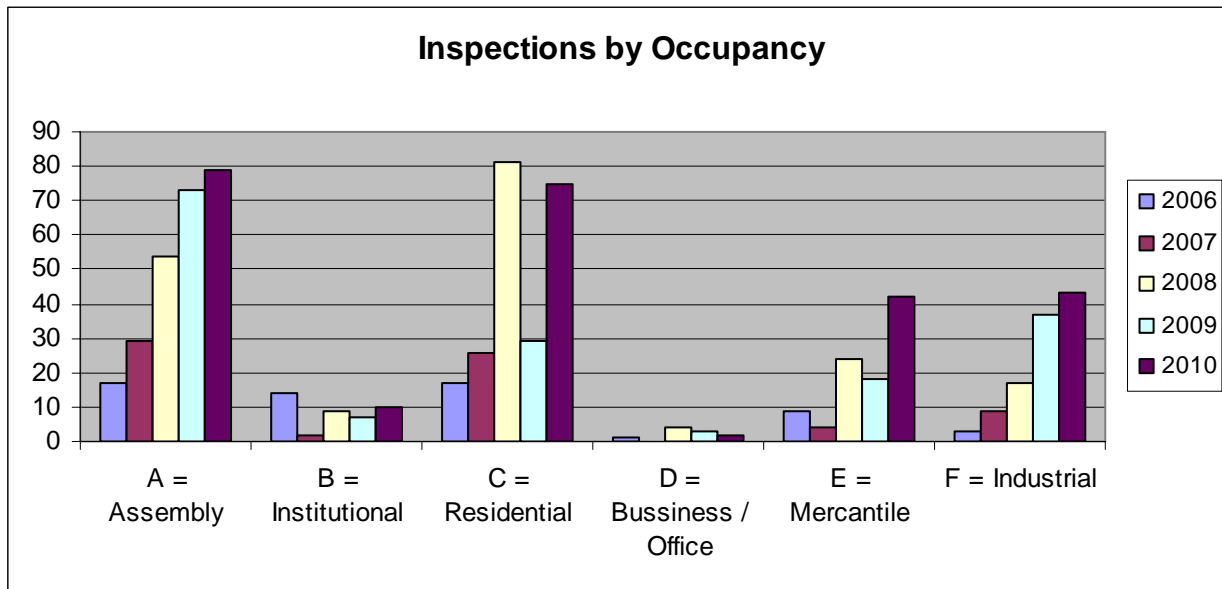


Table 4.3 - Priority Setting Worksheet

Priority	Status	Effectiveness, Goals/Objectives			
Fire Safety Priority <i>(In order of Priority)</i>	Current fire prevention / public education programs that address the fire safety priority		Do existing programs adequately address the fire safety priority & ensure compliance with minimum FPPA requirements?		
			If No, how should this change?		
	Fire Prevention (Inspection) Activities	Public Education Activities	Y/N	Fire Prevention (Inspection) Activities	Public Education Activities
3) All Residents	Inspection of New Construction Inspections by complaint/request Plans Examination Fire Code and By-law enforcement Burning Permits	Learn not to Burn - Annual Fire Prevention Week Smoke Alarm Program Public event displays School visits Special events	Y	Basement apartments	Rural public education campaigns'
4) Industry	Inspections by complaint/request	Smoke Alarm Program	Y	Inspect industrial sites proactively on a schedule	
5) Businesses	Business Inspections by complaint/request	Smoke Alarm Program	Y		



Figure 4.4 – Summary of Inspections by Occupancy



The department could improve the data management and tracking of public education and fire prevention programs delivery. The selection of a new data management program should consider this initiative. This improved record keeping could potentially aid in the budget allocation process and provide more reasonable future estimates of time and staffing requirements for fire prevention and public education.

Population trends should continue to be monitored by the department so efforts continue to be tailored to suit community needs. The current profile indicates that programs should be concentrated toward children; given that their proportion within the community exceeds the provincial average and that they are a vulnerable group in society. The TAPP-C Arson Prevention Program for Children is one example of a targeted public education program, and the department completed seven TAPP-C educational activities during 2007.

The seniors' population is also vulnerable and these risks are currently not being addressed as well as they could. Many municipalities use the Older and Wiser program as well as presentations to senior groups and senior clubs to address this demographic. Lakeshore Fire Department personnel do conduct inspections of senior's facilities on an annual basis.

The Town of Lakeshore serves sail and power boat operators along its 40 kilometres of waterfront, through seven marinas, which accommodate a significant number of boats. Harbours present different challenges to the fire department which are not currently addressed through fire prevention or fire suppression initiatives. In the summer months, harbours house hundreds of boats with values that can exceed the million-dollar mark. On site amenities allow boat passengers to spend the night on their boats, adding life risk to the mix of property risk within harbours. Adding to the complexity of these properties are on-site fuelling and the use of dry docks for winter storage of boats. Though situated on the waterfront, access to useable water sources is often problematic at harbours. This should be considered as the department expands resources and services with future growth of the Town.



4.2 Property Fire Loss in Lakeshore

While the ultimate goal of fire prevention and education is to reduce fire deaths and injuries to zero, that is not always possible. The aim of completely eliminating property loss may also not be attainable, but can be minimized. Offices of the Fire Marshal, Ontario statistics indicate that Lakeshore’s fire losses generally correspond to the provincial averages. A summary of total historic reported fire losses is shown in **Table 4.4 - Historic Fire Loss Summary**, and **Table 4.5 - Historic Fire Loss Summary by Occupancy Type** breaks the fire loss, in dollars, down by type of fire.

Year	Fire Loss (\$CAD)
2003	1,480,200
2004	1,008,600
2005	1,112,000,
2006	8,234,800*
2007	1,442,200
2008	1,780,800
2009	2,781,600
2010	1,632,800

***Industrial Plastics Plant (Quality Models Inc.) fire in July 2006, accounts for approximately \$6 million of 2006 fire loss amount.**

Dollar Loss by Type	Assembly	Business	Mercantile	Industrial	Institutional	Residential	Misc.	Vehicles
2001	\$200	\$ -	\$5,000	\$21,400	\$14,000	\$313,200	\$138,600	\$ -
2002	\$ -	\$ -	\$ -	\$30,000	\$ -	\$679,200	\$12,100	\$ -
2003	\$1,000	\$ -	\$5,000	\$20,000	\$ -	\$576,700	\$235,200	\$ -
2004	\$380,400	\$1,500	\$ -	\$63,600	\$ -	\$422,150	\$37,000	\$ -
2005	\$5,000	\$ -	\$10,000	\$127,000	\$100	\$247,370	\$483,000	\$ -
2006	\$ -	\$ -	\$51,700	\$7,000,800	\$ -	\$551,800	\$125,000	\$505,500
2007	\$700	\$20,000	\$ -	\$ 20,000	\$ -	\$1,719,200	\$352,900	\$402,300
2008	\$ -	\$ -	\$500	\$11,00	\$ -	\$1,955,300	\$61,000	\$37,300
2009	\$4,500	\$ -	\$50	\$550,000	\$ -	\$2,193,800	\$30,700	\$253,800
2010	\$ -	\$50,000	\$ -	\$211,000	\$ -	\$1,589,500	\$195,400	\$308,900

Notes: 1. Categories and definitions of fire types have been revised by the OFM in 2008.
 2. Dollar amounts rounded to the nearest hundred.



Table 4.6 – Breakdown of Historic Fires by Occupancy Type shows the historic breakdown of fires, by property type, for the years 2006 to 2010 for the Town of Lakeshore, compared with statistics from the Office of the Fire Marshal, Ontario for 2005 to 2009 fire loss in the Province of Ontario. Fires, by property type, within the Town of Lakeshore are comparable to the provincial averages.

Table 4.6 – Breakdown of Historic Fires by Occupancy Type		
Property Type	Lakeshore Fires (2006-2010) %	Province Fires¹ (2005-2009) %
Assembly	4	4
Industrial	5	5
Institutional	3	1
Mercantile / Business & Personal Services	2	4
Residential	48	43
Non Classified	23	15
Vehicles	15	28
Total	100	100

1. Source: Office of the Fire Marshal, Ontario Website, Fire Loss in Ontario 2005 to 2009, extracted in April 2011

Table 4.7 – 2010 Incident Responses by Occupancy Type shows the breakdown of incident responses from 2010, within the Town of Lakeshore. Residential occupancy calls account for almost half of all incident responses for 2010.

Table 4.7 – 2010 Incident Responses by Occupancy Type		
Property Type	# of Incident Responses	% Breakdown
Assembly	13	2
Business / Personal Service	5	1
Industrial	29	5
Institutional	19	3
Mercantile	4	1
Miscellaneous	188	23
Residential	261	48
Vehicles	23	15
Total	542	100%



4.3 Staffing

One of the issues affecting the enhancement of fire prevention and public education activities is limited staff resources. This was greatly improved by the addition of the fire inspector position in 2008. However, the Assistant Deputy Chief is in charge of the fire prevention responsibilities, including some inspections, as well as Public Education activities. Volunteer firefighters assist with the workload, as they deliver the public education programs. There is no administrative assistance dedicated to the fire prevention and public education activities. Therefore the Assistant Deputy Chief is in charge of many clerical duties, such as record keeping, monitoring, filing and report typing. In addition, inspection activities also include working with the Planning and Building Departments to meet the Building Code (Bill 124) requirements for plans examination.

Prior to the addition of the fire inspector, the workload issue was compounded by the increase of inspection services required to comply with new legislation and continued rapid growth in the Town of Lakeshore. At the previous staffing levels, the department was only able to complete inspections on a reactionary basis when complaints are received or inspections requested. With the addition of a full time fire inspector, and with the Assistant Deputy Chief still available to conduct some inspections, the department is now able to follow scheduled inspections of key occupancies such as nursing homes, retirement homes, senior apartments, large occupancy facilities, public halls and long-term care facilities. Increasing administrative support for the fire prevention and public education services would help to improve the frequency of which the scheduled inspections can be carried out.

The staffing shortage has been improved for the existing conditions with the new Fire Inspector. However, more inspectors will be needed if the building stock keeps growing according to the projections from the Town of Lakeshore population forecast (2006).

Consideration should be given to the addition of a full-time trainer / public educator position. As well as developing and delivering all Lakeshore fire suppression training, this person would develop and deliver public education programs. Enhancing the public education programs delivered by Lakeshore Fire Department provides a level of service to the areas of the Town in which meeting suppression response performance targets is currently a challenge. This would provide one additional full-time fire administrative staff member available for emergency response, provide consistency in departmental training, provide capacity to enhance public education programs and prepare for the training needs of future full-time firefighters.

Table 4.8 – Municipal Comparison of Department Staffing was prepared using statistics from the Municipal Fire Loss Profiles, September 2008, prepared by the Office of the Fire Marshal Ontario, and from the municipal websites of the peers listed. A combination of full time and composite (i.e. combination of full time and part-time/volunteer suppression staff) fire departments has been included.



Table 4.8 - Municipal Comparison Of Department Staffing

City	Population (2006 Census)	Staffing	Geographic Area of Municipality (Sq. km)	Fire Prevention Staff
Lakeshore	33,245	Composite	530	2
Tecumseh	24,225	Part time	120	1
Essex	20,032	Composite	278	1
Kingsville	20,908	Composite	247	1
LaSalle	25,285	Composite	64	1
Leamington	28,833	Composite	262	2
City	Population (2006 Census)	Staffing	Geographic Area of Municipality (Sq. km)	Fire Prevention Staff
Bradford West Gwillimbury	24,039	Composite	201	1
Innisfil	31,175	Composite	284	3
Georgina	42,346	Composite	288	3
Stratford	30,461	Full Time	27	2

Lakeshore has two staff members who perform fire prevention duties (one mostly dedicated) and it appears to be appropriately staffed for its size today. The fire inspector position has allowed the department to perform the minimum requirements under the FPPA and improve inspection targets. Additional staff to support improving the public education programs would be the next step, as the department and Town grow.

Fire Safety Plans are comprehensive fire / emergency documents developed by identified occupancy types and approved by the fire department as required under section 2.8 of the Fire Code. The department has recently implemented a 'proactive' program to ensure compliance in addition to completing inspections where a complaint is filed. The inspection program assigns inspection frequencies for various occupancy types based on risk. There are new regulations being introduced or recently put into effect for the inspection of hotels, retrofit requirements under Part 9 of the Fire Code, smoke alarm enforcement and new codes dealing with flammable and combustible liquids. It will be important for the Assistant Deputy Chief and the Fire Inspector to acquire the necessary training and then develop a proactive plan to meet these requirements. Once again, if administrative support was added for fire prevention and public education, more time would be available for the senior staff to achieve these goals.



Fire loss statistics and data management methods could be improved and kept up to date. Benefit could be gained from the use of software tools to link cause of fire determination reports with fire loss statistics and track inspection and re-inspection reports and timelines. This should be addressed with the new records management software implementation.

4.3.1 Training

The department currently uses a combination of records management software (Fire Pro), spreadsheets and paperwork to document and monitor on an on-going basis the completion of the training requirements and certification levels of their fire prevention staff. Twenty firefighters have been trained to perform smoke alarm inspections, and there is one staff member trained in the TAPP-C program. The Assistant Deputy Chief and the Fire Inspector have both completed the Inspector Certification.

A considerable amount of time and resources is required for new inspectors to attend and complete certification courses. As the department grows and evolves, a training policy should be developed. This should include objectives for new staff, which adopt specific training requirements in order to establish consistency. As noted earlier, the development of guidelines and procedures will assist in this regard.

4.4 Policies and Procedures

It was identified in 2007 by the Office of the Fire Marshal, Ontario Municipal Fire Protection Information Survey (MFPIS) and interviews with the Lakeshore Fire Department staff, that there were no approved departmental policies for fire prevention, public education or fire cause determination. The department is in the process of developing and approving policies for Fire Prevention and Public Education. The use of OFM Fire Prevention Effectiveness Model – PFSG 04-39-12 and related guidelines will aid in their development and will formalize the department’s responsibilities with respect to fire prevention. The following Standard Operating Guidelines (SOGs) relating to fire prevention have been developed to date:

- Fire Safety Inspections
- Daytime Open Burning Complaints
- Smoke Alarm Inspections
- Smoke Alarm Program
- Lawyer Requests
- Issuance
- Open Burn Regulation
- Conducting Fire Prevention Inspections (draft)
- Fire Prevention Enforcement (draft)



The department should develop Public Education SOGs, with specific goals and objectives identified. These SOGs should be developed as part of the overall strategic development and implementation of policies and procedures currently underway.

When the current Fire Services Establishing and Regulating By-law is reviewed, it should include the above noted policies. The lack of available or up-to-date operating guidelines, policies and/or procedures can impact the delivery of key messages to both the community in general and vulnerable populations. The department should continue its efforts regarding the policy and procedure review process.

4.5 Summary of Conclusions and Recommendations

4.5.1 Conclusions

1. The Town is meeting the minimum requirements of the FPPA through the distribution of fire safety education brochures, provision of a smoke alarm program and promotion of home escape planning.
2. Lakeshore Fire Department carries out a number of activities in Public Education, such as school visits, TAPP-C Arson Prevention Program for Children, open houses, Smoke Alarm Program and visits to Windsor/Essex County's Safety Village. In addition, the department has a fire safety trailer that is used during public education activities in schools and other locations for community events.
3. The Smoke Alarm Program initiated in 2007 has been successful. A compliance rate of 67% has been observed during the first three years of the program.
4. The department's public education programs cannot expand beyond current levels based on the restricted existing capacity of administrative staffing and on-call fire fighter resources.
5. As of early 2010, the department has conducted an inspection of almost every non-residential building (excluding outbuildings, such as barns) within the Town of Lakeshore at least once since 2006. This accomplishment completes the first full cycle of fire prevention inspections.
6. The addition of the Fire Inspector position was instrumental in working towards the completion of the first full cycle of fire prevention inspections.
7. Volunteer firefighters assist with the workload, as they deliver the public education programs.
8. Lakeshore has two staff that perform fire prevention duties and it appears to be appropriately staffed for its size today.
9. The department has implemented an inspection program with frequencies assigned based on risk.



4.5.2 Recommendations

1. Continue process of updating Simplified Risk Assessment to establish priorities, address demographic risks and develop an implementation plan for public education and fire prevention activities. Additional public fire safety information should continue to be conveyed by way of school visits, use of the fire safety trailer at community events, by including flyers in water bills, and by advertising in local newspapers.
2. Assess on an ongoing basis the workload and time commitment required to carry out inspections. This has been improved with the addition of the Fire Inspector position, but will need to be continuously evaluated as the Town grows.
3. Conduct annual presentations to seniors groups and clubs. Consider implementing organized programs such as Older and Wiser.
4. Improve the tracking of public education activities and fire prevention inspections using the selected data management solution. This improved record keeping could potentially aid in the budget allocation process and provide more reasonable future estimates of time and staffing requirements for fire prevention and public education.
5. Consider risks and prevention and education opportunities relating to the Town's seven marinas in the Simplified Risk Assessment.
6. Continue the practice of having the volunteer firefighters actively involved in public education programs.
7. Consider additional administrative support for the division. This would improve the staff resources available to improve and expand the public education and fire prevention coverage and would help to improve the frequency of which the scheduled inspections can be carried out.
8. Consider one full-time trainer / public educator that would develop and deliver all Lakeshore fire suppression training, including delivery of public education programs. This would provide one additional full-time fire administrative staff member available for emergency response, provide consistency in departmental training, provide capacity to enhance public education programs and prepare for the training needs of future full-time firefighters.
9. Implement pre-fire planning of key buildings as time and resources allow.
10. Improve the use of the department's data management software solution to track fire loss statistics and keep data up to date. The software tools can link cause of fire determination reports with fire loss statistics and track inspection and re-inspection reports and timelines.
11. Manage fire prevention and public education staff training records using the selected data management software. As well, the department should develop a training policy for future growth of the department that includes objectives for new staff and adopts specific training requirements in order to establish consistency.
12. Continue the process of developing and approving policies for Fire Prevention and Public Education as one of the priorities of the department.
13. Assess space/storage limitations in current facility and investigate options for improvement.



5.0 FIRE SUPPRESSION DIVISION

5.1 Current Status

The Town of Lakeshore Fire Department consists of 105 staff, all of which are suppression (emergency response) staff with the exception of the administrative assistant. As with most municipal fire departments, the Lakeshore Fire Department assumes responsibilities for intervention in a number of emergency situations other than those that are fire-related. These include assistance to the Emergency Medical Service (EMS), automobile extrication, hazardous materials problems, ice water rescue and other miscellaneous categories.

In a rapidly growing community the need for these services is expected to increase. Challenges related to an aging population, growth and intensification, new hazards, emergency medical demands, technological change, traffic, and other elements of growth are challenging the resources of the department.

5.1.1 Fire Suppression Staffing

The Lakeshore Fire Department is a volunteer service comprising of four full-time administrative staff, one Fire Inspector and 100 on-call volunteer firefighters. The latter is comprised of five response complements, one per station. The suppression force provides the responders for fire and non-fire incidents. For the purpose of this report, a fire *company* is defined as one group of firefighters. Each station has a district chief assigned to it as well as three captains and 16 firefighters.

In Lakeshore, normal staffing consists of four firefighters per vehicle most of the time. This staffing is the four per vehicle staffing that would typically be expected. This is comparable to volunteer / composite front-line vehicle staffing levels in other adjacent municipalities (e.g. LaSalle, Tecumseh,). When resources are dispatched to potentially serious incidents more trucks and equipment are sent than would commonly be required, in order to increase the staffing levels responding to the call. The Lakeshore Fire Department staffing is shown in *Table 5.1 – Lakeshore Fire Department Staffing*.

Chief and Deputy Chief	2
Assistant Deputy Chief	1
Administrative Assistant	1
Fire Inspector	1
Suppression (Volunteer)	100
Total Staffing:	105



5.1.2 Fire Stations

The fire department operates from five fire stations distributed across the Town. The locations of the stations are shown in **Figure 5.1 – Existing Station Locations**. The organization of fire apparatus by station is as shown in – **Current Stations and Apparatus**. This figure also distinguishes the urban areas (shaded dark grey) from the rural areas (not shaded) within the Town of Lakeshore. The Town's stations are operated by volunteer firefighters, providing first response capabilities on an on-call basis.

Station 1 located in Puce, is facing severe space constraints. Its three apparatus bays are quite small and barely hold the present vehicles. The meeting area in the station is the largest of all five stations; however, the room is shared with community groups which prevent it from being set up as a proper training facility. Since this station is quite old, closing it and rebuilding it is recommended.

Station 3 located in Belle River, houses headquarters for management in a two-storey structure with three apparatus bays. The offices are currently beyond capacity. The training room on the second floor doubles as meeting room and lunch room. While the three bays are adequately sized consideration has been given to taking over one of the bays to house additional office and meeting space. If the offices of department administration and management moved, the existing station could function adequately until a more permanent solution was found. Accommodating additional personnel in its current configuration is not possible.

Stations 2, 4 and 5 are located in the rural areas of Old Maidstone, Ruscom and Comber, respectively. All of these stations are of an adequate size for the present deployment conditions.

Station 2 contains two double length bays with an office and meeting room. It has recently undergone some minor rehabilitation work. This included the replacement of florescent lighting in truck bays and offices with new high-efficiency fixtures as well as the replacement of outdoor light fixtures. The windows in the District Chief's office and training rooms were replaced with new vinyl windows. As well, the exterior block walls in the District Chief's office and training rooms had an inner wall constructed with drywall and insulation.

Station 4 has three apparatus bays and a small, but adequate, training room. It is located quite far from most built-up developments in Lakeshore, resulting in a long drive for volunteers and a slow response time. Recent repairs to Station 4 have included the replacement of florescent lighting in truck bays and offices with new high-efficiency fixtures, complete with motion sensor activation. Outdoor light fixtures were also upgraded. Ceramic flooring was installed in the washrooms and radio room. These rooms were also painted. Stalls in the female washroom were upgraded from wooden to metal. An addition was constructed on the north side of the building to accommodate an air bottle filling room, allowing the air bottle compressor to be moved from the truck floor to make room for the new fire trucks purchased in 2008. Minor repairs were completed on the roof, but the life cycle replacement schedule is planned within the next five years.

Station 5 contains three adequately sized apparatus bays and a large office and training area. Over the last couple of years significant renovations were completed to modernize Station 5. The renovations included a new roof, HVAC installation, cement driveway improvement, exterior painting, interior wall replacement, insulation improvement, wiring updates, flooring improvements and cabinetry installations.



Training facilities are located at each station. Training areas are adequate at all stations, excluding Station 1. Care must be taken to ensure that training space is secured as the fire department grows and demand for training increases.

Table 5.2– Current Stations and Apparatus		
Station	Station Location	Apparatus
1	1031 County Rd 22 Puce	Aerial Engine Rescue
2	Lakeshore Road 203 Old Maidstone	Engine Engine/Tanker
3	592 St. Charles Street Belle River	Engine Engine/Rescue Support Pickup
4	Belle River Ruscom	Engine Spare Engine Tanker
5	6400 Main Street Comber	Engine Support Pickup Tanker
HQ	592 St. Charles Street Belle River	Chief Vehicle Deputy Chief Vehicle Assistant Deputy Chief Minivan Fire Prevention Minivan Public Education Fire Safety Trailer

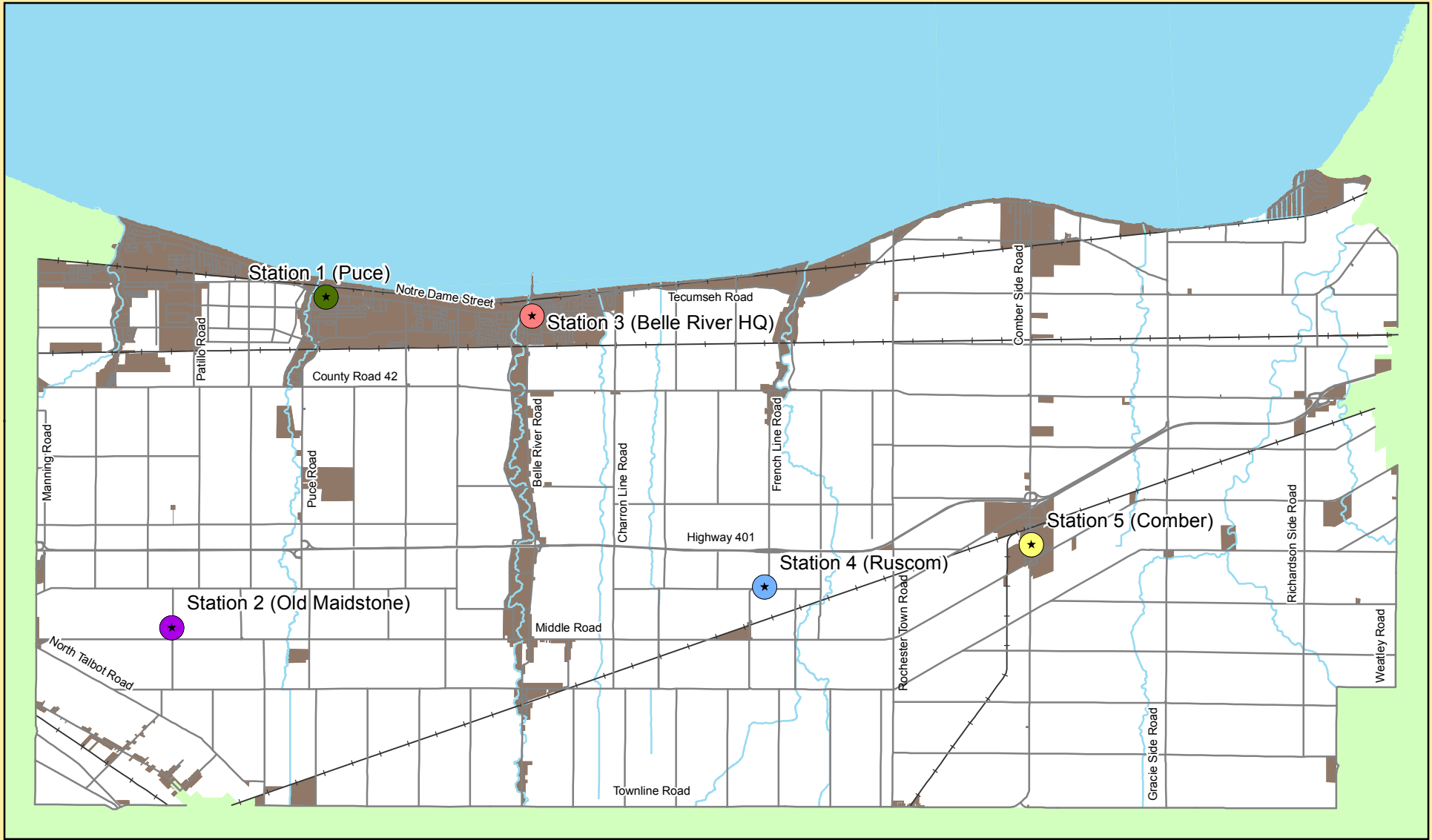





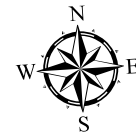


Figure 5.1 - Existing Stations and Urban (Built-up) Areas

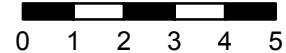
Legend

-  Existing Stations
-  Urban Areas
-  Road Network
-  Water Features
-  Railway



1:149,433

Kilometers



Town of Lakeshore
Fire Master Plan



5.2 Operations

Fire suppression operations of the Lakeshore Fire Department combine the challenges typical of a suburban town with those of more rural localities. Building stock to be protected includes mainly residential properties, along with four primary care facilities, six community care homes, institutional buildings, industrial buildings, and various multi-unit residences. As well, the department provides vehicle rescue and extraction services along the Highway 401 corridor, which runs the length of the town.

Responses to all reported structural fires consist of an automatic two station response, where the two closest stations are both dispatched at the time of the call. If the staffing is insufficient, a third station may be dispatched as well. Ten firefighters are generally able to respond to structural fires. However, they typically do not arrive within 10 minutes from the time of the emergency call, as prescribed by the OFM 10-in-10 guideline.

After regular office hours the Chief, Deputy Chief and Assistant Deputy Chief share the responsibility of being on-call for the week, every third week. This practice ensures at least one Chief Officer is always available as a resource and to monitor all calls. The on-call Chiefs are also able to act as an assured response to the high risk calls, such as structure fires. All three Chief Officers are assigned take home command vehicles. Typically two Chief Officers will respond directly to any structure fire, which contributes staff towards meeting the OFM 10-in-10 performance measure. This leaves the third Chief Officer available for other call assignments, as required. The first arriving officer or senior firefighter assumes command on scene until a higher ranking officer arrives and subsequently assumes command. Depending on the type of structure fire and the associated risks, the on-call chief or ultimately the highest ranking officer may assume command or become a coach officer for the junior officer in charge.

Arriving fire units provide a firefighter attendance tag to an assigned Accountability Officer. The Accountability Officer is responsible to track and monitor the overall on scene attendance, high risk work assignments and the firefighter rehabilitation area.

Fire ground communications occur via a three channel system:

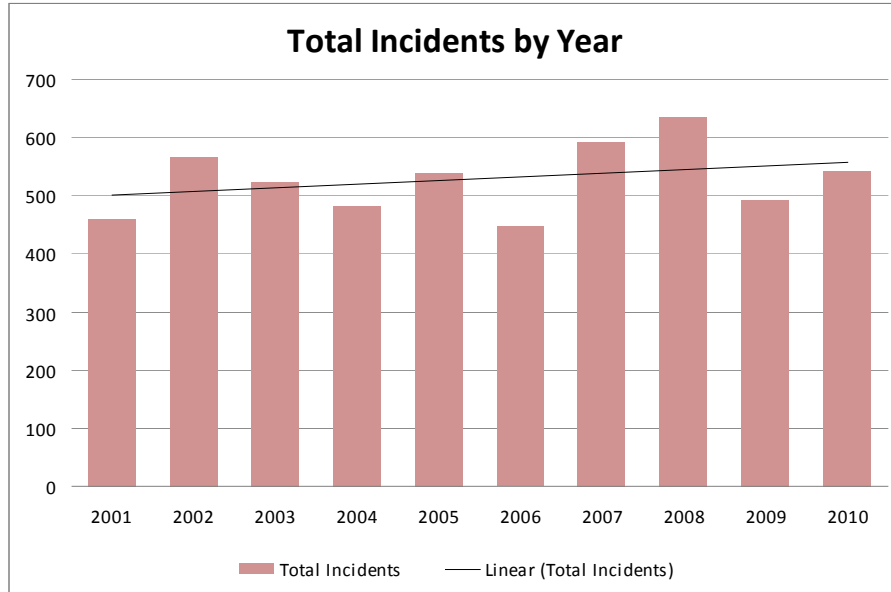
1. Dispatch channel for communication with fire dispatch and the incident commander;
2. Tactical channel for communication with the incident commander and outside the structure fire ground operations; and
3. Talk around channel for the operations officer to communicate with the interior crews and the Rapid Intervention Team (RIT) team.

5.3 Fire and Emergency Workload

Emergency response workload in the Lakeshore Fire Department in recent years has been reasonably consistent with a growth in population and the assumption of responsibility for responding to non-fire incidents. Total incident responses rose from 460 in the year 2001 to 636 in 2008, but decreased to 493 in 2009 and 542 in 2010 as shown in *Figure 5.2 – Call Volume by Year*. The average call emergency call volume from 2001 to 2010 was 529 calls.



Figure 5.2 – Call Volume by Year



Medical calls made up 10% of all call types, as highlighted in **Figure 5.3 – Response by Type (2010 Data)**. A significant amount of calls were devoted to vehicle accidents on Highway 401. The largest increases in calls to the Lakeshore Fire Department have occurred in the “Fire Related” and “Other” categories as shown in **Figure 5.4 – Historic Call Type Comparison**. These types cover increases in such incidents as calls cancelled on route and, particularly, unauthorized controlled burns.



Figure 5.3 – Response by Type (2010 Data)

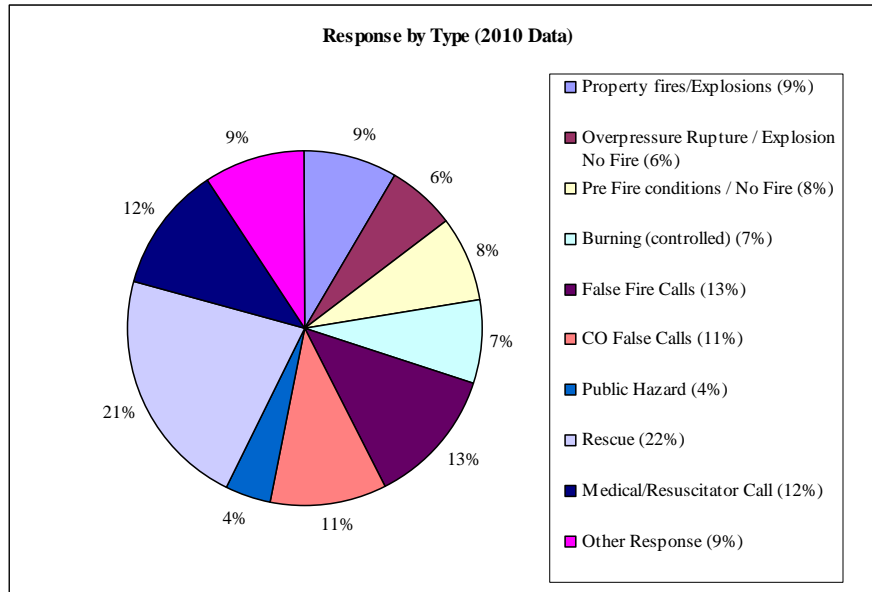
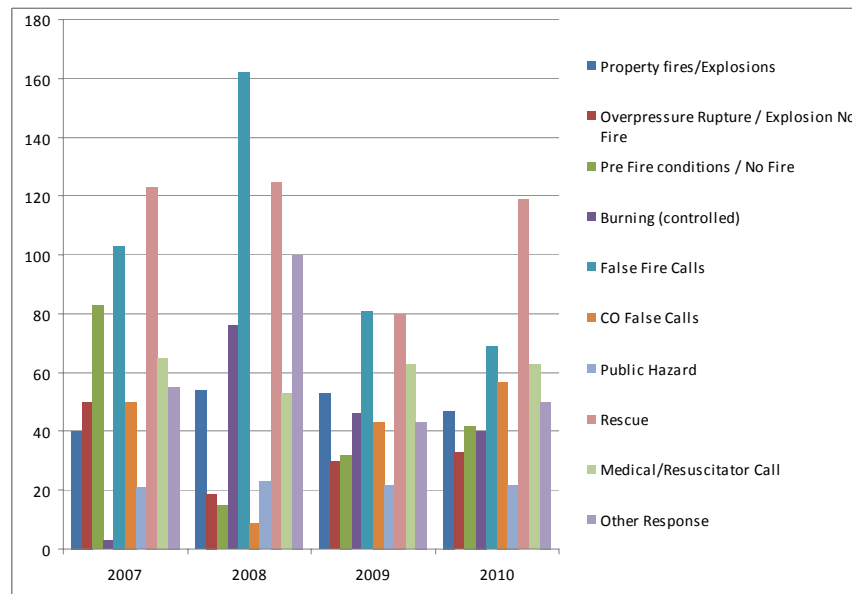


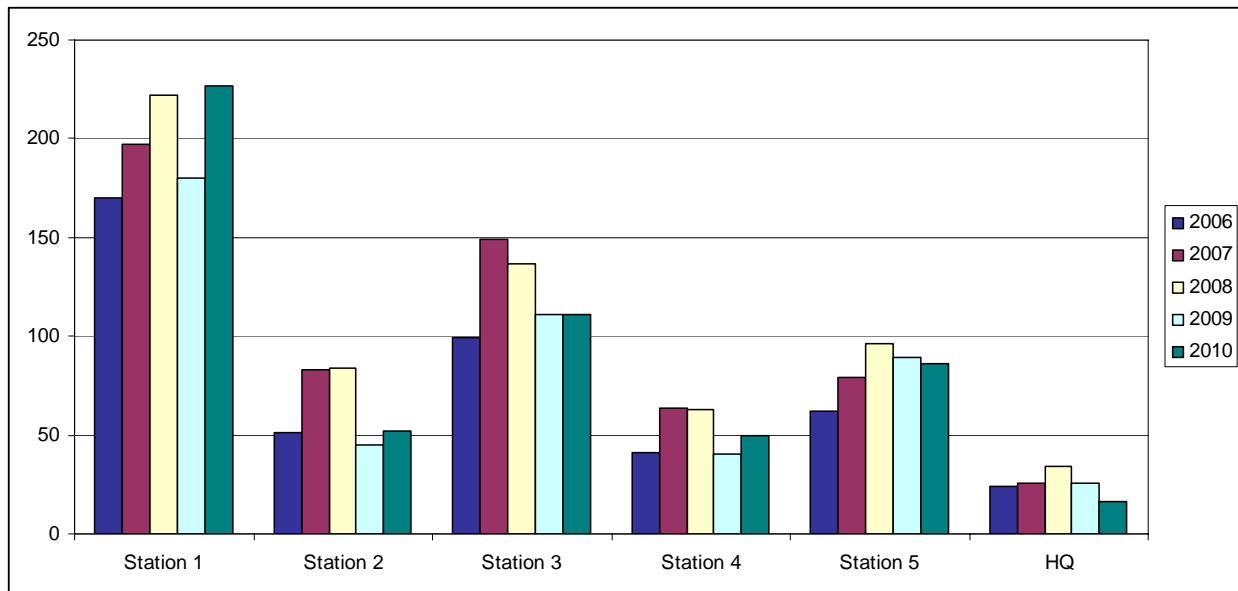
Figure 5.4 – Historic Call Type Comparison



Total calls reported by the department from 2006 to 2010 are shown in **Figure 5.5- Call Volume by Station**. Station 1 is consistently the busiest Station, with the highest call volumes in the past five years.



Figure 5.5 – Call Volume by Station



Note: Call volumes based on single station response only.

5.3.1 Property Fire Loss in Lakeshore

Annual fire loss reported for 2010 was \$1,632,750, for 2009 was \$3,125,200, for 2008 was \$1,780,800 and for 2007 was \$1,442,226. In 2006 the reported fire loss was \$8,234,800, approximately \$6 million of which was due to a fire at the industrial Plastics Plant (Quality Models Inc.) in July 2006. The fire loss amounts from 2003 to 2009 are all listed in **Table 4.4 - Historic Fire Loss Summary**.

5.3.2 Peer Comparison

A peer comparison was completed using information from the Office of the Fire Marshal Ontario’s Municipal Fire Loss Profiles (September 2008). This included the comparison of population, area, station coverage, average response times, average responding personnel and fire loss statistics. The results from the peer comparison are shown in **Table 5.3 - Municipal Peer Comparison**.

Lakeshore Fire Department is shown to be close to the average of both its “Essex County” peer group and other the “Ontario municipalities of similar population” peer group for most factors compared, such as average responding personnel, fires per 10,000 units and fire loss per \$100,000 assessment. The average response time for Lakeshore, is lower than the Essex County Average by two minutes, however, it is four minutes longer than the Ontario peer group average response time. Lakeshore is doing better than the peer group average when it comes to injuries per 100,000 population and station coverage per square kilometre. Considering the average peer group population and number of dwellings very close to Lakeshore’s statistics, Lakeshore experiences a lower average annual call volume. This may be a good indicator of the success of the fire prevention and public education programs.



Table 5.3 - Municipal Peer Comparison

Municipality	Population (2006 Census)	2006 Land Area (km ²)	Type of Department	Number of Fire Stations	Population per Fire Station	Station Coverage Area (km ²)	Population Density per km ²	Number of Dwellings	Average Annual Call Volume ⁽¹⁾	Average Response Time ⁽¹⁾ (minutes)	Average Responding Persons ⁽¹⁾	Fires per 10,000 Units ⁽²⁾	Injuries per 100,000 Population ⁽²⁾	Fire Loss per \$100,000 Assessment ⁽²⁾
Essex County Peer Comparators														
Essex	20,035	278.0	Composite	3	6,678	93	74	8,377	360	6.8	13	13.4	0.0	53.1
Kingsville	20,910	246.8	Composite	2	10,455	123	85	7,845	342	7.6	12	14.5	0.0	75.4
Amherstburg	21,750	185.7	Composite	3	7,250	62	117	8,346	225	5.6	13	14.4	3.7	30.3
Tecumseh	24,225	95.0	Composite	2	12,113	48	255	8,710	358	7.1	19	5.7	3.3	24.0
LaSalle	27,652	65.6	Composite	1	27,652	66	421	9,537	412	6.0	9	8.2	2.2	13.8
Leamington	28,835	261.9	Composite	1	28,835	262	110	10,465	459	5.9	8	21.4	4.2	88.6
Lakeshore	33,245	530.7	Composite	5	6,649	106	63	12,368	518	9.4	10	13.3	0.0	72.6
Peer Group Average	25,236	238	Composite	2	14,233	108	161	9,378	382	7	12	13	2	51
Other Ontario Municipal Peer Comparators														
Orangeville	26,925	15.6	Composite	1	26,925	16	1,729	9,636	977	5.9	6	24.5	0.0	59.6
Orillia	30,259	28.6	Composite	2	15,130	14	1,058	13,013	1,866	6.1	5	19.1	9.9	82.0
Stratford	30,461	25.3	Full Time	2	15,231	13	1,285	13,316	1,494	3.7	4	8.9	11.2	51.5
Woodstock	35,480	43.8	Full Time	2	17,740	22	834	14,960	961	4.2	5	10.3	0.6	43.0
St. Thomas	36,110	35.5	Full Time	2	18,055	18	1,047	15,225	1,903	5.2	5	12.2	8.9	85.3
Quinte West	42,697	493.9	Composite	7	6,100	71	87	17,612	1,025	7.7	6	10.4	0.5	48.3
Cornwall	45,965	62.0	Full Time	2	22,983	31	741	20,534	1,430	5.3	6	19.0	13.1	179.2
Belleville	48,821	246.8	Composite	4	12,205	62	198	21,239	1,425	5.3	7	9.4	8.2	48.4
Peer Group Average	37,090	119	n/a	3	16,796	31	872	15,692	1,385	5	6	14	7	75

Notes: (1) 5 Year Average All Emergency Calls
 (2) Residential 5 Year Average



5.4 Performance Measures for Fire Suppression

The establishment of standards and guidelines that affect the staffing response to structural fire calls has been a topic of much debate in the fire protection industry for some time. Since there is no legislative requirement of what performance measure or standard to meet, municipalities are tasked with setting the service level that meets the needs and financial capabilities of their municipality. This historically resulted in a wide range of service levels across Canada and North America.

More recently, standards and guidelines, influenced by best practices, firefighter safety and the insurance industry, have begun to come together in a much narrower range of accepted best practice. The Office of the Fire Marshal has studied issues related to fire-ground staffing over the past fifteen years. They have published a response guideline specifically for Ontario. In the U.S. the authoritative National Fire Protection Association (NFPA) led the adoption of a fire response service standard.

5.4.1 Historical Background

In Lakeshore, normal staffing of front line apparatus consists of four firefighters per vehicle most of the time. Industry best practices are to staff front line vehicles with four firefighters.

In 1992, the Office of the Fire Marshal, Ontario (OFM) released a paper related to fire ground staffing. It indicated that assembling fire attack teams from different stations was an acceptable means of attaining required staffing levels. Vehicles could be staffed with fewer than four firefighters.

Industry guidelines continued to change in the late nineties and early 2000. Chief among the new research findings was the conclusion that four person companies were most effective as fire attack teams. The release of the Office of the Fire Marshal's 10-in-10 guideline and the National Fire Protection Association's NFPA 1710 standard occurred within this time period. The OFM 10-in-10 guidelines indicated that the first responding vehicle should be staffed with four or that four firefighters were assembled on-scene approximately simultaneously. Very recently, on November 10, 2010, the OFM issued a new suppression guideline "*Operational Planning: An Official Guide to Matching Resource Deployment and Risk*". This guideline takes a different, more detailed approach to identifying on-scene staffing requirements and is more focussed on the type of building and fire and life safety risk. In general, the staffing requirements are equal to or greater than those of the OFM 10-in-10 guideline. This study has not considered the implications of the new guideline.

5.4.2 Response Standards

Performance measures for fire suppression are typically measured in two parts:

- First Response – getting the first company on scene in an accepted time frame; and
- Depth of Response – assembling the appropriate staffing resources on scene to begin mitigation of the emergency in an accepted time frame.

5.4.3 Office of the Fire Marshal Guidelines

As identified in the Fire Protection and Prevention Act, 1997, the Office of the Fire Marshal Ontario (OFM) has the power to issue guidelines to municipalities in respect to fire protection services and related matters. The guidelines are to be used by local municipalities to determine the level of fire protection services as it determines may be necessary in accordance with its needs and circumstances. For emergency response, Public Fire Safety Guideline (PFSG) 04-08-12, “Staffing – Single Family Dwellings” recommends the following, as highlighted in the figure below (Courtesy of the Office of the Fire Marshal, Ontario):

- Minimum of 4 firefighters initially responding;
- Minimum of 10 firefighters within 10 minutes for fire attack team choosing either aggressive interior fire suppression or rescue operations for 90% of reported fire emergencies; and
- Assembly of the 10 firefighters is calculated from the time the fire department receives the emergency alarm until that fire attack team has arrived at the emergency scene.



Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December 2001.

Included in the OFM 10 minute response time is:

- “Dispatch time”: Time to receive and dispatch the call (typically 1-2 minutes);
- “Assembly time”: Time required for firefighters to react & prepare to respond (nominally one minute for career firefighters); and
- “Travel time”: Actual travel time from the fire station to the incident (typically 7-8 minutes).

The staffing assigned to respond to an alarm shall be comprised of the numbers necessary for safe and effective firefighting performance related to the expected firefighting conditions. These shall be determined through risk analysis procedures. The major factors to be considered shall include:

- Public/firefighter risk to life;
- Public/firefighter safety hazard;
- Provisions of safe and effective firefighting performance conditions for firefighters;
- The potential property loss; and
- The nature, configuration, hazards, and internal protection of the properties involved.

This guideline is intended to serve as a level to which small fire departments can aspire. Such a response level is considered insufficient for large urban centres, particularly given the high density and industrial components that present more complex fire problems.

5.4.4 First Response

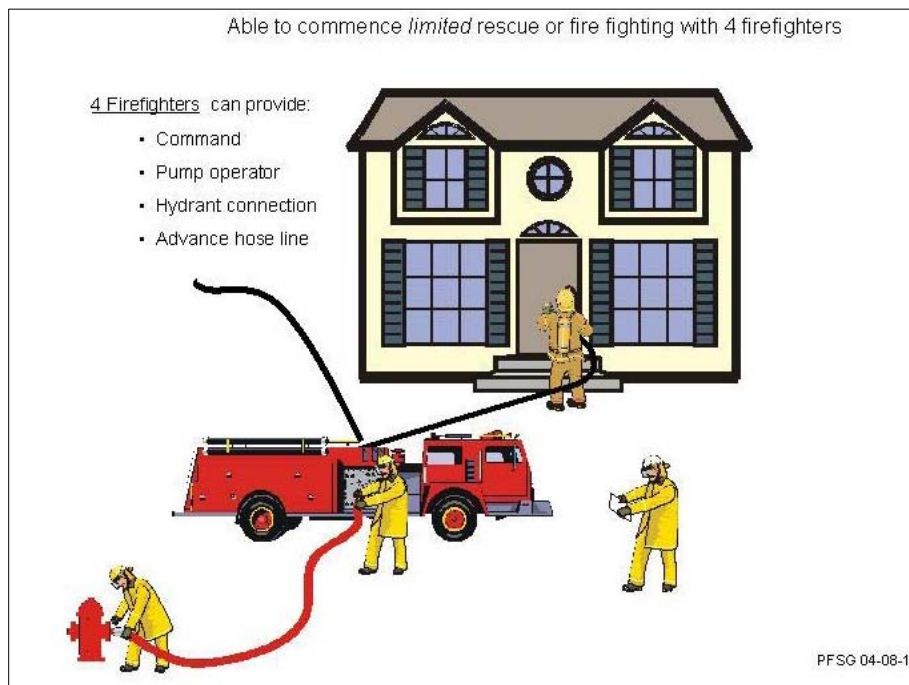
A response of four firefighters is widely accepted as the minimum initial response in order to commence limited rescue or fire fighting. Until a minimum of four firefighters have assembled on the fire ground, there are not sufficient staff on hand to safely undertake either of these roles. If fewer than four staff arrives on scene, they must wait until a second vehicle arrives to have sufficient staff to safely undertake a rescue or fire fighting operation.

The ranking officer assumes command of the emergency scene while one firefighter assumes the role of pump operator. A third firefighter is responsible for making a hydrant connection. The team then has the option of initiating limited search and rescue (i.e. looking for trapped persons immediately inside doorways or windows) or beginning limited fire fighting using two firefighters for either task.

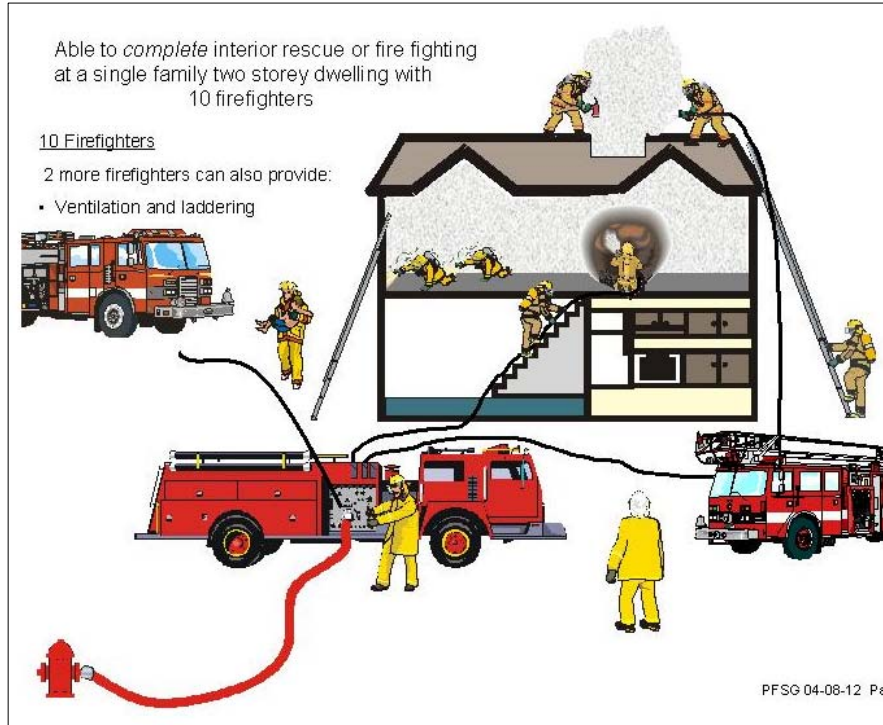
Fewer than four arriving firefighters can commence limited fire ground operations but none include fire rescue. Interior rescue or interior fire attack is not an option that can be undertaken safely with only four firefighters. Fire scene responsibilities are highlighted in the following figure (Courtesy of the Office of the Fire Marshal, Ontario).

5.4.5 Depth of Response

Ten firefighters are required for either aggressive interior fire suppression or for rescue operations, but not both. If both are necessary more than ten firefighters are required. For fire suppression, two firefighters (additional to the initial responding four) would undertake interior back up protection while two firefighters would form a Rapid Intervention Team (RIT), able to quickly provide support and assistance to firefighters finding themselves in danger. Finally, a ventilation team of two firefighters would be required for a total of ten firefighters. These roles are highlighted in the following figure (Courtesy of the Office of the Fire Marshal, Ontario).

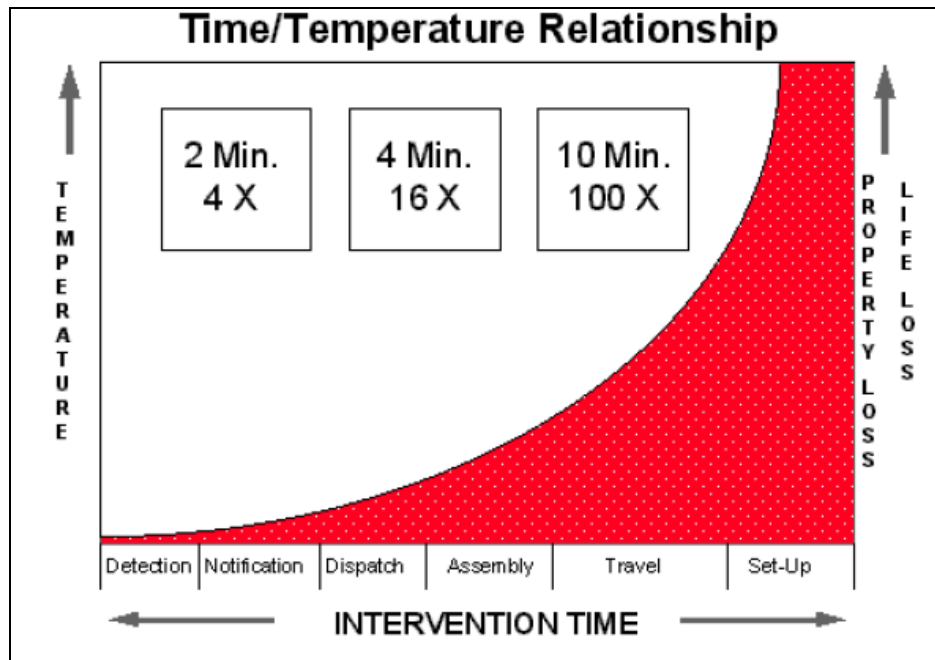


Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001.



Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001.

Ten minutes (from time of ignition) is a critical time period because flashover conditions can occur at this point. The combustible items within a given space reach a temperature that is sufficiently high for them to auto-ignite. The following graph highlights the importance of fire fighting intervention given the exponential increase in fire temperature, potential for loss of property/ loss of life with the progression of time.



Office of the Fire Marshal Ontario, Public Fire Safety Guideline 01-02-01, January, 1998.

5.4.6 NFPA Standard 1710

NFPA Standard 1710 relates to staffing of firefighting forces on a fire scene and is recognized internationally as an authoritative benchmark. NFPA Standard 1710 applies to substantially career staffed fire services. Lakeshore's Fire Department does not fall within this category.

The National Fire Protection Association formally adopted this new service level standard for career fire departments in August 2001. The standard was developed based on a structure fire for a typical single-family dwelling and includes:

- An initial arriving team of four firefighters within four minutes of travel time, 90% of the time; and
- A full complement of 14 firefighters (15 if an aerial device is sent) in eight minutes, 90% of the time.

Meeting either one of these standards constitutes meeting the standard. There is no specification of depth of response for major fires or simultaneous fires, nor for types of apparatus that must be sent.



5.5 Assessment of Response Coverage

The following sections detail an assessment of response coverage within the municipality. Several different methods were employed to assess the department’s response coverage capabilities for the existing condition as well as for projected future conditions. A review of existing call data was carried out to determine the department’s success in meeting established response targets. The analysis was carried out using Network Analyst, a GIS tool developed specifically for assessing networks.

5.5.1 Response Standards and Guidelines

The assessment is based on two industry performance measures as described in **Table 5.4 – Industry Response Standards and Guidelines**. The travel time component of these standards is directly affected by the location of the fire stations, therefore particular emphasis will be placed on this measure during the analysis. As mentioned in the methodology above, response polygons outlining the area that a fire truck can reach in a set time are used to delineate what areas of the municipality are “covered” by the fire service.

Table 5.4 -Industry Response Standards and Guidelines		
Performance Measure	NFPA 1710	OFM 10-in-10*
First Response	First responding vehicle with a staff of four in four minutes of travel time, 90% of the time	First responding vehicle with a staff of four
Depth of Service	Staff of 15 in eight minutes of travel time, 90% of the time	Staff of ten in seven - eight minutes of travel time, 90% of the time (ten minutes from receipt of call)
<p><i>*The OFM 10-in-10 guideline was in-place during the emergency response assessment completed for this Fire Master Plan Study. In November 2010, the OFM issued a new guideline, “Operational Planning: An Official Guide to Matching Resource Deployment and Risk.”.</i></p>		

5.5.2 Lakeshore Level of Service Guidelines

For the purpose of the analysis for this Fire Master Plan the municipality was assessed against the OFM 10-in-10 performance measure. This is the minimum measure typically used to benchmark performance against for Ontario municipalities. Recognizing that industry best practices for first response in urban areas is the NFPA performance measure; this was used as an alternate performance measure when assessing staffing options that included assigned crews to stations/vehicles. Without staff present in the station on an assured basis, the assembly time for volunteers makes achieving the NFPA 1710 first response not practical.



5.5.3 Application to the Current Master Planning Solutions

For first response, the OFM 10-in-10 performance measure of a minimum of four responding firefighters was used across the municipality. For the urban area along County Road 22, the NFPA 1710 standard was also used as the benchmark (i.e. four firefighters within 4 minutes of travel time, 90% of the time). This is a standard that many Canadian fire departments strive to achieve and as such, applying it in to the urban part of Lakeshore follows industry best practices.

In terms of depth of response the OFM “10-in 10” performance measure was carried forward for analysis. While not a legislative requirement, we think it is prudent to measure against this performance measure to assess Lakeshore’s current and future fire suppression capabilities. The key for the Town is to monitor its progress towards achieving this performance measure. As growth continues, call volumes increase and call types change, it will become more and more important for the department to gauge its ability to react with the appropriate resources. This is especially challenging in Lakeshore due to volunteer composition of the staff.

Since the Lakeshore Fire Department does not currently operate with a minimum of four firefighters on all first responding vehicles, meeting the first response standard will be a challenge. Given overall staffing numbers, an added challenge for the department will be to position itself to achieve the depth of response performance measure with the frequency specified by the OFM “10-in 10”. While neither of the two response standards is necessarily attainable in a department with Lakeshore’s staffing composition, they still should strive to meet the standards as closely as possible. The depth of response standard is especially difficult to achieve in rural areas.

5.5.4 Assessment of Existing Conditions

In order to assess the existing response conditions of the department, a review of call data (all calls, all stations) and response statistics was undertaken. The average response times, separated by station, were compared to the time component of the OFM 10-in-10 performance measure.

Table 5.5 – Historical Response Statistics (all calls, all stations)			
Year	Average Assembly (Dispatch + Turnout) Time (min:sec)	Average Travel Time (min:sec)	Average Total Time (min:sec)
2006	4:24	5:15	9:35
2007	4:55	6:14	10:19
2008	4:58	4:52	9:33
2009	5:41	4:47	10:16
2010	5:43	5:07	10:34



The results from the review of all 2010 calls are summarized by station in

Figure 5.6 – 2010 Average Response Times. The comparison of historic average response times from 2007 to 2010 is shown in *Figure 5.7 – Historic Average Total Response Times per Station.*

Figure 5.6 – 2010 Average Response Times

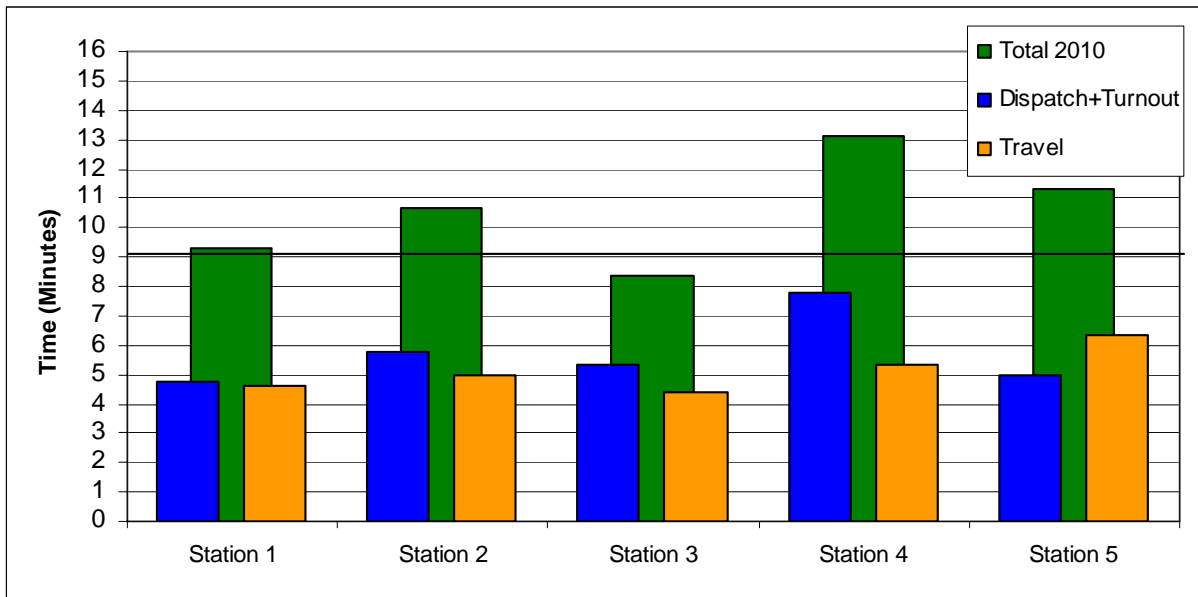
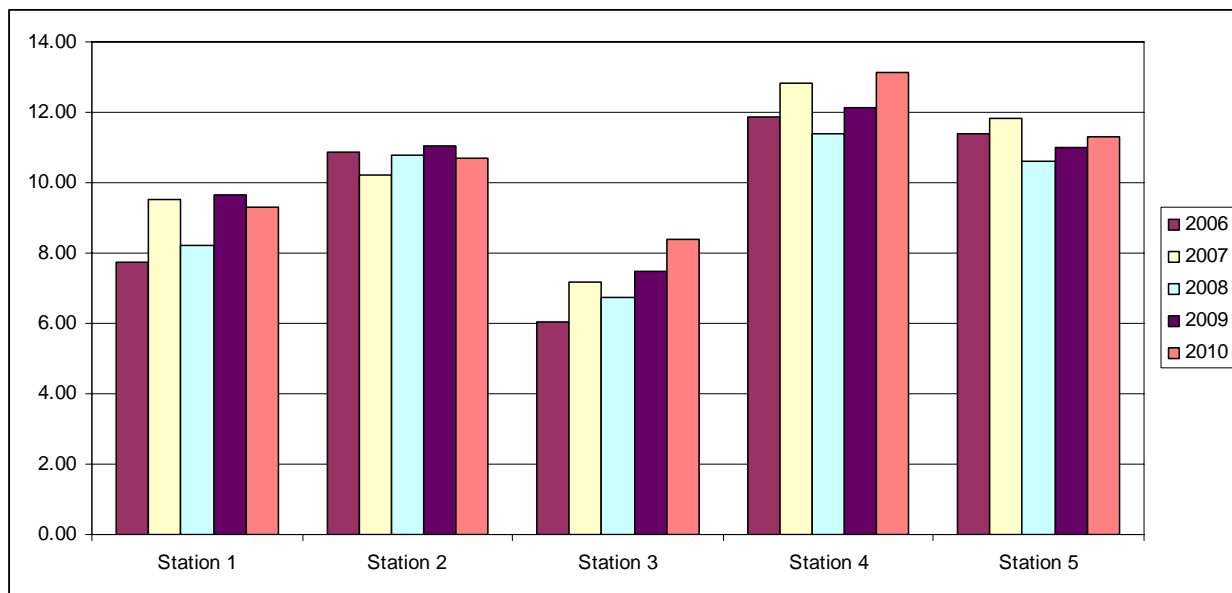


Figure 5.7 – Historic Average Total Response Times per Station





Assuming a dispatch time of one minute (generally accepted as the standard), nine minutes remain for the response time (assembly and travel times together) in order to meet the OFM 10-in-10 time requirements. Time is indicated in minutes along the vertical axis in

Figure 5.6 – 2010 Average Response Times. The 9 minute time line indicates the upper limit of the nine minute response, required to meet OFM 10-in-10 time guideline. As shown in **Figure 5.6 – 2010 Average Response Times**, Station 3 was able to respond within 9 minutes from time of dispatch for slightly more than 50% of calls (as the graph is a plot of the averages) in 2010. Station 1 was able to respond within 9 minutes from the time of dispatch, for a slightly less than 50% of all calls (as the graph is a plot of the averages) in 2010 calls. The remaining stations had difficulty responding in less than 9 minutes from time of dispatch to the majority of calls in 2010. The average response time for all stations combined in 2010 was 10 minute and 34 seconds. The 2010 call data analysis indicates that reaching calls within the 9 minute response time, allotted for the OFM 10-in-10 response, is a challenge for the department.

The second component of the OFM 10-in-10 guideline is achieving a manpower response of 10 firefighters within the 10 minute time measure. Based on historic call data, the average total manpower for fire calls (structure and non-structure fire calls) is 10 in Lakeshore (considering calls from 2006 through 2009). However, ten firefighters responded to fire calls in only 58% of calls. Unfortunately, these values do not indicate whether or not the 10 firefighters arrived within the 10 minute window allowed by the OFM standard. A trend that was evident in the historic data review was that manpower response was typically lower during daytime calls. Daytime (7am to 7pm) calls received 10 firefighters 45% of the time while night time calls received 10 firefighters 72% of the time.

Since the fire master plan study initiated in 2007, Lakeshore Fire Department has been tracking response statistics related to the OFM 10-in-10 guideline, including both first response and depth of service components. These statistics are summarized below in **Table 5.6 – Historical OFM 10-in-10 Response Performance (2007-2010)**. The table shows that the department has improved the first response staffing in 2009 and 2010 to 90% or more of all structure fire calls. The depth of response staffing, however, continues to be a challenge as only 15% to 21% of structure fire calls are experiencing 10 or more staff on-scene within 10 minutes from the time of call.



Table 5.6 – Historical OFM 10-in-10 Response Performance (2007-2010)				
Tracked Performance Measure	Structure Fires Only			
	2007	2008	2009	2010
Number of Structure Fire Responses	23	19	19	33
First Response: 4 staff minimum (% of fire calls achieved)	82%	74%	95%	90%
Depth of Service for structure fires: 10 staff in 10 minutes 90% of the time (% of fire calls achieved)	18%	21%	21%	15%
Overall Department Average Assembly Time (structure fires only) in minutes	5:02	5:14	6:06	5:43

As the department historically has not been able to meet the time component of the OFM 10-in-10 response guideline, and receives a manpower response of ten or more firefighters for slightly more than half of all calls, it is evident that the 10-in-10 performance measure was only being met on a very limited number of calls.

Based on an assessment of six months of 2009 call data, these assumptions are confirmed. Of this data set, it was calculated that only 18% of structure fire calls met the OFM 10-in-10 performance measure. Structure fire calls generally produce the greatest manpower response and the fastest assembly and travel time responses.

5.5.5 Methodology

This section provides a brief outline of the scope and methodology used, in order to provide insight into the modelling procedures adopted to assess existing and future response coverage and to test various combinations of fire suppression resources.

A Geographic Information System (GIS) program was used to assess the department’s response coverage. Digital copies of the Town’s GIS layers of existing and future road networks were provided by the Town. From this data the relevant base road information, such as road length, was extracted. This information, combined with the station locations, was used to build “response polygons” around each station.

Based on the assessment of the call data for the department, dispatch and assembly time for the volunteer firefighters was determined for use in the modelling exercise. A six-minute dispatch and assembly was used for the volunteer force leaving a total of four minutes of travel time within the 10 minute window of the OFM 10-in-10 performance measure. The four minutes of travel time can be translated to the response polygons discussed above and represent the coverage each volunteer crew can provide.





For the staffing response side of the performance measure, it was assumed (based on the call data) that six volunteers would respond within the six minute dispatch and assembly time. What becomes immediately obvious is that the only area where the OFM 10-in-10 performance measure can be met using existing staffing and modelled results is where the response polygons for two stations overlap. This only occurs in one small area of the municipality between Station 3 and Station 1.

For staffing options with career or assigned staff a two minute dispatch and assembly time was adopted. This leaves eight minutes of travel time within the 10 minute window. For comparison to the NFPA 1710 first response performance target, four minutes of travel time was used as the performance measure for the assessment of the department's first response.

As many of the staffing scenarios involve staffing fire stations during particular times of the day (or shifts), additional analysis was carried out using historic emergency call data. All emergency calls from January 2006 through December 2009 were compiled and mapped using the addresses of each. Approximately 70% of all calls were successfully located. Calls were then assessed for the time of day and location at which they occurred. For example, if a call occurred at 2 p.m. on Wednesday near Belle River Station then it would be considered covered if a day shift was added to that station. However, a call at midnight in the same location would not be covered. By considering the time and location of each call that was mapped, proportions of calls likely to be covered by various staffing scenarios were developed.

5.6 Analytic Results

This section documents the results of the analysis for the “do-nothing” condition as well as a range of other alternative station location and staffing scenarios. The most promising and practical of these options are documented in this report. The options include:

- The addition of volunteer and scheduled volunteer firefighters;
- The addition of training / fire prevention staff;
- The addition of career companies;
- The amalgamation of fire stations; and
- Combinations of the above.

5.6.1 Option 1: Do Nothing

This scenario was the existing condition. The existing five stations remain in operation with no staffing changes.

The results indicate that dispatch times and typically long volunteer assembly times (total of 6 minutes) combined with a limited ability to get ten firefighters to the scene (only 53% of the time are 10 firefighters arriving at the scene of a fire call) limits the ability of the department to meet the OFM 10-in-10 guideline for the majority of the geographic area of Lakeshore. This only leaves 4 minutes available for travel time, and with the limited manpower resources, the model results indicate that 3% of calls meet the OFM 10-in-10 guideline. This modelled 3% would only occur where the response area of Station 1 and 3 overlap.

The response associated with this option is shown in **Figure 5.8 – Options 1, 2 and 4 Coverage**, as the four minute travel time in yellow relates to the amount of travel time remaining in the 10 minutes allowed, after dispatch and assembly times are deducted.

The department's actual performance based on the six months of 2009 structure call data showed the OFM 10-in-10 guideline was achieved 21% of the time. The difference between the model and actual can be explained by comparing how the components of the response are calculated to how they are completed in reality within the 10 minute time allotment.

In the model, the travel time is calculated separately from the dispatch and assembly time totals. For modelling purposes, average conditions are used for each time component (dispatch, assembly and travel). In practice, the entire 10 minutes is available to complete all three components of the response (dispatch, assembly and travel). What is important is that both the modelled and the practical analysis methods indicate a very low proportion of calls meeting the OFM 10-in-10 guideline. As well, for the assessment of alternatives, all are being assessed with the same modelled parameters, so relative improvements between options can be directly assessed.

5.6.2 Option 2: Additional Volunteer Complement per Station

This option represents adding five volunteer firefighters to each existing station complement. This increases the probability that more staff will respond when called, but will not likely increase the response time. The modelled response results are therefore the same for this as Option 1, as the travel time does not increase. In practice there is the potential for a marginal improvement in achieving ten firefighters on the scene in ten minutes.

The long volunteer dispatch and assembly times (combined 6 minutes) results in a 3% of calls being covered according to the modelled OFM 10-in-10. The response associated with this option is shown in **Figure 5.8 – Options 1, 2 and 4 Coverage**.

There are some issues related to this scenario. Increasing the volunteer complement will result in some additional administration efforts, such as maintaining additional personnel records and training records, additional equipment requirements and increased supervisory requirements. This scenario also results in an increase in costs as a result of these additional needs or tasks. Adding to the volunteer firefighter complement adds staff without adding experience to the department. The addition of volunteer staffing does not guarantee the daytime crewing shortage challenge will be resolved.

Summary of Options Displayed in Figure 5.8:

- Option 1 - Do Nothing (Existing Conditions)
- Option 2 - Additional Volunteer Complement per Station
- Option 4 - Hire a Training / Public Education Officer (HQ)

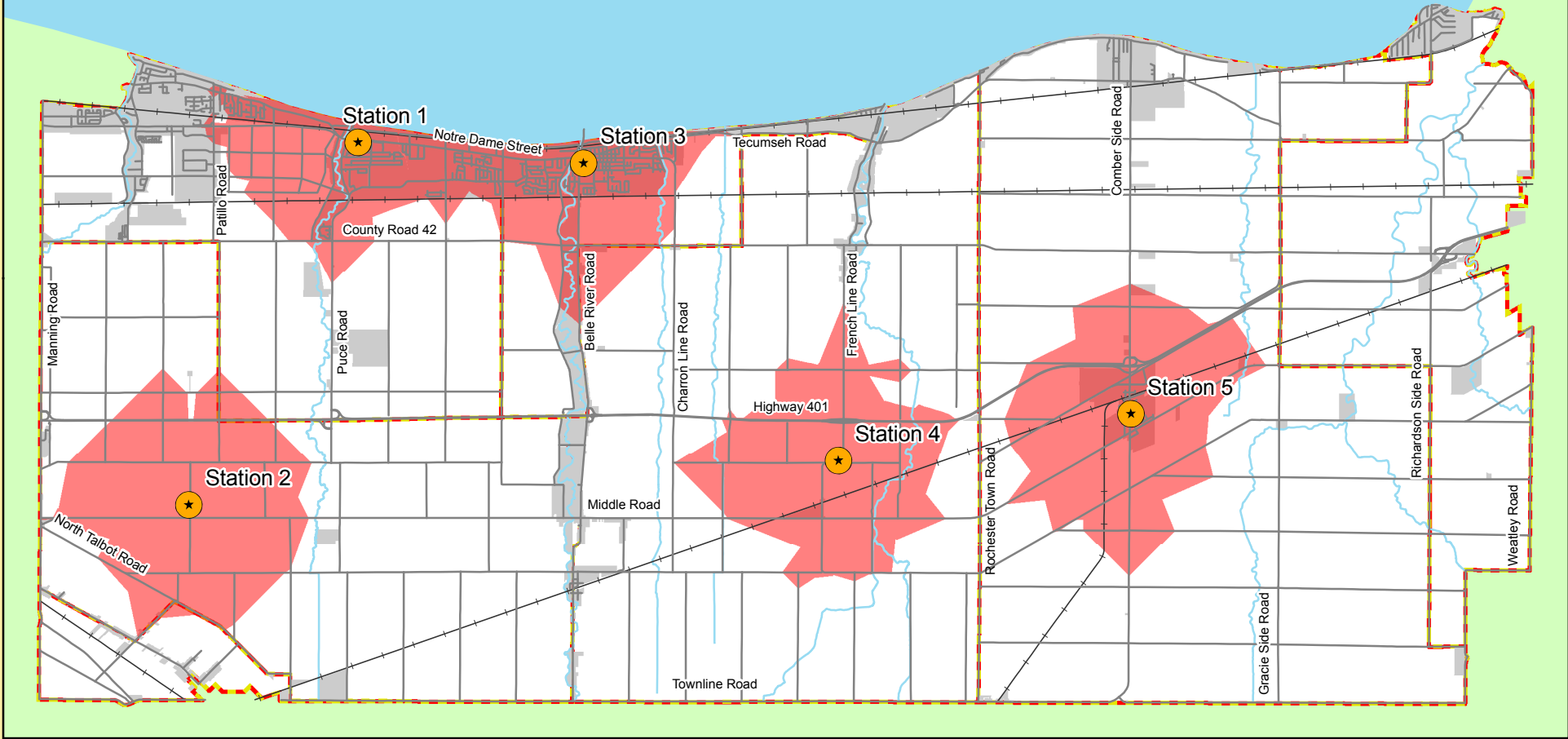
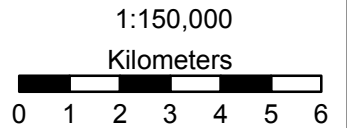
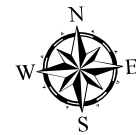


Figure 5.8 - Options 1, 2 and 4 Coverage



**Town of Lakeshore
Fire Master Plan**

- Legend**
- Existing Stations
 - Urban Areas
 - 4 minute travel (60km/h)
 - Fire Service Areas
 - 10 minutes from call (60km/h)
 - Road Network
 - Water Features
 - Railway





5.6.3 Option 3: Scheduled Volunteer Crew (Belle River)

This option represents a volunteer crew scheduled to staff Station 3 in Belle River for the equivalent of 9 hour day shifts during the week. No other staffing or station changes are made. This response is depicted in **Figure 5.9 – Options 3, 5, 6, 7 and 9 Coverage**.

The staffed Belle River station is now able to provide an assured response during weekday shifts. These scheduled crews are expected to have shorter dispatch plus assembly times (assumed to be two minutes) and therefore would have approximately eight minutes of travel times under the OFM 10-in-10 guideline.

The four scheduled staff produces an assured response relative to the OFM 10-in-10 first response performance measure. The results relative to the NFPA 1710 first response measure is 13% coverage of all Lakeshore calls. When the six additional volunteers that are assumed to respond as volunteers are added, 19% of calls are covered under the OFM 10-in-10 depth of response performance measure. In practice this latter measure may be overstated as the scheduled firefighters are drawn from the remaining volunteer complement available thereby reducing the volunteer complement and the likelihood that six would respond within the six minutes.

This scenario also has some issues and administrative challenges. Scheduling volunteer crews around other employment, such as shift work, could be difficult and sensitive. It may not even be possible within the existing volunteer complement to schedule a full crew of four firefighters for the required times. Ensuring the volunteer crews of any one station are not depleted at any time when scheduled volunteer crews are on duty would also provide an administrative challenge. Labour issues, including fairness of selecting crews to staff the station and establishing appropriate compensation and rates of pay for scheduled volunteers would also require detailed efforts from department management and administration staff. The overall management of this scenario would require increased management and administrative efforts which would result in associated cost increases.

Summary of Options Displayed in Figure 5.9:

- Option 3 - Scheduled Volunteer Crew (Belle River)
- Option 5 - Hire First Full Time Career Crew (Station 3, Belle River)
- Option 6 - Hire Second Full Time Career Crew (Station 3, Belle River)
- Option 7 - Hire Third Full Time Career Crew (Station 3, Belle River)
- Option 8 - Hire Fourth Full Time Career Crew (Station 3, Belle River)

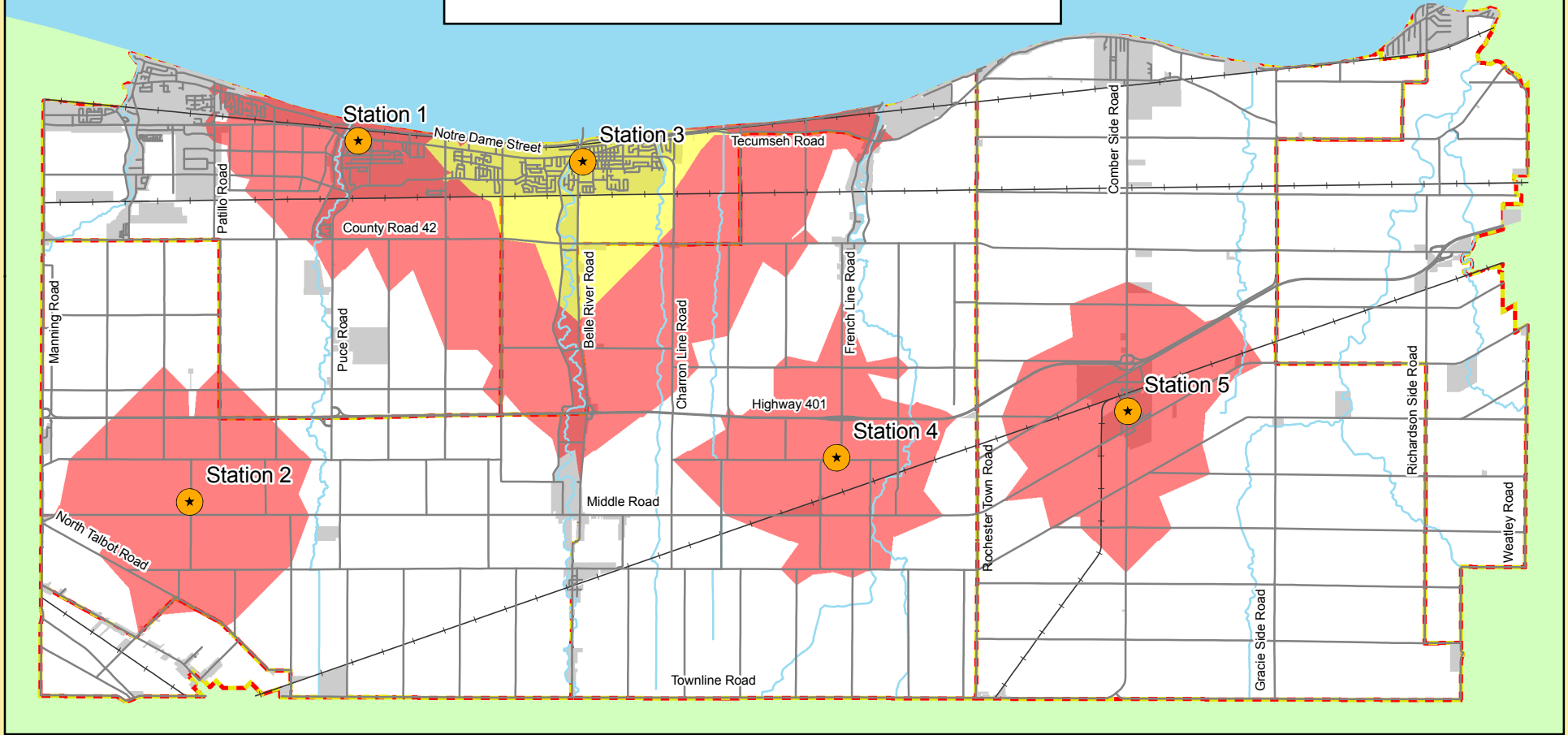


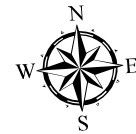
Figure 5.9 - Options 3, 5, 6, 7 and 8 Coverage



**Town of Lakeshore
Fire Master Plan**

Legend

- Existing Stations
- Urban Areas
- 4 minute travel (60km/h)
- Fire Service Areas
- 10 minutes from call (60km/h)
- Road Network
- Water Features
- Railway



1:150,000

Kilometers



5.6.4 Option 4: Hire a Training / Public Education Officer (HQ)

This option adds a full time Training and Public Education Officer to administration staff. This option assumes that no additional suppression staff are added or that station locations are changed. The new officer would respond when on shift and is available to respond when off-shift. The response is for Option 4 is shown in **Figure 5.8 – Options 1, 2 and 4 Coverage**.

This scenario does not practically affect suppression and so coverage remains the same as under Option 1, the do nothing conditions. The benefit would be an improvement in fire prevention, public education and staff training. The quality and efficiency of department training would be improved as all training programs would be delivered by the Training Officer. The result on suppression will be better trained firefighters when a response is required. Developing and enhancing the public education and fire prevention programs would help to mitigate the need for suppression by helping to prevent it in the first instance. Fire prevention and public education programs are often thought of as the first line of defence for public safety as it relates to fire risks.

5.6.5 Option 5: Hire First Full Time Career Crew (Station 3, Belle River)

Option 5 assumes a full time crew is added to Belle River Station to cover 9 hour day shifts during the week. This is the same arrangement as under Option 3 with the exception that the crew is full time rather than scheduled volunteers. This response is therefore shown in **Figure 5.9 – Options 3, 5, 6, 7 and 9 Coverage**.

The full time crew at Station 3 is now able to respond during weekday shifts, and will have improved assembly times compared to volunteer crews. This covers 13% of all Lakeshore calls within 4 minutes of travel time from the Belle River Station (first response) and 19% if calls are covered under the OFM 10-in-10 performance guideline.

5.6.6 Option 6: Hire Second Full Time Career Crew (Station 3, Belle River)

Option 6 involves an additional crew added to Option 5. A second full time crew extends the full time shifts at Belle River Station to the equivalent of 12 hour dayshifts seven days a week (half of the time). This response is therefore shown in **Figure 5.9 – Options 3, 5, 6, 7 and 9 Coverage**.

The additional second shift improves coverage to 23% of all calls within 4 minutes of travel time from Belle River Station (first response). With volunteer assembly at Belle River and Puce, 32% of all calls can expect a full OFM 10-in-10 response (depth of response).

5.6.7 Option 7: Hire Third Full Time Career Crew (Station 3, Belle River)

Option 7 is an additional crew added to Option 6. A third full time crew is added, extending the full time shifts at Belle River Station to the equivalent of 18 hour dayshifts seven days a week (3/4 of the time). This response is shown in **Figure 5.9 – Options 3, 5, 6, 7 and 9 Coverage**.

The additional third shift improves coverage to 30% of all calls within 4 minutes of travel time from Belle River Station (first response). With volunteer assembly at Belle River and Puce 41% of all calls can expect a full OFM 10-in-10 response (depth of response).

5.6.8 Option 8: Hire Fourth Full Time Career Crew (Station 3, Belle River)

Option 8 represents an additional crew added to Option 7. In this case, a fourth full time crew is added, extending the full time shifts at Belle River Station to 24 hours a day seven days a week. This response is also represented by **Figure 5.9 – Options 3, 5, 6, 7 and 9 Coverage**. This option includes a provision for the capital cost of implementing a new Station 3, to accommodate for the requirements of full time crews, such as sleeping quarters.

The additional fourth shift improves coverage to 34% of all calls within 4 minutes of travel time from Belle River Station (first response). With volunteer assembly at Belle River and Puce 46% of all calls can expect a full OFM 10-in-10 response (depth of response).

5.6.9 Option 9: Half Time Career Crews (Station 3, Belle River & Station 1, Puce)

In Option 9 the four additional crews added to get to the staffing present in Option 8 are divided into the equivalent of two 12 hour shifts that operate seven days a week from two different Stations. One crew based in Station 3 (Belle River) and one in Station 1 (Puce). The response for this option is shown in **Figure 5.10 – Option 9 Coverage**.

Division of the crews allows the higher call volume daytime periods to be covered over a larger area. This results in a total of 36% of all calls within 4 minutes of travel time from Belle River or Puce being covered (first response). Positioning full time firefighters at nearby stations allows them to combine with volunteers from either one of Belle River or Puce stations to provide full 10-in-10 coverage (depth of response) to approximately 31% of all calls.

This option includes a provision for the capital cost of implementing a new Station 1, to accommodate for the requirements of full time crews, such as sleeping quarters.

5.6.10 Option 10: New Centralized HQ Station (Replace Stations 1, 3 & 4)

In this option, Stations 1, 3 and 4 are decommissioned and replaced with a new super-station and headquarters, labelled as “New Station”. Therefore this scenario includes provision for the capital cost of the new headquarters station. New station combines the volunteer forces of the other stations and is staffed with full time (24 hours a day seven days a week) firefighters. This response is shown in **Figure 5.11 – Option 10 Coverage**.

The result is that full time crews are able to cover 55% of all calls within 4 minutes of travel time. With volunteer assembly at Belle River and Puce 39% of all calls can expect a full OFM 10-in-10 response (depth of response).

Summary of Options Displayed in Figure 5.10:

Option 9 - Half Time Career Crews (Station 3, Belle River & Station 1, Puce)

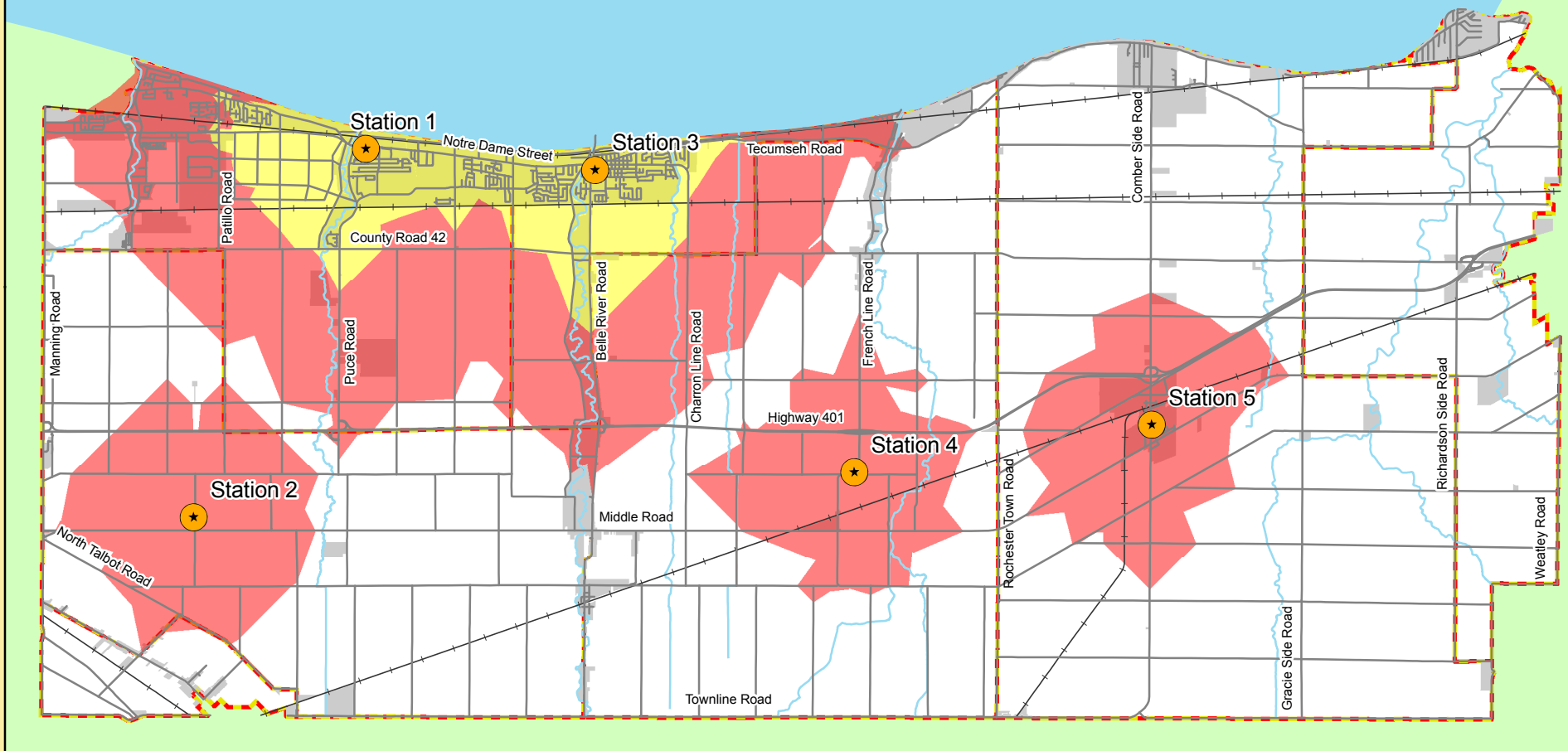


Figure 5.10 Option 9 Coverage



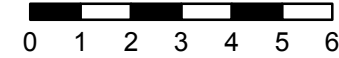
**Town of Lakeshore
Fire Master Plan**

- | | | |
|---------------------|--------------------|-------------------------------|
| ★ Existing Stations | Urban Areas | 4 minute travel (60km/h) |
| — Road Network | Fire Service Areas | 10 minutes from call (60km/h) |
| — Railway | Water Features | |



1:150,000

Kilometers



Summary of Options Displayed in Figure 5.11:

Option 10 - New Centralized HQ Station (Replaces Stations 1, 3 & 4)

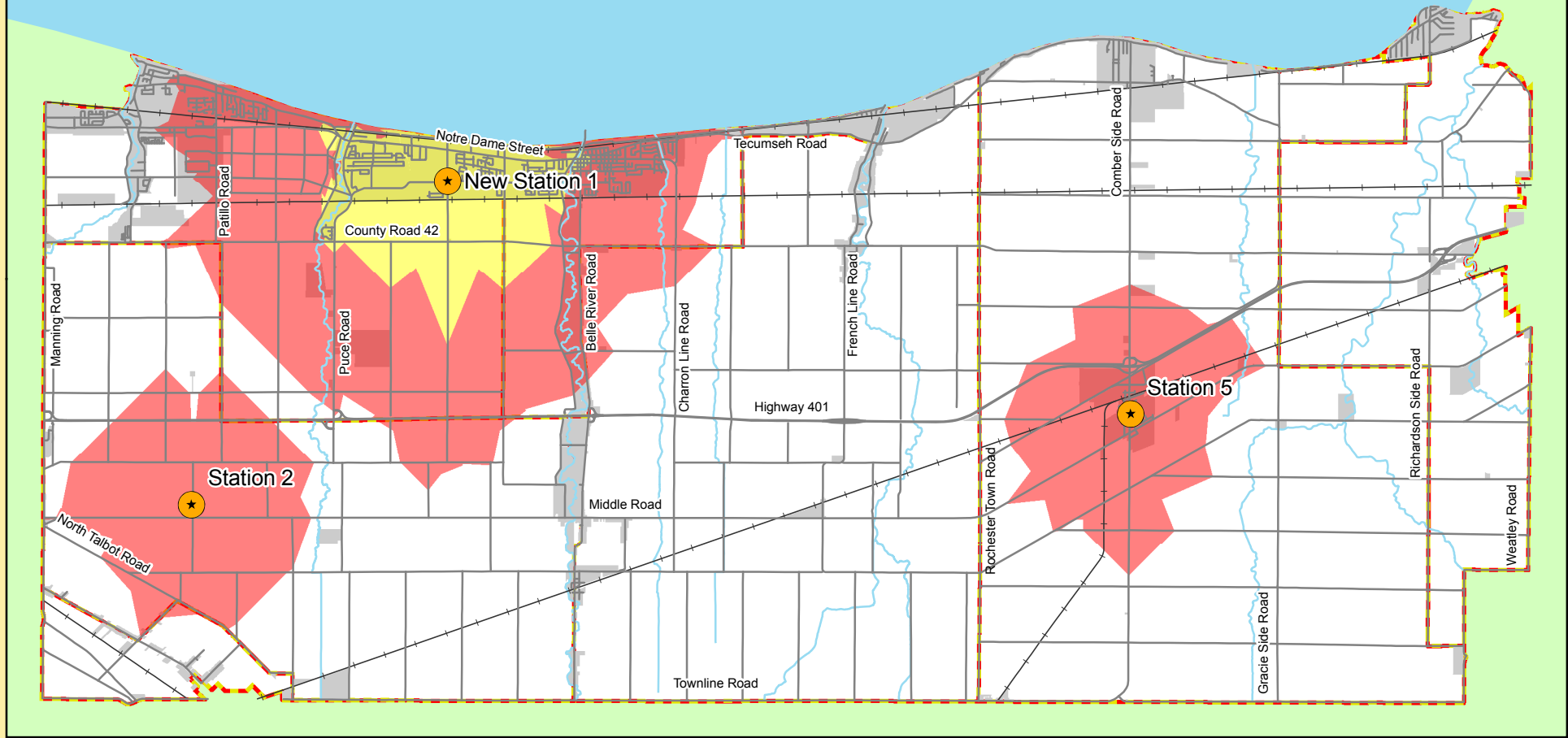


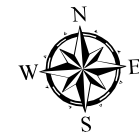
Figure 5.11 - Option 10 Coverage



**Town of Lakeshore
Fire Master Plan**

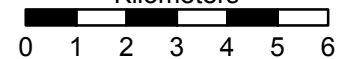
Legend

- Fire Stations
- Urban Areas
- 4 minute travel (60km/h)
- Fire Service Areas
- 10 minutes from call (60km/h)
- Road Network
- Water Features
- Railway



1:150,000

Kilometers



5.7 Evaluation of Options

The options developed above were screened and assessed according to several criteria including level of service, cost and other considerations. **Table 5.7 – Evaluation of Level of Service Options for the Future** presents an evaluation matrix of the options presented above.

The level of service criterion was the primary means of screening options and included “first response” for fire suppression and “depth of response” as highlighted in the analytic results above. Option 1 Existing Conditions (Do Nothing) was used as a base condition to compare overall level of service improvements for other options.

5.7.1 Recommended Improvements

Based on industry performance measures and best practices, it is recommended that Lakeshore Fire Department work toward the objective of staffing Station 3 with one crew of firefighters, 24 hours a day, seven days a week. This staffing scenario would provide the response represented by Option 8. This level of staffing will not likely achieve the OFM 10-in-10 performance measure, but it will significantly improve service levels within the municipality. It is recognized that this requires a significant increase in operating costs to hire 20 full-time firefighters, as well as the capital costs for equipment and station construction and amenities; however, this option can be implemented in stages over many years. Staged increases in staffing resources would initiate improvement to the response capabilities of the department, while phasing the growth of the department to match the financial capabilities of the municipality. One of the 20 full-time hires could include the full-time trainer / public educator recommended above.

Implementing one full-time crew at Station 3 would result in an improved first response and depth of response on weekdays during the day, as shown in Option 5. Daytime calls represent the greatest difficulty for a volunteer department as the availability of volunteer crews is most limited. This could be the first stage of improvement for the department. Over time, and as Council deems appropriate, full-time crews can be added to Station 3 to reach the coverage shown in Options 6, 7 and ultimately Option 8.

The option of one new super-station between Station 1 and 3 (Option 10) results in improved first response, but isn't as good at depth of response. The placement of two stations in the urban area is still the preferred arrangement of stations particularly for the longer term as growth and congestion increase.

Although full-time staffing at Station 3 is the recommended staffing goal based on assessment against best practices and performance measures, it is understood based on discussions with Council that the financial constraints of the municipality may slow or prevent the department from reaching these staffing targets when all of the needs of the municipality are taken into account. As interim measure, the department could consider hiring the Training / Public Education Officer. The benefit is a potential reduction in call volume, by improving the public education and fire prevention programs within Lakeshore. There is also a benefit to the improved firefighter safety as a result of an improved training program.

The scheduling of volunteer firefighters is another option which could be considered on an interim basis. It does improve first response for the department; however, the schedule firefighters are taken out of the complement of volunteer staff for that Station who would be responding to calls. Therefore achieving the depth of response will still have challenges. From a cost comparison, this option is not as beneficial as Option 4 or Option 6.



Hiring additional volunteer staff should be considered for stations where manpower turnout at calls is a concern. Although, manpower turnout for weekday daytime calls is the greatest issue and concern, and additional volunteer staff will likely not improve the manpower turnout at this key time. It would, however, add to the manpower response during other call times.

Table 5.7: Evaluation of Level of Service Options for the Future

Option	1- Do-Nothing	2 - Additional Volunteer Complement per Station	3 - Scheduled Volunteer Crew (Belle River)	4 - Hire a Training / Public Education Officer (HQs)	5 - Hire First Full Time Career Crew (Belle River)	6 - Hire Second Full Time Career Crew (Belle River)	7 - Hire Third Full Time Career Crew (Belle River)	8 - Hire Fourth Full Time Career Crew (Belle River)	9 - Half Time Career Crews (Belle River and Puce)	10 - New Centralized Headquarters Station (Replace Stations 1, 3 & 4)
Description	Existing conditions (no change to staffing or stations)	Add 5 Volunteer Firefighters to each of the Five Existing Stations	Scheduled Volunteer Crew ⁴ on a Day Shift, Weekdays, at Belle River. Respond to Station 1 and 3 calls.	Hire 1 Full Time Training / Public Education Officer at Station 3	Add one career crew in Belle River, Day Shift, Weekdays	Add second career crew in Station 3. Cover 12 hours/day - 7 days/week.	Add third career crew in Belle River. Cover 18 hours/day - 7 days/week.	Add fourth career crew in Belle River. Cover 24 hours/day - 7 days/week.	Career crews in Belle River and Puce. Cover 12 hours/day 7days/week	New Centralized Headquarters Station staffed with career crew 24 hours/day - 7 days/week. Close Stations 1, 3 and 4 and redistribute staff.
Additional Full time Staff	None	None	None	1	5	10	15	20	20	20
Additional Volunteers	None	25	None	None	None	None	None	None	None	None
First Response 4 Firefighters Initially Responding (OFM)	Generally not met	Generally not met, but increases the likelihood that it could be met more often	Meets performance measure weekdays during the day	One more firefighter may be available to respond when on shift, but generally not met	Meets performance measure weekdays during the day from Belle River station	Meets performance measure half of the time from Belle River station.	Meets performance measure 3/4 of the time from Belle River station.	Meets performance measure all of the time from Belle River station.	Meets performance measure half of the time from Belle River and Puce stations.	Meets performance measure all of the time from new central station.
First Response 4 Firefighters in 4 minutes (Best Practice in Urban Areas) % of all calls covered	Generally not met	Generally Not Met	13%	Generally Not Met	13%	23%	30%	34%	36%	55%
Depth of Response (OFM 10 in 10 minutes - 90% of the time) % of all calls covered based on modelled results	3%	3%	19% is the weekday daytime modelled number, but the four assigned would typically come from the volunteer compliment reducing the pool to get six additional firefighters to respond	3%	19%	32%	41%	46%	31%	39%
Effect on Suppression Operations	Existing conditions.	Slightly increased probability of meeting OFM guideline due to more staff available, but still very low	Improves first response and should improve depth of response during weekday daytime calls.	Essentially the same as existing conditions, although there is one more firefighter available to respond. The value of this expenditure is to help prevent the calls in the first place through education and reinforcing prevention.	Improves first response and should improve depth of response during weekday daytime calls.	Improves first response and should improve depth of response for calls half of the time all days of the week.	Improves first response and should improve depth of response 3/4 of the time all days of the week.	Improves first response and should improve depth of response all of the time all days of the week.	Improves first response and should improve depth of response for calls half of the time all days of the week.	Meets first response and should improve depth of response all of the time from new central station. Does not provide for future growth coverage as well as two station model (Option 8 / Option 9)
Capital Costs² (Stations Only)	None, but there is no room for any growth at HQ and the staff are cramped now	There are no station changes required but an additional \$125,000 (25 x \$5,000) is required personal equipment costs.	No additional Station Cost.	New office space required	Improvements required at Belle River station to accommodate full-time staff. Additional \$25,000 (5 x \$5,000) is required personal equipment costs.	Improvements required at Belle River station to accommodate full-time staff. Additional \$50,000 (10 x \$5,000) is required personal equipment costs.	Improvements required at Belle River station to accommodate full-time staff. Additional \$75,000 (15 x \$5,000) is required personal equipment costs.	Improvements required at Belle River station to accommodate full-time staff. Additional \$100,000 (20 x \$5,000) is required personal equipment costs. New Station 3 = \$2M	Improvements required at Belle River and Puce stations to accommodate full-time staff. Additional \$100,000 (20 x \$5,000) is required personal equipment costs. New Station 1 = \$2M	New Station Required = \$2M. Additional \$100,000 (20 x \$5,000) is required personal equipment costs.
Operating Cost³	No change	Labour costs estimated at \$5,500 per volunteer firefighter: \$137,500	\$234,000	\$85,000	\$425,000	\$850,000	\$1,275,000	\$1,700,000	\$1,700,000	\$1,700,000
Firefighter Safety	This operating scheme presents health & safety concerns for firefighters (less than four staff on front line vehicles) and is not in keeping with industry best practices and industry performance measures.	Although the additional volunteers increase the likelihood of resources responding, this operating scheme presents health & safety concerns for firefighters (less than four staff regularly on front line vehicles) and is not in keeping with industry best practices and industry performance measures.	Although for weekdays during the daytime there are four firefighters initially responding, the rest of the time this operating scheme presents health & safety concerns for firefighters and is not in keeping with industry best practices and industry performance measures.	Improves safety for firefighters through improved training. Could reduce call volume as a result of improved public education programs.	Meets OFM first response measure for weekday daytime from Station 3, which provides significant advantage for firefighter safety and will help improve the depth of response support when needed.	Meets OFM first response measure half of the time from Station 3, which provides significant advantage for firefighter safety and will likely meet the depth of response support when needed.	Meets OFM first response measure 3/4 from Station 3, which provides significant advantage for firefighter safety and will likely meet the depth of response support when needed.	Meets OFM first response measure from Station 3, which provides significant advantage for firefighter safety and much improved depth of response staffing support when needed.	Meets OFM first response measure for Belle River and Puce stations which provides significant advantage for firefighter safety and much improved depth of response staffing support when needed.	Meets OFM first response measure from new centralstation, which provides significant advantage for firefighter safety and much improved depth of response staffing support when needed.
Overall	Does not meet industry performance measures or safety concerns	While there is a marginal increase in the probability of 4 firefighters on an initial response and 10-in-10 it is not a substantive or assured improvement. It also comes with an increase in capital costs.	Weekday daytime improvements may help somewhat, but they come at a price. Still does not meet industry performance measures.	Same as existing conditions as far as response is concerned. Improves firefighter safety and public risk at a modest cost.	Provides improved level of service weekdays during the day, but at an additional cost.	Provides improved level of service for half of the time with a proportionate increase in cost.	Provides improved level of service for 3/4 of the time with a proportionate increase in cost.	Preferred Technical Option, finding a balance between cost, level of service and safety. Can be implemented in stages over time.	Provides improved level of service for half of the time with a proportionate increase in cost.	Provides an improved level of service for first response. Additional station costs. Future growth forecasts, may not be as well served by this station configuration. Consolidates staff and equipment, but might increase turnout time for volunteers.

1. It takes 20 firefighters to keep four on-duty 24 hours, 7 days a week. Ten firefighters allows four firefighters to cover the equivalent of 12 hours, 7 days a week.

2. A portion of capital costs may be recovered from Development Charges

3. Full company (20 firefighters are needed to keep four on all shifts), estimated cost \$1,700,000 (or \$870,000 for a half company)

4. Crew = 4 Firefighters

5.8 Summary of Conclusions and Recommendations

5.8.1 Conclusions

1. Fire suppression operations of the Lakeshore Fire Department combine the challenges typical of a suburban town with those of more rural localities
2. All known structural fire responses consist of an automatic two station response. If the staffing is insufficient, a third station may be dispatched as well. Ten firefighters are able to respond to structural fires just over half of the time, but may not arrive within 10 minutes from the time call, as prescribed by the OFM 10-in-10 guideline.
3. After regular office hours the Chief, Deputy Chief and Assistant Deputy Chief share the on-call responsibilities, which ensures at least one Chief Officer is always available as a resource and to monitor all calls.
4. Typically two Chief Officers will respond directly to any structure fire, which contributes staff towards meeting the OFM 10-in-10 performance measure. This leaves the third Chief Officer available for other call assignments, as required.

5.8.2 Recommendations

1. Consider options to improve space constraints and meet facility and station needs.
2. Adopt a performance targets for the department. No current mandatory standard or legislative requirement exists for fire suppression performance measures in Ontario. Town Council should determine the level of service desired from the Lakeshore Fire Department. Policies should be developed to reflect these decisions and measure performance annually against performance targets. It is recommended that the OFM 10-in-10 a performance measure be adopted as the performance target for the urbanized parts of the municipality. A reduced response can be targeted for rural areas.
3. Target to have a minimum of four firefighters initially responding.
4. Aim to reduce assembly times within the department.
5. Continue the practice of the Chief, Deputy and Assistant Deputy taking their department vehicles home and rotating duties as the on-call Chief.
6. Continue regular practice of recording number of firefighters on scene in 10 minutes and report results to Council annually.
7. Place a greater emphasis on firefighter safety, first response (four firefighters) and depth of response (10 firefighters in 10 minutes), in particular for more urbanized areas like Belle River.
8. Consider staffing improvements to achieve a minimum of 10 firefighters within 10 minutes for either aggressive interior fire suppression or rescue operations 90% of the time. Currently, the number of firefighters responding is less than the OFM guideline.



9. Work toward the objective of staffing Station 3 with one crew of firefighters, 24 hours a day, seven days a week as per industry performance measures and best practices. This staffing scenario would provide the response represented by Option 8.
10. Implement staffing recommendations over a number of years and time improvements to match growth in financial resources brought on by development growth.
11. If council concludes that even a staged investment towards the recommendation is not affordable or desirable, consider interim measures such as hiring an additional staff member for training / public education as these would help mitigate the inherent risks being adopted.

6.0 TRAINING

The Lakeshore Fire Department Training Committee is composed of one captain from each of the five fire stations and is chaired by the Deputy Chief. The committee meets every month in order to receive and discuss the next months training materials prepared by the Deputy Chief, and every December it meets to determine the next year's training schedule. The department's training is based on the Office of the Fire Marshal Ontario program. The department is a member of the NFPA and follows the NFPA regulations, as applicable. The training committee's primary responsibility is to provide training programs that meet the legislative requirements of the Ontario Fire Prevention and Protection Act (FPPA) and the Occupational Health and Safety Act of Ontario. With respect to the latter guidance notes are regularly being written and revised by the Ontario Fire Service Advisory Committee to address Section 21 health and safety issues.

To accomplish training goals the following activities are carried out:

- Development of training schedules for the fire suppression division;
- Development and delivery of specialized training programs;
- Management of medical training;
- Records management for personnel files;
- Preparation of classification exams and participation in the recruitment process;
- Reviewing and updating Standard Operating Guidelines (SOGs);
- Provision of officer training to meet succession goals; and
- Investigation of new equipment/technical request and delivery of associated training.

6.1 Training Program

The National Fire Protection Association (NFPA) Training Standards and the Ontario Fire College Curriculum are used as the basis for core training. Every firefighter is registered in the Ontario Fire College Curriculum. To date, 54 of the firefighters within the department are certified from the curriculum program. The department also uses training materials from the International Fire Service Training Association (IFSTA), Office of the Fire Marshal Ontario (OFM), and other recognized standards as a basis for their training.

Training sessions take place at each station twice a month, with the exception of December. Sessions are two hours in duration and are held in the evening. Each station's session is held on a different night of the week. Firefighters missing their regular training sessions, at their assigned stations, may go to any other training session. In addition, two morning sessions per month are scheduled to accommodate firefighters who are unable to attend the evening sessions. Four training sessions per year are devoted to station meetings to determine what additional training is needed, as well as to make up for any missed lessons. When available tests provided by the OFC curriculum are used. Otherwise, a test is created by the training facilitator. The department faces challenges with consistency in training delivery using multiple instructors to deliver the message at five different stations.

Ontario Fire College (OFC) course 101 is offered by the Kingsville Fire Chief. Currently, 39 firefighters have taken this course, with more scheduled to take the course in the near future. Completing this course certifies the firefighters to take additional courses provided by the OFC. Firefighters with non-OFC certification are assigned Performance Curriculum books.

In addition to standard training, WHMIS (Workplace Hazardous Materials Information System), CPR and defibrillator training is done every year. First Aid training is done once every three years. Incident Management System training is being offered this year, furthering the certifications and skills of the staff.

Training associated with succession planning has been flagged as an area of concern. This should be considered as a component of the department policies and procedures review.

Live fire training exercises are beneficial to departments experiencing low numbers of annual fire calls, such as Lakeshore. It is recommended that the department investigate opportunities for live fire training. Consideration could be given to external training at the Fire College or possible partnerships or cooperative agreements with surrounding municipalities or the County.

6.2 Specialized Training Programs

The Lakeshore Fire Department assumes responsibilities for intervention in a number of other than fire related emergency situations. These include assistance to the EMS ambulance service, highway extrication, hazardous materials problems, confined space and shore based ice / water rescue. Fire suppression response personnel train in all these areas. A number of firefighters at Stations 1, 3, 4 and 5 trained in ice and water rescue need to be re-certified. The department is currently researching possible companies to re-certify the staff.

Approximately 40 personnel are trained to provide assistance with Hazardous Material Operations. These firefighters assist the Windsor Fire Rescue Hazardous Materials response team, who provides hazardous material response to all of Essex County, including Lakeshore, under a Mutual Aid agreement.

In addition to structural and industrial fires the Town of Lakeshore boundaries and adjacent areas contain other potential risks such as:

- Building/structural collapse
- Critical infrastructure failure
- Oil and natural gas supply emergencies

- Explosion/fire
- Hazardous material – fixed site or incidents “in transit”
- Transportation emergencies (rail and road)
- Water rescue and emergency response

Given the range of potential emergencies, the fire department prioritizes the focus of specialized training programs towards the most probable events based on emergency response history, potential for occurrence and requirements under mutual aid agreements. The fire department has also established partnering opportunities with adjacent municipalities to deliver specialized training. This includes Hazmat training from Windsor Fire, Incident Management System (IMS) training from Kingsville Fire and CO401 and FP 301/302 training programs from Windsor/Essex County. The department has also undertaken joint training opportunities with local industrial partners and agencies, such as:

- Honeywell;
- Canadian Pacific (CP) Police;
- Union Gas;
- BP Canada;
- Ministry of Transportation Ontario (MTO);
- Ontario Provincial Police (OPP);
- Port Authority;
- EMS; and
- Homeland Security.

Currently the department has identified and implemented crucial training programs based on the volunteer firefighter staffing and limited training time available. As the Town of Lakeshore grows and the fire department evolves over the next 10 years, it should identify the crucial programs which may be required. Evolving to a department with full-time suppression staffing will bring new training requirements, opportunities and challenges. The department should develop a long range plan to deliver these programs. Such a plan would outline expected training levels, staffing requirements, records management needs and budget projections and consider future development in the Town of Lakeshore over the next ten years.



6.3 Administrative Duties

Interviews with training staff revealed that a substantial portion of time is consumed by paperwork. The majority of the administrative duties and record keeping are handled by the Deputy Chief, who maintains a yearly training record spreadsheet with the person's name, training subject and date of training.

Training staff, in the form of volunteer fire fighter trainers, are required to prepare the site for training activities and act as Incident Safety Officers.

Administrative activities being completed by the Deputy Chief and volunteer firefighter trainers take away from the number of hours training staff can devote to their main function of developing and delivering fire department training. Additional administrative staff should be considered. One full time administrative assistant could feasibly be shared between public education, fire prevention, training and emergency planning.

As discussed in the sections above, Lakeshore Fire Department should consider adding one full-time trainer / public educator that would develop and deliver all fire suppression training, as well as delivery of public education programs. This would also provide one additional full-time fire administrative staff member available for emergency response, provide consistency in departmental training, provide capacity to enhance public education programs and prepare for the training needs of future full-time firefighters.

The Occupational Health and Safety Act through the Section 21 Committee Guidance Note #7-3(28) and OFM Public Safety Guidelines require that all training programs be documented. Lack of an adequate records management program is a significant liability issue. Additional administrative assistance would allow the Deputy Chief and other management personnel to dedicate more time to their core duties and will assist in keeping detailed and accurate records.

Training is one of the most important components of a fire department. It is important that members of the department be afforded the opportunity to take part in training projects which may encourage participation in training as part of their development goal. This applies both to existing full-time management staff and future full-time suppression staff, as the department grows and evolves. Experience anywhere within the fire department provides valuable experience to firefighters as they manage their career.

6.4 Policies and Procedures

The training division is currently in the process of updating their Standard Operating Guidelines (SOGs). Many of the current SOGs are out of date and are not being followed properly. This is a risk management, legal as well as occupational health and safety issue that has been identified in this and other sections of the fire department. The process has been initiated, but it is essential that this continues in a timely manner. The department has determined which SOGs are the greatest priorities and are working to complete them. A regular review of guidelines, policies and procedures should be planned once most are brought up to date.

6.5 Training Facilities

Each station contains a training room which contains a television, VCR and DVD player to present the relevant training material. Station 3 contains an up-to-date library of training material, while all the other stations have libraries of training materials purchased before the municipal amalgamation in 1999.

The department does not currently have a centralized training facility or a training tower. All training is done on site at each respective fire station, with the exception of auto extraction, which is done at two local towing yards. Training for ice and water rescue is done at station waterfronts or at local ponds. In addition, since Station 1 is the only station with an aerial, training for aerial operations is only done on this site. Moving towards increased integration of training is desirable, as well as providing cross-training between stations, roles and duties. This would help with developing a greater sense and culture of one department versus five separate stations and should improve coordination when responding to the same call. Providing centralized training and cross-training between stations improves the consistency of the department's training program. It also has the advantage of economies of scale for the facilities and equipment. Providing a facility capable of hosting all department staff for training exercises should be considered during station improvement projects such as stations renovations or rebuilds.

6.6 Summary of Conclusions and Recommendations

6.6.1 Conclusions

1. The National Fire Protection Association (NFPA) Training Standards and the Ontario Fire College Curriculum are used as the basis for core training.
2. Every firefighter is registered in the Ontario Fire College Curriculum.
3. WHMIS (Workplace Hazardous Materials Information System), CPR and defibrillator training is done every year.
4. The department has established partnerships for joint training opportunities with local industry and agencies.
5. The training division is currently in the process of updating their Standard Operating Guidelines (SOGs).

6.6.2 Recommendations

1. Continue to follow OFM Firefighter Certification Program.
2. Develop a policy which prioritizes the focus of specialized training programs towards the most probable events. Partnering opportunities should be investigated with adjacent municipalities to deliver specialized training.
3. Identify crucial programs and develop a long range plan to deliver these programs. Such a plan would outline expected training levels, staffing requirements, records management needs and budget projections and consider future growth of the Town.



4. Consider additional administrative staff. One full time administrative assistance could be shared between public education, fire prevention, training and emergency planning as an interim measure.
5. Consider one full-time trainer/ public educator that would develop and instruct all Lakeshore fire suppression personnel including delivery of public education programs. This would provide one additional available full-time administrative staff member for emergency response, provide consistency in departmental training, deliver specialized public education programs and prepare for the training needs of future full time firefighters.
6. Continue with the review of Crisys Software as a potential replacement of Fire Pro Software. Improve records management for training functions using the selected records management software program.
7. Continue process of updating Standard Operating Guidelines, policies and procedures for the training division. The department should set a schedule for completion. A regular review of guidelines, policies and procedures should be planned once most are brought up to date.
8. Consider options to develop a central training facility or training sessions including cross training between stations.
9. Investigate opportunities for live fire training.



7.0 FLEET REVIEW

7.1 Existing Fleet

The Fleet Division of the Lakeshore Fire Department was surveyed in 2007. It was determined at that time the fleet was in a state of transition. Amalgamation caused Lakeshore to inherit a fleet with some apparatus within an acceptable service life, and others that were outdated. The department has embarked on a replacement program including an order of four apparatus with an add-on order of an additional two apparatus. This has significantly improved the average years in service for the department's apparatus, allowed for the removal of some older apparatus from the fleet, and resulted in a relatively modern fleet of trucks. The fleet analysis, completed by the administration of the department, has resulted in the correct placement and sizing of vehicles per stations to better suit the needs of the department moving into the future.

A 15-year apparatus age is generally accepted in the industry as the life expectancy of a front line vehicle, with a potential for up to five additional years of service as a reserve vehicle. The fire department generally follows these guidelines.

The recently replaced apparatuses were at least 20 years old. In the future, all vehicles purchased should be capable of carrying a minimum of five personnel and should be diesel powered. The replacement program currently in place has been approved by the fire department and Town Council. Following this replacement program will result in a fleet that is well suited to the needs of Lakeshore and in a good state of repair.

Currently, there are 12 heavy apparatus and 7 vehicles in use within the Lakeshore Fire Department, as listed in ***Table 7.1 – Apparatus at each Station and Model Year.***

Table 7.1 - Apparatus at each Station and Model Year			
Station	Vehicle	Description	Year
Station 1	Aerial	Stuphen Ladder Truck (Trk 1) 	1984
	Engine	Spartan Fire Pumper (E1) 	2000
	Rescue	International Rescue (R1)	1995
Station 2	Engine	Spartan Fire Pumper (E2)	2008
	Engine	Freightliner FL80 Pumper/Tanker (T2)	2003
Station 3	Engine	Spartan Fire Pumper/Rescue (R3)	2008
	Engine	Spartan Fire Pumper (E3) 	2008
	Support Pickup	GMC 2 wheel drive pickup (S3)	2005



Table 7.1 - Apparatus at each Station and Model Year			
Station	Vehicle	Description	Year
			
HQ	Chief Vehicle	Chevy 4x4 (Command 1)	2009
	Deputy Chief Pickup	Ford F150 4x4 (Command 2)	2002
	Assistant Deputy Chief	Pontiac Montana SV6 (Command 3)	2005
	Fire Prevention	Pontiac Montana SV6 (FPO-1)	2007
	Public Education	Fire Safety House Trailer 	2004
Station 4	Engine	Spartan Fire Pumper (E4)	2008
	Engine	International Fire Pumper (E6) - Spare	1988
	Tanker	Spartan Fire Pumper/Tanker (T4)	2008
Station 5	Engine	Freightliner FL80 Fire Pumper (E5)	2003
	Support	GMC 2 wheel drive pickup (S5)	1995



Table 7.1 - Apparatus at each Station and Model Year			
Station	Vehicle	Description	Year
	Pickup		
	Tanker	Spartan Fire Pumper/ Tanker (T5)	2008

Prior to the six new apparatus being added to the fleet, numerous vehicles were beyond the standard 15 years of service. The average age of the fleet was 17 years in 2007. The updated fleet now has an average age of 7.5 years. Two of the apparatus are currently greater than 20 years old and two are at the 15 year mark. The remainder of the fleet has an average age of 4 years.

The present aerial was purchased used, has an open crew cab, and 65 foot ladder. It does not carry a full complement of ground ladders as recommended by the Insurance Underwriters and NFPA Standards. Common practice in Ontario is to use 75 foot aerials on quints that run as engine companies and 100 foot ladders on aerials if it is the department's only aerial, as is the case in Lakeshore. With the age of this unit and the inadequacies noted above, refurbishment is not a viable or cost effective option. A replacement aerial should be considered to meet insurance requirements.

At present, the aerial ladder is not automatically called for commercial alarms and structural fires. It automatically runs for all structure fire calls in Districts 1, 2 and 3. Districts 4 and 5 call for the aerial when the first arriving company has assessed the scene and determines it to be necessary. Fire Underwriters and the NFPA suggest an aerial ladder respond for commercial building alarms and structure fires. The use of aerial ladders for ventilation and rescue can be a benefit, even if its master stream (elevated water stream) cannot be used due to restricted water supply. However, there are times where it is not value added, due to response times, distance of structures from the road, weak rural culverts and crew limitations. The protocol for assigning the aerial for calls should be regularly reviewed and updated as the municipality grows and evolves to provide the best coverage for the needs of the municipality.

The support pickups at Stations 3 & 5 can be used as an everyday vehicle to transport firefighters on official business as well as carry contaminated hose and equipment from the scene back to the station for decontamination.

To support the staffing and requirements of a volunteer system, a third smaller vehicle should be in place in each station. For daily duties, the small vehicle can be used to shuttle air bottles, equipment and apparatus for repair and would mean that a volunteer would not have to use their own car. For emergencies, the third vehicle could be used for crew transport as well as its primary function. There are many different options for consideration as to the type of vehicle that should be purchased for each station. The department's small vehicle fleet was examined and found to be in good shape, as many of the vehicles were replaced in the last two years. There are some higher mileage vehicles within the fleet that should be monitored and replaced when maintenance costs or downtime becomes excessive.

The practice of management staff taking their vehicles home even when they are not the duty officer has been questioned in the past for fiscal responsibility. This is normal for many departments that use volunteers, and the benefit of early response, multiple chief officers responding and the on-call chief arriving at the start of the response to assume command on scene mitigate any additional costs that might be incurred. The support of the volunteers by management can be seen as a savings and an investment in due diligence for health and safety.

7.2 Maintenance and Equipment

The fire apparatus fleet is maintained by the Windsor Fire and Rescue apparatus division. The fleet has an annual Certified Vehicle Operator's Registration (CVOR) as required by the Ministry of Transportation of Ontario (MTO). Vehicles with pumps receive additional annual certification, and ladders are inspected, lubricated, and certified when required by CVOR.

The investment in rust proofing should be maintained on new additions to the fleet, as these apparatus usually rust or corrode well before they wear out from use. While new construction techniques and materials have improved corrosion problems, the steel frames of the apparatus should continue to be monitored. The entire fleet should be rust proofed and inspected annually to check if reapplication is required.

Smaller vehicles, such as the pickup trucks, SUVs and minivans are serviced by a local car dealership. The dealership provides all the necessary oil changes and manufacturer specified tune-ups and maintenance.

Regular in-house inspection and upkeep of the fleet is done by the firefighters. Each station crew is divided into four groups under the supervision of a hall chief or District Chief to perform hall duty for one week every month. This involves inspecting the inventory and operation of each truck with the aid of an apparatus check list. Any deficiencies are reported to the Deputy Chief, who arranges the repair or replacement. Windsor Fire and Rescue complete necessary repairs for any vehicles breakdowns. Windsor has a mechanic on-call 24 hours a day, contactable through Windsor Dispatch, to deal with emergency repairs. The practice of having the fleet serviced by Windsor Fire and Rescue Services shops should continue. Their mechanics are familiar with the specialized nature of fire apparatus. The only issue noted was occasional service delays when the Windsor fleet is given priority. Another option would involve sending work out to regular service centres. This is not recommended as the mechanics at these shops may not be familiar with the intricacies of fire apparatus and would not be certified emergency vehicle repair technicians.

While the department does not appear to be suffering from a shortfall in small equipment, it is encouraged that the present small equipment budget be maintained (with inflation increases) to ensure this important aspect of the department operations continues.

The Deputy Chief is responsible for the maintenance of Self Contained Breathing Apparatus (SCBA) equipment. SCBA filling stations exist at Station 1 and Station 4, and are tested annually. SCBA cylinders are hydrostatically tested every three to five years, depending on the material of the cylinder (aluminium or fibreglass). All SCBA packs are certified two years.

A Self Contained Breathing Apparatus (SCBA) inspection policy and procedure is in place. Legislative requirements about breathing apparatus air are mandatory, and the department has been following the required testing. The practice of having the breathing apparatuses checked twice annually should continue. Three firefighters are trained to perform minor repairs on the SCBA. Weekly checks of SCBA equipment is performed by firefighters, while more rigorous testing of the equipment is done by a certified dealer every 2-5 years, depending on the piece of equipment. Twenty spare SCBA cylinders are maintained at each station on the response apparatus to provide for on-scene cylinder changes. Air is replaced in each unit every year, and records are kept on every bottle. All testing information is recorded on an Excel spreadsheet on the department's computer system. In order to bring the equipment up to 2002 standards, Town Council had authorized eight new units for both 2007 and 2008.

7.3 Summary of Conclusions and Recommendations

7.3.1 Conclusions

1. The department's fleet replacement program has significantly improved the average years in service for the department's apparatus, allowed for the removal of some older apparatus from the fleet, and resulted in a relatively modern fleet of trucks. The fleet analysis, completed by the administration of the department, has resulted in the correct placement and sizing of vehicles across all stations to better suit the needs of the department moving into the future.
2. A 15-year apparatus age is accepted in the industry as the service life of a front line vehicle, with up to five additional years of service as a reserve vehicle. The department generally follows these guidelines.
3. The average age of the fleet was 17 years in 2007. The updated fleet now has an average age of 7.5 years.
4. The fire apparatus fleet is maintained by the Windsor Fire and Rescue apparatus division. The fleet has an annual Certified Vehicle Operator's Registration (CVOR) as required by the Ministry of Transportation of Ontario (MTO).
5. Regular in-house inspection and upkeep of the fleet is done by the firefighters.

7.3.2 Recommendations

The recommendations outlined below offer an opportunity to improve the overall condition of the fleet.

1. Continue the planned fleet replacement program.
2. Continue the practice of having the air quality in the fire department's breathing apparatus and compressor system checked twice per year.
3. Continue the present small equipment budget at the current rate to allow for replacement of equipment that is older and/or out for repair.
4. Continue the practice of maintenance being performed by Windsor Fire and Rescue Services mechanical shop, as they are well accustomed to and familiar with the specialized nature of fire apparatus.
5. Replace the aerial ladder at Station 1. The aerial ladder response procedure should be regularly reviewed and revised as necessary as growth and development within Lakeshore continues.
6. Rust proof the fire fleet. Each year the fleet should be inspected to check if reapplication is necessary.
7. Continue the department's small vehicle replacement program as it is within acceptable standards of most municipalities. Monitor mileage and maintenance costs and alter the replacement program in place if a particular vehicle starts to have recurring problems.



8.0 COMMUNICATION & TECHNOLOGY

8.1 Emergency Communications and Dispatching

Emergency calls from the public are received at the Windsor Fire and Rescue Emergency Communications Services centre located in the City of Windsor. This centre currently uses the CRYSIS system for computer aided dispatching. Service is provided to Lakeshore, Tecumseh, Essex, Amherstburg and Windsor fire departments 24 hours per day, seven days per week.

The dispatch centre is well laid out and has standby power. The Lakeshore department operates with a 400 MHz radio system, which is compatible with the dispatching centre's new Motorola 400 MHz Passport Trunking System. In 2005 Council approved the purchase of new radios for the Lakeshore Fire Department. This new system retains the town's current 400 MHz frequency. This ensures radio interoperability during joint exercises and major emergencies. In addition to this, all fire companies have vehicle and portable radios.

The CRYSIS system has been improved and provides an accurate database. Variances rarely occur, but when they do they are investigated and corrected.

Since the dispatch centre is operated by Windsor, if there is an incident in Windsor at the same time as one in Lakeshore, the centre gives the Windsor incident priority. This may cause a slower response time for the Lakeshore incident. When the Windsor dispatchers are busy, a third dispatcher is called in.

The current system for dispatching calls is meeting the needs of Lakeshore Fire Department. As growth occurs, both in Lakeshore and Windsor, as well as the surrounding municipalities, the demands on the dispatching service will increase. Lakeshore should continue to monitor and assess the service in coming years.

8.2 Information Technology

As identified in other sections of this report there is a need to address information technology issues within the department as a whole. While the department has made good use of certain features of the Fire Pro program, it has not been used to it to its full potential yet. Keeping track of each staff member's attendance using Fire Pro will enable a more automated system of allocating payroll. As well, ensuring that all other records are kept in digital format, with secure backups, will improve the overall record collection and organization of the department. All current computer maintenance is done by the Town Hall IT (Information Technology) department. All sections made it apparent to the study team during the interview process that there was a need for a computer based records management system. This would reduce the amount of time many of the department's "day" staff spends on paper-based tracking systems, allowing focus to shift to more important duties.

The department should continue to investigate technological options that would allow documentation to take place in the field, or at remote sites (e.g. fire prevention inspection reports, Fire Code violation letters). Such improvements would increase staff effectiveness by minimizing the amount of clerical work to be undertaken in the office.



8.3 Summary of Conclusions and Recommendations

8.3.1 Conclusions

1. In 2005 Council approved the purchase of new radios for the Lakeshore Fire Department. This new system retains the town's current 400 MHz frequency. This ensures radio interoperability during joint exercises and major emergencies.

8.3.2 Recommendations

1. Continue to monitor and assess the dispatch service provided as growth occurs in coming years.

9.0 STUDY CONSULTATION

The Fire Master Plan for the Town of Lakeshore was initiated to review the operations of the fire department and set key objectives for it to develop and evolve as the Town grows. The document will provide the Town with an effective risk management tool for fire protection. The Town's Project Management Team for the study was lead by the department's Fire Chief, Don Williamson. The Town's Project Management Team also included the Deputy Fire Chief, Gary Percy, the Assistant Deputy Fire Chief, Robert Mendonca and the Director of Community and Development Services, Lee Holling.

As the study progressed, various forms of consultation took place. Effective communication and consultation with stakeholders is essential to ensure that those responsible for implementing the Fire Master Plan, and those with a vested interest, understand the basis which certain decisions are made and why particular actions are required. Engaging stakeholders and the community also ensures that multiple perspectives can be incorporated into the master planning process.

A series of meetings took place with the Town's Project Management Team, Consultant Team, and key stakeholders. A summary of overall study consultation activities follows.

9.1 Project Meetings

Throughout the Fire Master Plan study process, the Dillon team met with the Internal Project Management Team to keep them abreast of study progress and discuss preliminary findings, results and recommendations. The following meetings were held:

- Project Initiation Meeting – Held September 24, 2007
- Presentation of Preliminary Results – March 4, 2008
- Presentation to Internal Project Management Team – May 21, 2008

In addition, numerous project progress conference calls were held to update status and provide direction.

9.2 Consultation and Presentations

Involving stakeholders in the study process helps ensure that multiple perspectives are considered for fire master plan. Stakeholder participation is the first step toward developing partnerships and supporting relationships of trust.

A presentation was given to the department's volunteer firefighter complement on May 27, 2008. Feedback was requested and collected from this group of stakeholders regarding current status and perceived issues within all areas of the Lakeshore Fire Department. Questionnaires were circulated to staff members to allow for sufficient time to prepare responses. A copy of the presentation and questionnaire are attached in *Appendix B – Stakeholder Consultation(May 2009)* of this report.



On September 8, 2009 the department's Project Management Team led a Station Tour for Council and Dillon attended. This was followed by a presentation to Council regarding the fire master planning process, municipal responsibilities, preliminary findings, performance measures and key Council input.

A Summary of findings and recommendations will be presented to Council following submission of the final report in order to develop support from these key stakeholders on the Fire Master Plan results.



10.0 CONCLUSIONS AND RECOMMENDATIONS

By initiating a Fire Master Plan study, the Town of Lakeshore seeks to strategically guide its Fire Services through the next fifteen years of population and municipal growth. The Fire Master Plan study has reviewed all aspects of the department in order to ensure that performance standards and guidelines reflect best practices and are in compliance with the Ontario Fire Protection and Prevention Act (1997). Recommendations are provided under the same headings and in the same sequence followed in the report.

10.1 Administration

10.1.1 Conclusions

- Lakeshore Fire Department participates in Essex County Mutual Aid Plan and Program. The Lakeshore Fire Chief is one of the key participants in the plan that provides for cross-municipality responses.
- The department is in the process of reviewing, updating and developing policies and procedures and standard operating guidelines.
- Lakeshore is currently meeting the requirements of the *Emergency Management and Civil Protection Act*.
- Future growth may require changes to station locations and staffing to meet industry best practices. This will require additional administrative and management resources.

10.1.2 Recommendations

- Complete the administrative review initiative by assessing and selecting an appropriate records management software solution and administrative staff requirements. Upon completion, bring forward recommendations for implementation.
- Increase data management capabilities using the selected records management software solution, to be determined by the department. In addition to recording the details of all responding incidents, the program is able to keep track of staff attendance to calls. This helps to automate the payroll process. Currently, attendance is tracked manually, which is time-consuming. It is therefore suggested that the payroll features of the selected RMS be used.
- Review and update by-laws pertaining to the fire department, including those that still require introduction. The fire department should ensure that these by-laws are updated as needed.
- Communicate with the Town of Lakeshore Legal Services and consult appropriate Public Fire Safety Guidelines from the Office of the Fire Marshal of Ontario (OFM) to ensure that by-laws are compliant with the Ontario Fire Protection and Prevention Act (FPPA) 1997.



- Continue the systematic review, development and revision of Standard Operating Guidelines, policies and procedures for all department sections. The department's progress in developing and implementing SOGs should continue in a strategic manner to ensure that all operating guidelines, policies and procedures are up-to-date and implemented on a priority basis.
- Consider options to improve constrained office space at Headquarters station. Interim options should be considered to resolve space constraint issues currently facing the department, until new station facilities are provided as a permanent solution.
- Address workspace concerns as new facilities for the department are planned and built (e.g. station relocations or new stations). Headquarters is an aging structure and the current workspace will continue to be an issue if additional administrative or emergency management staff is hired over the coming years.
- Re-assess workload and responsibilities for all senior positions once activities related to growth are fully underway (e.g. relocation/construction of new stations and hiring of new staff).

10.2 Fire Prevention and Public Education

10.2.1 Conclusions

- The Town is meeting the minimum requirements of the FPPA through the distribution of fire safety education brochures, provision of a smoke alarm program and promotion of home escape planning.
- Lakeshore Fire Department carries out a number of activities in Public Education, such as school visits, TAPP-C Arson Prevention Program for Children, open houses, Smoke Alarm Program and visits to Windsor/Essex County's Safety Village. In addition, the department has a fire safety trailer that is used during public education activities in schools and other locations for community events.
- The Smoke Alarm Program initiated in 2007 has been successful. A compliance rate of 67% has been observed during the first three years of the program.
- Lakeshore Fire Department is committed to improving and expanding their programs and activities, but is limited by financial and available paid on-call firefighter resources.
- As of early 2010, the department has conducted an inspection of almost every non-residential building (excluding outbuildings, such as barns) within the Town of Lakeshore at least once since 2006. This accomplishment completes the first full cycle of fire prevention inspections.
- The addition of the Fire Inspector position has improved available time for the other staff members to carry out their duties. This position was also instrumental in completing the first full cycle of fire prevention inspections.
- Volunteer firefighters assist with the workload, as they deliver the public education programs.



- Lakeshore has two staff that performs fire prevention duties and it appears to be appropriately staffed for its size today.
- The department has implemented an inspection program with frequencies assigned based on risk.

10.2.2 Recommendations

- Continue process of updating Simplified Risk Assessment to establish priorities, address demographic risks and develop an implementation plan for public education and fire prevention activities. Additional public fire safety information should continue to be conveyed by way of school visits, use of the fire safety trailer at community events, by including flyers in water bills, and by advertising in local newspapers.
- Assess on an ongoing basis the workload and time commitment required to carry out inspections. This has been improved with the addition of the Fire Inspector position, but will need to be continuously evaluated as the Town grows.
- Conduct annual presentations to seniors groups and clubs. Consider implementing organized programs such as Older and Wiser.
- Improve the tracking of public education activities and fire prevention inspections using the selected data management solution. This improved record keeping could potentially aid in the budget allocation process and provide more reasonable future estimates of time and staffing requirements for fire prevention and public education.
- Consider risks and prevention and education opportunities relating to the Town's seven marinas in the Simplified Risk Assessment.
- Continue the practice of having the volunteer firefighters actively involved in public education programs.
- Consider additional administrative support for the division. This would improve the staff resources available to improve and expand the public education and fire prevention coverage and would help to improve the frequency of which the scheduled inspections can be carried out.
- Implement pre-fire planning of key buildings as time and resources allow.
- Improve the use of the department's data management software solution to track fire loss statistics and keep data up to date. The software tools can link cause of fire determination reports with fire loss statistics and track inspection and re-inspection reports and timelines.
- Manage fire prevention and public education staff training records using the selected data management software. As well, the department should develop a training policy for future growth of the department that includes objectives for new staff and adopts specific training requirements in order to establish consistency.
- Continue the process of developing and approving policies for Fire Prevention and Public Education as one of the priorities of the department.



- Assess space/storage limitations in current facility and investigate options for improvement.

10.3 Fire Suppression

10.3.1 Conclusions

- Fire suppression operations of the Lakeshore Fire Department combine the challenges typical of a suburban town with those of more rural localities
- All known structural fire responses consist of an automatic two station response. If the staffing is insufficient, a third station may be dispatched as well. Ten firefighters are able to respond to structural fires just over half of the time with the initial two station response, but may not arrive within 10 minutes from the time call, as prescribed by the OFM 10-in-10 guideline.
- After regular office hours the Chief, Deputy Chief and Assistant Deputy Chief share the on-call responsibilities, which ensures at least one Chief Officer is always available as a resource and to monitor all calls.
- Typically two Chief Officers will respond directly to any structure fire, which contributes staff towards meeting the OFM 10-in-10 performance measure. This leaves the third Chief Officer available for other call assignments, as required.

10.3.2 Recommendations

- Consider options to improve space constraints and meet facility and station needs.
- Adopt a performance targets for the department. No current mandatory standard or legislative requirement exists for fire suppression performance measures in Ontario. Town Council should determine the level of service desired from the Lakeshore Fire Department. Policies should be developed to reflect these decisions and measure performance annually against performance targets. It is recommended that the OFM 10-in-10 performance measure be adopted as the performance target for the urbanized parts of the municipality. A reduced response can be targeted for rural areas.
- Target to have a minimum of four firefighters initially responding.
- Aim to reduce assembly times of suppression staff within the department.
- Continue the practice of the Chief, Deputy and Assistant Deputy taking their department vehicles home and rotating duties as the on-call Chief.
- Continue regular practice of recording the number of firefighters on scene in ten minutes and report results to Council annually.
- Place a greater emphasis on firefighter safety, first response (four firefighters) and depth of response (10 firefighters in 10 minutes), in particular for more urbanized areas like Belle River.



- Consider staffing improvements to achieve a minimum of 10 firefighters within 10 minutes for either aggressive interior fire suppression or rescue operations 90% of the time. Currently, the number of firefighters typically responding within the ten minute window is less than the OFM guideline.
- Work toward the objective of staffing Station 3 with one crew of firefighters, 24 hours a day, seven days a week as per industry performance measures and best practices.
- Implement staffing recommendations over a number of years and time improvements to match growth in financial resources brought on by development growth.
- If council concludes that even a staged investment towards the recommendation is not affordable or desirable, consider interim measures such as hiring an additional staff member for training / public education as these would help mitigate the inherent risks being adopted.

10.4 Training

10.4.1 Conclusions

- The National Fire Protection Association (NFPA) Training Standards and the Ontario Fire College Curriculum are used as the basis for core training.
- Every firefighter is registered in the Ontario Fire College Curriculum.
- WHMIS (Workplace Hazardous Materials Information System), CPR and defibrillator training is done every year.
- The department has established partnerships for joint training opportunities with local industry and agencies.
- The training division is currently in the process of updating their Standard Operating Guidelines (SOGs).
- The department is challenged with consistency in training delivery using multiple instructors to deliver the message at five different stations.

10.4.2 Recommendations

- Continue to follow OFM Firefighter Certification Program.
- Develop a policy which prioritizes the focus of specialized training programs towards the most probable events. Partnering opportunities should be investigated with adjacent municipalities to deliver specialized training.



- Identify crucial programs and develop a long range plan to deliver these programs. Such a plan would outline expected training levels, staffing requirements, records management needs and budget projections and consider future growth of the Town.
- Consider additional administrative staff. One full time administrative assistant could be shared between public education, fire prevention, training and emergency planning as an interim measure.
- Consider one full-time trainer/ public educator that would develop and instruct all Lakeshore fire suppression personnel including delivery of public education programs. This would provide one additional available full-time administrative staff member for emergency response, provide consistency in departmental training, deliver specialized public education programs and prepare for the training needs of future full time firefighters.
- Continue with the review of Crisys Software as a potential replacement of Fire Pro Software. Improve records management for training functions using the selected records management software program.
- Continue process of updating Standard Operating Guidelines, policies and procedures for the training division. The department should set a schedule for completion. A regular review of guidelines, policies and procedures should be planned once most are brought up to date.
- Consider options to develop a central training facility or training sessions including cross training between stations.
- Investigate opportunities for live fire training.

10.5 Fleet Review

10.5.1 Conclusions

- The department's fleet replacement program has significantly improved the average years in service for the department's apparatus, allowed for the removal of some older apparatus from the fleet, and resulted in a relatively modern fleet of trucks. The fleet analysis, completed by the administration of the department, has resulted in the correct placement and sizing of vehicles across all stations to better suit the needs of the department moving into the future.
- A 15-year apparatus age is accepted in the industry as the service life of a front line vehicle, with up to five additional years of service as a reserve vehicle. The department generally follows these guidelines.
- The average age of the fleet was 17 years in 2007. The updated fleet now has an average age of 7.5 years.
- The fire apparatus fleet is maintained by the Windsor Fire and Rescue apparatus division. The fleet has an annual Certified Vehicle Operator's Registration (CVOR) as required by the Ministry of Transportation of Ontario (MTO).



- Regular in-house inspection and upkeep of the fleet is done by the firefighters.

10.5.2 Recommendations

The recommendations outlined below offer an opportunity to improve the overall condition of the fleet.

- Continue the planned fleet replacement program.
- Continue the practice of having the air quality in the fire department's breathing apparatus and compressor system checked twice per year.
- Continue the present small equipment budget at the current rate to allow for replacement of equipment that is older and/or out for repair.
- Continue the practice of maintenance being performed by Windsor Fire and Rescue Services mechanical shop, as they are well accustomed to and familiar with the specialized nature of fire apparatus.
- Replace the aerial ladder at Station 1. The aerial ladder response procedure should be regularly reviewed and revised as necessary as growth and development within Lakeshore continues.
- Rust proof the fire fleet. Each year the fleet should be inspected to check if reapplication is necessary.
- Continue the department's small vehicle replacement program as it is within acceptable standards of most municipalities. Monitor mileage and maintenance costs and alter the replacement program in place if a particular vehicle starts to have recurring problems.

10.6 Communication & Technology

10.6.1 Conclusions

- In 2005 Council approved the purchase of new radios for the Lakeshore Fire Department. This new system retains the town's current 400 MHz frequency. This ensures radio interoperability during joint exercises and major emergencies.

10.6.2 Recommendations

- Continue to monitor and assess the dispatch service provided as growth occurs in coming years.



11.0 IMPLEMENTATION

Developing a phased implementation strategy will provide Lakeshore Fire with the resources to address current challenges, as well as the flexibility to adjust as the community grows and the requirements of service delivery change. Implementing the outlined recommendations will ensure that the best practice for the staffing of front line vehicles is achieved in the short-term, while allowing the fire department to maintain the provision of adequate service to the expanding Town of Lakeshore.

As detailed in *Section 5.7.1*, Options were identified as the best course of action to improve the City's level of service in fire suppression.

11.1 Implementation Plan

A proposed timeline and ball-park cost estimates for the implementation of the major recommendations is presented in *Table 11.1 – Implementation Plan*.

The full long term scenario would ideally consist of a new Station 1 located to the west of the existing Puce station to provide coverage in future urban growth areas; conversion of Station 3 in Belle River to a career company to provide industry best practice of 4 minute response in part of the urban area⁷ and an increase in the depth of response and increased coverage of rural area within 10 minutes. The career company allows for flexibility and an assured response in responding to calls and provides additional manpower depth on every call plus there are an additional 15 not on shift available to respond if called. This option requires greater investment in the short term, in order to renovate or rebuild Stations 1 and 3, however, in the long-term; this option is considered to be suitable and financially responsible in terms of municipal growth.

With the move to a career company in Station 3 (and the related assured response), consideration could be given to the closure of Station 4. The poor location in terms of volunteer response and the limited amount of calls could be serviced with the assured response from Station 3 and or some redistribution of the coverage area to other stations.

Implementing a new centralized headquarters station, and closing the existing Stations 1 and 3, is a feasible option. It provides short term cost savings with regard to fleet and volunteer complement staffing. For geographic coverage, a small two-bay station, equipped with one response vehicle, staffed with a full-time crew would be required to cover future growth areas. However, the present two station model (Station 1 and Station 3) is predicted to provide better response coverage of the urban areas and growth areas. The long term cost savings of the centralized station model would not be significantly greater than under the two station option.

It needs to be emphasized that the implementation strategy can be tied to future growth, but commitment to the plan will ensure investments that are made are consistent with the long term vision for the department. Implementation of the elements of the plan should see incremental improvements in the ability to achieve the OFM 10-in-10 performance measure.

⁷ Urban areas are indicated on all response coverage maps for ease of reference. See **Sections 5.1.2** and **5.6.1**.

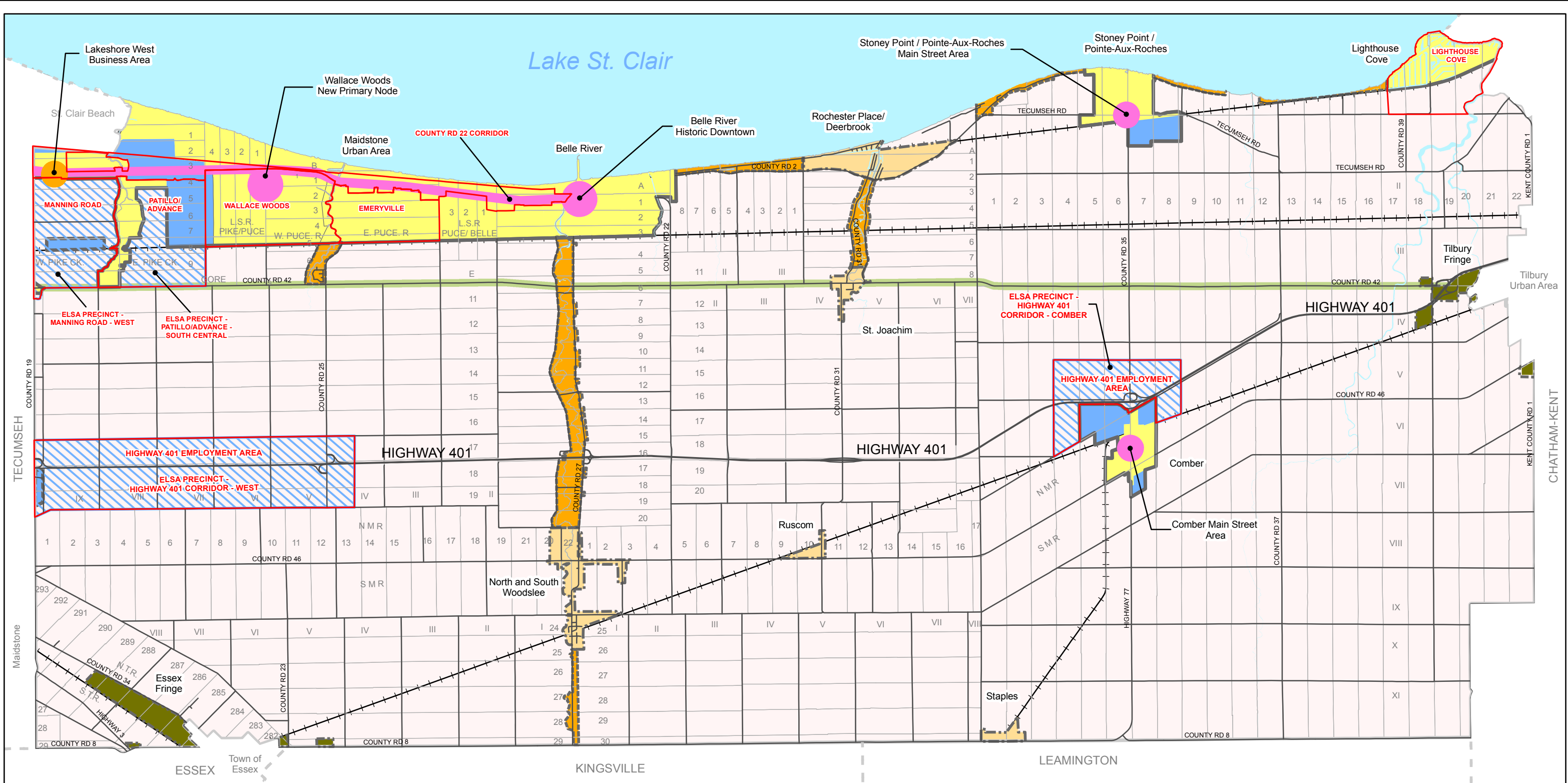


Table 11.1 - Implementation Plan			
Plan Year	Description	Additional Operating Costs*	Capital Costs*
2011 to 2015	Add Full-Time Crew (5) to Station 3	\$425,000	\$25,000
	New Station 3		\$2,000,000
	Additional Full-Time Crew (5) to Station 3	\$425,000	\$25,000
	Replace Aerial at Station 1.		\$1,000,000 ¹
2016 to 2020	Additional Full-Time Crew (5) to Station 3	\$425,000	\$25,000
	New Station 1		\$2,000,000
2021- 2025	Additional Full-Time Crew (5) to Station 3	\$425,000	\$25,000
Total		\$1,700,000	\$5,600,000
*Ball-park cost estimates provided for long-range planning purposes only.			
¹ Cost is included in Lifecycle Funding currently provided for from previous budget allotments			

11.2 Development Charges

The purchase of new vehicles and building of new fire stations to accommodate growth in the municipality are eligible for development charges. It may be appropriate that a portion of these costs be covered by development charges.

APPENDIX A - Lakeshore Community Structure



COMMUNITY STRUCTURE POLICY AREAS (SECTION 3.3)

- Primary Node*
- Secondary Node*
- Mixed Use Node*
- Agricultural Area
- Urban Area
- Employment Area
- Hamlet Area
- Waterfront Area
- Urban Fringe Area

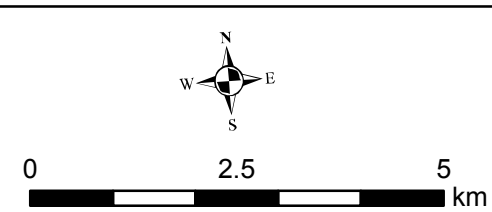
SPECIAL PLANNING AREAS (SECTION 3.4)

- Special Planning Area
- Employment Lands Study Area (ELSA)
- County Road 22 Mixed Use Corridor*
- County Road 42 Regional Corridor*

LEGEND

- Hamlet Area Boundary
- Waterfront Area Boundary
- Urban Fringe Area Boundary
- Town Boundary
- Urban Area Boundary

* The Nodes and Corridors are conceptually illustrated and are not intended to define the geographical extent of the Nodes and Corridors. The geographic extent is defined by the land use designations identified on Schedule "C".



Interpretation Note: This Schedule will be read and interpreted in conjunction with the Official Plan in its entirety.

Schedule "A" illustrates the community structure policy areas as discussed in Section 3.0 of the Official Plan. For specific Land Use Designations, refer to Schedule "C".

**Town of Lakeshore
OFFICIAL PLAN**

DRAFT

**SCHEDULE "A"
COMMUNITY STRUCTURE**

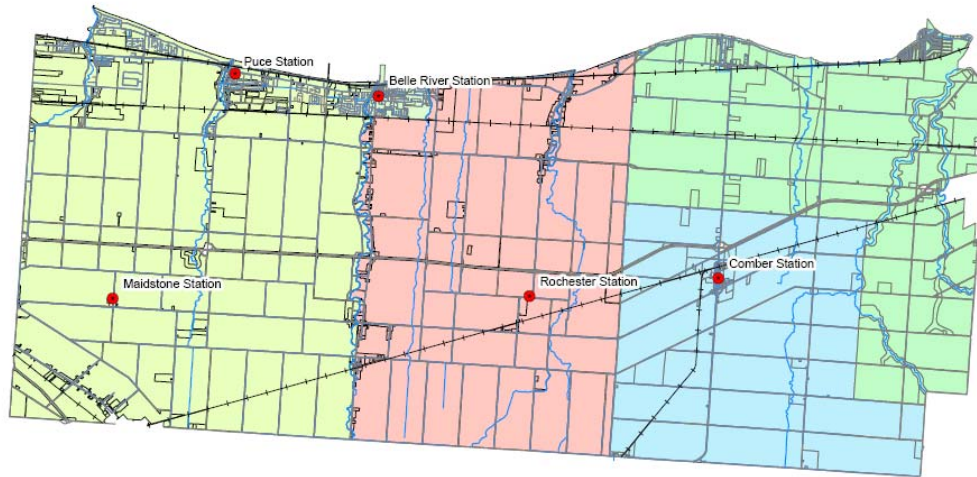
Revision Date: Final Draft November 14, 2007

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APPENDIX B – Stakeholder Consultation



Town of Lakeshore Master Fire Plan



May 27, 2008



Purpose of the Presentation

- Outline the Fire Master Plan study
- Highlight municipal responsibilities
- Summary of preliminary findings
- Discussion of key council input
- Next Steps

Benefits of a Fire Master Plan study:

- Ability for stakeholders to set key strategic directions for service delivery.
- Identification of performance targets to measure performance.
- Identification of future operating and capital expenditures including financing options such as development charges.

What's Covered in a Fire Master Plan Study

- Administration
- Fire Prevention and Public Education
- Training
- Fleet Review
- Communication and Technology
- Fire Suppression



Municipal Responsibilities

- The *Fire Protection and Prevention Act (FPPA)*, 1997 states that every municipality shall:
 - Establish a program for public education with respect to fire safety and certain components of fire prevention
 - Provide other fire protection services as it determines may be necessary in accordance with its needs and circumstances

Municipal Responsibilities

- Minimum program requirements include:
 - Simplified Risk Assessment – to identify the extent of other fire protection services
 - A smoke alarm program
 - Fire safety education activities distributed to residents/occupants
 - Inspections upon complaint or when requested to assist with code compliance

Municipal Responsibilities

- Providing other fire protection services includes:
 - Identifying the level of fire protection (suppression) services the municipality deems necessary based on its own “needs and circumstances”.
 - Determining this through evaluating factors such as: fire risk, liability, financial capabilities, resources, and community and council expectations.

Municipal Responsibilities

- The *FPPA, 1997* states that the Fire Chief is responsible to council for the delivery of fire protection services

Preliminary Findings

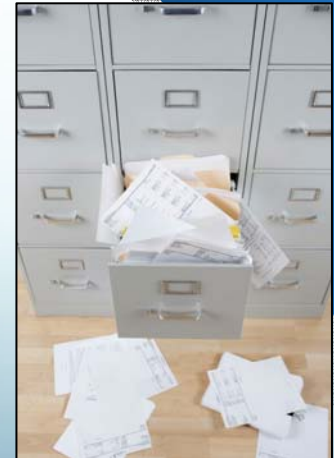
- This Fire Master Plan study will include:
 - Evaluating the relevant guidelines and legislation.
 - Compare the best practices of communities of similar population, geography and demographic.
 - Consultation with the key stakeholders to review the options for providing services.
 - Providing strategic recommendations including short and long-term goals to provide the optimal level of service to the community.

Preliminary Findings

- Current volunteer companies are well supported by the community and council.
- Consistent with other similar communities, pressures are increasing on sustaining a department based primarily on volunteers.
- Strategies to sustain the current volunteer system while managing the expectations of growth and service level performance targets are required.

Preliminary Findings – Administration

- Considerable amount of technical and administrative paperwork - would benefit from streamlined processes
- Development and revision of Standard Operating Guidelines
- Increased data management using Fire Pro



Preliminary Findings – Administration

- Constrained space at Belle River HQ station – challenge to accommodate new Fire Prevention Officer
- Future/permanent solution: new HQ offices at a new or rebuilt station



Preliminary Findings – Fire Prevention and Public Education

- Large time commitment is required to carry out inspections
- New Fire Prevention Officer provides greater flexibility with pre-fire planning
- Space/storage limitations in current facility

Preliminary Findings – Fire Prevention and Public Education

- Town currently well-served by one public education officer (Assistant DC)
- Safety Village in Windsor is well used by Lakeshore
- Targeted program aimed at seniors should be considered (vulnerable groups include young/seniors – 37 %)



Preliminary Findings – Training

- Current Training Committee is chaired by Deputy Chief and is composed of one officer per station
- Follow OFM Firefighter Certification Program
- Training Facility Limitations
 - No central training facility
 - Training sessions conducted at each fire station, towing yards and waterfronts/ponds
 - Cross training between stations should be considered



Preliminary Findings – Fleet Review

- Fleet in a state of transition – many older vehicles are being replaced
- Council should continue the fleet replacement program
- Replace Aerial Ladder 1
- Aerial should respond to all structural fires and commercial alarms



Preliminary Findings – Communication and Technology

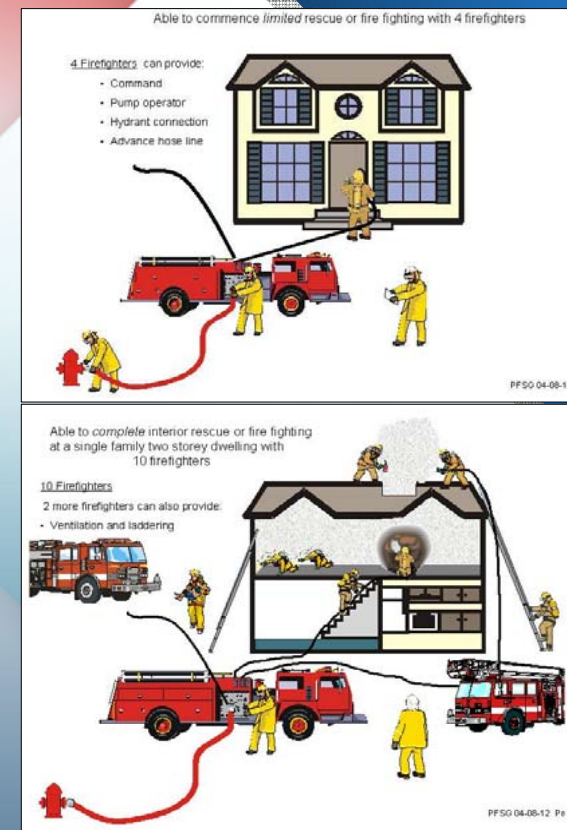
- Dispatch and communications protocols should be updated to reflect communications best practices
- Need to try and reduce dispatch times

Preliminary Findings – Fire Suppression

- No current mandatory standard or legislative requirement for fire suppression performance measures in Ontario
- Industry Guidelines include:
 - Ontario Fire Marshal's Office: 10-in-10
 - National Fire Protection Association (NFPA)
 - Ministry of Labour, Section 21 Guidance Notes

Preliminary Findings – Fire Suppression

- **First Response:** Minimum initial response to commence limited rescue or fire suppression.
- **Depth of Response:** Minimum response required for aggressive interior fire suppression and/or rescue.



Preliminary Findings Fire Suppression – OFM 10-in-10 Guideline

- Minimum of 4 firefighters initially responding
- Minimum of 10 firefighters within 10 minutes for either aggressive interior fire suppression or rescue operations - 90% of the time
- Assembly of 10 firefighters is calculated from when the alarm is received (at dispatch) until the entire fire attack team has arrived at the scene

Master Fire Plan – Fire Suppression

- **Response Time is comprised of three components:**
 - “Dispatch time”: Time to receive and dispatch the call
 - “Assembly time”: Time required for firefighters to react and prepare to respond
 - “Travel time”: Actual travel time from the fire station to the incident

Summary of Findings – Fire Suppression

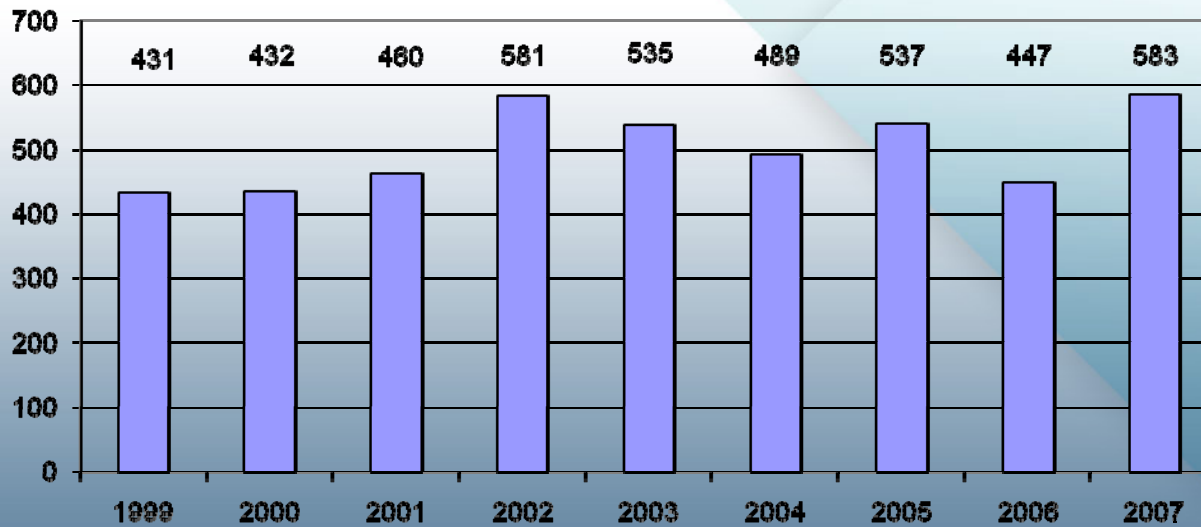
Comparison of Performance Measures		
Measure	OFM 10-10	NFPA 1710
First Response	4 staff minimum	1 st vehicle (4 staff) in 4 min. travel time, 90% of the time
Depth of Service	10 staff in 10 min. total time, 90% of the time	15 staff in 8 min. of travel time, 90% of the time

Preliminary Findings – Fire Suppression

- Industry best practices have evolved over the last ten years beginning with the *FPPA 1997* (OFM, NFPA, Ministry of Labour: Section 21)
- Greater emphasis on first response (4 firefighters) and depth of response (10-in-10), in particular for more urbanized areas like Belle River and on firefighter safety

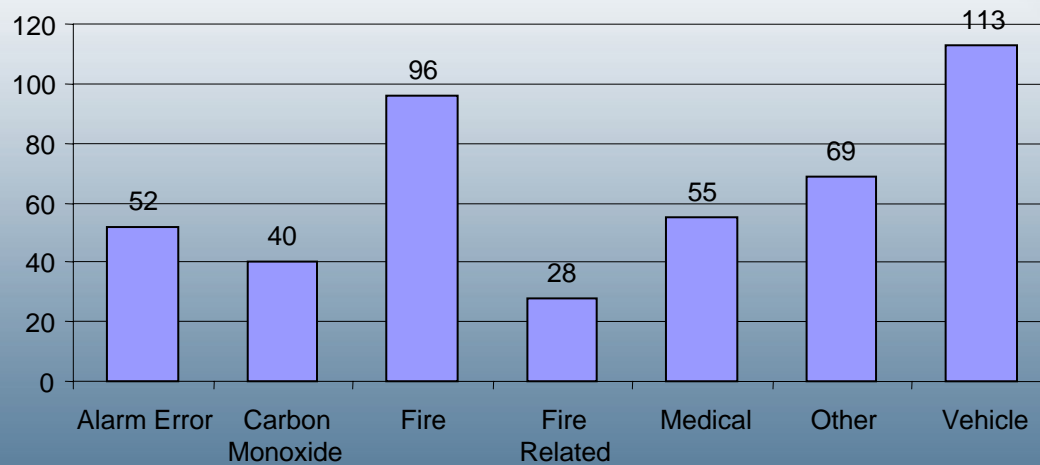
Preliminary Findings – Call Data Analysis

Total Calls by Year (1999-2007)

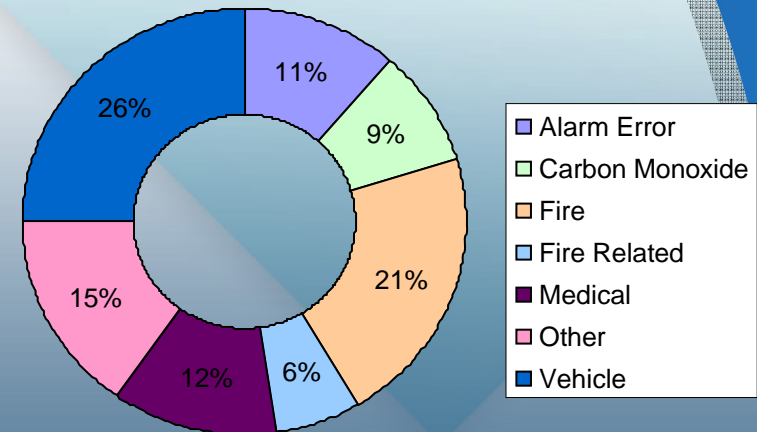


Preliminary Findings – Fire Suppression

Response by Type (2006 Data)

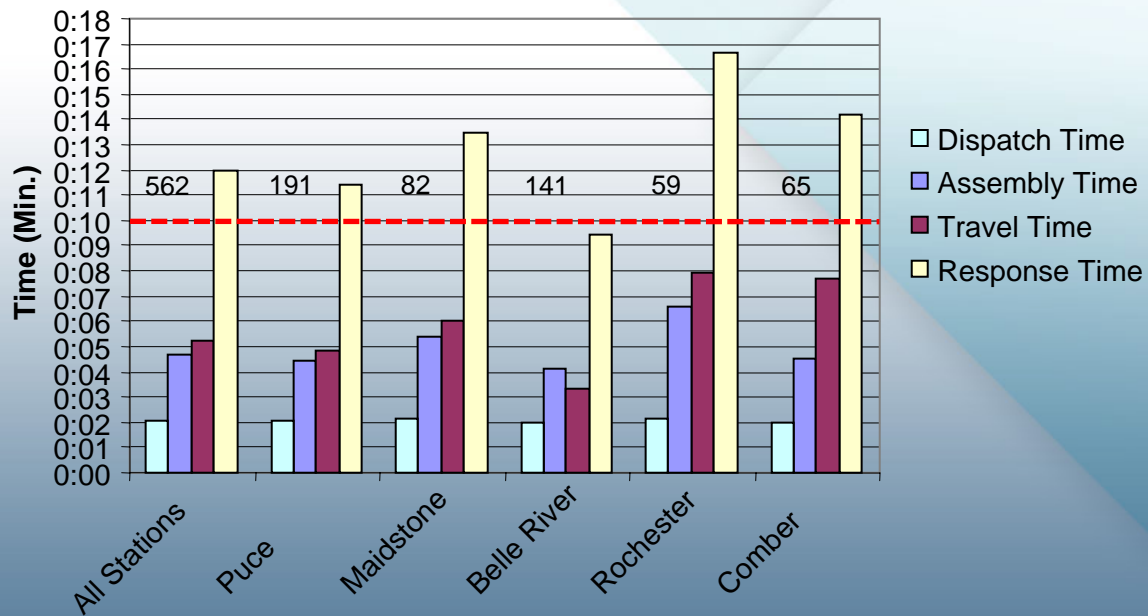


2006 Call Response Types



Preliminary Findings – Fire Suppression

Response Time 2007 by Station



Preliminary Findings – Fire Suppression

- Response times do not meet industry best practices (4 minutes first response for urban areas, 10 minutes for depth)
- Fire Related Calls Summary (2007)
 - Average travel time is 5 min 40 seconds
 - Average assembly time is 5 min 2 seconds
 - Average response time (dispatch, travel and assembly) is 11 minutes and 42 seconds.

Preliminary Findings – Fire Suppression

- Number of firefighters responding is less than OFM guideline.
- At least 10 firefighters respond to fire calls only 53% of the time
- Manpower responses during the daytime are even lower

Preliminary Findings – Fire Suppression

- Average response time is 11:42 min.
- Average manpower for fire calls is 10.60
- Overall, do not meet time nor manpower requirements. As they are averages, may only meet OFM guidelines 10 to 20 percent of the time.
- Need to begin recording number of firefighters on scene in 10 min.

Preliminary Findings - Lakeshore Population Growth

- Town has experienced significant growth over the last 5 years.
- Growth has lead to increased roadway congestion, development of new residential/employment areas.

		Population			Total Dwellings		
2001	2006	% Change	Urban	Rural	2006	Urban	Rural
28,746	33,245	15.7	19,899	13,346	12,638	8,613	2,997

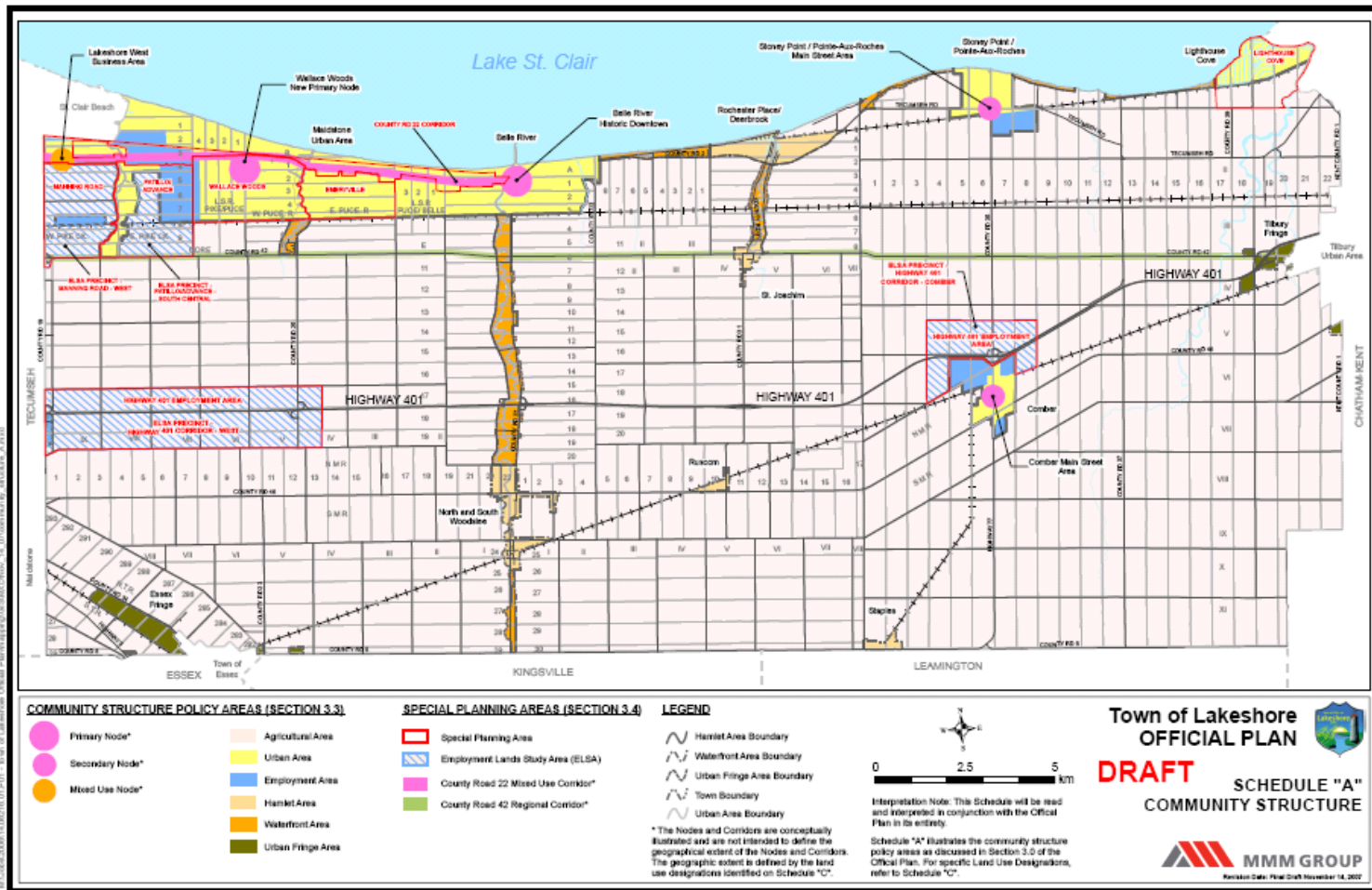
Preliminary Findings - Lakeshore Population Growth Impacts

- Significant population and employment growth anticipated
- Direct impact on number of calls
- Impacts on response time due to increased congestion

	2006	2011	2016	2021	2028
Population	33,345	40,630	46,380	52,030	59,095
Employment	9,930	12,720	15,780	18,080	21,325

Source: Town of Lakeshore Official Plan – April 14, 2008 Version

Lakeshore : Community Structure



Preliminary Findings – Long Term Implications

- Future growth will require changes to station locations and staffing to meet industry best practices
- Risk of not achieving best practices include insurance risks, liability issues and property and life risk of firefighters and residents.
- The level of fire protection provided is the responsibility of Council.

Preliminary Findings – Long Term Implications

- Adequacy of current station and staffing
- Options being discussed and considered
 - Move existing stations
 - Reduce or Add stations
 - Additional volunteer (part-time) complement
 - Full time complement
 - Combinations

Master Fire Plan – Staffing Comparison

Municipality	Population	Career Firefighters	Pop/Firefighter	Number of Fire Stations
Brockville	21,957	32	686	2
Georgina	42,346	33	1,283	3
Innisfil	31,175	11	2,834	4
Lakeshore	33,345	3	11,115	5
LaSalle	27,652	6	4,609	1
Orangeville	26,925	12	2,244	1
Orillia	30,259	31	976	1
Owen Sound	21,753	29	750	1
St. Thomas	36,110	54	669	2
Stratford	30,461	48	635	2
Tecumseh	24,224	3	8,075	2
Whitchurch	24,390	10	2,439	2
Windsor	216,473	302	717	8
Woodstock	35,480	42	845	2

Key Council Input – Level of Service

- Recommended approach: adopt OFM 10-in-10 as the performance measure target for the urbanized parts of the municipality
- Complete the Fire Master Plan with that objective
- Implication is need to evolve the department to include a career company over time
- Annually measure performance against target

Key Council Input – Long Term Scenario

- Advantages of Long Term Scenario include:
 - Career company can provide an assured response of 4 firefighters for all calls and increased manpower depth (there are an additional 15 not on shift).
 - Significantly improves the ability to achieve 10-in-10
 - Can be phased in to match growth and call volume
 - Capital costs can be included in DC
 - Increase operating costs offset by increased assessment due to growth

Key Council Input – Possible Financial Implication

	Financial Implications (ballpark estimate only)	
	Capital Cost	Operating Cost
New Relocated Puce Station	\$1,500,000	
New (or renovated) Belle River Station	\$1,500,000	
2009-2010: Add Daytime Crew (5)		\$425,000
2011-2012: Additional Crew (5)		\$425,000
2013-2014: Additional Crew (5)		\$425,000
2015-2016: Additional Crew (5)		\$425,000
Total	\$3,000,000	\$1,700,000

Master Fire Plan – Next Steps

- Refine options, complete assessment and select preliminary recommendations
- Public Consultation
- Draft and Final Reports





TOWN OF LAKESHORE MASTER FIRE PLAN



VOLUNTEER FIREFIGHTER COMMENT SHEET

The Town of Lakeshore has retained Dillon Consulting Limited to complete a Master Fire Plan. The purpose of the Master Fire Plan study is to review the operations of the Lakeshore Fire Department and set key objectives for the department to develop and evolve in conformance with the Fire Master Plan process outlined within the Ontario Fire Marshal's Shaping Fire-Safe Communities initiative.

The objectives of the study are to:

- i. Identify problems and areas for improvement within the Lakeshore Fire Service under existing financial and staffing conditions. The study will also provide recommendations for building upon existing resources and addressing potential gaps in current service requirements and resource needs into the future.
- ii. Evaluate the current level of service and develop recommendations and an implementation schedule for any changes that may be made to the Fire Service activities in the following areas:
 - Fire prevention and public education;
 - Staffing requirements, in both volunteer and full-time sectors;
 - Administration;
 - Training and professional development;
 - Fire operations and response, including level of service provided;
 - Station location appropriateness (coverage related);
 - Communications; and
 - Apparatus and equipment, and related maintenance program.

Your views are important to us. Please take a moment to share your ideas on the questions below (please print / type). If you would like to take a bit more time to think about your responses, feel free to send us your comments via fax or email by Wednesday, June 4, 2008. Thank you.

1. Please provide your opinion related to any issues in the following areas:

Administration (i.e. Office Space, Records Management, Data Management, Staffing, By-laws, Policies, Emergency Management, etc.)

Please discuss any issues relating to administration within the department.



TOWN OF LAKESHORE MASTER FIRE PLAN



What would improve administration within the department?

Fire Prevention (Fire Safety Priorities, Staffing, Policies, Plans Review, Inspections, etc.):

Please discuss any issues or opportunities relating to Fire Prevention within the department.

What would improve Fire Prevention within the department?

Public Education (Current Programs, Required Programs, Facilities, Staffing, Resources, Administrative Support, etc.):

Please discuss any issues or opportunities relating to Public Education within the department.

What would improve the Public Education program within the department?

Fire Suppression (Assembly Times, Turnout Times, Travel Times, Staffing, Fire Stations, Operations, Procedures, Management, Performance Measures, Other Non-fire Emergency Response Procedures, Workload, etc.):

Please discuss any issues or opportunities relating to fire suppression within the department.

What would improve suppression services and emergency response within the department?



TOWN OF LAKESHORE MASTER FIRE PLAN



Training (Staff, Facilities, Policies, Procedures, Training Programs, Specialty Programs, etc.):

Please discuss whether or not the number of topics and amount of time currently dedicated to training is appropriate?

Please discuss whether or not the topics of the training programs currently provided are appropriate?

What training needs are not being met? Please explain whether or not you feel you have appropriate training for your job?

What additional programs / topics would improve training within the department and why? How much additional time would you be willing to spend on training each month? _____

Are the training facilities appropriate? How could they be improved?

Fleet (Please comment on existing vehicles, maintenance, station facilities, including the four new apparatus arriving in July 2008 and the two new apparatus arriving in January 2009, etc.):

Please discuss any issues relating to the vehicles within the department.



TOWN OF LAKESHORE MASTER FIRE PLAN



Please discuss any issues relating to small equipment (SCBA, chainsaws, rescue saws, generators, ventilations fans, air compressors, air filtering systems, etc.) within the department. _____

Communications and Technology:

Please discuss any issues relating to dispatching (dispatch service, paging system, radios, etc.) within the department.

Please discuss any issues relating to radios and communication equipment within the department.

2. Are there any other comments or concerns that you would like to share with the study team?

Your Name (Optional): _____

Address (Optional): _____

Please email or fax your completed questionnaire by June 4, 2008 to:

Suzanne Charbonneau
Dillon Consulting Limited

Phone: 416-229-4646
Fax: 416-229-4692
Email: scharbonneau@dillon.ca

Thank you for your time.