Report to Council

City of Kelowna

;Date: November 06, 2012

File:

To: City Manager

From: Jeffrey G. Carlisle, Fire Chief

Subject: 2012-2022 Fire Department Strategic Plan

Report Prepared By: Sandy Scott

Recommendation:

THAT Council receives, for information, the Report and Presentation from the Fire Chief dated November 6, 2012 regarding the 2012-2022 Fire Department Strategic Plan;

AND THAT Council adopts, in principle, the 2012-2022 Fire Department Strategic Plan key recommendations as outlined in the Report of the Fire Chief dated November 6, 2012;

AND FURTHER THAT after adoption of the 2012-2022 Fire Department Strategic Plan key recommendations, Council repeal the 2010 Fire Department Strategic Plan.

Purpose:

To adopt, in principle, the 2012-2022 Fire Department Strategic Plan.

Background:

In March 2010, the City of Kelowna (COK) Council approved in principle the KFD 2010-2019 Strategic Plan. This plan in addition to establishing response time targets identified a number of recommendations to address service delivery challenges and operational capacities. In February 2011, a discussion regarding the response time targets occurred with COK Council during the KFD Annual Report presentation. The recommendation to conduct a review of the Strategic Plan in 2012 was supported by COK Council.

In order to conduct the review of the KFD 2010-2019 Strategic Plan a extensive planning cycle and decision process was utilized to analyzed the various recommendations as well as look at other factors that would validate KFD's direction or introduce alternative strategies.

The goal of the KFD 2010-2012 Strategic Plan Review was to:

- Identify completed recommendations from the 2010-2019 KFD Strategic Plan
- Review recommendations that have not been completed and determine if they are still relevant

- Validate response time targets based upon 2010-2012 statistics and new information/analysis
- Confirm Corporate and Community Plan alignment
- Determine alternative/innovative strategies, and
- Ensure optimal efficiencies and effectiveness in the provision of fire services to the citizens of Kelowna

During the review process a cross-sectional representation of KFD employees (Planning Committee) participated in the planning cycle by conducting a comparative analysis of the existing strategic plan with the goals listed above and other relevant information such as industry standards, comparative communities, and COK Corporate and Community Plans. The data and input from the Planning Committee was developed into strategic issues and an operational plan with options/recommendations to address the various strategic issues.
The result of the review process is the 2012-2022 KFD Strategic Plan that positions KFD as a cost efficient and effective emergency response service. A number of staffing recommendations contained in the current 2010-2019 plan will not be implemented. This includes the additional; administrative clerk, training officers, and fire inspectors

Summary of Key Recommendations

The revised 2012-2022 KFD Strategic Plan includes 26 recommendations. Of particular note is the development of a Standards of Response Cover. These response standards are based upon quantified risk factors and relevant community aspects. The following is the summary of the key recommendations for Council's consideration:

Recommendation 1:
That the Fire Department conduct and complete a Master Plan that will outline a path for short, medium and long term goals and guide the department over the next 10 years.

Recommendation 2:
That a formalized Public Education & Pre-Incident Plan program be established within the current Fire Prevention Branch staff compliment to meet the goals for public education and pre-incident planning.

Recommendation 3:
Option 1: That Infrastructure Planning Section includes the construction of a multi-use training facility as part of the new Glenmore Station project. This would be a collaborative project utilizing partnerships with various agencies throughout the Okanagan, such as RCMP, BC Ambulance, Regional Fire Services, Search & Rescue, YLW, UBC, FortisBC, Worksafe BC, Justice Institute of BC and others. The facility would serve as a revenue generator for the City of Kelowna and draw others from around the region to Kelowna. The local facility would enable on duty training cutting overtime costs dramatically associated with sending staff out of town for training.

Option 2: Continue to utilize the North Okanagan Regional District Training Facility in Vernon. The preferred option is option 1 as this will better meet the needs of KFD and other stakeholders' training functions.

Recommendation 4:
Conduct a review of the dispatch operation to determine efficiencies and highlight future opportunities, consolidations and integrations.

Recommendation 5:
Consistent with the outcome of the RDCO Core Service Review process, establish, a service agreement with the RDCO for fire dispatch service.

Recommendation 6:
Relocate the E O C to another facility or other suitable location and consistent with the outcome of the RDCO Core Services review, determine a suitable location for the back up EOC.

Recommendation 7:
Consistent with the outcome of the RDCO Core Service Review process, establish a service agreement with the RDCO for the provision of Regional Emergency Services. The Emergency Management program will include a staffing plan for the program and the EOC, and this will form part of the service agreement.

Recommendation 8:
Continue the 3 year capital funding program in 2013 and 2014 as outlined in the 2012 budget request to complete required system and technology improvements. Establish ongoing operational funding as required in subsequent years for system maintenance and enhancements.

Recommendation 9:
Option 1: That KFD adopt the Standard of Response Cover report. This establishes that KFD will endeavour to achieve a 4 minute travel time response for the first Engine on scene to emergencies within the Urban Growth Boundary. In areas outside of the Urban Growth Boundary KFD should endeavour to achieve an 8- 10 minute travel time response for the first Engine on scene.

Option 2: Maintain the response zones identified in the 2010-2019 Strategic Plan. The travel time goals for urban, suburban and rural zones are difficult to achieve given the COK configuration.

The preferred option is option 1 as this will better meet the specific risks in Kelowna and enhances firefighter and citizens safety during emergencies

Recommendation 10:
As recommended in the 2010-2019 KFD Strategic Plan build a fire station in North Glenmore area. This will improve the distribution of career resources, and improve the emergency response travel times in the north end of the city.

Recommendation 11:
Subject to further densification and validation from emergency response statistics, construct a fire station in the KLO/ Gordon Drive area. This review identified that there is a current gap in the distribution of resources in the immediate area of the South Pandosy urban center and a lack of resource concentration to back up the Mission fire station.

Recommendation 12:
Adopt the revised replacement schedule of fire apparatus as detailed in the 2012-2022 KFD Strategic Plan review to maintain the revised replacement schedule. This includes 15 year front line life cycle and 20 year retirement for ladder trucks in order to maintain an adequate working fleet of reliable emergency vehicles. In addition it is recommended that annual contributions to the vehicle replacement reserve is adequate to fund the life cycle replacement schedule.

Recommendation 13:
That when the time line has been confirmed for the construction of the North Glenmore Station, KFD will develop an operational plan that will minimize the taxation increase to staff the new station and optimize the utilization of incremental staff increases. This will include a study to determine the feasibility of the Station 1, Rescue Squad Company being increased from 2 to 4 members to improve the company's effectiveness to perform critical tasks at emergency incidents.

Recommendation 14:
Conduct a recruitment process targeting the McKinley Landing area.

Recommendation 15:
Conduct a review of the POC deployment system. In particular the feasibility of station 1 POC members being reassigned to the closest POC station from their residence (South East Kelowna, McKinley or Glenmore), and maintain a minimum POC staffing level of 50 members.

Conclusion

The review of the 2010-2019 KFD Strategic Plan verified that a number of recommendations had been completed since April 2010 and that a number of key recommendations were no longer required.

The development of the 2012-2022 KFD Strategic Plan utilized relevant data from a number of sources including the use of technology in an effort to optimize resources and systems, and provide the best possible service delivery for the citizen of Kelowna. Implementation of these recommendations over the next 10 years will be based upon the COK Council priorities, fiscal realties, and annual verification of the service delivery outputs.

Financial/Budgetary Considerations:

That the following costs savings will come into effect. The additional administrative clerk position identified in the 2010-2019 strategic plan be deleted that would result in $68,750 cost savings. The additional fire inspector positions identified in 2010-2019 strategic plan be deleted that would result in $195,000 cost savings. The additional Assistant Training Officer position identified in 2010-2019 strategic plan be deleted that would result in $115,000 cost savings.

Subject to the construction time line for the North Glenmore Station the estimated annual taxation increase to fund the 2012-2022 KFD Strategic Plan for the first 5 years of the plan is .64%.

Alternate Recommendation:
Maintain the current Fire Department Strategic Plan

Internal Circulation:
Director Financial Services; Corporate Sustainability GM; Community Sustainability GM; Community Services GM

Considerations not applicable to this report:
Legal/Statutory Authority:
Legal/Statutory Procedural Requirements:
Existing Policy:
Personnel Implications:
External Agency/Public Comments:
Communications Comments:

Submitted by:

J. Carlisle, CFO, MA, CD
Fire Chief, Kelowna Fire Department

Approved for inclusion:  R. Mayne, General Manager, Corporate Sustainability

Attachments:
Council Workshop Strat Plan PPT.v4 w title slides.pptx
Tax Percentage Increase - Report to Council.pdf

cc: Fire Department
Office of the City Clerk
Director Corporate Services
Director Communications
Director Human Resources
Director Land Use Management
Director Infrastructure Planning
Director Policy & Planning
Director Regional Services
Director Civic Operations
Director Design & Construction Services
Director Development Services
Director Real Estate & Building Services
Strategic Initiatives Department

KELOWNA FIRE DEPARTMENT

STRATEGIC PLAN

2012-2022

Kelowna
Fire Department

EXECUTIVE SUMMARY

1. Executive Summary

1.1 Executive Summary

The Fire Service is a critical component of the public safety system. Fire Departments do much more than fight fires. They provide a wide range of rescue and emergency, prevention and public safety services. Kelowna Fire Department (KFD) is a composite service operating out of 7 stations with a total staff compliment of 122 career staff and 54 Paid-On-Call (POC) firefighters.

In March 2010, the City of Kelowna (COK) Council approved in principle the KFD 2010-2019 Strategic Plan. This plan in addition to establishing response time targets identified a number of recommendations to address service delivery challenges and operational capacities. In February 2011, a discussion regarding the response time targets occurred with COK Council during the KFD Annual Report presentation. The recommendation to conduct a review of the Strategic Plan in 2012 was supported by COK Council.

Today, local government is facing strong demands for cost reduction and increased value in the delivery of services. Politicians and leaders in local government are relentlessly looking for strategies that balance public expectations; deliver valued services/programs, while maintaining fiscal restraint amidst global, international, national and local economic realities. For these reasons a review of the KFD 2010-2019 Strategic Plan was considered timely.

In order to conduct the review of the KFD 2010-2019 Strategic Plan a extensive planning cycle and decision process was utilized to analyzed the various recommendations as well as look at other factors that would validate KFD's direction or introduce alternative strategies.

The goal of the KFD 2010-2012 Strategic Plan Review was to:

- Identify completed recommendations from the 2010-2019 KFD Strategic Plan
- Review recommendations that have not been completed and determine if they are still relevant
- Validate response time targets based upon 2010-2012 statistics and new information/analysis
- Confirm Corporate and Community Plan alignment
- Determine alternative/innovative strategies, and
- Ensure optimal efficiencies and effectiveness in the provision of fire services to the citizens of Kelowna

During the review process a cross-sectional representation of KFD employees (Planning Committee) participated in the planning cycle by conducting a comparative analysis of the existing strategic plan with the goals listed above and other relevant information such as industry standards, comparative communities, and COK Corporate and Community Plans. The data and input from the Planning Committee was developed into strategic issues and an operational plan with options/recommendations to address the various strategic issues.

Summary of Recommendations

The result of the review process is the 2012-2022 KFD Strategic Plan. This plan contains 26 recommendations that positions KFD as a cost efficient and effective emergency response service. Of particular note is the development of a Standards of Response Cover. These response standards are based upon quantified risk factors and relevant community aspects. The following is the summary of the recommendations:

EXECUTIVE SUMMARY

Recommendation 1: The additional administrative clerk position identified in the 2010-2019 strategic plan be deleted.

Recommendation 2: That the Fire Department conduct and complete a Master Plan that will outline a path for short, medium and long term goals and guide the department over the next 10 years.

Recommendation 3: The additional fire inspector positions identified in 2010-2019 strategic plan be deleted. It is further recommended that a formalized Public Education & Pre-Incident Plan program be established within the current Fire Prevention Branch staff compliment to meet the goals identified in the strategic plan for public education and pre-incident planning.

Recommendation 4: A development plan review checklist be created in accordance to the BC Fire Code & BC Building Code and provided to the planning department for the planning process. This will eliminate duplication of plan review done by both plan checkers and fire inspectors and expedite the development permit process.

Recommendation 5: The additional Assistant Training Officer position identified in 2010-2019 strategic plan be deleted

Recommendation 6:
Option 1: That Infrastructure Planning Section includes the construction of a multi-use training facility as part of the new Glenmore Station project. This would be a collaborative project utilizing partnerships with various agencies throughout the Okanagan, such as RCMP, BC Ambulance, Regional Fire Services, Search & Rescue, YLW, UBC, FortisBC, Worksafe BC, Justice Institute of BC and others alike. The facility would serve as a revenue generator for the City of Kelowna and draw others from around the region to Kelowna. The local facility would enable on duty training cutting overtime costs dramatically associated with sending staff out of town for training.

Option 2: Continue to utilize the North Okanagan Regional District Training Facility in Vernon.

The preferred option is option 1 as this will better meet the needs of KFD and other stakeholders' training functions.

Recommendation 7: Conduct a review of the dispatch operation to determine efficiencies and highlight future opportunities, consolidations and integrations.

Recommendation 8: Develop a staffing plan to optimize staffing levels and capacity in the Fire Dispatch Commincations Center

Recommendation 9: Consistent with the outcome of the RDCO Core Service Review process, establish, a service agreement with the RDCO for fire dispatch service.

Kelowna
Fire Department

EXECUTIVE SUMMARY

Recommendation 10: Relocate the E O C within the new Combined Emergency Services facility or other suitable location. Consistent with the outcome of the RDCO Core Services review, confirm and implement a suitable backup location for the EOC.

Recommendation 11: Consistent with the outcome of the RDCO Core Service Review process, establish, a service agreement with the RDCO for the provision of Emergency Management and develop a staffing plan for the program and the EOC, to form part of the service agreement.

Recommendation 12: Based upon the direction of the RDCO Board and the outcomes from the Regional Emergency Services Committee review, agreements for delivery of service should be reviewed and revised.

Recommendation 13: Continue the 3 year capital funding program in 2013 and 2014 as outlined in the 2012 budget request to complete required system and technology improvements. Establish ongoing operational funding as required in subsequent years for system maintenance and enhancements.

Recommendation 14:
Option 1: That KFD adopt the Standard of Response Cover report. This establishes that KFD will endeavour to achieve a 4 minute travel time response for the first Engine on scene to emergencies within the Urban Growth Boundary. In areas outside of the Urban Growth Boundary KFD should endeavour to achieve an 8- 10 minute travel time response for the first Engine on scene.

Option 2: Maintain the response zones identified in the 2010-2019 Strategic Plan. The travel time goals for urban, suburban and rural zones are difficult to achieve given the COK configuration.

The preferred option is option 1 as this will better meet the specific risks in Kelowna and enhances firefighter and citizen safety during emergencies.

Recommendation 15: Continue to monitor the paid on call turn out time in order to make any necessary operational adjustments in the future.

Recommendation 16: As recommended in the 2010-2019 KFD Strategic Plan, build a fire station in North Glenmore area. This will improve the distribution of career resources, and improve the emergency response travel times in the north end of the city.

Recommendation 17: Construct a fire station in the KLO/ Gordon Drive area. This review identified that there is a current gap in the distribution of resources in the immediate area of the South Pandosy urban center and a lack of resource concentration to back up the Mission fire station.

Recommendation 18: Continue to work with Infrastructure Planning and Building Services to prioritize updates to the current KFD fire stations and include funding for station updates in the COK 10 year Capital Plan. Adopt the revised replacement schedule of fire apparatus as detailed in the 2012-2022 KFD Strategic Plan review to maintain the revised replacement schedule.

EXECUTIVE SUMMARY

Recommendation 19: That the Kelowna Fire Department adopts a 15 year front line life cycle and 20 year retirement for ladder trucks in order to maintain an adequate working fleet of reliable emergency vehicles.

Recommendation 20: Upon confirmation from a condition survey analysis conducted by Civic Operations, KFD will submit a request in the 2013 budget for funding to replace the 1991 Ladder truck at a cost of $1,200,000.

Recommendation 21: Adopt the revised replacement schedule of fire apparatus as detailed in the 2012-2022 KFD Strategic Plan review to maintain the revised replacement schedule.

Recommendation 22: Submit a request in the 2013 budget for funding to replace the 1996 Mini pumper in McKinley Landing as it is rated for brush fires and not structural fires.

Recommendation 23: As recommended in the 2010-2019 KFD Strategic Plan that annual contributions to the vehicle replacement reserve is adequate to fund the life cycle replacement schedule.

Recommendation 24: That a study be conducted to determine the feasibility of the Station 1, Rescue Squad company being increased from 2 to 4 members to improve the companies effectiveness to perform critical tasks at emergency incidents. The incremental staffing increases for the new Station 5 will provide the basis for the study prior to the completion of the new station.

Recommendation 25: Conduct a recruitment process targeting the McKinley Landing area.

Recommendation 26: Conduct a review of the POC deployment system. In particular the feasibility of station 1 POC members being reassigned to the closest POC station from their residence (South East Kelowna, McKinley or Glenmore), and maintain a minimum POC staffing level of 50 members.

Conclusion

The review of the 2010-2019 KFD Strategic Plan verified that a number of recommendations had been completed since April 2010 and that a number of key recommendations were no longer required.

The development of the 2012-2022 KFD Strategic Plan utilized relevant data from a number of sources including the use of technology in an effort to optimize resources and systems, and provide the best possible service delivery for the citizen of Kelowna. Implementation of these recommendations over the next 10 years will be based upon the COK Council priorities, fiscal realties, and annual verification of the service delivery outputs.

Kelowna
Fire Department

TABLE OF CONTENTS

2. Table of Contents

Kelowna
Fire Department

3. Introduction & History

3.1 Introduction & History

The Kelowna Fire Department was inaugurated in 1905 as a Volunteer Fire Department. Career Fire Fighters began to be hired in the 1950's for the Water Street Fire Hall known today as Station 2. At this time the Fire Department also provided Fire Dispatch Service and Ambulance Service to the community. The Provincial Government assumed the Ambulance Service role in the mid 1980's. The Fire Department continues to provide pre-hospital care through the First Medical Responder Program through the Emergency Health Services Commission as assistance to the British Columbia Ambulance Service.

In 1973 Rutland, Mission, Glenmore, and Benvoulin amalgamated with the City of Kelowna doubling its population and expanding the size of the community to 211 square kilometres.

In 1989 the Fire Department took the lead on the development of the Regional Rescue Program to provide Auto Extrication, Hazardous Materials Response and Technical Rescue to the citizens and visitors of the Central Okanagan Regional District. Currently five (5) other fire departments in the Regional District of Central Okanagan provide auto extrication and low embankment rescue.

In 1993 the Fire Department developed the Regional Emergency Program, which became a Regional Bylaw in 1995, and provides overall Regional Emergency Program responsibilities.

Past major regional emergencies such as Wildfires and Flooding have enabled the Regional Emergency Program to become a model emulated by other fire and emergency service providers.

The purpose of the Fire Department Strategic Plan 2012-2022 is to provide a goal orientated framework for cost-effective and efficient provisions for service delivery to the City of Kelowna, our partners, customers and clients.
The Strategic Plan strives to meet current and emerging emergency response, fire prevention, training, dispatch and emergency program requirements over the ten year period and establishes a foundation for service delivery beyond this time period. The Strategic Plan is largely built on risk and performance measures as service delivery targets.

Today, Kelowna's resident population is over 117,000 supplemented by high volume seasonal visitor influxes, notably during the summer and ski seasons. The fire department is a composite department comprised of 122 Career Staff and 54 Paid on Call staff based out of 7 Fire Stations.

4. Methodology

METHODOLOGY

4.1 Methodology

The Fire Service is a critical component of the public safety system. Fire Departments do much more than fight fires. They provide a wide range of rescue and emergency, prevention and public safety services. In British Columbia (BC) and in most Provinces within Canada, the determination of the Fire Department's service levels is a local government (municipal) responsibility. Service delivery is performed by three basic fire department staff configurations; volunteer or paid-on-call firefighters, composite (blend of volunteer and career firefighters), and career fire departments. In BC, 80% of the Fire Service is volunteer departments. Composite and career fire departments are usually located in larger communities. Volunteer fire departments protect more communities while career fire departments protect more people. Kelowna Fire Department (KFD) is a composite service operating out of 7 stations with a total staff compliment of 122 career staff and 54 Paid-On-Call (POC) firefighters.

There is no mandatory legislative requirement for a community to have fire/rescue service and essentially all decisions relating to fire service operations are made at the community level. The most recognized fire service industry standard is the National Fire Protection Association (NFPA) and these are widely accepted as a guide for local government emergency service decision making. In addition to NFPA, a number of other factors must be taken into consideration when determining a community's emergency response system. These factors should include:

- Comparison with other communities
- Community profile (industrial, commercial, residential, etc.)
- Demographic profile
- Growth projections
- Risk & liability assessment factors including adjacent threats (wild lands, other communities, industrial sites, etc.)
- Statistical and historical analysis
- Existing emergency response capacities
- Regulatory requirements
- Public expectations
- Fiscal & political realities

A number of communities in BC have opted to develop performance targets for emergency response. Applying the relevant industry standards within the factors listed above, strategic or master plans are approved in an effort to address the risk potential in a community by providing a consistent and equitable level of emergency response service within the community. These performance standards typically identify initial response times in the range of 4 to 10 minutes in 90% of occurrences within the response area.

Beyond emergency operations, the primary focus of the Fire Service must be prevention. This includes public education and prevention programs, fire investigation and inspections, and fire safety legislation compliance. The Office of the Fire Commissioner in BC oversees these requirements; however, local implementation varies depending upon resource allocation and community commitment to public safety.

METHODOLOGY

In March 2010, the City of Kelowna (COK) Council approved in principle the KFD 2010-2019 Strategic Plan. This plan in addition to establishing response time targets identified a number of recommendations to address service delivery challenges and operational capacities. In February 2011, a discussion regarding the response time targets occurred with COK Council during the KFD Annual Report presentation. The recommendation to conduct a review of the Strategic Plan in 2012 was supported by COK Council. It is extremely important to conduct regular reviews of any strategic plan to confirm the relevance amidst a continually changing external environment

Methodology

4.2 *Goals of KFD 2010-2012 Strategic Plan Review*

The goal of the KFD 2010-2012 Strategic Plan Review is to:

- Identify completed recommendations
- Review recommendations that have not been completed and determine if they are still relevant
- Validate response time targets based upon 2010-2012 statistics and new information/analysis
- Confirm Corporate and Community Plan alignment
- Determine alternative/innovative strategies, and
- Ensure optimal efficiencies and effectiveness in the provision of fire services to the citizens of Kelowna

4.3 *Rationale for the KFD 2010-2012 Strategic Plan Review*:

As previously indicated, it is a good business practice to review strategic plans cyclically during the plan's timeline. Today, local government is facing strong demands for cost reduction and increased value in the delivery of services. Politicians and leaders in local government are relentlessly looking for strategies that balance public expectations; deliver valued services/programs, while maintaining fiscal restraint amidst global, international, national and local economic realities. With this in mind a review of the KFD 2010-2019 Strategic Plan is timely. The following are additional rationale to conduct a review:

- Emergency response time targets were primarily based upon travel time and did not include a community risk analysis and fire insurance grades
- Corporate core services review to determine inefficient programs, systems and low value services in order to reduce costs, and
- COK Council's direction to look for innovative and non-traditional approaches to service delivery

METHODOLOGY

In order to conduct the review of the KFD 2010-2019 Strategic Plan a extensive process was utilized to analyzed the various recommendations as well as look at other factors that would validate KFD's direction or introduce alternative strategies . This process included the following:

- Strategic planning cycle framework,
- Fire Underwriters Survey (FUS),
- Risk Assessment Matrix (probability/consequence)
- Review of the COK Official Community plan as it pertains to growth
- Financial impact analysis, and
- Decision model that takes into consideration community factors and the results of the above.

These components are presented in the applicable section of this review and/or included as appendixes.

During the review process a cross-sectional representation of KFD employees (Planning Committee) participated in the planning cycle by conducting a comparative analysis of the existing strategic plan with the components listed above and other relevant information such as industry standards, comparative communities, and COK Corporate and Community Plans. The data and input from the Planning Committee was developed into strategic issues and an operational plan with options/recommendations to address the various strategic issues. The next step in the process was for the KFD Leadership Team (Chief Officers) to assemble the information by branch into the KFD 2012-2022 Strategic Plan. At the 75% completion stage of the review a Council Workshop was conducted to confirm overall alignment with their direction and expectations.

The illustration below figure1 provides a pictorial representation of the suggested decision framework to assist COK Executive Team and Council in their deliberations and support for the reviewed plan.

Figure 4.3.1

Kelowna
Fire Department

5. Strategic Planning Cycle

Figure 5.1.1

5.1 Developing the Mission of the Department:

This is the "guiding star" of the organization that describes who we are, what we do, and how we will carry out the services of the organization. The mission statement reflects every facet of your business: the range and nature of the products you offer, pricing, quality, service, growth potential, use of technology, and your relationships with your customers, employees, suppliers, competitors and the community.

5.2 **Applying the Values:**

These are the shared common values that are the foundation of the organization. Values pertain to what those in a department consider to be appropriate or inappropriate behaviours. Identifying fundamental values is predicated on observable behaviours and measurable results.

Value statements are grounded in values and define how people want to behave with each other in the organization. They are statements about how the organization will value customers, suppliers, and the internal community. Value statements describe actions which are the living enactment of the fundamental values held by most individuals within the organization.

5.3 Identifying the Department Mandates:

Organizations exist for a set of specific formal and informal reasons. Reasons that define the needs that are to be met by the organization. They can be translated into some specific functions, programs, or services, collectively known as mandates.

There are formal mandates and informal mandates. The formal mandates are those requirements that are set forth in rules, regulations, policies, ordinances, resolutions, laws and statutes. The informal mandates are those expectations of the citizens. They include functions, programs and services that have been accepted as standards but haven't been formally mandated.

Common areas where mandates are found are in Local Legislation, Local Directives, Provincial Mandates and Federal Mandates.

5.4 Philosophy of Operation:

Every organization conducts its tasks within a system of philosophy that uses the previous steps of the model to describe in general terms how the organization functions. The philosophy of operations of a department is based on its values, beliefs, culture, and mission. This is the foundation for all aspects of the department actions. Any specific strategy, operation, and decision made should be based on this philosophy.

5.5 External Environmental Assessment:

This is the examination of opportunities and threats or challenges the organization is now facing or will soon face. These involve political, economic, social, and technological issues within the community. Another area of the external environment involves the customers, clients, or payers of the department as well as the actual or potential competitors or collaborators of the fire department. The external Environmental Assessment is one of two steps in what is called "SWOT Analysis". The external environment consists of the issues, areas, considerations, desires and controlling factors that are outside the ability of the fire department or its elected officials to control.

5.6 Internal Environmental Assessment:

This is for the environment within the control of the organization; this is an examination of the weaknesses and strengths of the organization. This is the second step of the "SWOT Analysis". The desire is to minimize the weaknesses and maximize the strengths of the organization.
The internal environment can be divided into three components; the available resources (inputs), the present strategy (process), and performance (outputs). These fundamental categories are, for the most part, within the control of the department through its governing board, fire chief, and other officers.

5.7 Identifying Strategic Issues:

Strategic issues deal with the fundamental policies of the organization and can be thought of as involving some form of conflict within the organization or that the organization must face. These address strategies designed to promote the department's mandates, mission, values, and service delivery. These issues can be thought of as involving some form of conflict within an organization. The conflicts may involve ends (what), means (how), philosophy (why), location (where), timing (when), and the groups inside or outside of the department (who) that might be affected by the way particular issues are resolved.

5.8 Creating Strategic Goals:

The strategic issues are examined and explained in the form of a strategic goal statement. After the questions have been developed, the next step is to develop a narrative statement that answers each strategic issue question. This should be done in one paragraph if possible. This should also describe how the issue relates to the mission or mandates of the department. The next step is to arrange the issues, either by natural priority or in some other logical sequence. This is to facilitate developing strategies, providing a reasonable means for the key stakeholders to consider the issues one at a time. The final step in this process is to confirm that the strategic issues that you have identified are truly strategic.

5.9 Proactive Futuring:

A process to establish the organization's vision of its ideal future and then determine what can be done today to move the organization in a direction toward that ideal future state.
Proactive futuring is more than simply the development of a shared vision of an ideal future. Beyond the development of a vision, proactive futuring involves identifying and taking actions today that will move the organization closer to the achievement of that vision. The purpose of proactive futuring is to create the future that is seen in the shared vision. The first step requires a shift in the mindset of the members.

5.10 Operational Planning (Goals, Objectives and Action Plans):

Strategic planning is simply entertainment unless it results in the development of operational plans that transform the direction of the organization into measurable actions. Short-term, medium-term, and long-term operational plans are developed in this step of the process based on the results of the strategic planning process.
This is the bridge between strategy and action. The mission, as was developed as part of the strategic plan, states who we are, what we do, and how we do it. Goals explain what the organization needs or wants to accomplish during the effective period of the operational plan. Goals define the desired outcomes. They provided methodologies for realizing the mission of the department and are the basis for operational planning.
The objective is a specific, achievable, measurable event, accomplishment, or task. Objectives should be described in quantifiable terms, such as quantity, quality, time, and measurements of cost.
The action plan is exactly what its name implies, a plan of action. It is also called a work plan. It plans how the department will achieve its desired outcomes.

MISSION VISION VALUES

6. Vision:

To be the Best Mid-Sized Fire Department in North America

Mission:

Leading the Development of a Safe, Vibrant, and Sustainable Fire Service

Photo: Daniel Hayduk - Castanet

Values:

B – Balance We ***balance*** priorities to ensure public safety, environmental, economic, social stability.

E - Excellence We provide ***excellence*** and commit to continuous improvements.

S - Service We put people first and focus on ***service***.

T – Teamwork ***Teamwork*** powers our decision making.

Kelowna
Fire Department

PHILOSOPHY OF OPERATIONS

7. Philosophy of Operations

Performance Excellence:
We are a high-performing, accountable organization that delivers on its plan.

Passionate Public Service:
By retaining and attracting the best, our workforce remains committed to our vision and adaptable to new challenges.

Responsive Customer Service:
We understand evolving needs and ensure services are appropriate and accessible.

Photo: Daniel Hayduk - Castanet

Engaged Communities:
We listen and encourage full participation from the community to clarify needs and build neighbourhood identities.

Pioneering Leadership:
We find better ways to deliver services to our community.

Sustainable City:
We deliver on a multiple bottom line, balancing community priorities with resource realities to create a safe, vibrant and sustainable city.

Kelowna
Fire Department

ENVIRONMENTAL ASSESSMENT

8. Environmental Assessment

Strengths:

Annual Report/Budget Acceptance
Labor Relations, Recruitment and Retention
Civic Interdepartmental Relations
Leadership/Performance Measures
Technical Teams/Ownership
Teamwork/Dedication/Project Timelines
Community Involvement/Communications
Customer Service/Call Processing
Training Material/Technology
Code Enforcement/Investigations
Operation of EOC
Knowledge & Previous Experience in Branch
Structure of Branch
Accountability
Dispatch Supervision

Weaknesses:

Funding
Data Collection
Inter-agency Communications
Staffing Levels
No Contract in Dispatch
Location of EOC & ESS
Space for growth – Dispatch & Facilities
Emergency Call Back/Radio Communications
Public Education
Maintenance of Vehicles
Pre-planning
Standard of Response Cover
Time Restraints

Opportunities:

Education
Revenue Generation
Cost Sharing
Enhanced Service Level
Expand Technology
Partnerships
Social Media
Leading Practices

Threats (Challenges):

Limited Resources
Economy
Competing Priorities
Education/ Awareness
Contractual Obligations
Budget
Perceptions
Communication
Keeping Pace

8.1 Environmental Assessment

Understanding the world around us, how it is changing, and the strengths, weaknesses, opportunities and threats this presents to our ability to serve the public is a key step in developing the right goals and strategies. A number of trend analyses were conducted with information gained from stakeholders and staff focus groups.

As the City shifts to accommodate these trends, we must consider the impact the trends have on Fire Department core business. There are more high-rise buildings being developed to accommodate the growing population and density in the downtown core where resources are limited. Our response time to emergency incidents is as dependent on the vertical response time to a unit in a high-rise building as it is to response times from the fire hall to the incident address. Changes to the road network which fulfill other important City objectives, including traffic calming initiatives, one-way streets, bicycle lanes, and traffic congestion in general will challenge our ability to deliver resources to incidents and meet our response time targets. It is becoming very important for the Kelowna Fire Department to be fully integrated into the planning process.

The changing demographics of our community is pressuring us to be more innovative in the way we carry out prevention and education programs, as well as the provisions of emergency services.

Technological change is affecting every industry, and we are no different. Our business process relies on effective and efficient communication systems. We are looking at ways to use technology in more innovative ways to enhance staff training and safety, and reduce response time.
Our business continuity is seeing an increased need for transparent reporting on our service delivery with a focus on analyzing our data. However we are currently limited in performing in-depth diagnostics due to lack of in-house technical support and business analysis tools.

8.2 External Environment

8.2 External Environment

Our aging fire stations are a concern. Of the City's 7 fire stations, 6 are over 30 years old. Many of the fire stations are not gender friendly, post disaster capable from a seismic event and do not reflect our ideal environmental practices. We need to move forward with upgrading and/or replacing our stations at the same times as monitoring future growth and planning for additional stations strategically placed.

As our business and community continues to change and evolve the need to partner with others becomes a business imperative. Working in an integrated manner with key departments within the City as well as partner agencies is critical. Continuing to build strong relationships with these groups, and working collaboratively with them to serve the needs of our community and stakeholders is a key focus of this plan.

Ensuring staff are competent in their roles is critical to their success and the success of the department. As technology, equipment and apparatus change, we must invest in the development of staff to ensure they are given the opportunity to succeed. Exploring new ways to deliver training to our staff is a viable way to ensure competence, confidence and engagement.

Figure 8.2.1 External Environment: Forces and Trends

Forces and Trends	Opportunities	Challenges
Political	Council & Admin Relations/Input New Legislation (Future direction City & Province)	Education/Misinformation/ Opportunity for Input/Ability to Fund
Economic	Revenue Generation/Proving Efficiency	Political & Economic Climate Budget not in pace with service demands
Social	Community Education via Social Media/Efficiency & Productivity/Measure & Provision of Service	Lack of resources for education/Ability to meet expectations
Technological	Expand & Enhance Technology/Efficiency & Productivity/Measure & Provision of service	Lack of resources/Lack of financial resources
Clients	Improved Relationships & Distribution of services with our clients	Create & Maintain lasting relationships
Customers	Enhance customer service and programs/Educate on the service we provide	Resources & Perception of Service
Payers	Educate on services, programs, cost sharing and recovery/Building Community Support	Buy In - Value for Money
Competitors	Providing enhanced service levels to the public/Leading practices	Competing priorities and resources
Collaborators	Cost sharing/Enhanced networks	Involvement/commitment /Effective communications & Buy In

8.3 Internal Environment

8.3 Internal Environment

The internal environment is divided in to three components: the available resources (inputs), the present strategy (process) and performance (outputs). For available resources and outputs see Appendix A

Present Strategy (process):

Present strategy (process) includes Fire Prevention, Fire Operations, Fire Training, Fire Dispatch and Emergency management.

8.3.1 FIRE PREVENTION – In Canada, the Constitution Act delegates most of the responsibility for fire safety to the provincial government. In British Columbia, the provincial government divided fire safety responsibilities into fire suppression and fire prevention. In general, fire prevention legislation was kept at the provincial level while fire suppression was designated as an optional function of local government. In 1979 the Fire Marshal's Act was replaced by the Fire Services Act and the position of Fire Marshal was changed to Fire Commissioner. The Fire Services Act gave the Fire Commissioner broader responsibilities and more authority.

The Fire Services Act requires municipalities to provide for a regular system of fire safety inspections carried out by Local Assistant's to the Fire Commissioner under the relevant sections of the Fire Services Act and in accordance to the British Columbia Building Code and British Columbia Fire Code.

The British Columbia Building Code (BCBC) and British Columbia Fire Code (BCFC) each contain provisions that deal with the safety of persons in buildings in the event of a fire and the protection of buildings from the effects of fire. The BCFC also applies to other types of facilities besides buildings (e.g. tank farms and storage yards). The BCBC generally applies at the time of construction and reconstruction while the BCFC applies to the operation and maintenance of the fire-related features of buildings in use. The BCFC establishes the standard for fire prevention, fire protection and life safety in existing buildings and includes provisions for:

- The ongoing maintenance and use of the fire safety and fire protection features incorporated in buildings
- The conduct of activities that might cause fire hazards in and around buildings
- The establishment of fire safety plans
- Fire safety at construction and demolition sites.

In a municipality that maintains a fire department, the fire chief and persons authorized in writing by the fire chief to exercise the powers of a local assistant have the powers of a peace officer for the purposes of the Fire Services Act.

The Fire Prevention Branch is comprised of a number of activities including Fire Inspections, Fire Investigations, Public Education and Plan Review. The Fire Prevention branch consists of 1 Fire Prevention Officer, and 4 Fire Inspectors.

All Fire Prevention Branch staff are authorized Local Assistants to the Fire Commissioner (LAFC) in accordance to the Fire Services Act. All Fire Inspectors undergo extensive training to meet NFPA standards for Fire Inspectors, Fire Investigators and Fire & Life Safety Educators.

Fire Inspections: Fire Inspectors are responsible for the inspection of over 6,000 properties in Kelowna each year with a building value over 6 Billion Dollars. There are over 32,000 inspection items inspected each year for compliance.

The fire inspections are completed by fire inspectors and engine companies based on frequency levels established under Council Policy#181 and in accordance to the BC Fire Code, BC Building Code and the Fire Services Act. Currently inspections are completed in paper format, and then input into the Records Management data base where they are retained.

Fire Investigations: The Fire Inspectors are certified Cause & Origin Fire Investigators and must investigate all fires occurring in the municipality in accordance to the Fire Services Act. Immediately after a fire investigation, the fire reports must be submitted to the fire commissioner containing all the facts ascertained about the cause, origin and circumstances of the fire.

Public Education: A formal Public Education program is not in place, and there is no dedicated Public Educator within the department. Activities and events are primarily coordinated on request with the exception of Fire Prevention Week and the Fire Safety House Visits which are coordinated annually. Currently one fire inspector coordinates the public education events however this impacts the inspector's inspection completions.

Plan Review: Plan review is conducted by the Fire Prevention Officer when plans are forwarded from the City for review. The plans are reviewed for life safety compliance, fire and life safety systems, water supply, hydrant location and fire department access.

Working Smoke Alarms Save Lives!

8.3.2 FIRE TRAINING – Fire Training branch consists of one (1) Career Training Officer and one (1) Career Assistant Training Officer based out of the main fire hall. Each paid on call hall has a District training officer for the respective hall. The Career Training Officer oversees all training for career and paid on call members. Both Career Training Officers are certified JIBC Evaluators. Each shift has two (2) certified First Responder Instructors.

All career fire officers are certified to NFPA 1021 for Fire Officer I & II. The department's Technical Rescue Teams are certified to NFPA Standards in High Angle Rescue, Tower Crane Rescue, Swift Water Rescue and Ice Rescue. The department's Hazardous Materials Teams are certified to NFPA Standards to the Technician Level. All shift officers conduct monthly training drills as assigned by the Training Branch through the Web Based Target Solutions Training System. In addition to the web base training, practical training drills are conducted monthly. Crews train an average of 34,000 hours each year, both on and off duty in order to maintain skills in all disciplines provided by the fire department.

8.3.3 FIRE DISPATCH – The Regional Fire Dispatch Centre is located in the main fire hall and provides service to the City of Kelowna, Regional District of Central Okanagan, District of Lake Country, District of West Kelowna, Peachland, and all areas of the Regional District of Okanagan Similkameen together representing 42 fire stations.

The dispatch centre handles approximately 21,000 incidents annually and is staffed by 10 dispatchers. An Administration Officer dedicates 50% time towards dispatch supervision.
The dispatch centre also provides alarm monitoring and after hours call-out for local government staff across the region. Through partnerships and expanded service offerings, the dispatch centre brings in revenues that offset the cost of operating this service.

In simple terms the primary objective of the dispatch process is to manage the steps from when the caller first contacts the fire department until fire fighters have been successfully toned out to the call and have been given sufficient information to commence their turnout from the fire hall.

What is most important to understand is that these steps, performed by the dispatchers using the technology provided, are 'gating' items that determine whether the emergency services will arrive in sufficient time to be effective. If critical communications fail to operate, or operate slowly, emergency responders cannot be expected to arrive in sufficient time to be effective.

The standards of service for emergency communications in the fire service are described by the National Fire Protection Association [NFPA] in Standard 1221.
NFPA 1221 provides an analysis model for key steps involved with emergency call taking and dispatch and prescribes time milestones in which these should occur. The secondary function of the dispatch centre is in a supporting role to all emergency responders and other agencies that may interact with the public or require support on a response, after their arrival.

8.3.4 EMERGENCY MANAGEMENT – The Kelowna Fire Department manages the Regional Emergency Management Program. Staff from across the fire department come together to support the emergency program during activations. On a day to day basis, the program is overseen by the Deputy Chief of Regional Services and supported by the KFD Administration Officers.

Emergency Management services are provided by the City of Kelowna Fire Department on behalf of the Regional District of Central Okanagan, City of Kelowna, District of West Kelowna, District of Lake Country and District of Peachland. The program makes provisions for the community in the event of any emergency such as flooding, forest fires, airplane crashes or other catastrophes.

Officials from each local government, including the Regional District, RCMP, fire departments, BC Ambulance, Interior Health, School District 23, public works, transportation, communications and Emergency Support Services (ESS) volunteers are involved in the program, which also includes activating the Emergency Operations Centre (EOC) in the main Kelowna fire hall.

At the EOC, representatives come together during an emergency to coordinate response and recovery actions and resources, acting in a support role to emergency response personnel in the field. It is the EOC where coordination and management decisions are facilitated, and where all official communications regarding the emergency originate.

ESS (Emergency Support Services) is also part of the Emergency Management Division and is coordinated by a volunteer ESS director supported by various volunteers throughout the Central Okanagan.

The Program works closely with Emergency Management BC to secure provincial support during disasters and also provides guidelines for recovery operations after any emergency or disaster ends.

8.3.5 FIRE OPERATIONS – Fire Operations consists of Fire Suppression (career and Paid on Call), First Medical Response, Motor Vehicle Incidents/Auto Extrication, Technical Rescue (Low Embankment, High Angle, Tower Crane, Ice Rescue, Swift Water Rescue, Confined Space Rescue, Marine Rescue) Hazardous Materials Response, Pre-Incident Planning and mechanic division.

Fire Suppression: Minimum duty strength per shift is 19. Crews are notified by Kelowna Fire Dispatch which is located in the main fire hall. Crews received call notification via radio and pager system as well as verified Rip 'n' Run reports which are printed at each responding hall at the time the call is committed to the apparatus. Apparatus are now equipped with onboard computers that provide incident details, electronic maps and pre-incident plans. Each Engine company is staffed by one (1) officer and three (3) fire fighters with the exception at the main fire hall were an additional Squad/Rescue Unit is staffed at a minimum of two (2) members (1 Lieutenant & 1 fire fighter) any additional staff above minimum duty strength are assigned to apparatus.(Ladder, Rescue). The department has a total of 96 career staff and 54 paid on call members staffed out of 7 fire stations. There are written protocols for a wide variety of emergencies all of which can be adapted to increase or decrease the level of response depending on the incident needs.

First Medical Response: All members are trained to Emergency Medical Assistant First Responder Level III with AED and Spinal Endorsements. The Department is registered with the Emergency Health Services Commission as a provider for First Medical Response and responds to all Level I Medical Calls as indicated by the BC Ambulance MPDS system (Medical Priority Dispatch System)

Road Rescue: Motor Vehicle Incidents/Auto Extrication: The closest engine company responds to all motor vehicle incidents that do not require auto extrication. The closest engine company and the Rescue/Squad respond to all motor vehicle incidents where auto extrication is unknown or required.

Mechanic Division: There is an inter-departmental service agreement between the fire department and Civic Operations Fleet Services. KFD has funding for what equals two full time mechanics and Civic Operations is committed to providing mechanics with the Emergency Vehicle Technician qualification.

Regional Rescue Services: In 1989 the Fire Department spearheaded development of the Regional Rescue Program to provide auto extrication, hazardous materials (Hazmat) and technical rescue to the citizens of the Central Okanagan Regional District. Currently five (5) other fire departments in the Regional District provide ice rescue, marine rescue, auto extrication and low bank rescue, managed by the KFD.

The KFD oversees the Regional Rescue Program on behalf of the Central Okanagan Regional District. The program includes eight services that are provided throughout the regional district area, which are: Auto Extrication, Hazmat, Marine Rescue, Ice Rescue, Swift Water Rescue, Low Embankment Rescue, Confined Space Rescue, and Technical High Angle Rope Rescue.
On a day to day basis, the program is overseen by the Deputy Chief of Regional Services and supported by KFD Staff including the Deputy Chief of Operations and Team Leaders on each shift.

Operationally, service delivery is broken into 3 areas within the KFD: (Road Rescue as described earlier, Technical Rescue and Hazardous Materials Response)

Technical Rescue: each of the 4 career shifts have a technical rescue team consisting of six (6) members on each team. Team members are located at various halls due to station rotations. In the event of a technical rescue call, the closest engine company responds direct, the other stations respond to the main fire hall to muster the Technical Rescue Team and equipment then respond with the exception of Ice Rescue and Low Embankment which are provided by the crew based at the main fire hall. Marine Rescue is based out of Station 2. The crew responds to the Kelowna Yacht Club where the Marine Rescue vessel is moored. The Rescue/Squad is repositioned from the main station to cover the Station 2 area until backfill is complete for Station 2 while the Marine Rescue is underway. Equipment, plus the costs for response and training is funded by the Regional Rescue Program.

Hazardous Material Response: each of the 4 career shifts have a hazmat team consisting of six (6) members on each team. Team members are located at various halls due to station rotations. In the event of a hazardous materials incident, the closest engine company responds direct. On confirmation from the Incident Commander that the event is higher than a Level I response, the other stations respond to the main fire hall to muster the Hazmat Team and equipment. Equipment, plus the costs for response and training is funded by the Regional Rescue Program.

8.4 Environmental Analysis

8.4 *Environmental Analysis*

KFD operates the standard 4 platoon configuration with 19 operational firefighters and 2 Dispatchers on duty 24/7. In addition to the operational platoons, other sections such a fire prevention, training, emergency management, regional programs, POCs, and dispatch are organized into 3 branches. Figure 8.4 below is the organizational chart to the branch level.

In this section of the review each branch has assembled the data and information stemming from the review process methodology and developed recommendations or options depending upon the strategic issue from the existing KFD Strategic Plan. The Operations Branch required more detailed analysis as a result of the FUS and the Risk Assessment Matrix.

Implementation of any recommendation contained in this review is subject to COK financial priorities and fiscal realities and Council's direction or approval. Wherever possible incremental implementation will be undertaken and include an annual review as part of the COK Budget cycle.

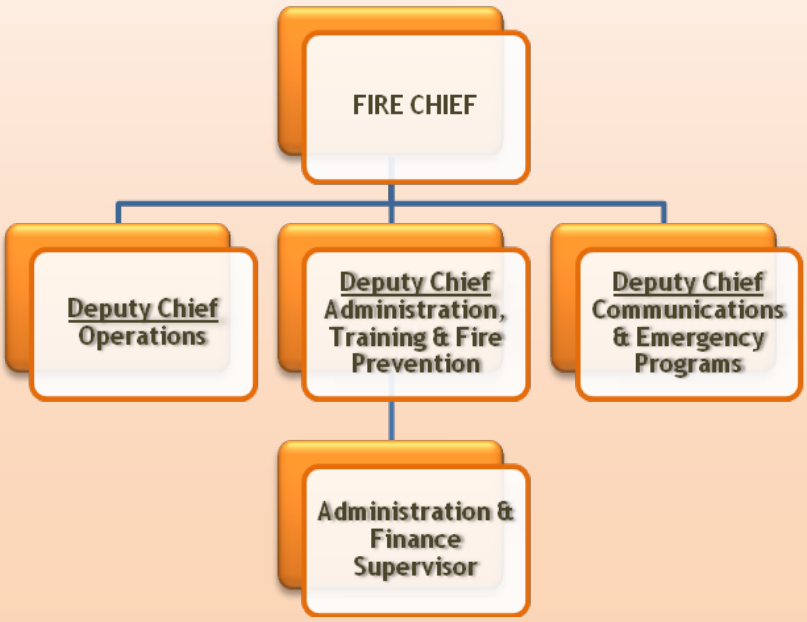

Figure 8.4

8.4.1 *Fire Administration*

The role of this Branch is the management of department's financials including the operating and capital budgets, staff recruitment, human resources, payroll, development of department policies and guidelines and business process. In addition the branch is responsible for the delivery of Fire Training for all career and paid on call staff, and delivery of a fire prevention program consisting of fire inspections, fire investigations, public education and plan review.

The Branch is organized into 3 Sections:

- Administration
- Training
- Fire Prevention

The current KFD 2010-2019 Strategic Plan identified the following recommendations for this branch:

- Additional administrative clerk to be hired in 2012
- 1 fire Inspector to be hired in 2012
- 1 fire inspector to be hired in 2014
- 1 Assistant Training Officer to be hired in 2017
- Conduct an analysis on construction of a fire training centre in the City of Kelowna

Several recommendations/enhancements have been accomplished and are therefore not included in this analysis. These include the following:

- Frequency of inspection adjustments for Occupancy Classes A, C and D.
- Update FDM inventory of properties to be inspected, by inspection category.
- Ensure inspections and re-inspections are tracked.
- Schedule monthly "quotas" for fire inspectors and company inspections to meet inspection frequency requirements.
- Ensure data entry into FDM on inspection completion and outstanding inspections. Monitor and adjust inspections to meet inspection frequencies.
- Initiate enforcement action on problem premises and those inspections where repeated re-inspections do not result in compliance with inspection requirements.
- Seek to resolve software compatibility issues to enable electronic inspections.
- Explore the option of mandatory sprinkler systems in higher risk outlying areas and in all new multi-family and commercial developments.
- Acquire and/or allocating budget funds to deliver training, where required.
- Implement "one source" of online training taken and records management.
- Supplemental paid on call training to ensure skill development.

Through the review process, the recommendations in the current KFD 2010-2019 Strategic Plan were analyzed based upon the methodology and rationale with specific emphasis on enhanced efficiencies and fiscal responsibility. The results of the strategic plan review process brought forward a number of recommended changes to the current strategic plan that meet the goals and rationale for the review. The following refers:

8.4.2 Additional Administrative Clerk

In order to substantiate the recommendation in the current strategic plan for the addition of an administrative Clerk a number of factors were considered. The following applies:

- A review of current business processes occurred targeting areas of duplication and redundancies. Enhancement to the phone systems to streamline and direct calls was completed in 2011. In addition, a leadership team restructuring occurred in 2011 and resulted in the deletion of an Assistant Chief position and creating an Administrative Supervisory position which added additional financial and business planning capacity. New systems stemming from the Corporate Plan such and performance assessments, integrated work plans and automated Council Reports have reduce the need for additional clerical support

- The need for fire inspection reports to be entered by clerical staff will soon be eliminated with mobile inspection software which will automatically enter the data in the field, creating more capacity for existing clerical staff. The City Core Service Review will also evaluate inefficiencies in the areas of finance, payroll and human resources, eliminating duplication and inefficiencies.

Recommendation 1:

It is recommended that the additional administrative clerk position be removed from the strategic plan based on the efficiencies created within the department that have reduced workloads.

This recommendation results in a cost reduction of $68,750.17 per year from the current Strategic Plan.

8.4.3 Fire Department Master Plan

It was identified in the Strategic Planning process that a Fire Department Master Plan should be completed. The Master Plan is intended to serve as a strategic planning framework for policy, organizational, capital and operational decisions affecting the Kelowna Fire Department. It outlines a path for the short, medium and long term goals. It considers the relevance of a number of past reports, and updates the information and considers new input to form a series of recommendations to guide the next 10 years of the Fire Services.

Recommendation 2:

That the Fire Department conduct and complete a Master Plan that will outline a path for short, medium and long term and guide the department over the next 10 years.

8.4.4 Fire Inspectors

In order to substantiate the recommendation in the current strategic plan for the addition of a Fire Inspector in years 2012 and 2014 a number of factors were considered. The following applies:

- The original intent in the current Strategic Plan was to add a fire inspector position in years 2012 and 2014 with split duties for each. The position in 2012 would have 50% of their time spent on inspections and 50% spent on public education; the position in 2014 would have 50% of their time spent on inspections and 50% spent on Pre-Incident Planning. However, since the current strategic plan was developed, a number of new initiatives have created a positive effect on outputs and performance of the Fire Prevention Section. Measurable benchmarks were established for Fire Inspectors and Engine Companies completing inspections.

- The movement to mobile fire inspection software in 2012 will create added efficiencies allowing inspectors to spend more time in the field conducting inspections and reduce time spent in the office.

- Transitioning the Fire Prevention Regulation Bylaw into a Fire and Life Safety Bylaw was recently completed. This included cost recovery avenues and new fee and fine schedule. The new bylaw also establishes, a requirement for Pre-Incident Plans to be submitted with required Fire Safety Plans, reducing the demand on City Staff to complete the pre-incident plans.

- The efficiencies created through mobile inspections and inspection benchmarks for both inspectors and Engine Companies and the New Fire and Life Safety Bylaw will provide added capacity within the Section to establish a formal public education program and pre-incident plan program.

Recommendation 3: It is recommended that the additional fire inspector positions identified in 2012 and 2014 of the current strategic plan be removed as a result of innovative efficiencies created within the department that have enabled staff to meet both formal and informal mandates. It is further recommended that a formalized Public Education & Pre-Incident Plan program be established within the current Fire Prevention Branch staff compliment to meet the goals identified in the strategic plan for public education and pre-incident planning.

Recommendation 4:
A plan review checklist be created in accordance to the BC Fire Code & BC Building Code and provided to the planning department for the planning process. This will eliminate duplication of plan review done by both plan checkers and fire inspectors and expedite the development permit process.

These recommendations results in a potential cost reduction of $195,000 per year from the current Strategic Plan.

8.4.5 Assistant Training Officer

The current strategic plan also recommended the addition of an Assistant Training Officer in 2017 to assist with recruitment and training of additional staff in the future. In order to substantiate the recommendation in the current strategic plan, a number of factors were considered. The following applies:

- A review of the departments training system was done through staff consultation, a staff 360 review, and comparative analysis with other departments. As a result the department initiated a new web based training system in 2012 that uses new technology that cost-effectively reduces risk, maintains compliance, improves communications and streamlines operations.

- The department has also established a number of authorized provider agreements with the Justice Institute of BC that enables us to train existing staff to instructor levels for delivery of courses in house utilizing staff through all branches. This venture enables KFD to establish qualified instructors on each shift and each Volunteer station utilizing existing staff. This venture also provides ability for revenue generation by offering courses to other departments in the Region.

Recommendation 5: The additional Assistant Training Officer position identified in 2017 of the strategic plan be removed. Furthermore, the department reviews options to distribute the training programs within each platoon.

This recommendation results in a potential cost reduction of approximately $115,000 annually from the current strategic plan and increased efficiencies and effectiveness for the overall training program.

8.4.6 Training Facility

The current strategic plan recommends the research and analysis of a training facility on or near the New Glenmore Fire Station. In order to substantiate the recommendation in the current strategic plan, a number of factors were considered. The following applies:

- As part of the strategic plan review process, the fire department conducted a FUS to analyze the department's current fire protection capabilities using the most detailed data collection system available. As part of the survey, it was recommended that a city the size of Kelowna have its own training facility.
- Further research indicates the department's interest in a training facility goes back to 2001 with proposed location in the area of the Kelowna Airport. During the review process of the strategic plan, it was confirmed that the ideal location of a training facility would be near the UBC/Landfill area and that it be constructed in conjunction with the New Glenmore/UBC Fire Station. The objective of the training centre would be to provide a multi-agency use training facility with a collaborative approach to building partnerships with other agencies across the region to cost share the facility and to utilize as a revenue generation opportunity. Through a comparative analysis with departments across North America, it is best practice for fire fighters to maintain skill levels utilizing live fire training exercises.

Recommendation 6:
Option 1: That Infrastructure Planning Section includes the construction of a multi-use training facility as part of the new Glenmore Station project. This would be a collaborative project utilizing partnerships with various agencies throughout the Okanagan, such as RCMP, BC Ambulance, Regional Fire Services, Search & Rescue, YLW, UBC, FortisBC, Worksafe BC, Justice Institute of BC and others alike. The facility would serve as a revenue generator for the City of Kelowna and draw others from around the region to Kelowna. The local facility would enable on duty training cutting overtime costs dramatically associated with sending staff out of town for training.
This recommendation results in a cost reduction of approximately $104,000 annually in overtime and potential revenue generation of approximately $50,000- $75,000, in addition, the department would have unlimited access to the facility.
The estimated capital cost to construct this facility is $ 1,000,000 with potential to cost share with regional partners.

Option 2: Continue to utilize the North Okanagan Regional District Training Facility in Vernon. This recommendation results in an ongoing overtime expense of $104,000 annually, and limited access to the facility.

The preferred option is option 1 as this will better meet the needs of KFD and other stakeholders' training functions.

8.5 *The Communications and Emergency Management Branch*

The role of this Branch is the delivery of Fire Dispatch, Emergency Management and Regional Rescue Services provided by the KFD. The branch also coordinates implements and maintains technology for the department, working with the City of Kelowna IS department and external partners and customers.

The Branch is organized into 4 Sections:

- Regional Fire Dispatch
- Emergency Management
- Regional Rescue Services
- Technology and Systems

In order to re-evaluate of 2010-2019 KFD strategic plan, the methodology and goals of the review process were applied. Several recommendations/enhancements have been accomplished and are therefore not included in this analysis. These include the following:

- Establishment of Dispatch Time standards consistent with NFPA 1221. Performance is now measured on a regular basis and compared with other jurisdictions.
- Addition of 1 Administration Officer to support delivery of regional services and technology
- Construction of a Communications Building at Stn #1 ensures that Radio and Dispatch equipment is located in a secured and climate controlled room
- Study completed to evaluate enhancing FDM Software as our information and tracking system

- Enhancements to FDM have improved the recording, access, and management use of operational data, plans are in place for further required enhancements
- Formal Dispatch Supervision has been introduced with the reorganization of the management team

The review also indicated that the internal and external environment, particularly within the Regional Fire Dispatch Section has changed. The dispatch centre has undertaken an expansion of the service area and now realizes revenue from service provision to another Regional District. With the shift to an expanded service area and a formalized agreement in place, the operation has quickly become more business focused. This shift has also enabled the introduction of Dispatch Supervision and the creation of a second Administration Officer position, as envisioned in the original strategic plan. Furthermore, dispatch centre expansion has necessitated the hiring of 2 additional dispatchers, not contemplated in the original strategic plan.

Additionally, the ongoing Regional District Core Services Review was considered. Many of the recommendations reflect the direction that the Core Service Review has suggested, such as moving towards increased financial transparency and sound fiscal management as well as agreements for the services that are provided to external customers.
The results of the review process brought forward a number of recommended changes to the current strategic plan, as well as new recommendations that increase the efficiencies and effectiveness of the Regional Services Branch.

8.5.1 Regional Fire Dispatch

The current KFD 2010-2019 Strategic Plan identified the following recommendations for this Section:

- Dispatch Space: The dispatch centre is overcrowded. As the community grows, additional staff will require space for dispatch consoles.
- Dispatch Staffing Review: As the pace of regional dispatch volume growth currently exceeds the rate of community growth, it is recommended that the Assistant Chief - Dispatch & Administration complete an assessment in 2013 to determine if dispatch call volumes warrant staff increases to match increased volumes.
- Dispatch Equipment: It is recommended that Dispatch equipment used for regional dispatch become part of annual capital budget planning for replacement and upgrade in place of one-off requests.
- Partnerships: It is recommended that the Fire Department further explore its use of partnerships to realize cost savings for services.
- Agreements: It is recommended that as a standard operating protocol, agreements be updated or created to formalize services to be performed and those services not to be performed.
- Dispatch Staffing: Currently, dispatch is staffed with 2 dispatchers around the clock, and overtime is minimized to maintain this staffing through the use of relief staff. Overtime and usage of relief staff is closely monitored. A staffing plan must be developed to reflect the reality of increasing call volume. The plan must include criteria to define the timeline for the addition of more staff. This criteria and cost recovery for the addition of staff must be clearly defined in service agreements. As staff increases, the arrangement of staff can be rearranged. Existing provisions within the IAFF Agreement allow for the introduction of a call taker position at a lower rate.

Recommendation 7:
Conduct a review of the dispatch operation to determine efficiencies and highlight future opportunities, consolidations and integrations.

Recommendation 8:
Develop a staffing plan to optimize staffing levels and capacity.

8.5.2 Service Agreements for Dispatch Services:
Currently, no formal agreement exists for the provision of Dispatch Service to the RDCO. A formal service agreement would outline deliverables and service levels as well as better capture and reflect within the agreement the true cost of providing the service.

Recommendation 9:
Consistent with the outcome of the RDCO Core Service Review process, establish, a service agreement with the RDCO for fire dispatch service.

8.5.3 EOC Facilities:
The previous strategic plan discussed the following items that remain to be addressed:
The Regional Emergency Operations Centre (EOC) currently occupies shared space with the meeting room and training facility. Activation of the EOC requires meetings and training events to be displaced and rescheduled. The EOC has outgrown the existing space. The EOC is located below the median flood plan for the area.

Recommendation 10: Relocate the E O C within the new Combined Emergency Services facility or other suitable location. Consistent with the outcome of the RDCO Core Services review, confirm and implement a suitable backup location for the EOC.

8.5.4 Service Agreements for Emergency Management:
Currently, no formal agreement exists for the provision of the Emergency Management service to the RDCO. Staff from across the City and Region participates in the program with no formal outline of their involvement.
Recommendation 11: Consistent with the outcome of the RDCO Core Service Review process, establish, a service agreement with the RDCO for the provision of Emergency Management and develop a staffing plan for the program and the EOC, to form part of the service agreement.

8.5.5 Regional Rescue Section
The previous strategic plan discussed the following items that remain to be addressed:

- Formal agreements are also not in place for Regional Rescue
- Currently, an agreement exists for the provision of Regional Rescue Service to the RDCO; however its provisions are no longer up to date. The KPMG Core Services Review of the Regional Rescue Program outlined that the agreement has not kept pace with the program. The Regional Emergency Services Committee has been formed to review, refine and implement the recommendations of the RDCO Board following the KPMG Core Services Review.

Recommendation 12: Based upon the direction of the RDCO Board and the outcomes from the Regional Emergency Services Committee review, agreements for delivery of service should be reviewed and revised.

8.5.6 Technology and Systems

The previous strategic plan discussed the following items that remain to be addressed:

- The inadequate state of the Fire Department's recording, access, and management use of operational data: Electronic data from FDM is supplemented with manual and separate electronic records leading to inconsistencies and difficulties in report generation.
- A more significant initiative is required to realize the systems potential and support management. The Fire Underwriters Survey recommended we "Convert all hard copies of pre-incident plans to digital format and have available in the MobileCAD system in apparatus cabs".

Recommendation 13: Continue the 3 year capital funding program in 2013 and 2014 as outlined in the 2012 budget request to complete required system and technology improvements. Establish ongoing operational funding as required in subsequent years for system maintenance and enhancements.

8.6 *Fire Operations*

The primary roles for the Operations Branch is to manage the daily service delivery of emergency response to fire, medical, rescue and hazardous materials incidents 24/7 as well as the non emergency duties of company fire inspections, pre-incident planning, and to liaise with other city departments for maintenance of facilities, equipment and the fleet.

The current KFD 2010-2019 Strategic Plan identified the following recommendations for this branch:

- Divide the city into three response zones (urban, suburban and rural) and establish quantifiable response time targets.
- Establish turn out time targets.(turn out time is the time required for crews to assemble and depart the station
- Construct a fire station in North Glenmore and that staffing be staged over the 4 years prior to the station opening.
- Address the office space deficiency of Fire station 1 and general condition of all fire stations and submit for inclusion in the capital budget.
- Adopt a vehicle life cycle that is consistent with the Fire Underwriters recommendation and a priority replacement schedule.
- Increase the annual contribution to the fire department's capital reserve to ensure adequate funding is in place for replacing vehicles when scheduled.

Through the review process, these recommendations were analyzed based upon the methodology and rationale with specific emphasis on enhanced operational efficiencies and the department's ability to provide a responsible service to the community. The results of the strategic plan review process along with the addition of a Fire Underwriters Survey (FUS) designed for the Kelowna Fire Department, helped to validate some of the original 2010 recommendations. In addition some new recommendations were identified to meet the goals and rationale for the review. The Kelowna Fire Department "Standard of Response Cover" is attached to this report as appendix C.

Detailed below are the 2010-2019 Strategic Plan Operational recommendations along with the updated 2012 rationale to maintain or update each point.

8.6.1 Response Zones (urban, suburban and rural)

The 2010 Strategic Plan recommended that three categories of response zones be identified as urban, suburban and rural so that response time targets could be identified and measured. In review of this recommendation, the following was identified:

- The response zone establishment and target times of urban 6 minutes, suburban 9 minutes, and rural zones 14 minutes is not consistent with the NFPA 1710 industry standard and does not optimize insurance grading for our citizens.
- The City of Kelowna is made up of a mosaic of urban, suburban and rural and therefore identifying these response zones on a map would be very difficult. The 2010 recommendation would work best in a community that grew from the center out as opposed to one that incorporated 5 small communities into one, as in Kelowna's case from 1973.

Recommendation 14:

Option 1: In a thorough review of industry standards, comparative community analysis, risk assessment matrix, statistical analysis, critical task analysis, the Official Community Plan, it is recommended that KFD adopt the Standard of Response Cover report which declares that KFD will endeavour to achieve a 4 minute travel time response for the first Engine on scene to emergencies within the Urban Growth Boundary. In areas outside of the Urban Growth Boundary KFD should endeavour to achieve an 8- 10 minute travel time response for the first Engine on scene. A map should be created to document the theoretical coverage markers. This would be update when transportation routes change and fire stations are built and staffed.

Option 2: Maintain the response zones identified in the 2010-2019 Strategic Plan. The travel time goals for urban, suburban and rural zones are difficult to achieve given the COK configuration.

The preferred option is option 1 as this will better meet the specific risks in Kelowna and enhances firefighter and citizens safety during emergencies.

8.6.2 Turn Out Time Targets

Turn out time is the time required for career firefighters to assemble, dress in the necessary equipment and board the fire truck to respond to an emergency. The 2010 Strategic Plan recommended that a turn out time standard of 60 seconds be adopted. It also indicates that the typical turn out time for paid on call members is 6 minutes which was taken from historical KFD data. In review of this recommendation the following was identified:

- In 2010, there was no accurate or consistent method to measure the firefighters' turn out time and only recently (June 2012) are we able to capture accurate data with the implementation of onboard computers on the fire trucks.
  The 60 second turn out time goal is not consistent with industry standards: 60 seconds for medical calls and 80 seconds for fire calls.
- Although it is important to track paid on call turn out time, it is difficult to establish and measure this goal due the number of variables involved with residence and work place location, traffic and road conditions when mobilizing a response.

Recommendation 15:

Continue to monitor the paid on call turn out time in order to make any necessary operational adjustments in the future.

8.6.3 New Fire Stations for Career Firefighters

The 2010 Strategic Plan identified a gap in KFD's response travel times in the North Glenmore area by reviewing historical data, the OCP and actual driving times to North Glenmore, McKinley, UBCO, Quail Ridge and the Beaver Lake Road industrial area. With the addition of the FUS and a complete resource deployment analysis the following was identified:

- The 2010 Strategic Plan recommendation was based on community grown expectation and drive times. The OCP was a good reference to identify where community growth could be expected but didn't identify actual risks and ranking for specific structures. The risk assessment matrix conducted as part of this review provided additional data to measure KFD's resource distribution (station coverage for first unit on scene). The 2010 plan also identified hiring an additional 20 career staff over the preceding 4 years prior to the opening of the new Glenmore fire station.

- The 2012 Strategic Plan review process incorporated several more resources and more accurate data to identified and analyze the volume and weighting of the fire risk in our community. Each Urban and Village center identified in the OCP was given a specific credit rating to which could prioritized by layering all the data on a GIS map built by the city Planning Department which detailed the population of each of KFD's response zones and illustrated the fire stations coverage and capacity. From this KFD was able to identify service gaps in regards to the distribution and concentration of resources.

Recommendation 16:

Analysis of the 2010 Strategic Plan has confirmed that there is a need for a career fire station in North Glenmore and that in order for its location to be most effective, John Hindle Drive must be completed to link the Glenmore valley to the University. This will improve the distribution of career resources, and improve the gap emergency response travel times KFD currently has in the north end of the city.

This recommendation is consistent with the current strategic plan representing a cost increase of: New Facility: $4 million, Staff: $2 million ongoing operational.

Recommendation 17:

Construct a fire station in the KLO/ Gordon Drive area and staff with career firefighters. After conducting the analysis detailed above, it was identified that there is a current gap in the distribution of resources in the immediate area of the South Pandosy urban center and a lack of resource concentration to back up the Mission fire station. 20 additional Firefighters will be required for this new station.

This recommendation results in a cost of: New Facility: $3 million, Staff: $2 million ongoing.

8.6.4 Station 1 Office Space and General Conditions

The 2010 Strategic Plan identified the need for increasing storage and office space in station 1 as well as the general conditions of all fire stations. In review of the strategic plan the following were identified:

- The current Strategic Plan identified the need for additional fire prevention, training and administrative staff. With enhanced technology, new systems and a restructured management team the need for this additional staff and office space has reduced
- Currently Infrastructure Planning and KFD have a project charter to have office space constructed in the carport area at station 1, refurbish the kitchen and build a ladies locker/ shower facilities. Funding was secured in the 2012 budget for these upgrades and the project is expected to be completed in 2013.
- There are some relatively significant updates needed to improve the general conditions of the fire stations.

Recommendation 18:
Continue to work with Infrastructure Planning and Building Services to prioritize updates to KFD fire stations and include funding for station updates in the COK 10 year Capital Plan.

8.6.5 Vehicle Life Cycle and Replacement Schedule

The 2010 Strategic Plan reconfirmed the life cycle replacement schedule that KFD had implemented. In review of this 2010 strategic plan recommendation, the following were identified:

- Although each truck needs to be subjected to a condition survey, the review of the 2010 strategic plan reconfirmed that the life cycle for a front line Engine and Rescue trucks is decreased from 15 years to 12 years. Most Engines have doubled their response call volumes from when the 15 year benchmark was set ten or more years ago.

- The 1991 Grumman ladder truck (Ladder 1) is past its recommended service life of 20 years. It does not receive credit in the FUS grading. The 2010 strategic plan identifies it for replacement in 2016 at a cost of $1.4 million.

- The 2012 strategic plan review identified the that 1996 Mini pumper originally scheduled for replacement in 2015, be replaced immediately to maintain Fire Underwriter's credit rating for the McKinley neighbourhood. The truck is inadequate due to its pumping capacity, water tank volume and the number of firefighters that can be transported Mini 9's capacity is to be a wild land brush truck and not a structural fire engine.

Recommendation 19:
That the Kelowna Fire Department adopts a 15 year front line life cycle and 20 year retirement for ladder trucks in order to maintain an adequate working fleet of reliable emergency vehicles.

Recommendation 20:
Upon confirmation from a condition survey analysis conducted by Civic Operations, KFD will submit a request in the 2013 budget for funding to replace the 1991 Ladder truck at a cost of $1,000,000.

Recommendation 21:
Adopt the revised replacement schedule of fire apparatus as detailed in the 2012-2022 KFD Strategic Plan review to maintain the revised replacement schedule.

Recommendation 22:
Submit a request in the 2013 budget for funding to replace the 1996 Mini pumper in McKinley Landing as it is rated for brush fires and not structural fires. Replacement cost is $350,000.

8.6.6 Fire Equipment Replacement Reserve

The 2010 Strategic Plan identified that the annual appropriation of $150,000 to the fire equipment replacement reserve was not adequate to maintain pace with the truck replacement schedule.

- In past years the $150,000 contribution to reserve has been used to supplement budget shortfalls in overtime, repair parts and fuel resulting in an under funded vehicle reserve.

Recommendation 23:
Implement the recommendations in the current strategic plan that; to fund the vehicle replacement schedule, the Fire Department's annual budget be adjusted to ensure annual contributions to the vehicle replacement reserve is adequate to fund replacement.

8.6.7 Rescue Squad Company Staffing

The Rescue Squad Company (Lieutenant and one Firefighter) at station 1 was created in 2010 prior to the completion of the strategic plan. The intention was to ensure staff was available to respond to emergencies with the secondary fire truck; primarily for the Rescue truck where often Engine 1 would have to return to station 1 to pick up the Rescue truck delaying response.

- The Squad Company was expected to respond to approximately 1200 incident each year when created in 2010. In 2011 they responded to just over 2000 incidents as well as performing company fire inspections and pre-incident planning.

- In conducting a review of the 2010 Strategic Plan, a review of Engine and Squad Companies duties was conducted with the Platoon Captains to ensure optimal operational efficiencies (both emergency and non emergency).

Recommendation 24:

It is recommended that a study be conducted to determine the feasibility of the Squad company be increased from 2 to 4 members to improve the companies effectiveness to perform critical tasks at emergency incidents. The incremental staffing increases for the new Station 5 will provide the basis for the study prior to the completion of the new station.

8.6.8 Paid on Call Member Deployment

A review of operational effectiveness and cost of the Paid on Call (POC) program should be conducted to determine the best value and efficiencies. The 2012 strategic plan review identified a lack of POC staff in McKinley Landing. There are only 6 members currently and attendance at practice and emergencies is limited.

- Over the years through operational advancements, station 1 POCs are being used less.
- Many of the members no longer live in the core of the city where they once did resulting in a longer mobilization and response.

Recommendation 25:
Conduct a recruitment process targeting the McKinley Landing area.

Recommendation 26:
Conduct a review of the POC deployment system. In particular the feasibility of station 1 POC members being reassigned to the closest POC station from their residence (South East Kelowna, McKinley or Glenmore), and maintain a minimum POC staffing level of 50 members.

This recommendation could result in a potential cost reduction of $60,000 on personal protective equipment over the life of this strategic plan and $30,000 on wages (annually).

STRATEGIC ISSUES

9. Strategic Issues

9.1 Department Wide

- Budget
- Staffing
- Communication City/Public/Internal
- Customer Service
- Facilities
- Resources
- Technology
- Future Growth Planning
- Training
- Service Agreements

9.2 Organizational Subunits

- Training Time Management
- Training Partnerships
- Technological Support
- Dispatch Contracts
- Apparatus/Vehicle Maintenance & Replacement
- Standard of Cover
- Process & Systems Efficiencies
- Policy Guideline Review

9.3 Programs/Service Delivery

- FR Program
- Pre-Incident Planning
- Public Education Program

9.4 Functional Tasks

- Process for collection of data
- Inter Departmental budget control

STRATEGIES

10. Strategies

Strategy:
"We will achieve excellence in customer service by ensuring safe staffing levels, resources and open communications to meet future growth in an efficient and sustainable manner."

Strategy:
"We will engage & enhance communication with our stakeholders"

Strategy:
"We will efficiently plan for sustainable future growth & development to provide a vibrant & safe city"

Strategy:
"We will provide & maintain a training system that meets the needs of a progressive & modern fire service"

Strategy:
"We will utilize advanced technology to ensure consistent & efficient time management"

Strategy:
"We will ensure fiscal responsibility through creating and expanding partnerships & service agreements that enhance service levels that benefit all"

Strategy:
"We will optimize public safety by providing a state of the art communication center with leading practices"

Strategy:
"We will deliver excellence in services and education that meet the changing needs of our community"

Strategy:
"We will establish a standard of cover to enhance emergency services that protect lives, property & environment for the community"

Kelowna
Fire Department

PROACTIVE FUTURING

11. Proactive Futuring

11.1 *Proactive Futuring*

A process to establish the organization's vision of its ideal future and then determine what can be done today to move the organization in a direction toward that ideal future state. Proactive futuring is more than simply the development of a shared vision of an ideal future. Beyond the development of a vision, proactive futuring involves identifying and taking actions today that will move the organization closer to the achievement of that vision. The purpose of proactive futuring is to create the future that is seen in the shared vision. Futuring is not planning, but it overlaps with the first step in program development. Futuring follows the anticipatory techniques of:

- Shifting the mindset of the members;
- Scanning and monitoring the environment;
- Analyzing internal and external assumptions;
- Creating multiple scenarios around emerging issues;
- Developing forecasts;
- Writing issue briefs;
- Assuring program champions, faculty, and staff who are ready to address predicted changes;
- Using the results of futuring to inform continual improvement.

12. Operational Plan

12.1 Goal

To train all staff consistently to recognized industry standards.

Objectives

- To enhance the train the trainer program across the department over the next 10 years
- To expand on the web based training system that meets the needs of all staff
- To create realistic training objectives based upon operational requirements

Action Plan

Action	Responsibility	Measure	Completion Date
Identify training opportunities, needs and standards with collaboration from other agencies.	Fire Training	• NFPA Standards • Staff 360 feedback • Course evaluations	2013
Broaden web based training to include needs for all branches utilizing program to full capabilities and to expand the system to all paid on call members	Fire Training	• Staff evaluations • Training assignment completion reports • Credentials Manager • Reduced expired licenses	2013
Survey staff and set standards for realistic training objectives	Fire Training	• Evaluate quarterly, adjust and review annually • Comparative analysis • Staff 360 feedback	2013
Establish a code of practice for Department Training that encompasses all core services	Fire Administration	• Comparative analysis • Established code of practice in training for Fire Prevention Staff, Suppression Staff, Dispatch Staff, Training Staff and Administrative Staff	2014
Distribute Training program within each Platoon	Fire Training	• Expanded depth in training program across all platoons	2014
Develop a training strategy that assesses training needs for the next 10 years, and delivers training through a variety of delivery methods	Fire Training	• Increase NFPA 1001 Fire Fighter II certifications to 100% of suppression staff • Establish accreditation for Emergency Vehicle Operator NFPA 1002 for all suppression staff.	2017

12.2 Goal

To establish a sustainable Center of Excellence that will meet the training needs of the City of Kelowna and our partners

Objectives

- Develop partnerships with outside agencies to determine viability of a training center
- Provide a sustainable multi-agency use training facility
- Develop a complement of certified instructors for training in all disciplines creating a cost effective delivery model

Action Plan

Action	Responsibility	Measure	Completion Date
Complete a cost benefit analysis for a training facility	Fire Administration	• Comparative Analysis with existing training facilities across North America	2013
Solicit other departments leading practices	Fire Training	• End user feedback • Completed code of practice • Survey comparative training facilities on operations and financials	2014
Establish business partnerships with outside agencies to ensure sound fiscal responsibility	All Branches	• Fostered partnerships • Business case analysis •	2014
Construct Training Facility with the New Fire Station in the Glenmore/UBC area	All Branches	• Completed location and design schematic • Established project timeline	2016 (subject to Council Priorities)
Establish training programs, curriculums and training criteria for Training Facility	Fire Training	• feedback surveys • NFPA & Industry standards	2016

OPERATIONAL PLAN

12.3 Goal

To enhance Public Education & Fire Life Safety that meets the changing needs of our community.

Objectives

- To create a formalized Public Education program that meets the needs of the community.
- To create a cost effective & efficient pre-incident plan program that enhances safety to responders and the public.
- To review, evaluate and adjust frequency of inspection levels based on risks.
- To establish a mobile inspection system for inspectors and engine companies that creates efficiencies.
- To reduce code deficiency levels through inspections, education, consultation and enforcement.

Action Plan

Action	Responsibility	Measure	Completion Date
Review Council Policy#181 Frequency of Inspections and adjust according to risk	Fire Administration	• Adjust frequency levels for Group A Division II and Group B Division II	2012
Research needs of community and department to create a formalized Public Education program that is fiscally responsible and efficient	Fire Prevention	• Customer survey • Increased public education programs • Formal Public Education Programs identified & initiated	2013
Complete a comparative analysis of other departments pre-incident plan programs and develop a long term plan	Fire Prevention	• Pre & post survey • Comparative Analysis • Established benchmarks for completed Pre-Incident Plans	2013
Formalize a Pre-Incident Plan Program within the current Fire Prevention Branch staff compliment	Fire Prevention	• Established benchmarks • Increase completed Pre-Incident Plans	2013
Educate all staff on applicable fire codes and standards	Fire Prevention	• Conduct in-house training on BC Fire Code and Company Inspections	2015
Establish program to target high deficiencies occupancies and reduce unsatisfactory inspections by 30% within 5 years	Fire Prevention	• Increased satisfactory inspection results • Decreased dollar loss	2017

Kelowna
Fire Department

OPERATIONAL PLAN

12.4 Goal

To optimize our Communications Center with leading practices that best serves our needs and our customers.

Objectives

- To formalize service agreements including appropriate cost recovery
- To explore opportunities to expand our communication services to other communities
- To continue to stay current with technological advances
- To continue to measure performance based on industry standards

Action Plan

Action	Responsibility	Measure	Completion Date
Establish service agreements with all clients of the Dispatch Centre	Fire Communications & Emergency Programs	• Completed agreements for all Dispatch Center Clients	2012
Develop staffing plan with concrete targets to increase staffing levels and criteria to shed non-emergency duties to free up capacity	Fire Communications & Emergency Programs	• Completed staffing plan	2012
Monitor future opportunities to increase customer base and provide service to other partners	Fire Communications & Emergency Programs	• Proposals in response to RFP's that make good business sense to expand our operation	Ongoing
Research leading practices in other jurisdictions and involve other industry partners	Fire Communications & Emergency Programs	• Participation in Provincial and National organizations (APCO/BC 9-1-1) • Liaison with other dispatch centers regionally and provincially	Ongoing
Educate staff and partners. Automate performance measures and establish a formal statistical reporting service for all clients	Fire Communications & Emergency Programs	• Completion of Statistical reporting package integrated with FDM\ • Monthly internal and external statistics package	2013
Conduct needs assessment to address future facility expansion and future location options	Fire Communications & Emergency Programs	• Completed needs assessment • Expansion options identified • Preliminary planning document created for expanded dispatch location	2013
Develop Dispatch Capital Plan and consider expanded funding of the Dispatch Capital Reserve	Fire Communications & Emergency Programs	• Integrated Dispatch Capital Plan with City of Kelowna Capital Program • Financial Performance	2013

12.5 Goal

To ensure an efficient, effective & equitable emergency program that supports the region and changing needs.

Objectives

- To establish a formalized service agreement for regional programs
- To explore options for optimized locations for the Emergency Operations Centre
- To establish improved working relations with regional partners

Action Plan

Action	Responsibility	Measure	Completion Date
To draft and execute a formal service agreement for regional programs	Fire Communications & Emergency Programs	• Completed agreements for regionally delivered programs • Revised and updated bylaws to support service delivery model • Oversight Committee in place	2013
Participate in combined emergency services building planning for future relocation	Fire Communications & Emergency Programs	• Plans for EOC relocation developed	Ongoing
Educate our partners and politicians on the Emergency Program and demonstrate cost effectiveness by seeking input from stakeholders	Fire Communications & Emergency Programs	• Demonstrated ongoing communications • Regular meetings and reporting to the Regional Emergency Services Committee • Annual stakeholder survey	Ongoing
Develop a staffing model for the Regional Emergency Operations Centre, to form part of the service agreement	Fire Communications & Emergency Programs	• Staffing Model clearly documented, practiced and detailed in agreement	2013
Confirm and implement a suitable backup location for the Emergency Operations Centre	Fire Communications & Emergency Programs	• Backup location documented in Regional Emergency Plan	2013
Re-write the Regional Emergency Program Bylaw and Regional Emergency Plan	Fire Communications & Emergency Programs	• New Regional Emergency Program Bylaw Adopted • New Hazard Risk and Vulnerability Analysis Completed • Revisions Completed to the Regional Emergency Plan	2015

OPERATIONAL PLAN

12.6 Goal

To establish efficient/effective business systems that optimizes our financial resources and program delivery.

Objectives

- To eliminate duplication of processes and provide efficiencies
- To establish checks and balances of budgetary processes
- To foster the working relationship with other City departments
- To improve the management of data
- To ensure cost recovery and revenue generation measures are in place where viable

Action Plan

Action	Responsibility	Measure	Completion Date
Liaise with IS Department Quarterly **Establish workgroups of all branches to identify duplications**	Fire Administration	• Continue with quarterly meetings with IS • Compare actual results with anticipated budgeted amounts and investigate any variances that may surface	2013
Create Plan Review checklist based on requirements of the BC Fire Code and BC Building Code and provide to City Planning Department	Fire Prevention	• Reduction in duplication of services • Reduction in plan review process resulting in a more efficient permit application process	2013
To improve and quantify management of data	Fire Administration	• Validity checks on data to make sure it is accurate and reflective of actual events	2013
Identify revenue sources and develop flow chart	Fire Administration	• Continue with exploring new ideas to generate revenues	2013
Communicate with other departments and learn their processes	Fire Administration	• Participate in ongoing meetings and open up new communication channels to share ideas and learn each other's processes	Ongoing

Kelowna
Fire Department

12.7 Goal

To establish a Resource Deployment model that integrates sustainability into service delivery based upon risk factors, industry standards and community growth.

Objectives

- To evaluate the current resource deployment model against current industry standards and leading practices
- To establish a standard of cover that identifies resource deployment needs

Action Plan

Action	Responsibility	Measure	Completion Date
Complete a Fire Department Master Plan	Fire Administration	• Completed Master plan consisting of strategic plan, long-range plan, capital improvement plan, medium-range plan, short-range plan, action plans and annual budget.	2013
Obtain CFAI accreditation	Fire Training	• Determine community risk and safety needs • Evaluate performance of department • Established method for achieving continuous organizational improvement	2014
Complete critical task analysis for department branches	All Branches	• Comparative analysis • Internal review to identify gaps in services	2014
Construct New Fire Station in the Glenmore/UBC area	All Branches	• Work with Infrastructure Planning to plan design and construct a suitable fire station with a 50 year life expectancy	2016 (subject to Council Priorities)
Conduct a needs assessment & conditional survey identifying necessary upgrades to current fire stations	Fire Operations	• Work with Infrastructure Planning to plan for required renovations and upgrades for all current fire stations	2017
Complete location analysis for New Fire Station near the KLO & Gordon Drive area	Fire Administration	• Work with Infrastructure Planning to plan design and construct a suitable fire station with a 50 year life expectancy	2018
Assess relocation options for Fire Station 2	Fire Operations	• Work with Infrastructure Planning to plan & design a suitable relocation for fire station 2 with a 50 year life expectancy	2020
Conduct needs assessment and location analysis for New Fire Station in the Black Mountain and South Slopes Areas	Fire Administration	• Work with Infrastructure Planning to complete an analysis on the feasibility of a fire station in the Black Mountain and South Slopes areas	2020

12.8 Goal

To have an up to date well maintained fleet of emergency vehicles and equipment.

Objectives

- To formalize the life cycle & maintenance program for all vehicles & equipment based on industry standards and validate a funding model for replacement
- To establish a formal maintenance agreement with fleet services
- To identify alternative and innovative vehicle options based on deployment model

Action Plan

Action	Responsibility	Measure	Completion Date
Review and analysis of manufacturers standards/comparatives	Fire Operations	• NFPA Standards • Monthly recommendations • Cost Benefit Analysis	2013
Track webworks in FDM database	Fire Administration	• Fleet Services will be implementing a new software program for maintenance records. This will be evaluated at that time.	2013
Review the preventative maintenance schedule for fleet	Fire Operations	• Conduct a review of the preventative maintenance program with Fleet Services to identify gaps.	2013
Create capital model for funding based on replacement schedule	Fire Administration	• Ensure there is adequate funding for the replacement schedule of apparatus.	2013

13. Evaluation & Schedule

February	Initiate Planning Team to review progress against the plan
March	Review existing strategic plan and organizational changes
April	Evaluate current values, mission, mandates, and philosophy of operations
May	Assessment of the external and internal environment
June	Assess strategic issues and strategies
July	Review operational plans and adjust appropriate horizons
August	City Council to review and adopt if updated
September	Begin budget process
October	All capital and operational plan requests to be submitted
November	City Managers Budget Review
December	Proposed budget submitted to elected officials
January	Provisional Budget approval

Figure 13.1.1

13.1 Monitoring and evaluation enable you to check the "bottom line" of development work: Not "are we making a profit?" but "are we making a difference?"

Through monitoring and evaluation, we will:

- Review progress;
- Identify problems in planning and/or implementation
- Make adjustments so that we are more likely to "make a difference".

Monitoring involves:

- Establishing indicators of efficiency, effectiveness and impact;
- Setting up systems to collect information relating to these indicators;
- Collecting and recording the information;
- Analyzing the information;
- Using the information to inform day-to-day management.

Monitoring is an internal function in any project or organization.

Evaluation involves:

- Looking at what the project or organization intended to achieve – what difference did it want to make? What impact did it want to make?
- Assessing its progress towards what it wanted to achieve, its impact targets.
- Looking at the strategy of the project or organization. Did it have a strategy? Was it effective in following its strategy? Did the strategy work? If not, why not?
- Looking at how it worked. Was there an efficient use of resources? What were the opportunity costs of the way it chose to work? How sustainable is the way in which the project or organization works? What are the implications for the various stakeholders in the way the organization works?

In an evaluation, we look at efficiency, effectiveness and impact.

14. Appendix

APPENDIX

Appendix A:
14.1 Available Resources (inputs):

Fire Halls:

Career Stations:	**Yr Built**	**Paid on Call Stations:**	**Yr Built**
Station 1: 2255 Enterprise Way	**1975**	**Station 7: 3275 Gulley Rd**	**1974**
Station 2: 1616 Water Street	**1924**	**Station 8: 550 Valley Rd N**	**1974**
Station 3: 360 Rutland Rd N	**1973**	**Station 9: 2186 Bennett Rd**	**1993**
Station 4: 619 Dehart Rd	**1974**		

Staffing:

122 Career Members:

- 1 Fire Chief
- 3 Deputy Fire Chief's
- 1 Admin/Finance Supervisor
- 2 Administration Officers
- 2 Secretaries
- 4 Platoon Captains
- 16 Captains
- 4 Lieutenants
- 72 Fire Fighters
- 2 Training Officers
- 1 Fire Prevention Officer
- 4 Fire Inspectors

56 Paid on Call Members:

- 4 District Chief's
- 4 District Assistant Chief's
- 10 Captains
- 38 Fire Fighters

Apparatus:

Station 1

Type	Year	Manufacturer	Pump Capacity IGPM	Tank Capacity	Foam Capacity	Aerial
Engine 1	2010	Spartan/Rosenbauer	1250	400	40	51'
Ladder 1	1991	Grumman 100'	1250	400	0	102'
Rescue 1	2002	Hub/Freightliner	0	0	0	N/A
Bush 1	2007	Ford/Danko	125	200	10	N/A
Tender 1	1999	Wester Star	175	2500	0	N/A
Pumper 1	2006	Freightliner/Hub	1250	500	20	N/A
Pumper 2	1993	Spartan/Superior	1250	400	20	50'
Back up Rescue	1991	Mack/Superior	1250	500	0	N/A
PC 1	2005	Dodge Ram 4x4	N/A	N/A	N/A	N/A
Safety 1	2009	Ford F250 4x4	N/A	N/A	N/A	N/A
Utility 1	2004	Ford F350 4x4	N/A	N/A	N/A	N/A
Car 1	2011	Ford F150 4x4	N/A	N/A	N/A	N/A
Car 2	2006	Mazda Tribute 4x4	N/A	N/A	N/A	N/A
Car 3	2004	Jeep Liberty 4x4	N/A	N/A	N/A	N/A
Car 4	2008	Kia Sorento 4x4	N/A	N/A	N/A	N/A
Inspection 1	2009	Ford Focus	N/A	N/A	N/A	N/A
Inspection 2	2009	Chevrolet Aveo	N/A	N/A	N/A	N/A
Inspection 3	2002	Ford Ranger 2x4	N/A	N/A	N/A	N/A
Inspection 4	2008	Smart Car	N/A	N/A	N/A	N/A
Investigation 5	2004	Jeep Liberty 4x4	N/A	N/A	N/A	N/A
Investigation 9	2009	Cargo Trailer	N/A	N/A	N/A	N/A
Safety House	1984	Utility Trailer	N/A	N/A	N/A	N/A
Public Education	2012	Volkswagen	N/A	N/A	N/A	N/A

APPENDIX

14.1 Available Resources (inputs):

Apparatus:

Station 2

Type	Year	Manufacturer	Pump Capacity IGPM	Tank Capacity	Foam Capacity	Aerial
Engine 2	2002	Spartan/Superior	1250	500	20	N/A
Ladder 2	2002	Spartan/Smeal	1500	450	40	102'
Marine Rescue	2000	Boston Whaler	175	0	0	N/A

Station 3

Type	Year	Manufacturer	Pump Capacity IGPM	Tank Capacity	Foam Capacity	Aerial
Engine 3	2009	Spartan/Rosenbauer	1250	500	40	N/A
Bush 200	1996	Ford	200	200	10	N/A
Hazmat 3	1998	Freightliner	0	0	0	N/A

Station 4

Type	Year	Manufacturer	Pump Capacity IGPM	Tank Capacity	Foam Capacity	Aerial
Engine 4	2005	Spartan/Superior	1250	500	40	N/A
Bush 4	1991	Ford/Danko	175	200	10	N/A
Tender 4	1993	International	200	2500	0	N/A

Station 7

Type	Year	Manufacturer	Pump Capacity IGPM	Tank Capacity	Foam Capacity	Aerial
Engine 7	1999	Freightliner/Hub	1250	1000	20	N/A
Bush 7	1993	Chevrolet	200	200	10	N/A

Station 8

Type	Year	Manufacturer	Pump Capacity IGPM	Tank Capacity	Foam Capacity	Aerial
Engine 8	1995	Spartan/Superior	1250	400	20	50'

Station 9

Type	Year	Manufacturer	Pump Capacity IGPM	Tank Capacity	Foam Capacity	Aerial
Mini 9	1998	Ford	300	300		N/A

APPENDIX

Appendix B:
14.2 Performance (outputs):

Fire Inspections by Year/Inspectors/Company & Status

Fire Inspections:	2008 Total	%	2009 Total	%	2010 Total	%	2011 Total	%
Total Inspectable Properties Due	4741	100.0%	4569	100.0%	4294	100.0%	4583	100.0%
YTD Inspections	1836	38.7%	2636	57.7%	4035	94.0%	4157	90.7%
By Inspectors	1373	74.8%	1765	67.0%	2995	74.2%	3233	77.8%
By Company	463	25.2%	871	33.0%	1040	25.8%	924	22.2%
Satisfactory	497	27.1%	656	24.9%	1232	30.5%	1371	33.0%
Unsatisfactory	1335	72.7%	1980	75.1%	2803	69.5%	2786	67.0%

Dollar Loss by Occupancy Classification:

Dollar Loss YTD	2008 Total	%	2009 Total	%	2010 Total	%	2011 Total	%
Total Dollar Loss	$ 6,556,435.00	100.0%	$4,699,005.00	100.0%	$ 12,303,330.00	100.0%	$16,516,025.00	100.0%
A	$250,900.00	3.83%	$136,250.00	2.90%	$16,250.00	0.13%	$38,800.00	0.23%
B	$95,000.00	1.45%	$2,950.00	0.06%	$200.00	0.00%	$3,100.00	0.02%
C	$4,853,600.00	74.03%	$4,398,005.00	93.59%	$1,770,180.00	14.39%	$12,219,025.00	73.98%
D	$18,500.00	0.28%	$129,500.00	2.76%	$399,000.00	3.24%	$1,816,100.00	11.00%
E	$843,735.00	12.87%	$5,100.00	0.11%	$44,500.00	0.36%	$2,139,500.00	12.95%
F-1	$0.00	0.00%	$20,000.00	0.43%	$10,000,000.00	81.28%	$0.00	0.00%
F-2	$494,700.00	7.55%	$7,200.00	0.15%	$73,200.00	0.59%	$291,500.00	1.76%
F-3	$0.00	0.00%	$0.00	0.00%	$0.00	0.00%	$8,000.00	0.05%

APPENDIX

Performance (outputs):

Fire Investigations by Type:

Fire Investigation:	2008 Total	%	2009 Total	%	2010 Total	%	2011 Total	%
YTD Investigations	47	100.0%	55	100.0%	34	100.0%	40	100.0%
Structures	44	93.6%	41	74.5%	23	67.6%	30	75.0%
Vehicle	1	2.1%	8	14.5%	5	14.7%	3	7.5%
Outdoor	2	4.3%	6	10.9%	6	17.6%	7	17.5%

Public Education Events:

Public Education:	2011 Total	Attendees
Station Tours	33	710
Fire Extinguisher Training Sessions	7	270
Public Education Safety Talks	12	381
Pumper Visits	26	1,920
Fire Drills	3	100
Career Presentations	6	891
Kids Combat Challenge	1	200
Fire Safety House : # Schools/Attendees	30	4,724
Child Passenger Seat Inspections	97	
Total Events/Attendees	118	9,196

APPENDIX

Performance (outputs):

Incidents by Type:

Incident Type	2009 Total		2010 Total		2011 Total	
Total Calls	9594	100.0%	9403	100.0%	9518	100.0%
Fires	1518	15.82%	1762	18.7%	1630	17.1%
First Medical Response	5538	57.71%	6457	68.7%	6525	68.6%
MVA	869	9.06%	774	8.2%	750	7.9%
Other	1669	17.39%	410	4.4%	613	6.4%

Response Times:

Turn Out Times

AVERAGE TURN OUT TIMES	2008	2009	2010	2011
Engine/Pumper	00:02:20	00:02:27	00:02:22	00:02:32
Ladder	00:02:11	00:02:45	00:02:38	00:03:07
Squad/Rescue	00:01:05	00:02:21	00:02:28	00:02:32
Engine 7 & 8 (Paid on Call)	00:06:37	00:06:32	00:07:09	00:07:09

1st Arriving Apparatus (Travel Time) *NFPA 1710; 0-4 min 90%

Time	2008	2009	2010	2011
0 - 4 Minutes	55%	57%	59%	59%
0 - 6 Minutes	77%	78%	80%	80%
0 - 9 Minutes	89%	91%	91%	92%
9+ Minutes	100%	100%	100%	100%

Structure Fire Response Assignment (Travel Time) *NFPA 1710; 0-8 min 90%

Time	2008	2009	2010	2011
0 - 4 Minutes	18%	10%	17%	13%
0 - 6 Minutes	30%	34%	40%	35%
0 - 8 Minutes	44%	45%	49%	56%
8+ Minutes	100%	100%	100%	100%

APPENDIX

Performance (outputs):

Dispatch Volumes & Times:

Dispatch Type/Year	2007	2008	2009	2010	2011	% Change
Total Annual Dispatch Volume	15,627	18,181	18,284	20,290	21,269	34%
Phone Conversations	N/A	N/A	93,737	92,243	85,813	-8%
Radio Conversations	N/A	N/A	158,051	162,121	162,649	3%
9-1-1 Answered <15 Seconds	N/A	N/A	94%	96%	95%	1%
9-1-1 Answered <40 Seconds	N/A	N/A	99%	99%	99%	0%
% Processed within 35 Seconds	N/A	N/A	73%	95%	94%	29%
% Processed within 60 Seconds	N/A	N/A	74%	91%	93%	29%

N/A = Detailed data collection began in 2009
* Decline in phone conversations attributed to electronic integration between Ambulance and Fire Dispatch, eliminating the need for phone calls between agencies

Kelowna
Fire Department

APPENDIX

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External Partners:

Black Mountain Irrigation District
Glenmore Ellison Irrigation District
Rutland Water Works
South East Kelowna Irrigation District
Risk Management Services
Regional District of Central Okanagan

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Leadership Team:

Jeff Carlisle
Thomas Doherty
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Jason Brolund
Sandy Scott

References:

Official Community Plan

NFPA 1710, 1720, 1221, 1001, 1500

Current Strategic Plan

CFAI

Standards of Cover Report

Fire Underwriters Survey

FMR Incremental Cost Analysis

Corporate Priorities

Strategic Plan Assessment Guide

Strategic Planning in the Fire Service

Strategic Planning for Public and Non-Profit Organizations

KFD Annual Report

Core Service Inventory Review

2007 Fire Dispatch Mitchell Report

RDCO Core Service Review

2004 Blackwell & Associates Report

FDM

Kelowna
Fire Department

Standards of Response Cover

September 2012

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Table of Contents

Executive Summary

Overview

This document recommends the Kelowna Fire Department's (KFD) Standards of Response Coverage for the City of Kelowna (COK). As part of the 2010-2019 Strategic Plan Review process an analysis of response resources, deployment strategies, operational elements and the overall community risks was conducted through a number of resources including:

- Official Community Plan (OCP)
- 2012 Fire Underwriter's Survey (FUS)
- National Fire Protection Association (NFPA) Standards
- Comparative communities
- KFD historical fire prevention and response data
- KFD operational guidelines and current operational capacities including the distribution and concentration of resources
- Commission on Fire Accreditation International's (CFAI) Standards of Cover 5th Edition

These references have been applied within this analysis in order to establish response time goals and standards and for measuring the effectiveness of resource deployment based upon risk and other community factors. This Standard of Response Coverage also re-evaluates the goals and objectives of the current 2010 KFD Strategic Plan and identifies additional operational recommendations to improve the service to the public. The overall methodology for this analysis was based on the Commission on Fire Accreditation International's (CFAI) Standards of Cover 5th edition text.

The Kelowna Fire Department

From the department's inception in 1905 as a bucket brigade to the modern fire service based out of 7 fire stations with 96 career firefighters and 54 paid on call members, the philosophy hasn't changed: "The Kelowna Fire Department shall endeavour to arrive in a timely manner with sufficient resources to initiate mitigation efforts and to prevent, stop or limit injury, property loss or damage to the environment while providing for the safety of responders and the general public".

Additionally, KFD provides regional fire dispatch to the Central Okanagan and Okanagan- Similkameen Regional Districts as well as regional emergency programming, technical rescue and hazardous materials services to the Central Okanagan Regional District.

Analysis of Community Risk

A comprehensive analysis of risk factors specific to Kelowna, including topography, transportation systems, water supply, wild land interface and geographical area, was conducted to determine overall community risk levels.

From internal historic data and the FUS, KFD was able to identify and categorize the amount and location of significant risk. From this analysis of nearly 35,000 points of information, a plan could be developed on how to improve the distribution and concentration of department resources as KFD endeavors to improve service to the city.

Performance Standards

Response time for emergency incidents remains the key performance measurement for the KFD. Total response times include three essential elements: call processing time, turn out time, and travel time.

The 2010 Strategic Plan identified a response time goal that has been re-visited in this document. Based upon the determining observations and analysis contained in this Standard of Response Cover report, the risk management model for the City of Kelowna to optimize firefighter and public safety, and provide an efficient and effective level of service based upon Kelowna's risks factors the following applies:

- KFD will endeavour to achieve a 4 minute travel time for the first engine with four professional firefighters for high and moderate risk facilities/structures within the permanent growth boundary in 90% of all occurrences.
- Areas beyond the permanent growth boundary KFD will endeavour to achieve an 8-10 minute travel time for the first engine with four professional firefighters for high and moderate risk facilities/structures in 90% of all occurrences.

These response time performance targets will be developed into a KFD Master Plan and reviewed/measured on an annual basis and if necessary adjustments made to ensure these targets are being achieved and that risks are managed to an acceptable level as determined by COK Council.

Recommendations

From the analysis of community risks historical data and performance standards, the Kelowna Fire Department makes the following recommendations:

- Adopt this report as the Standard of Response Cover that details the response goals for the Kelowna Fire Department.

- Recruit POC members in the McKinley Landing area and replace the less than adequate bush truck with one capable of combating structure fires.

- Conduct a review of the POC deployment system. In particular the feasibility of station 1 POC members being reassigned to the closest POC station from their residence (South East Kelowna, McKinley or Glenmore), and maintain a minimum POC staffing level of 50 members.

- Build and staff a new fire station in North Glenmore to better service McKinley, Glenmore, UBCO, YLW airport and the north end industrial area.

- Build and staff a new fire station in the KLO/ Gordon area to improve response coverage to the immediate area, South East Kelowna, Downtown core and Mission.

- Conduct a thorough assessment of all fire stations by Infrastructure Planning including a structural and major systems assessment, functionality and operational requirements in order to determine long term usage. Capital investment to renovate these facilities must be included in the COK 10 year capital plan. With the revitalization of the downtown core and the response impacts of traffic congestion on Water Street along with the general age and condition of fire station 2, endorse a functionality assessment to determine the future needs of the building and the feasibility of moving KFD's downtown resources to the proposed emergency services property on Clement Avenue.

- Assess future fire service needs for Black Mountain and the Mission South Slopes.

- Evaluate the feasibility of increasing the staffing on Squad 1 from 2 to 4 members 24/7.

- Utilize the results of the Strategic Plan review process and the recommendations contain in the Standard of Cover analysis to construct a department Master Plan that will identify the tact to implement goals and objectives.

Introduction

The purpose of this analysis is to develop the Kelowna Fire Department's (KFD) integrated risk management plan "Standards of Response Cover" document. The overarching methodology of this analysis was the Commission on Fire Accreditation International's (CFAI) Standard of Cover 5th edition. This resource defines the process, known as "deployment analysis" which includes written procedures that determine the distribution and concentration of fixed and mobile resources of fire service. The purpose for completing such an analysis is to determine the most efficient and effective response force for fire suppression, first medical response, rescue and other emergency response issues.

Creating a Standard of Response Cover requires that a number of areas be researched, studied and evaluated. The following analysis will begin with an overview of both the community and the department. Following this overview, discussion areas such as risk assessment, critical task analysis, service level objectives, distribution and concentration measures and finally recommendations to improve Kelowna's fire service are presented.

KFD's vision is to be the best mid - sized fire department, and an evaluation of services and the community needs is required. The following documents where resourced as part of this analysis:

- The Official Community Plan (OCP)
- Fire Underwriters Survey (FUS)
- National Fire Protection Association (NFPA) standards
- KFD's current capabilities
- Commission on Fire Accreditation International CFAI Risk Assessment
- Kelowna Fire Department Strategic Plan 2010- 2019
- 2010 National Institute of Standards and Technology "Report on Residential Fire ground Field Experiments"
- WorkSafe BC Regulations section 31
- Current and historic response statistics
- Kelowna Fire Department Standard Operating Guidelines

Part of the process to develop this Standard of Cover included the KFD Strategic Planning Committee which was made up of members representing each branch of the department. Using the references above a comprehensive gap analysis was conducted.

From this review, risks have been assessed and categorized and standards have been detailed on the amount and distribution of resources necessary to mitigate a wide variety of emergencies. This created the benchmarks necessary to maintain as the City and the demand on fire department services grows. It

is also important to review the statistical data from the service delivery to ensure KFD is responsive to the needs of customers.

It is important to note that the economic realities in local government and City of Kelowna (COK) Council's direction were applied in this analysis. Full compliance with NFPA standards or the FUS recommendations is not realistic. The determining observations contained in this analysis lead to the development of a risk based service delivery model that considers the unique circumstances in Kelowna and seeks to optimize public and firefighter safety.

Community Profile

The COK is the seventh largest city in the province with almost 117,000[1] residents and the 43rd largest city in Canada[2]. On any given day of the year on average, an additional 4100 people visit Kelowna[3] and an unknown number of commuters come to Kelowna for work increasing the KFD's service population. The department's service area is a total of 214 square kilometres with two additional contracted areas of June Springs and Lakeshore Rd adding another 550 hectares to the community's service area. In addition, KFD provides technical rescue, hazardous material response and marine rescue services to an additional 61,000[4] residents of the Regional District of the Central Okanagan (RDCO).

KFD's history goes back before the City of Kelowna was incorporated in 1905 as a bucket brigade and evolving to the first fire station being built in 1905 on the corner of Water Street and Lawrence Avenue next to the current fire station 2 which was built in 1925. In 1973, the city amalgamated the surrounding areas of Glenmore, Rutland, Benvoulin, South East Kelowna and Mission. KFD hired a number of members in the mid 1970's to provide the basics of a professional fire service to the newly formed city. From 1954 to 1987, KFD provided the only ambulance service within RDCO as part of its integrated service. In 1989 all firefighters were trained to the First Medical Responder level 3 as the BC Ambulance Service became the primary service provider. In 2000 to comply with WorkSafe regulations, all career fire Engines were staffed with 4 members to enable first arriving firefighters to make entry into a burning building with the "2 in 2 out" regulation. In 2010, a Squad company of 2 members was implemented to cross staff Rescue 1, Ladder 1, Bush 1 and Tender 1.

The amalgamation of Kelowna in 1973 brought small neighbourhood "communities" into the city. These neighbourhoods still maintain their own character and identity to some extent in the OCP. The OCP identifies 5 urban centers and 5 village centers, creating multiple core areas where KFD must focus the distribution of resources.

The OCP details how the city is configured with 5 de-centralized urban cores within the identified Permanent Growth Boundary. This creates an urban/ suburban/ rural mosaic for KFD to deliver service within rather than a traditional center urban core surrounded by a suburban zone melding into rural. According to the City of Kelowna Planning Department, there is nearly 8,700 hectares of agricultural land reserve inside the city boundary- 674 hectares of which are inside the Permanent Growth Boundary. Essentially this means that for many moderate and high risk responses, fire resources are

[1] City of Kelowna Official Community Plan
[2] Wikipedia
[3] Economic Impact Study of Tourism in Kelowna, BC. (www.investkelowna.com)
[4] CORD Website

responding from an urban area through suburban and rural zones to support operations in another urban zone.

Determining Observation #1: Kelowna's 5 urban and 5 village centres results in challenges to provide equitable emergency response services to all neighbourhood centres. The current strategic plan details response zones of 6 minutes for urban, 9 minutes for suburban, and 14 minutes rural is problematic given the COK configuration and intermix of urban, suburban and rural areas.

Legislation and Governance

KFD relies on provincial regulations, municipal bylaws and council policies for the authority to delivery services and contribute to public safety. These include:

- Fire Department Act: provides direction on work schedules and conditions.
- Fire Services Act: outlines responsibility and authority of the Office of the Fire Commissioner and their local authorities (LAFC), including public building fire prevention inspection, fire investigation and reporting.
- BC Fire Code: Regulates design, building, conditions, renovating, demolishing of specific building elements as well as the protective measures for buildings.
- Emergency Program Act: Identifies responsibilities for developing and maintaining an Emergency Program and Emergency Support Services.
- Workers Compensation Act: Among generic work regulations, identifies on-site staffing for initial operations at fires. Bill C45; criminal code amendment regarding employer and employee consequences of negligence.
- Fire Department Establishment Bylaw #6330: roles, responsibility and authority of the Fire Chief.
- Fire Prevention Bylaw #6110-88: outlines the requirements and provisions of fire prevention and life safety equipment required in specific buildings and premises.
- Fireworks Bylaw #8789: Regulates fireworks.
- Regional Emergency Program bylaw #635: outlines the KFD's role.
- Council Policy "Frequency of fire Inspections" #181: details inspection frequency.

Emergency Response Services Current Capacity

The department operates 7 fire stations (4 career and 3 paid on call) and 23 response vehicles. Besides managing and delivering emergency services, public fire education and fire inspection services, KFD manages and operates fire dispatch for the Regional Districts of the Central Okanagan (RDCO) and the

Okanagan Similkameen (RDOS) dispatching for a total of 42 fire stations as well as managing the RDCO Regional Rescue Program and the Regional Emergency Program.

Calls for Service (5 Year)

Year	KFD Call Volume
2007	7963
2008	8845
2009	9596
2010	9403
2011	9518

The following chart provides basic information on the department's emergency response services, the general resource capability, and the KFD staff resources for that service.

Emergency Response Services Summary

Service	General Resource/ Asset Capability	Basic Staffing Capability/ Shift
Fire Suppression	4 (4) member staffed Engines 1 (2) member staffed Squad (cross staffed Ladder/ Rescue) 1 Platoon Captain 1 Safety Officer Additional cross staffed equipment: 1 Ladder Truck 2 Bush Trucks 2 Water Tenders Paid on Call Units 3 POC Engines 2 Back up Pumpers 1 Back up Rescue 1Bush Truck	19 Suppression minimum staffing (24/7) Call back Career staff 54 POC members
First Medical Response	4 Career Engines with AED 1 Career Rescue truck with AED 2 POC Engines with AED	All Suppression staff trained to FMR-3 c/w AED and spinal control endorsement
Vehicle Extrication and Ice rescue.	1 Rescue truck equipped with hydraulic rescue tools, hand tools, stabilization equipment, low slope rescue and Ice rescue equipment	All Career Suppression members trained
High angle building and wild land rescue, Confined Space, Swift Water, Marine rescue	- Variety of equipment stored at station 1 for transport to incident when required. - Rescue boat can be transported and deployed to any lake within CORD.	-26 suppression staff (6 per shift) trained to technician level -20 staff for Marine Rescue
Hazardous Materials	1 Hazardous Materials truck (CORD owned) 1 Hazardous Materials trailer (COK owned)	26 suppression staff (6 per shift) trained to the technician level

Staffing Distribution

Career Suppression Staff:	Number	Minimum on Duty	Paid on Call Suppression Staff:
Platoon Captains	4	1	
Captains	16	4	
Lieutenants	4	1	
Firefighters	72	13	
TOTAL	96	19	
Station 1 (Enterprise)			20
Station 7 (South East Kelowna)			15
Station 8 (Glenmore)			13
Station 9 (McKinley)			6
TOTAL June 2012			54

Critical Tasking

The KFD service area has a wide variety of challenges from the densely populated urban areas with risks associated with high rise residential and commercial/industrial buildings to the unique challenges of the rural areas in wild land interface fires and back country type rescues. By evaluating the risk potential to firefighters, occupants, the environment and basic infrastructure, KFD has developed a standard operating procedure to action on all types of incidents. This guideline enables a systematic method to elevate the resource deployment and call back staff for regular city wide coverage.

Fire service critical tasks are those tasks that are essential to perform at fire and emergency scenes in order to provide an efficient and effective response to any kind of incident in an appropriate time.

KFD's current on duty staffing has the critical task capability to handle one single family house fire provided it has not extended beyond the structure of origin. Any larger event such as multiple structures, commercial or industrial fires, wild land fires, hazardous materials or technical rescue would overwhelm the on-duty contingent requiring the back filling of reserve apparatus with off duty staff on overtime.

Determining Observation # 2: Basic fire science shows that if firefighters are on scene taking action to extinguish a fire in a single family dwelling within a 4 minutes (travel time), there is a great chance that fire damage will be limited to the area of origin within the structure. After this critical point the fire compounds the damage to involve the remainder of the structure and possibly threaten other structures.

Paid on Call members are an integral part of this resource deployment but as in back filling career staff, there is no guarantee of responder attendance. Paid on call (POC) members based out of the Enterprise fire station are utilized to support career staff on larger fires where as in McKinley, South East Kelowna and Glenmore, the POC members are utilized as part of the primary response to all incidents due to the greater response time and the need to keep career resources centralized when possible.

A thorough review of available data identifies two specific points of interests in the fire protection in McKinley Landing. The first point is that the current brush truck (M-9) is incapable of fighting a structure fire as it doesn't have a large enough pump and is unable to carry enough firefighters or water to be considered adequate. The second point is that there is a lack of paid on call firefighters. Currently there are 6 members. A 2010 recruitment drive city wide did not yield any new members in this small neighbourhood. KFD's current minimum critical staffing levels are detailed below.

KFD Career Company Staffing Levels	Notes
Engine 1 (4 members)	
Squad 1 (2 members)	Cross staffed: Rescue 1, Ladder 1, Bush 1, Tender 1
Engine 2 (4 members)	Cross staffed: Ladder 2 and Marine Rescue 2
Engine 3 (4 members)	Cross staffed: HazMat 3 and Bush 200
Engine 4 (4 members)	Cross staffed: Tender 4, Bush 4
Platoon Captain 1 (1 member)	
Minimum Duty Staffing: 19	
POC Staffing Levels	Notes
POC Engine 7/ Bush 7	15 POC members
POC Engine 8	13 POC members
POC Mini 9	6 POC members
POC Station 1	20 POC members

Fire Company Size

A fire company is defined as the team of firefighters assigned to a fire apparatus. In the KFD, an Engine company is a Captain with 3 Firefighters and a Squad company is a Lieutenant with 1 Firefighter. Some fire apparatus are "cross staffed" meaning that the one fire company will operate on more than one apparatus. Cross staffing fire apparatus drops the efficiency of the fire company in fire ground tasks.

An April 2010 report issued by the Nation Institute of Standards and Technology identifies the optimum number of members for a fire company for most effective operations over 22 essential fire ground tasks at a typical single family house fire. A four-member crew operating on a structure fire completed all the tasks on the fire ground (on average) seven minutes faster—nearly 30 %—than the two-person crews. The four-person crews completed the same number of fire ground tasks (on average) 5.1 minutes faster—nearly 25 %—than the three-person crews. On the low-hazard residential structure fire, adding a

fifth person to the crews did not decrease overall fire ground task times. However, it should be noted that the benefit of a five member crew was not documented.[5]

WorkSafe BC regulations stipulate that if firefighters enter a structure fire's hazardous atmosphere, a minimum of 2 must be together and there must be at least one firefighter outside to initiate a rescue if necessary[6]. This does not include the operator of the fire pump who is integral to ensuring that the two interior firefighters have water to combat the fire and protect themselves. Essentially this means that the first arriving fire company is not legally able to perform entry into a single family house fire to perform a rescue unless 4 firefighters are on scene. The standard goes on to state that within 10 minutes of entry, a two member team must be available standing by outside to perform a firefighter rescue or the two member interior team must exit and abandon interior operations.

The KFD standard operational guideline[7] for resource deployment to a fire in a single family dwelling is based on the fire industry standard for house fires which identifies a minimum of **14** firefighters are necessary to perform critical tasks at this type of emergency incident. These tasks include:

Command and Control	Scene Safety
Search and Rescue	Rapid Intervention (firefighter rescue team)
Fire Attack	Water Supply
Pump Operations	Ventilation

Current Resource Deployment (typical calls for service)

The information below identifies the current deployment of resources to a multitude of emergency incidents ranging from a first alarm (minor incident) up to a third alarm (larger incident). This pre-designated system is able to adapt to the actual incident by scaling up resources or down grading depending on the specific resource need.

Note: This does not include smaller outdoor fires such as vehicles, garbage bins and refuse fires which are attended to with one Engine.

[5] NIST Report on Residential Fire Ground Field Experiments, April 2010
[6] Worksafe BC 31.23 Entry into Buildings
[7] KFD Operational Guideline 2.04.02

First Alarm Incidents

Wild land Fire minor (1st alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	For example: a fire in short grass/ low angle terrain/ manageable area
Bush Truck	1	1-2	
Paid on Call in 7,8,9	1		
Effective Response Force	3	6+ POCs	

Alarm activation by automatic system (1st alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	
Paid on Call in 7,8,9	1		
Add: 2nd Engine and Command Unit for high life occupancies			Additional units respond to places such as schools and rest homes.
Effective Response Force	1+	4+ POCs	

Motor Vehicle Accident with Extrication (1st alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	
Rescue Truck	1	2	
Paid on Call in 7, 8, 9	1		
Effective Response Force	3	6+ POCs	

First Medical Response (1st alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	
Squad in area 1, 7, 8, 9			
Paid on Call in 7 and 9	1		
Effective Response Force	2	4+ POCs	

Hazardous Materials minor (1st alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	For example: Small fuel spill from vehicle
Effective Response Force	1	4	

Second Alarm Incidents

Single Family Residential (2nd alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	3	12	Career call backs to re-staff station(s)
Squad	1	2	
Safety Officer	1	1	
Incident Commander	1	1	DC notification
Paid on Call in 7,8,9	1		
Effective Response Force	7	16	

Hazardous Materials (2nd alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	Career call backs to re-staff station(s)
HazMat Truck	2	1	
Safety Officer	1	1	Paid on Call in 7,8,9
Incident Commander	1	1	DC Notified
HazMat Team		6	On duty HazMat team assembles
Effective Response Force	5	13	

Wild land Fire (2nd alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	2	8	Heavy wild land fuel areas/ steeper slope/ structure proximity
Bush Truck	1	1	Paid on Call in 1,7,8,9
Water Tender	1	1	DC notified
Safety Officer	1	1	Career call backs to re-staff station(s)
Dispatcher		1	Dispatcher called back
Incident Commander	1	1	
Effective Response Force	6	13+ POCs	Career call back to incident

Technical Rescue (2nd alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	Patient contact/ medical aid
Technical Rescue Team	1/2	6	TRT assembles
			Career call backs to re-staff station(s) and to the incident
Effective Response Force	2/3	10	

Third Alarm Incidents

Multi Family Residential/ Commercial/ Industrial Fire (3rd alarm+)

Unit Type	Number of units	Total Personnel	Notes
Engines	4	16	Career call backs
Squad (Ladder)	1/2	2	To re- staff station(s) and incident
Safety Officer	1	1	Paid on Call
Incident Commander	1	1	Career Call backs
Deputy Chief	1	1	DC respond to scene
Firefighter call back		As required	
Effective Response Force	8+	21+	

Hazardous Materials (3rd alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	1	4	Career call backs
HazMat Truck	2	1	To re- staff station(s)
Safety Officer	1	1	Paid on Call in 7,8,9
Incident Commander	1	1	
HazMat Team		6	On duty HazMat team assembles
HazMat Techs called back	0	As required by Incident Command	
Dispatcher		1	Dispatcher called back
Deputy Chief	1	1	
Effective Response Force	6	15+	Assembles

Wild land Fire major (3rd alarm)

Unit Type	Number of units	Total Personnel	Notes
Engines	2	8	Heavy wild land fuel areas/ steeper slope/ structure proximity
Bush Truck	2/3	3	Paid on Call in 7,8,9
Water Tender	1/2	2	
Safety Officer	1	1	Career call backs to re-staff station(s) and incident
Dispatcher		1	Dispatcher called back
Incident Commander	1	1	
Station 1 POCs			
Deputy Chief	1	1	
Effective Response Force	8	17+ POCs	

Determining Observation #3: KFD's 4 member Engine company standard is the most effective and efficient in performing critical tasks as identified in the NIST report on critical tasking and enables the first arriving crew to enter a burning structure to perform a life saving rescue or attack the fire in compliance with the Worksafe regulation in section 31.

Determining Observation #4: KFD's current contingent of firefighters is not able to respond to and action more than one emergency such as a house fire that requires more than one station deployment incident at a time, without recalling career on overtime and POC members.

Determining Observation #5: Because KFD cross staffs a number of emergency vehicles, there are times when some emergency vehicles are left behind because the firefighters are either out of the station when the call comes in or for operational effectiveness, the crew must remain and respond together on one vehicle.

Fire Stations

Fire stations play an integral role in the delivery of emergency services. A station's location will dictate to a large degree, response times to emergencies. Ideally they should be centrally located on an arterial grid that will expedite travel north, south, east and west. Fire stations should also be designed to support the department's function today and into the future with adequate space for:

- Garaging and cleaning apparatus and equipment
- Living quarters for on-duty crew members (male and female)
- Administrative office space
- Firefighter training/ library area
- Firefighter fitness area

KFD delivers emergency services from 7 city owned fire stations located throughout the response area. The department's administrative and inspection services and the dispatch center for RDCO and RDOS are located at 2255 Enterprise Way.

Fire Stations are community buildings that are frequented by school children, service clubs, and the public. As such, these buildings must be maintained to the City's standards and should serve to promote a professional image and a sense of public confidence and safety. Station #1 on Enterprise Way will have renovations completed in 2012 to provide additional office space for Fire Prevention, female washrooms and change room. Kelowna's fire stations are aging and in need of functional and operational enhancements. Funding to update these facilities should be included in the 10 year Capital Plan. The following table details the age of each station.

Station	Year Built	Designation
Station 1: Enterprise	1975	Career / POC
Station 2: Water St.	1925	Career
Station 3: Rutland	1973	Career
Station 4: Mission	1974	Career
Station 7: South East Kelowna	1974	POC
Station 8: Glenmore	1974	POC
Station 9: McKinley	1993	POC

More specifically, fire Station 2 located at 1616 Water Street is KFD's oldest station and was constructed in 1925 with an additional truck bay and living quarters (upstairs) built in 1960. In the early 1990's new living quarters where constructed on the ground floor to replace the antiquated facilities. Although the basic structure is relatively sound for its age, the structure is not seismic safe and contains period electrical and plumbing. In recent years traffic flow in front of the station has required the installation of traffic signals at Lawrence Avenue and Leon Avenue only 100 meters apart. This inevitably causes severe traffic congestion in front of the fire station making it very difficult to exit the station to respond to emergencies and when returning; making a U-turn in the middle of the street in order to back into the building garage.

Determining Observation #6: Fire Station 2's operational response functionality is becoming more and more impacted by the increased traffic congestion on Water Street. As well, the building likely needs a thorough evaluation by Real Estate and Building Services to determine the feasibility of investing in renovations to this structure.

Apparatus

Station	Apparatus	Year Built	Condition
Station 1	Engine 1	2010	Good
	Rescue 1	2002	Good
	Ladder 1	1991	Beyond recommended life cycle
	Platoon Captain 1	2005	Good
	Bush 1	2005	Good
	Safety & Training 1	2009	Good
	Pumper 1(reserve)	1996	Fair
	Pumper 2 (reserve)	1994	Fair
	Backup Rescue 1	1991	Fair
	Water Tender 1	1999	Good
Station 2	Engine 2	2002	Good
	Ladder 2	2002	Good
	Marine Rescue 2 (CORD)	2000	Good
Station 3	Engine 3	2009	Good
	HazMat 3 (CORD)	1998	Fair
	Bush 200 (CORD)	1995	Fair
Station 4	Engine 4	2005	Good
	Water Tender 4	1993	Fair
	Bush 4	1999	Fair
Station 7	Engine 7	1999	Good
	Bush 7	1993	Fair
Station 8	Engine 8	2006	Good
Station 9	Mini 9	1996	Inadequate (needs to be replaced in order to meet required fire flows)

Comparative Community Analysis

Below is a comparison to fire departments in like sized communities with information supplied by the respective Fire Chief. POC firefighters were not included in this comparison as Kamloops and Coquitlam are the only others that utilize paid on call members. Kelowna has more POC members than the other two communities. In regards to response time standards all polled fire departments strive to respond as quickly and efficiently as possible and agree that a 4 minute travel time is a realistic benchmark however, they all feel the challenge of meeting that target. There is also consistency in the noted departments of placing emergency resources in proximity to both the volume of community risks and the higher risk buildings in their community.

CITY (2011 Statistics)	POPULATION	AREA Sq. KMs	Career FF/ POP.	CALL VOLUME	BUSIEST RESPONSE ZONE
Kelowna	117,000 (3rd)	214 (4th)	1 to 1240 (6th)	9518 (1st)	3318 (1st)*
Delta	120,000	364	1 to 716	5625	1871
Kamloops	87,000	333	1 to 837	6228	n/a
Prince George	72,000	318	1 to 686	5520	2703
Saanich	110,000	103	1 to 1146	3657	1624
Coquitlam	135,000	130	1 to 931	5728	2406

* Kelowna's busiest response zone is the downtown core/ Station 2 on Water Street.

** Rutland (Area 3) at 2200 calls for service in 2011 would have ranked as the 4th busiest response zone.

Risk Assessment & Gap Analysis

KFD has assessed risks based upon key components. These components apply to all emergency incident types including fire suppression, rescue, first medical response and other calls for service. A detailed examination of these essential components will identify the risks inherent with the community and define the strategies necessary to appropriately deploy resources to meet the specific needs. The distribution and concentration of KFD resources must be consistent with the identified risks throughout the community.

Understanding of the varied levels of probability and consequences and proper strategic planning in respect to risk management provides a basis to define efficient and effective strategies to deploy department resources.

Key Components of Risk Assessment

Probability – Is the likelihood that a particular event will occur within a given period of time. An event that occurs daily is highly probable. An event that occurs only once in a century is very unlikely. Probability is an estimate of how often an event will occur within a given period of time, and should be evaluated for each type of emergency event to which the agency responds.

Consequence – There are several categories of consequential risk that include:

- Life safety risk to the lives of occupants from life threatening situations that include fire and emergency medical incidents,
- Economic impact the loss of property, income or irreplaceable assets, and
- Environmental impact the risk of repairable or long-term damage to the environment.

Fire Flow – An assessment of the available and needed water necessary should be outlined, and any deficiencies in existing water supplies should be identified.

Occupancy Risk – The assessment of the relative risk to life and property resulting from a fire that is inherent in a specific occupancy or in generic occupancy classes.

Fire Management Zones – Geographic areas used to assist in defining the management of risk. A zone can be single building or a group of buildings; typically they will share similar risk characteristics.

Community Risk – An overall profile of the community based on the unique mixture of demographics, socioeconomic factors, occupancy risk, fire management zones and the level of services currently provided.

Service Area Factors

The relevant service area factors applied in this analysis to determine risks include OCP growth projections, topography, the transportation system and water systems.

The OCP identifies a focus on city core densification within the permanent growth boundary rather than urban sprawl and predicts the City's population will be 141, 689 by 2020 and 161,701 by the year 2030. The forecasted growth is of particular interest in two specific areas of the city.

- Glenmore/ UBCO/ Quail Ridge area with an expected growth of 5000 living units and an estimated population increase of 11,000 plus and estimated 8800 daytime populations for UBCO by 2016.
- Downtown/ Midtown/ South Pandosy core adding 7000 living units and another 15,510 residents in these three urban centers by 2030; plus the necessary commercial space to support the added population.

When current risks, Fire Underwriter's credit rating and resource deployment is coupled with the projected population increases, it is evident that the service gap in these areas will only widen.

Determining Observation #7: COK growth will increase calls for service within existing neighbourhood areas thereby increasing risks within the urban and village centers. The risk model must take into consideration achieving a 4 minute response within these identified areas.

Topography – A great portion of KFD's service area is relatively flat however some neighbourhoods have roadways as steep as 13% grade. The Knox Mountain and Dilworth ridges with their steep slopes and wild land interface characteristics creates a fire defence challenge by semi isolating neighbourhoods like Clifton Rd, McKinley, Wilden, Dilworth and Quail Ridge. Mission Creek from Gallagher's Canyon to Okanagan Lake splits the community with only 5 crossing points over its 17 km run through the community. The South East Kelowna and Mission neighbourhoods' southern perimeter is a continuous boarder of steep ridges and gullies covered with the challenge of wild land interface issues.

Transportation System – The great majority of Kelowna's roadways are adequate to handle regular volumes of traffic either on the two provincial highways or municipal roads. The significant transportation issues are:

- The lone access and egress to the city from the south over the WR Bennett Bridge. An average of 60,000 vehicles travel the bridge daily so a significant event involving the bridge can have a compounding effect on the local traffic.

- There is no current roadway link from the Glenmore Valley to UBCO. The conceptual link from Glenmore Road to Academy Way referred to as John Hindle Drive would greatly improve emergency service response in this area.
- One 22km rail line runs through the community dead ending at Okanagan Lake. The rail line transports hazardous materials cargo.

Water Supply – KFD's service area is provided water supply from 5 large water utilities and 13 smaller water service providers. There are 4300 hydrants in the service area of which 757 are private. In accordance with the municipal bylaw, they are serviced once each year as detailed in the NFPA 25 standard and they are space no more than 200 meters in residential area and no more than 100 meters in high density residential/ commercial/ industrial areas. The rural areas of the Mission and South East Kelowna have water systems with more sparsely spaced hydrants requiring water tenders to be included on the resource deployment in these areas.

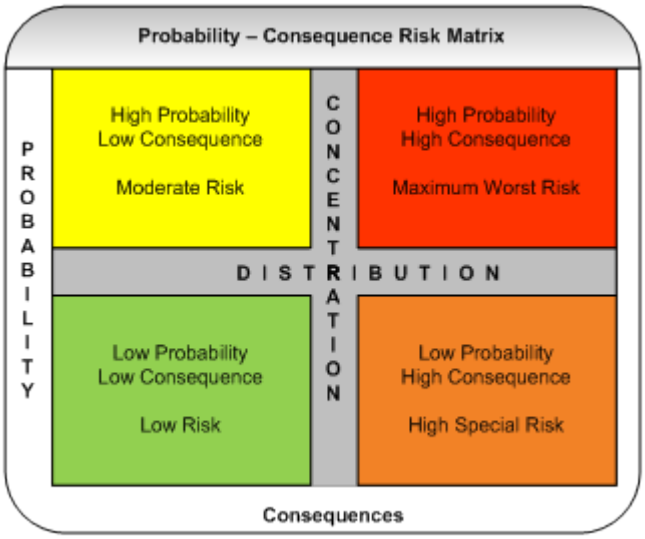
Determining Observation #8: Based on the OCP population projections and current risks, specific attention will be focused on the provision of emergency response services in Glenmore/UBCO and the Downtown/ South Pandosy areas.

Determining Observation #9: Overall Kelowna's current transportation system meets emergency responses demands with the exception of a roadway linking the North Glenmore Valley to the Airport area of Highway 97.

Determining Observation #10: Water supply due to a more sparsely spaced hydrant system in the rural areas of Mission and South East Kelowna, requires the addition of Water Tenders on the emergency response protocol.

Risk Assessment of the Service Area

The Probability – Consequence Risk Matrix below categorizes properties into low, moderate, and high risks to the community and determine which primary response zones host the greatest risks and how those risks are distributed throughout our service area. From this, the distribution and concentration of resources has been developed.



Different quadrants of the risk matrix require different response requirements. The four possible relationships between structures or conditions and the distribution of resources can be defined as follows:

Probability – The likelihood that a particular event will occur within a given time period. An event that occurs daily is highly probable. An event that occurs only once a century is very unlikely. Probability then is an estimate of how often an event will occur.

Consequence – There are two components of consequence: life safety (the amount of personnel and equipment required to rescue or protect the lives of occupants from life-threatening situations, which includes both fire and EMS) and economic impact (the loss of properties, incomes or irreplaceable assets).

The challenge in community risk management does not lie solely in the work necessary to assess the probabilities of an emergency event in a community, but in the political arena too. As the FUS indicates, "The strength of fire defence within a community depends largely on the will and financial ability of the community to support this emergency service. As found in reviewing specific Kelowna response data, the FUS and the NFPA statistics indicate that the larger the population of a community, the higher the level of fire protection, when measured against the risk of fires within the community.

The FUS evaluates the adequacy of response by comparing the potential severity of fire that may occur with a rating of the ability of fire crews and their resources responding within a specific time period relative to the fire and life safety risk potential that may be needed.

The base point for measuring fire risk and the resultant available and adequate response is the determination of Required Fire Flows (RFF)"[8]

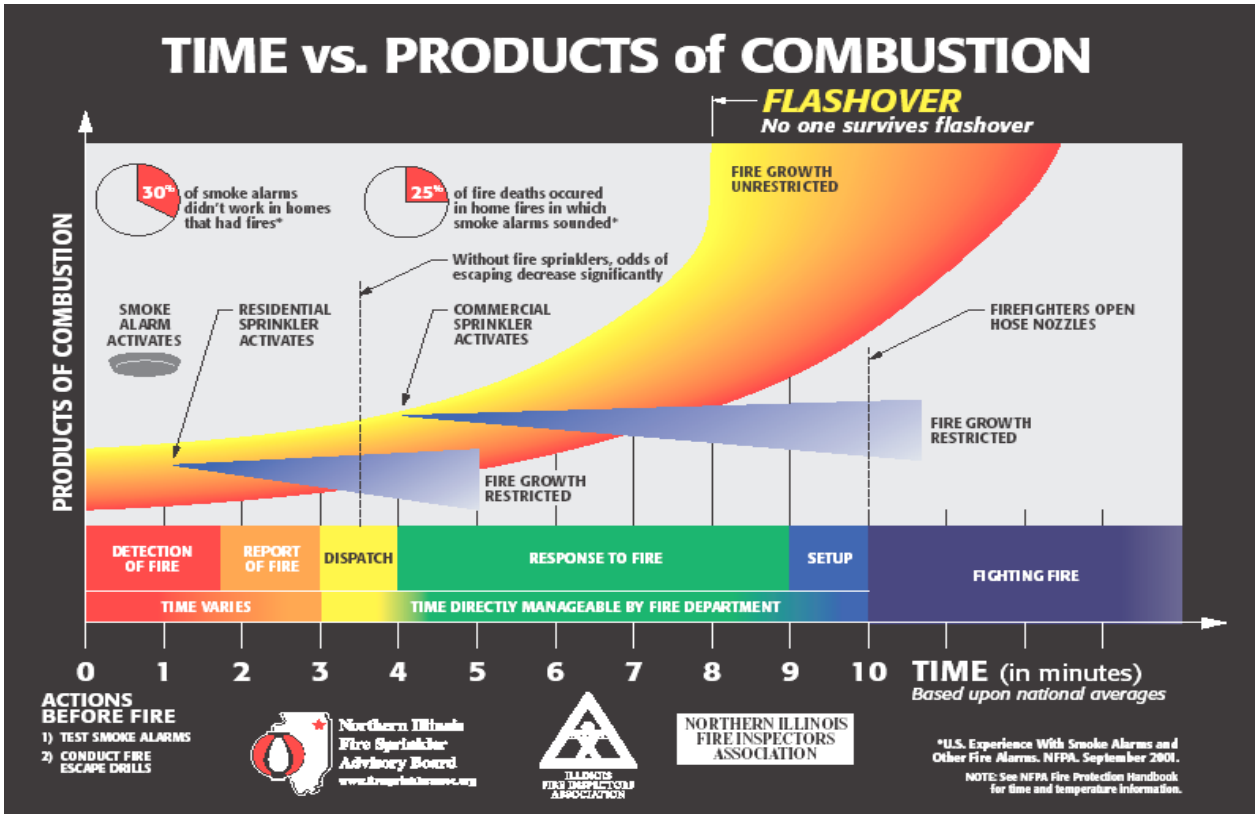
[8] City of Kelowna Fire Underwriters Survey and Distribution Study, 2012

Basically the RFF for a building or group of buildings in close proximity is equal to:

- Risk (building occupancy and structure type)
- Life, environmental, infrastructure hazard
- Response (water supply, resources available, response time). See Table of Effective Response in appendix 1
- Socio-Economic impact of damage or loss

GIS zoning and parcel data along with the BC building code was used to identify 34,275 Required Fire Flow points in 18 of KFD's response zones. As expected, the RFFs are concentrated in the Urban and Village centers identified in the OCP and the higher RFFs values of non- residential properties were mainly in the downtown core and along the Highway 97 corridor UBCO/ Airport) with pockets in the South Pandosy, Capital News Center/ H2O and the industrial area north of Duck Lake[9].

Effective response time with adequate resources is necessary to limit threat to life, property and the environment. The intent of an effective and timely response is to act on the fire prior to flashover where the all the room's contents have heated to their ignition point where the fire grows exponentially as illustrated below.



[9] City of Kelowna Fire Underwriters Survey and Distribution Study, 2012; Figure 3 and 4.

In a fire's timeline (noted above), KFD has influence on the amount time it takes to receive and process a call from the public reporting a fire and the time necessary to alert firefighters. The time to process the emergency call should be 95% of calls are answered in 15 seconds and 90% of calls are processed in 60seconds. Kelowna Fire Dispatch is able to meet these benchmarks.

The next component that KFD has influence over is the amount of time it takes firefighter to get ready and respond to the alarm. This is referred to as "turn out time". The industry benchmark for turn out time is 60 seconds for medical and 80 seconds for fire calls.

Response time or "travel time" to fires is directly related to the concentration and distribution of resources of fire stations, staff and equipment. The industry standard for a single family dwelling fire is 4 minutes 90% of the time for the first unit and 8 minutes 90% of the full alarm assignment to be on scene which is the time for all deployed resources to be on scene.

The table below shows that the current KFD deployment of resources are unable to meet both the NFPA 1710 industry standard and the response time goals identified in the 2010 Strategic Plan. The comparative statistics show the need for increased resource distribution to meet response objectives for the first engine on scene and a lack of concentration of resources in KFD's ability to meet response objectives for the full alarm assignment. The response time standards and actuals are detailed below.

NFPA 1710 Standard	KFD 2010 Strategic Plan Goals	4 yr avg. for 1st Engine Response Times (2008- 2011)	4 yr avg. for all dispatched units on scene (2008- 2011)
1st Engine on scene in 4 minutes or less **90%** of the time.	1st Engine on scene in 6 minutes or less 90% of the time in **urban** zones	1st Engine on scene in 4 minutes or less **58%** of the time	N/A
All dispatched units on scene in 8 minutes or less **90%** of the time.	1st Engine on scene in 9 minutes or less 90% of the time in **suburban** zones	1st Engine on scene in 6 minutes or less **79%** of the time	All dispatched units on scene in 8 minutes or less **49%** of the time (2011 annual report)
N/A	1st Engine on scene in 14 minutes or less 80% of the time in **rural** zones	1st Engine on scene 14 minutes or less **100%** of the time	N/A

Determining Observation #11: In 2010, as part of the Strategic Plan KFD set response goals that were based upon response times and did not apply risk factor analysis. The travel time goals for urban, suburban and rural zones are contrary to the NFPA standard and difficult to achieve given the COK configuration.

Determining Observation #12: KFD's 4 year (2008-11) average shows that for the first unit response time, the department falls far short of the industry standard and the goal established in the 2010 Strategic Plan at 58%.

Determining Observation #13: The industry standard for all dispatched units to arrive on scene is to be within 8 minutes. The KFD's 2010 Strategic Plan does not identify a response time goal for all dispatched units to arrive, KFD statistics show that the industry standard is met only 49% of the time on average over the past 4 years.

Comparatively, emergency intervention for medical incidents is just as imperative. The sooner CPR and defibrillator therapy begins, the better the patient's chance of survival. A victim's chance of surviving cardiac arrest is highest when CPR is initiated within 5 minutes of the heart stopping and defibrillation within 10 minutes.

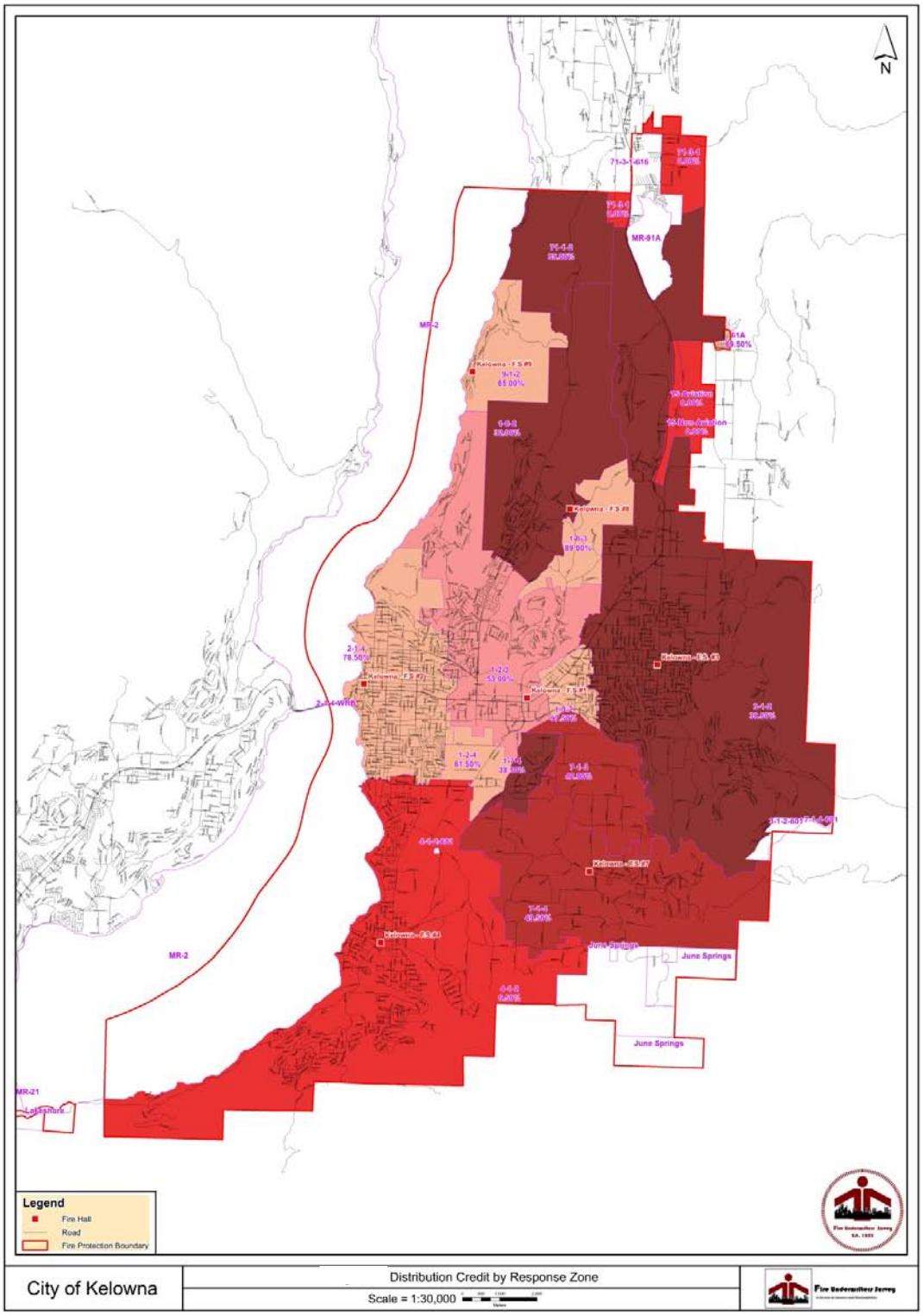
Required Fire Flows & Insurance Grades

The FUS evaluates the Required Fire Flow for a response zone against their Table of Effective Response[10] to give a credit rating for scoring towards Kelowna's fire insurance grades. The scoring for the OCP Urban Centers and Village Centers and surroundings are detailed below and illustrated in Figure 12 of the FUS.

Urban Centers	KFD Response Zone(s)	FUS Credit Received
City Center	(2-1-4)	78.5%
Midtown (West)	(1-2-3)	53%
Midtown (East)	(1-3-2)	97.5%
South Pandosy	(2-4-1)	25.5%
Capri/ Landmark Center	(2-1-4)	78.5%
Rutland	(3-1-2)	38.5%
Village Centers		
South Gordon	(4-1-2)	6.5%
University South	(3-1-2)	38.5%
Glenmore (suburban)	(1-8-2)	32%
Guisachan	(2-1-4)	78.5%
Black Mountain	(3-1-2)	38.5%
Other Areas		
South East Kelowna	(7-1-4) (7-1-3)	45.75%
McKinley	(9-1-2)	65%
Industrial area bordering Lake Country	(71-1-3)	0%
Airport(aviation/non- aviation)	ARFF + (3-1-2)	0%

[10] City of Kelowna Fire Underwriters Survey and Distribution Study, 2012; Table 2

The map below illustrates the FUS credit ratings by the KFD response zones.



Risk Level of a property is directly related to the type of occupancy of structures present and their purpose. BC Fire Code Classifications are as follows:

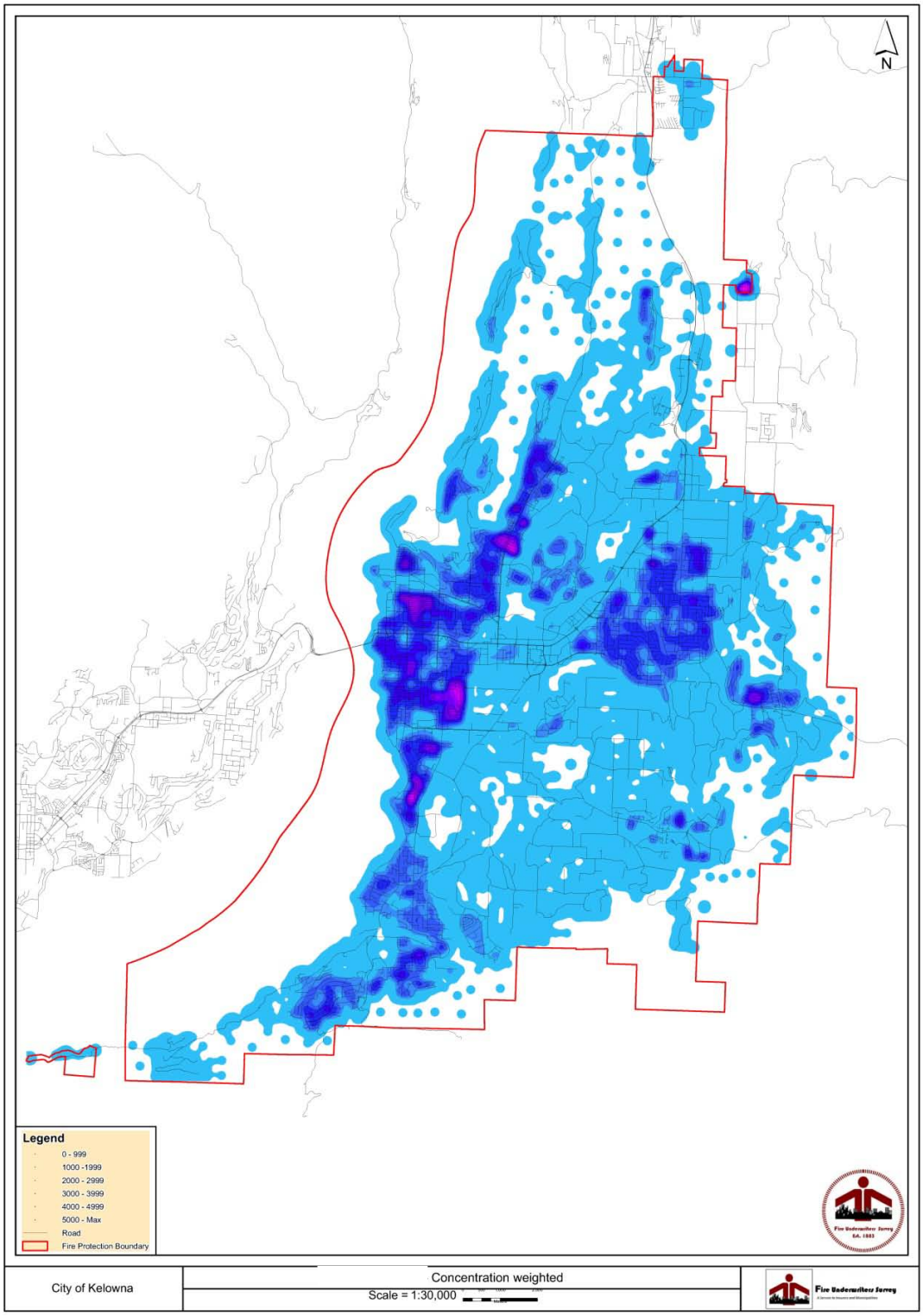
Classification	Example
Assembly	Church, Arena, Pub, Restaurant, Daycare, Schools
Institutional	Institutions, Group Homes, Hospitals
Residential	Residential Units, Hotels, Apartments, Condos
Business	Offices, Banks, Professional Services
Mercantile	Retail Outlets, Stores
F1- High Hazard Industry	Bulk plants for flammable liquids, Distilleries, Hazardous substance warehouses, Spray painting operations
F2- Medium Hazard Industry	Aircraft hangers, Electrical substations, Service stations
F3- Low Hazard Industry	Factories, Laboratories, Power plants, Sample display rooms

Risk level

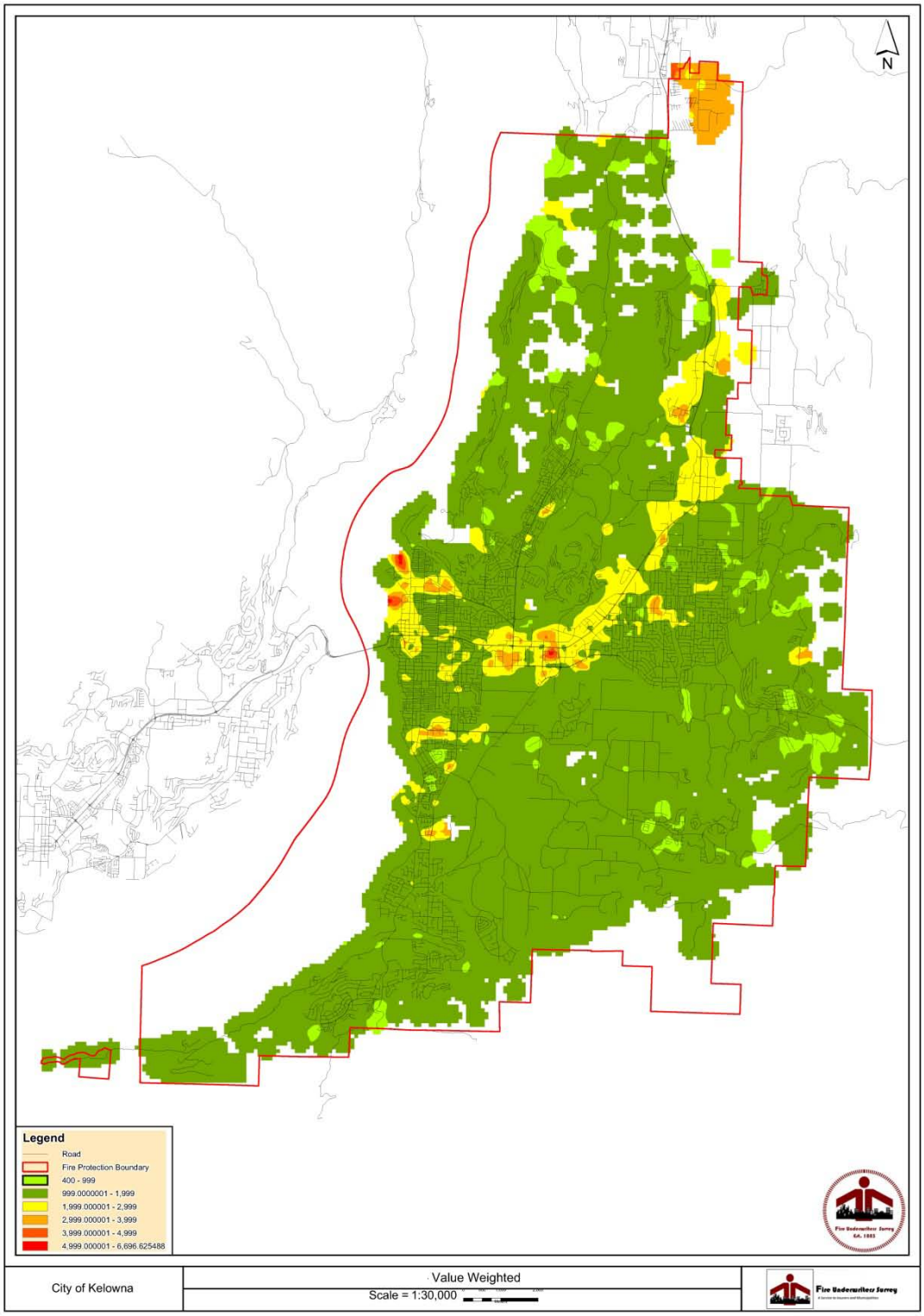
Risk	Number of Units	% of Total	Sources
Low	-	-	Vacant Lands (urban and rural park land, residential lots and privately owned agricultural land). Risk level varies on time of year, terrain, fuel density and slope.
Moderate	32,596	86%	Residential Structures/ Units
High	5,194	14%	A (assembly), B (institutional) D (business), E (mercantile), F1 (high hazard industrial), F2 (medium hazard industrial), F3 (low hazard industrial) **There are about 35 high risk properties that are considered a "special risk" in that any significant damage or shut down could result in varying impact on infrastructure, employment, sociological and/ or environmental damage to the community. The list includes chemical manufacturing/ storage, private care facilities, sewage and water treatment etc.
	37,790		

*Statistics from KFD's FDM Properties and COK Planning Department

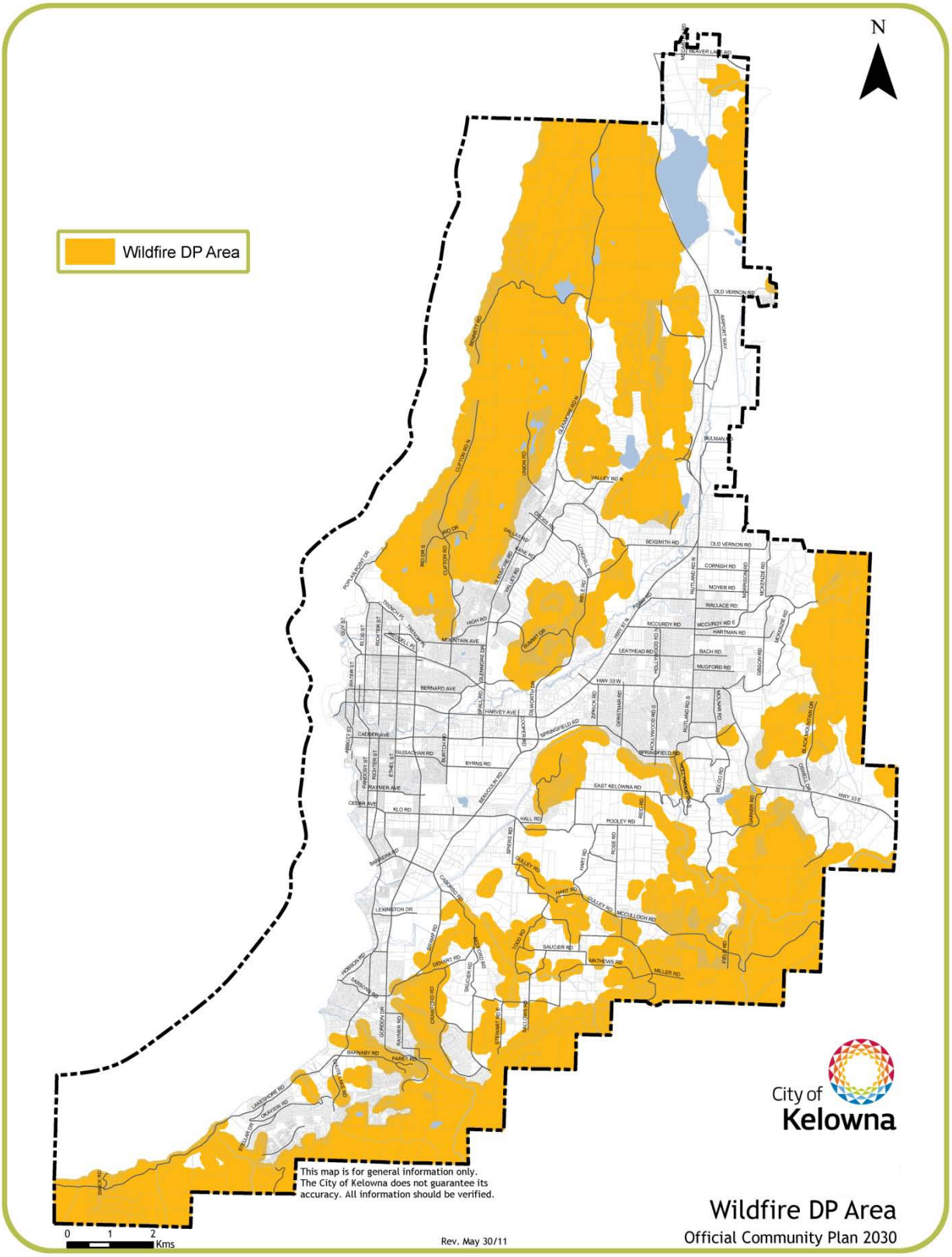
The heat map below illustrates the concentration of RFF points primarily along the lake front, Glenmore Valley and Rutland.



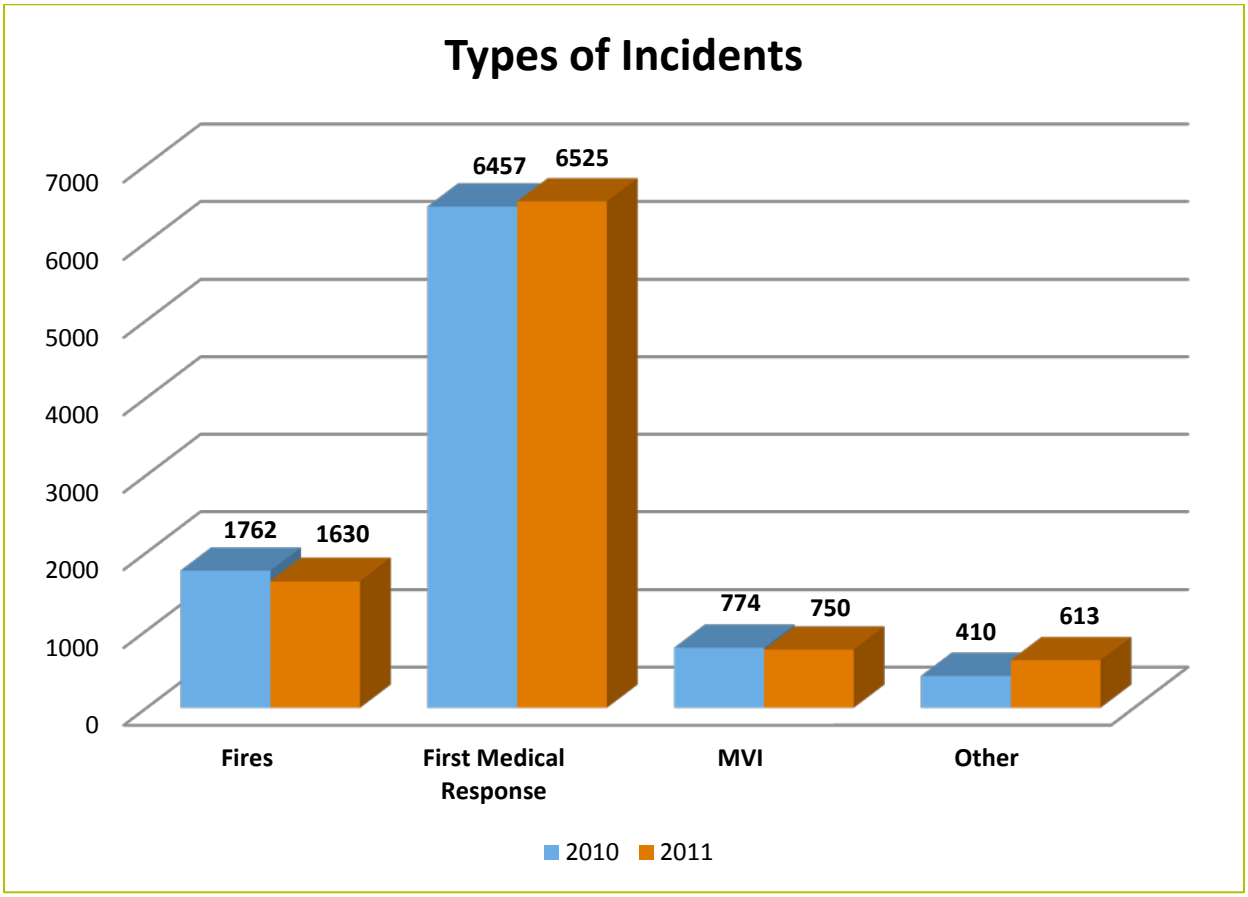
This map illustrates the weighting for RFF. This is related to the high risk properties in the service area. They are primarily the industrial and high rise areas of the north end, Highway 97 corridor and the Industrial area in the far north end.



It is important to note that during summer months the wild land interface threat to some of Kelowna's residential neighbourhoods is somewhat higher due to steep terrain, amount of natural fuels (vegetation) and limited access and egress for traffic. Because of these factors, what would normally be rated as a moderate risk residential fire could in fact be rated as a higher risk as the threat to neighbouring structures is greatly increased. Response times in some suburban and rural areas is delayed as they are service by a local paid on call station and the response times is greater for career fire crews as they are responding from the core areas. The Wildfire DP Area map below shows the 10,000 hectares identified in the OCP.


N
Wildfire DP Area
City of Kelowna
This map is for general information only.
The City of Kelowna does not guarantee its accuracy. All information should be verified.
0 1 2 Kms
Rev. May 30/11
Wildfire DP Area
Official Community Plan 2030

In 2011, over 65% of KFD's calls for service where for First Medical Response as indicated below. In a June 2012, City Council learned more about the operational aspects and costs associated with this discretionary service and endorsed the program as good value to our customers.



Determining Observation #14: The South Pandosy area has the lowest FUS credit rating (25.5%) of the 5 urban centers identified in the OCP while it has some of the highest concentration of RFF's and the OCP predicts an additional 1200 living units in the future.

Determining Observation #15: The Airport and surrounding industrial and institutional areas have no FUS credit rating although; the area has some of the highest weighted RFF in our community.

Determining Observation #16: Although McKinley Landing has a relatively good FUS credit rating (65%), it should be noted that the FUS does not consider the dynamics of increased wild land interface hazards.

Determining Observation #17: The highest weighted fire risks and the greatest volume of risks are found within the Permanent Growth Boundary as identified in the OCP.

Community Expectations

Citizens expect to have a responsible, competent fire service but it can be difficult to quantify what the community expects from its fire department when it comes to mitigating emergencies. Very few residents are familiar with any industry standards and simply base their expectations on the rationalization, "I have an emergency and dial 911, the fire department responds and takes care of the problem." Do residents living in more rural areas understand that their fire protection takes more time to arrive on scene than if they lived in the downtown core? Some residents drive by their neighbourhood fire station everyday but don't realize that it is staffed with paid on call firefighters and when they dial 911, it may take 8 minutes[11] before that truck leaves the station, if the POC members are available to respond.

An April 2012 citizen survey report to council identified that:

- 97% of respondents are "satisfied" of which 75% are "very satisfied" with their fire service.
- 98% of respondents deemed the fire service as an "important" service of which 84% deemed "very important".
- 66% of respondents agreed that Police and Fire services are the top priority for the city to invest in.

[11] Kelowna Strategic Plan 2010, Pg 15.

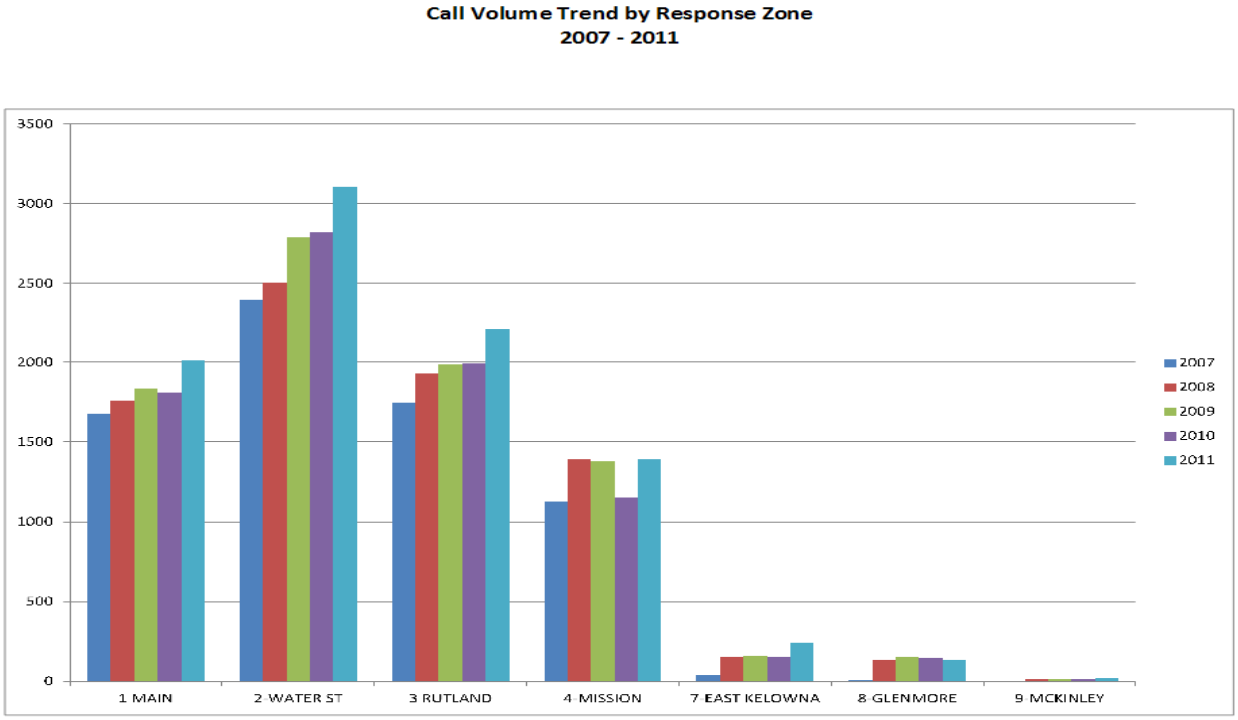
Historical Performance

The volume of calls for service has steadily increased as population and property numbers increases. Unlike a lot of city business, requests for service are not affected by economic down turn.

In 2010, KFD recognized the redundancy in conducting burn pile inspections for members of the public who have a long standing history of compliance with the burn bylaw. This policy change reduced burn pile inspections by over 40% and is reflected in the reduced call volume from 2010 onward as detailed in the statistic below.

Year	KFD Call Volume
2007	7963
2008	8845
2009	9596
2010	9403
2011	9518

As can be seen in the chart below, call volumes are increasing across the city. As noted earlier, the change in 2010 to burn pile inspections for new permits and bylaw offender is most identified in the call volume drop in Mission (area 4).

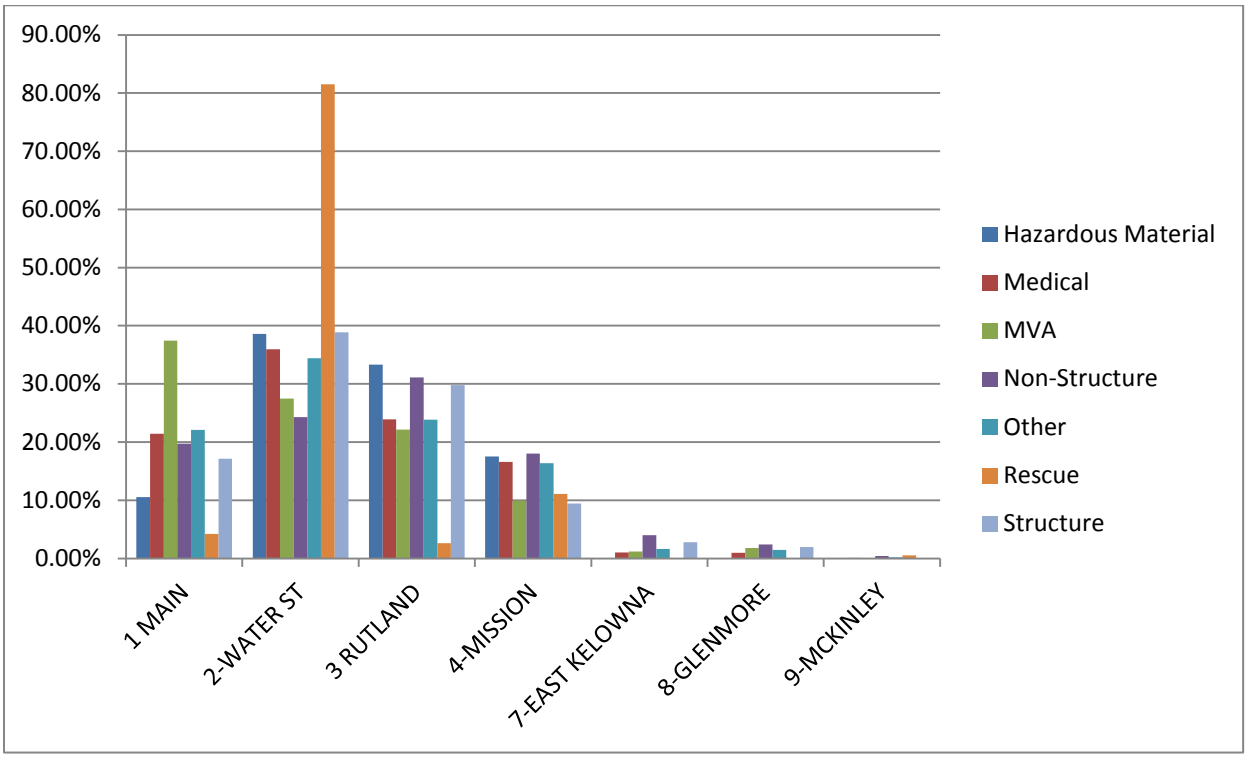


Primary Response Zone Characteristics

Response Zone	Population	Area sq. km.	2011 Density Pop. By sq. km.	Primary response zone call for service (2011)	% Industrial Properties (RFF by Zone Group)	% Residential Properties (RFF by Zone Group)	% Commercial Property (RFF by Zone Group)
Enterprise	21,239	28.8	738	2004	1	89.3	10.1
Downtown	27,096	15.3	1771	3118	1.5	93.2	5.3
Rutland	40,495 *	62.9	644	2210	2.9	74.9	22.1
Mission	23,974	42.7	562	1394	0	81.2	18.8
SE Kelowna	4,854	32.1	151	238	0	62.6	37.4
Glenmore	7,028	23.4	300	168	0	79.8	20.2
McKinley	606	7.9	77	36	0	88.3	11.7
City Wide	4100 Tourists						

* Includes UBCO 8000

The chart below illustrates how seven basic incident types are dispersed throughout KFDs service area for a typical year such as 2011. The chart gives a percentage for the incident type in each basic response zone. For example, over 80% of rescues take place in area 2 (downtown) as most are marine rescues. These statistics also help confirm resource assignments. Statistics confirm the necessity to locate the rescue truck in station 1 as approximately 37% of motor vehicle accidents occur in area 1 (Enterprise).



The 4 year dollar loss by occupancy type city wide is detailed below

$ Loss YTD	2008	%	2009	%	2010	%	2011	%
Total $ Loss	$6,556,435	100	$4,699,005	100	$12,303,330	100	$16,516,025	100
Assembly	$250,900	3.83	$136,250	2.90	$16,250	0.13	$38,800	0.23
Institutional	$95,000	1.45	$2,950	0.06	$200	0.00	$3,100	0.02
Residential	$4,853,600	74.03	$4,398,005	93.59	$1,770,180	14.39	$12,219,025	73.98
Commercial	$18,500	0.28	$129,500	2.76	$399,000	3.24	$1,816,100	11.00
Mercantile	$843,735	12.87	$5,100	0.11	$44,500	0.36	$2,139,500	12.95
Industry (High Hazard)	$0	0	$20,000	0.43	$10,000,000*	81.28	$0	0
Industry (Medium Hazard)	$494,700	7.55	$7,200	0.15	$73,200	0.59	$291,500	1.76
Industry (Low Hazard)	$0	0	$0	0	$0	0	$8,000	0.05

*Stewart Center fire

A critical element in the assessment of any emergency service delivery system is the ability to provide adequate resources for anticipated fire combat situations, medical emergencies, rescue and other anticipated events. Each emergency requires a variable amount of staffing and resources to be effective. Properly trained and equipped fire companies must arrive, deploy and mitigate the event if successful emergency strategies and objectives are to be met. The higher the risk, the more resources needed to mitigate the event.

Determining Observation #18: According to the statistics, the demand for KFD's emergency response service is steadily increasing as the community grows in population and RFF risk across all urban and village centers.

Determining Observation #19: KFD's statistic indicate that 87% of the requests for service are in the Permanent Growth Boundary.

Historical Perspective and Summary of System Performance

A review of KFD's historical data on incident response enables the evaluation of the department's distribution and concentration of resources and how the current performance measures against the performance objectives set out in the fire industry, and those detailed in the 2010- 2019 Strategic Plan. According to the FUS, the credit ratings vary widely across the city[12]. This is due to the RFF scores in comparison to the FUS Table of Effective Response.

It is important to review all portions of the response sequence when evaluating the system performance. In 2011, KFD responded to 9,518 emergency calls for service and from alarm notification to the full alarm response on scene, each portion can be broken down to evaluate the opportunity for improvement.

- Call received in the fire dispatch center. The NFPA 1221 standard is 95 % of calls are answered in 15 seconds. KFD is currently meeting this standard.

- Time necessary to process the information and page out the responding resources. The NFPA 1221 standard is 90% calls processed in 60 seconds. KFD is currently meeting this standard.

- Turn out time: this is the time from alerting the firefighters in the station to the time when they roll out the door. NFPA 1710 standard is 60 seconds for medical calls and 80 seconds for fire calls. This standard is focused on career firefighters that are in the station at time of call. KFD is only recently able to accurately measure these times with the new computers on the fire trucks. It does not take into consideration the time it takes paid on call firefighters to respond to the station from work or hoe to board the apparatus. Attendance numbers for paid on call response vary widely depending on time of day and year.

- Travel time: this is the time it takes the first-due unit to arrive on scene. NFPA 1710 standard is 4 minutes 90% of the time.

Time	2008	2009	2010	2011
0 - 4 Minutes	55%	57%	59%	59%
0 - 6 Minutes	77%	78%	80%	80%
0 - 9 Minutes	89%	91%	91%	92%
9+ Minutes	100%	100%	100%	100%

[12] City of Kelowna FUS and Distribution Study 2011, Figure 12

- Full alarm assignment: This is the time it takes all responding units and a minimum of 14 firefighters (for fires) to arrive on scene. NFPA 1710 standard is 8 minutes 90% of the time.

Time	2008	2009	2010	2011
0 - 4 Minutes	18%	10%	17%	13%
0 - 6 Minutes	30%	34%	40%	35%
0 - 8 Minutes	44%	45%	49%	56%

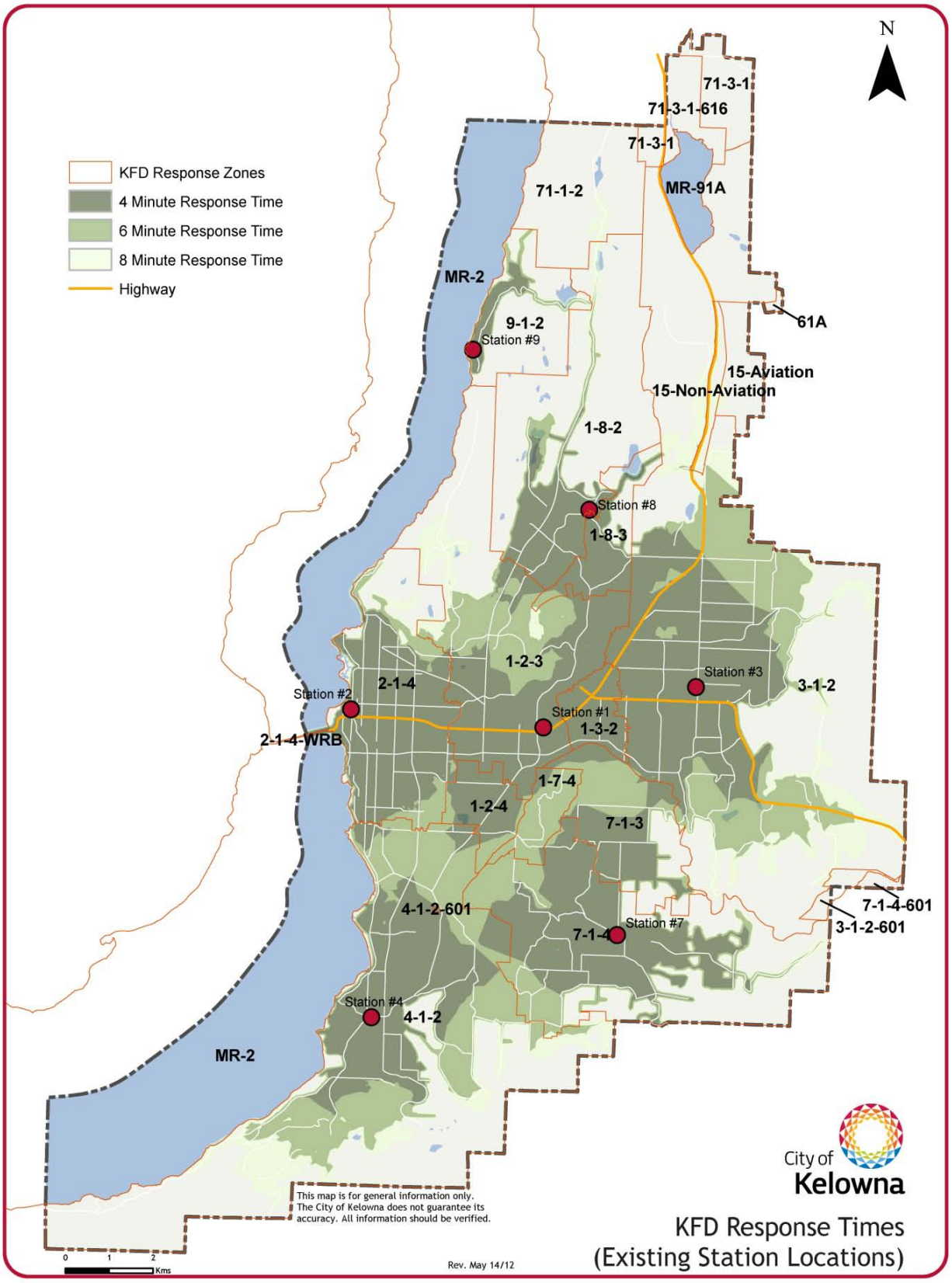
There are factors that are controllable such as the dispatch times and turn out times however, travel time is not controllable. KFD and the City of Kelowna have helped reduce travel time by implementing the Opticom traffic pre-emption system which enables the responding firefighters to control the traffic signals to assist traffic flow and reduce the risk of opposing traffic at intersections.

Distribution Factor

Distribution involves placing resources geographically across the jurisdiction to cover risk. Currently, KFD operates 7 fire stations (4 career, 3 paid on call) to cover 214 square kilometres. This is first- due resources for all- risk initial intervention. Distribution of resources can be evaluated by the percentage of the city or response zone that is covered by the first due units within the performance objectives set out.

The map below identifies the current location of all fire stations with theoretical travel times indicated by color where 75,000 people are covered within a 4 minute travel time. It is important to note that the coloring is travel time only with no consideration of "turn out" time. Turn out time becomes a significant variable in emergency response when comparing career times to POC times. On average the POC station's turn out time is significantly longer (7 minutes[13]) than the NFPA career standard of 60 seconds for medical calls and 80 seconds for fire calls.

[13] 2010 Kelowna Fire Department Strategic Plan


KFD Response Zones
4 Minute Response Time
6 Minute Response Time
8 Minute Response Time
Highway
N
71-3-1
71-3-1-616
71-3-1
71-1-2
MR-91A
MR-2
9-1-2
Station #9
61A
15-Aviation
15-Non-Aviation
1-8-2
Station #8
1-8-3
1-2-3
Station #3
3-1-2
2-1-4
Station #2
Station #1
1-3-2
2-1-4-WRB
1-7-4
1-2-4
7-1-3
7-1-4-601
3-1-2-601
4-1-2-601
Station #7
7-1-4
Station #4
4-1-2
MR-2
City of Kelowna
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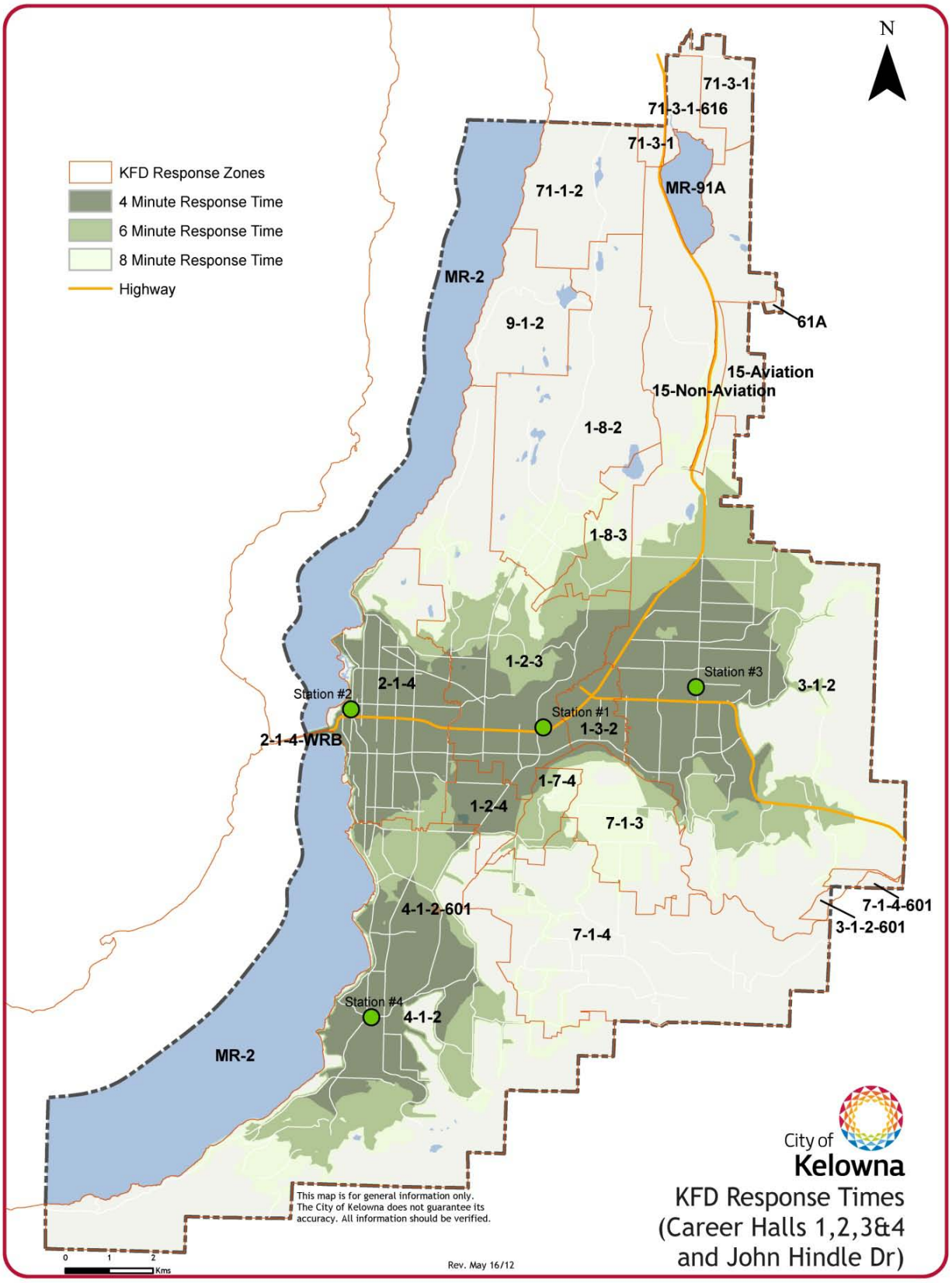
0 1 2 Kms
Rev. May 14/12
KFD Response Times
(Existing Station Locations)

The map below gives a more accurate illustration of what the actual 4 minute career station travel time coverage looks like.

As mentioned earlier, turn out time is an important component of the emergency response. Historic data shows the significant difference between the average career turnout time (96 seconds) and the POC average of nearly seven minutes.

According to the City of Kelowna Planning Department's Environics Census Demographic summary, 7,000 less residents are covered by the actual 4 minute career response for a total of 61,000.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1-8-3
1-2-3
Station #3
3-1-2
Station #2
2-1-4
Station #1
1-3-2
2-1-4-WRB
1-7-4
1-2-4
7-1-3
7-1-4-601
3-1-2-601
4-1-2-601
7-1-4
Station #4
4-1-2
MR-2
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accuracy. All information should be verified.
0 1 2
Kms
Rev. May 16/12
City of
Kelowna
KFD Response Times
(Career Halls 1,2,3&4
and John Hindle Dr)

The FUS data identifies a zero credit rating for the Airport/UBCO/ Quail Ridge when the RFF is examined against the table of effective response. KFD historical data shows that in this area (which is primarily commercial and industrial), an 8+ minute emergency response is the norm and reveals a poor distribution of firefighting resources in this area of the city.

Determining Observation #20: The risk management model for emergency response coverage needs to include a distribution of career resources for confirmed, more timely response to the high risk occupancies such as UBCO and the Industrial facilities in the vicinity of the airport. Within the Permanent Growth Boundary, this area has the longest career resource response times.

Concentration Factor

Concentration is the spacing of multiple resources arranged so that an initial "effective response force" can be assembled on scene within adopted response times[14]. KFD identifies the effective response in the Alarm Assignment standard operational guideline which includes a minimum of 14 firefighters will most likely stop the escalation of a fire emergency in a single family home, stabilize a motor vehicle accident and/ or affecting a rescue.

For example, the FUS gives the Mission only a 6.5% credit rating primarily due to the lengthy response time for back up fire units to this area. In other words, the time it takes for all dispatched trucks and firefighters to arrive on scene coupled with the RFF in this area, results in the low score. This is a large suburban area for one station to cover and the second and third units assigned in the response protocol are often more than 8 minutes away according to KFD statistics.

Areas 7 (South East Kelowna) and 9 (McKinley) are primarily suburban/ rural zones and call volumes make it challenging to justify the provision of career staffing and industry standard response time compliance. There will be more comment on this in the recommendations.

Paid on Call (POC) Member Deployment

As mentioned earlier the 54 POC members are an integral part of KFD's emergency response protocols in their operational support to the career members at incidents. In South East Kelowna, Glenmore and McKinley, POCs have a delayed turn out time but are typically on the initial dispatch in their specific area. South East Kelowna for example responded to 238 calls for service; an impressive statistic for people who have full time jobs. The overall 2011 operational labour cost per call for the South East Kelowna members was only **$250**.

[14] Table 2 FUS- Table of Effective Response

The POC complement based out of fire station 1 is deployed to supplement staffing at large scale structure and wild land fires and therefore not used to the extent of the other POC stations. The overall operational labour cost per response for the station 1 contingent was **$6726**. A thorough review is necessary to make operational recommendation on the feasibility of redeploying these members to other stations to make better use of their commitment to KFD and ensure cost efficiencies. This will be later explored in the recommendations.

Determining Observation #21: Statistic analysis also show that KFD is able to get all dispatched fire units on the emergency scene in 8 minutes only 56% of the time; again well under the expectation of 90%.

Determining Observation #22: The turn out time (the time from alarm to departing the station) for POC stations is significantly delayed in comparison to career stations. The 2010 KFD strategic plan details POC turn out time averages about 7 minutes whereas career stations are 5 minutes less. It is not uncommon for the career fire unit to pass the POC station prior to the POC members turning out to the alarm.

Determining Observation #23: The COK Planning Department's GIS data shows that only 68,000 (57%) of the population is covered by the fire industry standard of 4 minute for the first unit on scene. Within the OCP identified Permanent Growth Area, the most significant gaps in the analysis are identified in the North Glenmore/ UBCO and South

Summary of Observations and Recommendations

Through a thorough analytical review of KFD's current emergency response resource deployment, the community risk assessment, historical department data and a number of local and fire industry data resources, the following observations were made regarding KFD's emergency response capabilities:

- Kelowna's makeup of 5 urban and 5 village centers makes it challenging to provide an equitable emergency service to all areas of the city.
- Basic fire science shows that if firefighters are on scene taking action to extinguish a fire in a single family dwelling within a 4 minutes (travel time), there is a great chance that fire damage will be limited to the area of origin within the structure.
- KFD's 4 member Engine companies are in alignment with the NIST recommendation and are most effective to comply with WorkSafe BC regulations.
- KFD is not able to action more than one significant fire in a single family home without recalling staff to attend to the emergency and/ or to backfill fire stations.
- KFD cross staffs a number of emergency vehicles with the same firefighters. Because of this, there are times when fire trucks get left behind when firefighters receive the alarm while out of the station or due to operational effectiveness, the fire crew must stay together.
- KFD Station 2 at 1616 Water Street is an aged building with increasingly more traffic congestion at times impacting its response abilities. The building is over 87 years old and is in need of an evaluation by REBS to determine the value of investing upkeep.
- Increased community growth inevitably results in an increased call for service. The risk model must strive for a 4 minute response time to all 5 urban and 5 village centers.
- In examination of historical data, current resource deployment, risk analysis and projected populations, specific attention is put on the North Glenmore/ UBCO area and the South Pandosy/ KLO area of the city.
- Transportation routes are adequate for emergency response with the exception of a northern connector route from the Glenmore Valley to the University/ Highway 97 area.
- With more sparsely placed hydrant system in South East Kelowna, it is necessary to respond with Water Tenders to ensure adequate water supply for emergency incidents.
- The 2010 KFD Strategic Plan has response goals based on travel time only and did not consider any risk analysis. The travel time goals for urban, suburban and rural zones are contrary to the NFPA standard, are difficult to achieve given the COK configuration.
- The industry standard for the first unit on scene is 4 minutes. The 2010 KFD Strategic Plan identifies 6 minutes as the goal. A 4 year analysis shows that KFD meets the 4 minute industry standard 58% of the time.

- The industry standard for all dispatched units on scene is 8 minutes. The 2010 KFD Strategic Plan did not identify this as a response goal. KFD was only able to meet this target 49% of the time over the past 4 years.
- The South Pandosy area has the lowest FUS credit rating (25.5%) of the 5 urban centers identified in the OCP while it has some of the highest concentration of RFF's and the OCP predicts an additional 1200 living units in the future.
- The Airport and surrounding industrial and institutional areas have no FUS credit rating although; the area has some of the highest weighted RFF in our community.
- Although McKinley Landing has a relatively good FUS credit rating (65%), it should be noted that the FUS does not consider the dynamics of increased wild land interface hazards.
- The highest weighted fire risks and the greatest volume of risks are found within the Permanent Growth Boundary as identified in the OCP.
- According to the statistics, the demand for KFD's emergency response service is steadily increasing as the community grows in population and RFF risk across all urban and village centers.
- KFD's statistic indicate that 87% of the request for service are in the Permanent Growth Boundary
- The risk management model for emergency response coverage needs to include a distribution of career resources for confirmed, more timely response to the high risk occupancies such as UBCO and the Industrial facilities in the vicinity of the airport. Within the Permanent Growth Boundary, this area has the longest career resource response times.
- In 2011 KFD had a four year high and was able to get all dispatched fire units on the emergency scene in 8 minutes 56% of the time; still well under the expectation of 90%.
- The turnout time (the time from alarm to departing the station) for POC stations is significantly delayed in comparison to career stations. The 2010 KFD strategic plan details POC turn out time averages about 7 minutes whereas career stations are 5 minutes less. It is not uncommon for the career fire unit to pass the POC station prior to the POC members turning out to the alarm.
- The COK Planning Department's GIS data shows that only 68,000 (57%) of the population is covered by the fire industry standard of 4 minute for the first unit on scene. Within the OCP identified Permanent Growth Area, the most significant gaps in the analysis are identified in the North Glenmore/ UBCO and South Pandosy areas.

From the 23 observations above, the following 10 recommendations are presented to prudently enhance the Kelowna Fire Department's protection throughout the community:

Recommendation #1: Standard of Response Cover

Based upon the determining observations and analysis contained in this Standard of Response Cover report, the risk management model for the City of Kelowna to optimize firefighter and public safety, and provide an efficient and effective level of service based upon Kelowna's risks factors the following applies:

- KFD will endeavour to achieve a 4 minute travel time for the first engine with four professional firefighters for high and moderate risk facilities/structures within the permanent growth boundary in 90% of all occurrences.
- Areas beyond the permanent growth boundary KFD will endeavour to achieve an 8-10 minute travel time for the first engine with four professional firefighters for high and moderate risk facilities/structures in 90% of all occurrences.

These response time performance targets will be developed into a KFD Master Plan and reviewed/measured on an annual basis and if necessary adjustments made to ensure these targets are being achieved and that risks are managed to an acceptable level as determined by COK Council.

Recommendation #2: McKinley Landing

Recruit specifically for Paid on Call (POC) firefighters in McKinley Landing and replace the current fire truck (Mini 9) with a ULC-S515 pumper truck. Cost $350,000.

Results of implementing this recommendation

Increasing paid on call membership in station 9's area would improve response attendance by the paid on call members. As an isolated bedroom community, most of the POC members work in town away from their homes resulting in a longer POC turn out time. More members mean there is a better chance of getting improved attendance at incidents.
Due to the construction and grade of the driveway to station 9, consideration would have to be made when specifying the style of fire truck for this area. There is a wild land interface style fire truck that is smaller in size but capable of protecting structures that would be ideal in this station.

Alternative Option: Forego replacement of the mini pumper and refer to the members and their station as seasonal wild land interface firefighters and remove them from a response to structure fires. The truck does not qualify as a structural fire truck therefore all residents would need to be aware of the response capabilities of the limited fire force.

Recommendation #3: Review the current deployment of the station 1 POC members.

Conduct a review of the POC deployment system. In particular the feasibility of station 1 POC members being reassigned to the closest POC station from their residence (South East Kelowna, McKinley or Glenmore), and maintain a minimum POC staffing level of 50 members.

Results of implementing this recommendation

If the analysis results are favourable, it will eliminate the immediate need to recruit new POC members (with the exception of McKinley as identified in recommendation 2) and the cost to recruit and train new members. This will increase the utilization and morale for the POC members of station 1 by redeploying them to more active zones.
Reducing the overall number of POCs from 70 to 50 members through attrition would also reduce the associated costs of personal equipment (approximately $3000/ member) by an estimated $60,000 over the period of this strategic plan. This does not include any McKinley POCs as identified in recommendation #2. Reducing the roster membership would save approximately $ 30,000 which could be reallocated to address a long standing issue regarding POC compensation.

Alternative Option 1: Conduct a recruitment city wide to increase the contingent of POC members back up to 70.

Alternative Option 2: Maintain the current number of POCs at station 1.

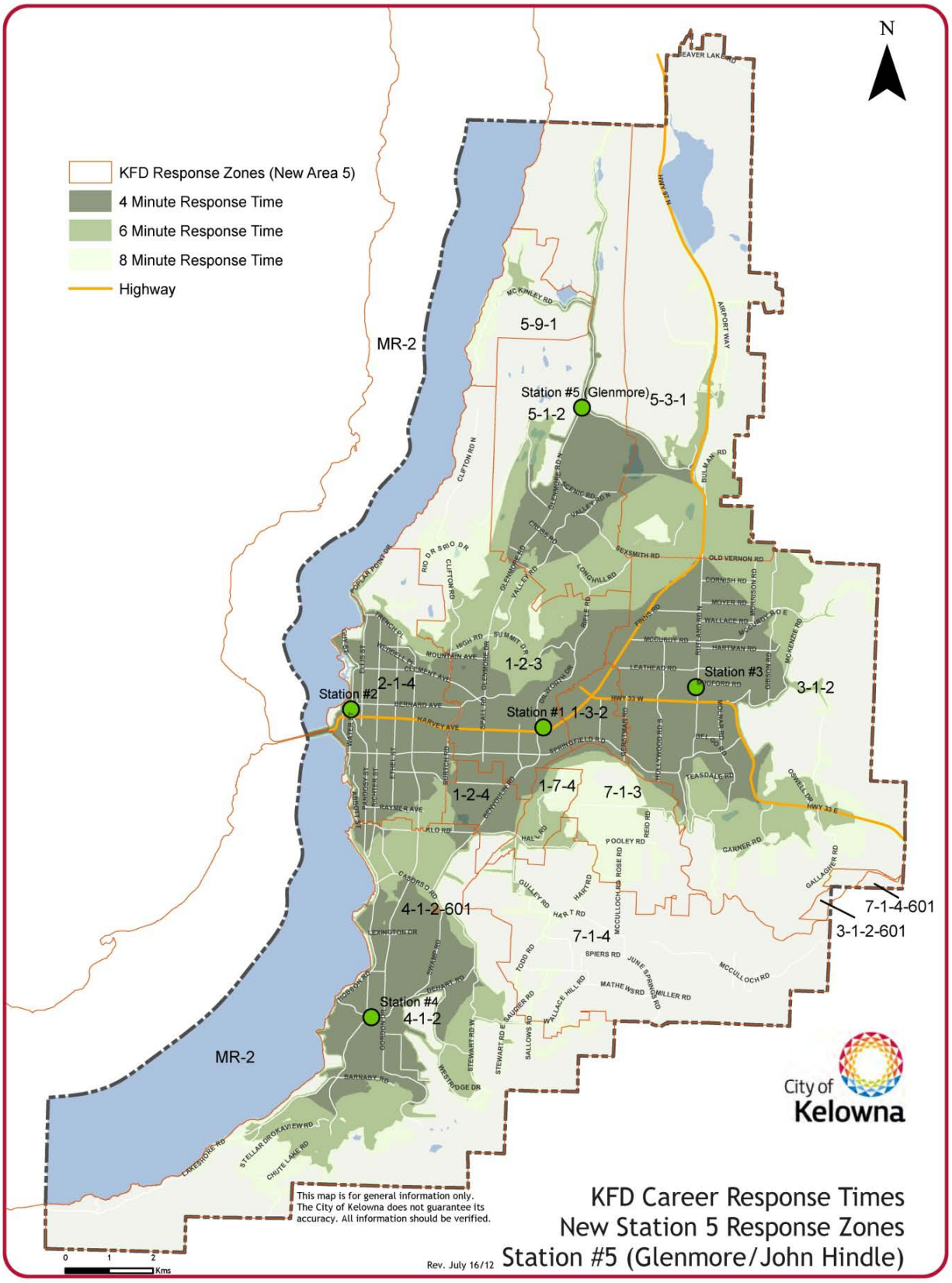
Recommendation #4: Career firefighters in new North Glenmore station.

Cost: Station $4 Million, Staff $2 Million annually, Fire Engine $800,000, Bush Truck $140,000.

As originally identified in the fire department's 2010 strategic plan, a fire station should be constructed in the North Glenmore area with a 24 hour compliment of 4 career staff (1 Captain and 3 Firefighters) to cross staff an Engine and Bush truck. The 2010 strategic plan also recommends the incremental hiring of staff in the 4 preceding years until the station is open.

The OCP identifies the North Glenmore/UBCO area as one of the greatest growth areas in our response jurisdiction including single and multi unit residential, commercial, Industrial and institutional. The FUS risk analysis shows that the volume of risk is in the Glenmore Village center however the highest weighting of risk is in the UBCO/ Airport area. Constructing a fire station at the intersection of Glenmore Road and John Hindle Drive will maintain the FUS credit ratings in the Glenmore Valley and improve KFD's response to the university and airport when John Hindle Drive is completed. It is expected that the career staff travel time to Shayler Court in McKinley Landing will be approximately 4 minutes as opposed to the current 12+ minutes.

The completion of John Hindle Drive is imperative for the full impact of this fire station's protection area to be realized. It is expected that this station will respond to 1600 calls for service in their primary area alone as the first Engine when John Hindle Drive links to the university. It is estimated that an additional 7,000 residents plus 8000 people at UBCO and 21 square kilometres will be covered within the 4 minute travel time by implementing this career fire station and John Hindle Drive. The map below illustrates the theoretical 4, 6, and 8 minute coverage for this fire station.


N
KFD Response Zones (New Area 5)
4 Minute Response Time
6 Minute Response Time
8 Minute Response Time
Highway
MR-2
5-9-1
Station #5 (Glenmore)
5-1-2
5-3-1
1-2-3
Station #2
2-1-4
Station #1
1-3-2
Station #3
3-1-2
1-2-4
1-7-4
7-1-3
4-1-2-601
7-1-4
7-1-4-601
3-1-2-601
Station #4
4-1-2
MR-2
City of Kelowna
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Rev. July 16/12
KFD Career Response Times
New Station 5 Response Zones
Station #5 (Glenmore/John Hindle)

There is opportunity to tie this new fire station into the fire training center which was identified in the 2010 Strategic Plan. The 10 acre parcel should be adjacent or in close proximity to the fire station to reduce the cost of facilities required (classrooms, locker rooms, and washroom / locker room facilities).

Alternative Option: Continue to maintain a POC presence in North Glenmore with the primary career response coming from Station 1 on Enterprise. As more development occurs in the north, less of our population will be protected to industry standards. The response time to the north end of the city and McKinley Landing will continue to be lengthy with greater risk to life and property. The FUS ratings will likely reduce over time as the risk in the area increases with growth without the effective firefighting force maintains current status.

Recommendation #5: Career firefighters in new KLO station

Cost: Station $3 Million, Staff $2 Million annually,

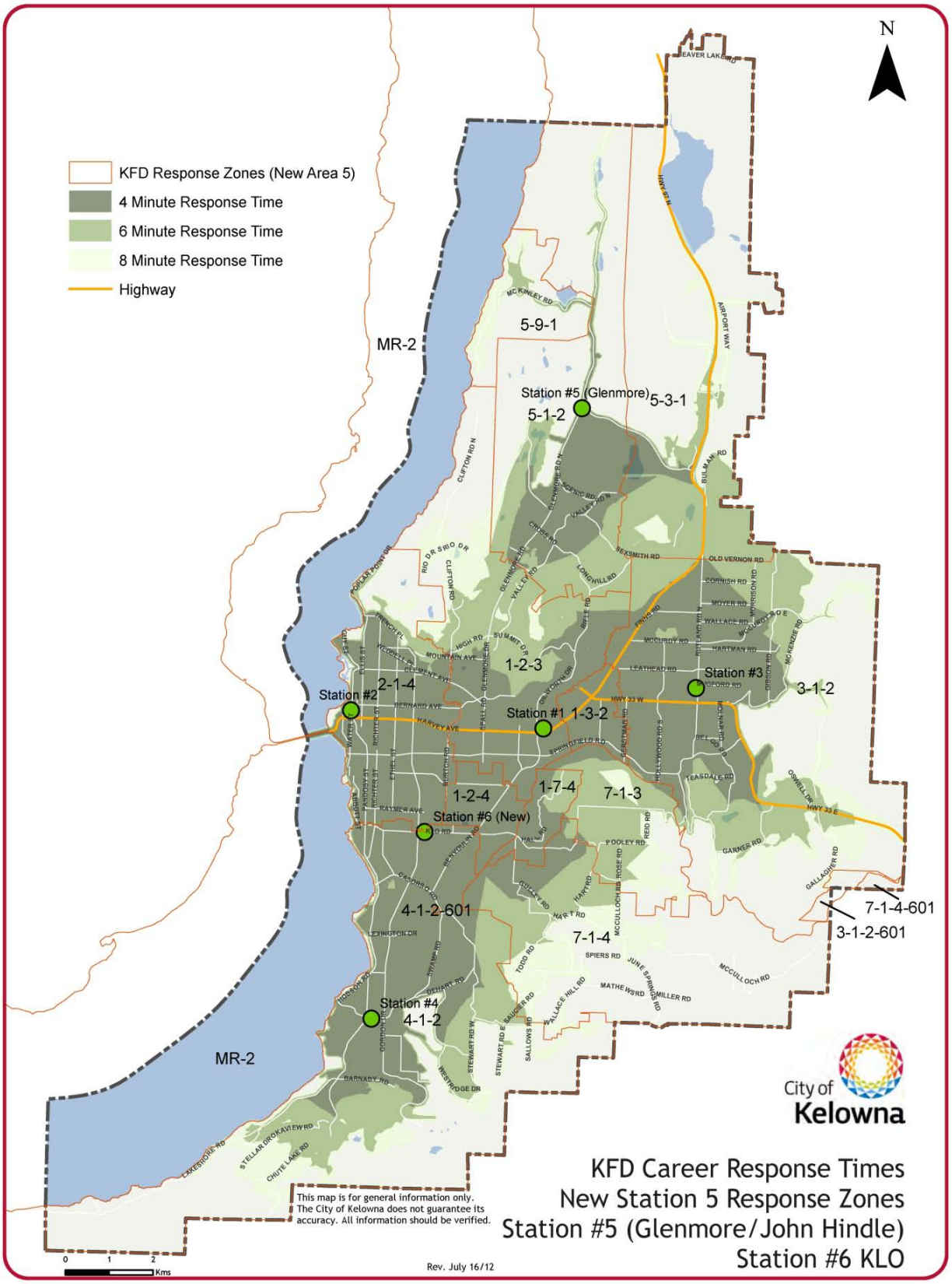
A fire station should be constructed in the KLO/ Gordon area with a 24 hour compliment of 4 career staff (1 Captain and 3 Firefighters) to staff a ladder truck type apparatus. The practice of incremental hiring of staff in the 4 preceding years prior to opening the station should be continued.

The risk analysis identifies two significant issues:

There is a current gap in KFD's 4 minute response time along the lake shore between the downtown core and the Mission. This general area receives only a 25.5% credit rating.
Because fire station 4 in the Mission is remote from the center core, their back up for structure fires is at many times more than 8 minutes away.

Constructing a fire station in the KLO/ Gordon area addresses these two concerns by improving the distribution of KFD resources and raising the FUS credit ratings from 25.5% to 61.5% along the lake shore and up to 40.5% in the Hall Road area with a significantly larger portion of properties in the area meeting the benchmark level of response. The concentration of resources is also improved in that KFD expects that the response time for back up support for the Mission firefighters will be reduced on average of 4 minutes. When implemented, it is expected that this station will conduct over 1700 calls for service in their primary response zone alone as the first Engine and cover an additional 12.5 square kilometres of the city within 4 minutes response time and another 6000 residents. The credit rating in the Mission would improve from 6.5% to 13%.

The map below illustrates how the 4, 6, and 8 minute travel time from this station will impact coverage to this area.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1-2-3
Station #2
2-1-4
Station #1
1-3-2
Station #3
3-1-2
1-2-4
1-7-4
7-1-3
Station #6 (New)
4-1-2-601
7-1-4
7-1-4-601
3-1-2-601
Station #4
4-1-2
MR-2
City of Kelowna
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Station #5 (Glenmore/John Hindle)
Station #6 KLO
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Rev. July 16/12
0 1 2 Kms

Alternative Option: Continue with status quo for response expectations to the Mission and the South Pandosy areas. The FUS credit ratings will reduce over time due to the extensive grown and increased risk that is forecasted for the area. The concentration to the south will remain as is and the backup resources for the Mission firefighters will be longer than industry standards.

Recommendation #6: Station 2's resources move to Clement Ave. and Richter St.

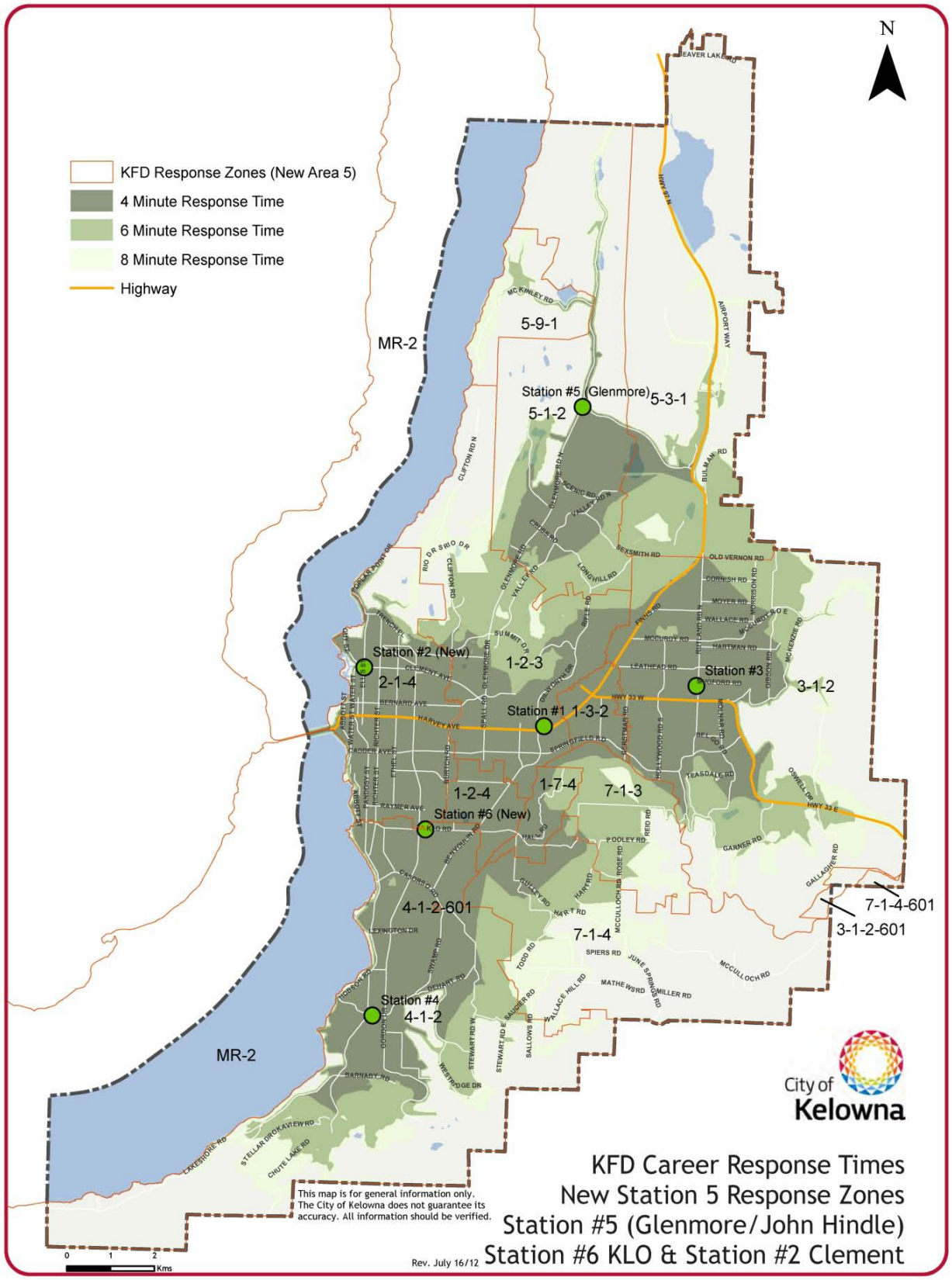
Cost: $3 Million.

This recommendation contemplates the eventuality that the downtown revitalization will impact the operational functionality of station 2 and that further analysis may reveal that relocating KFD's downtown emergency resources into the new Protective Services building at Clement Ave. and Richter St.

Results of implementing these recommendations

This move will extend (improve) the 4 minute coverage into the Glenmore Valley and Clifton Rd. area with the offset of reducing the coverage to the Gordon/ KLO area however, recommendation #2 addresses this.
There will be very little response time difference to the marine rescue boat and the heart of the down town core where most responses are based.

The map below illustrates what the 4, 6, and 8 minute career travel time will look like if the recommended fire stations are implemented.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6 Minute Response Time
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MR-2
5-9-1
Station #5 (Glenmore)
5-1-2
5-3-1
Station #2 (New)
2-1-4
1-2-3
Station #3
3-1-2
Station #1
1-3-2
1-2-4
1-7-4
7-1-3
Station #6 (New)
4-1-2-601
7-1-4
7-1-4-601
3-1-2-601
Station #4
4-1-2
MR-2
City of Kelowna
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Rev. July 16/12
KFD Career Response Times
New Station 5 Response Zones
Station #5 (Glenmore/John Hindle)
Station #6 KLO & Station #2 Clement

Alternative Option: Maintain emergency fire services out of the current location and reduce the costs associated with building a new fire station. The current station 2 pending a complete assessment may be functional for the next 10 years.

According to the City of Kelowna Planning Department's Environics demographics summary with today's population figures the coverage is as follows:

Travel Time in Minutes	Current (4 career stations)	Travel Time in Minutes	Future (6 career stations)
4	67,934	4	81,129 + 8000 @ UBCO
6	23,167	6	18,496
8	12,685	8	7,527
Total	103,786	Total	107,152

Recommendation #7: Black Mountain and South Mission Slopes

Assess fire protection opportunities and improvements in the Black Mountain and Mission south slopes/ Kettle Valley areas.

As suburban growth increases in the furthest reaches of our fire protection boundary, close attention must be paid to identify those eventual trigger points that will initiate new fire stations and personnel.

Recommendation #8: Staffing of Squad 1

Assess the need and feasibility of increasing the staffing of the station 1 based Squad Company. Currently the Squad is staffed 24/7 with 2 members. As the 2010 NIST report on Fireground Field Experiments identifies, fire companies are 30% more effective when staffed with 4 members rather than 2 and enabling them to be more self sufficient when performing typical fireground tasks.

Recommendation #9: Evaluate of all Fire Stations

All fire stations in Kelowna should be evaluated by Real Estate and Building Services including a structural and major systems assessment, functionality and operational requirements in order to determine long term usage. Capital investment to renovate these facilities must be included in the COK 10 year capital plan

Recommendation # 10: Developmentation of a Master Plan

That KFD develops a master plan based upon the results of the Strategic Plan review process and the recommendations contained in the Standard of Cover analysis.

Conclusion

Following the CFAI model of Standard of Response Cover 5th edition and a comprehensive review of the current KFD strategic plan, this document has thoroughly analyzed the City of Kelowna's service profile, assessed the fire risk to the community as detailed in the FUS and historic KFD fire prevention and response data, evaluated KFDs current emergency response performance from historic data, including the distribution and concentration of fire department resources and has made recommendation for the future.

According to the City of Kelowna Planning Department's Environics analysis, with today's population figures, the implementation of the above recommended fire stations would improve the amount of population covered by a career staff 4 minute response time from 68,000 people to over 81,000 inside the Permanent Growth Boundary for the first arriving fire truck. The percentage of the population that is covered by the standard will increase as neighborhoods develop.

Career staff in a new strategically placed fire station will improve the 4 minute travel time for the Glenmore village center and UBCO/ Airport. A career station in the South Pandosy urban center will improve the FUS credit ratings for the Mission and KLO/ Gordon Drive areas as well as improve the career staff 4 minute response time to South East Kelowna.

Incorporating the findings in the Strategic Plan review process and the Standard of Response Cover recommendations into a department Master Plan will detail timelines for accomplishing the noted objectives.

Appendix A – Table of Effective Response

Fire Underwriters Survey - Table of Effective Response

The following Table aids in the determination of Pumper and Ladder Company distribution and total members needed. It is based on availability within specified response travel times in accordance with the fire potential as determined by calculation of required fire flows, but requiring increases in availability for severe life hazard.

RISK RATING	BUILDING DISTRICT EXAMPLES	FIRE FLOW L/min X1000	FIRE FLOW Approx. Igpm Range	INITIAL RESPONSE TO ALARMS Pumper Companies	INITIAL RESPONSE TO ALARMS Ladder Companies	1st DUE Engine Company, Minutes	2nd DUE Pumper Company, Minutes	1st DUE Ladder Company, Minutes	TOTAL Pumper Companies. No.	TOTAL Pumper Companies. Min.	TOTAL Ladder Companies No.	TOTAL Ladder Companies Min.
1 (a)	Very small buildings, widely detached buildings.	2	400	1	0	7.5	-	*9	1	7.5	*1	9
(b)	Scattered development (except where wood roof coverings).	3	600	1	0	6	-	*7.5	1	6	*1	7.5
2	Typical modern, 1 - 2 storey residential subdivision 3 - 6 m 10 - 20 ft. detached).	4-5	800-1,000	2	0	4	6	*6	2	6	*1	6
3 (a)	Close 3 - 4 storey residential and row housing, small mercantile and industrial.	6-9 10-13	1,200-2,000 2,200-2,800	2 2	1(if required by Hazards)	3.5 3.5	5 5	*4 *4	2 3	5 6	*1 *1	4 4
3 (b)	Seriously exposed tenements. Institutional. Shopping Centres Fairly large areas, fire loads, and exposures.	14-16 17-19	3,000-3,600 3,800-4,200	2 2	1 1	3.5 3.5	5 5	4 4	4 5	7 7	1 **1	4 4
4 (a)	Large combustible institutions, commercial buildings, multi-storey and with exposures.	20-23 24-27	4,400-5,000 5,200-60,00	2	1	2.5 2.5	4 4	3.5 3.5	6 7	7.5 7.5	2 2	5 5
4 (b)	High fire load warehouses and buildings like 4(a).	28-31 32-35	6200-6800 7000-7600	3	1	2.5 2.5	3.5 3.5	3.5 3.5	8 9	8 8	3 3	7 7
5	Severe hazards in large area buildings usually with major exposures. Large congested frame districts.	36-38 39-42 43-46	7,800-8,400 86,00-9,200 9,400-10,000	3	3	2 2 2	3.5 3.5 3.5	2.5 2.5 2.5	10 12 14	8 9 9	4 5 6	7.5 8 9

Notes to Table of Effective Response

* A ladder company is required here only when exceptional conditions apply, such as 3 storey heights, significant life hazards.

** For numerous or large single buildings over three stories use two ladder companies in 5 minutes. When unsprinklered buildings over six stories have fire flow requirements less than Group 4, the number of Pumper and Ladder Companies under "Total Availability Needed" should be increased at least to the next group to provide the additional manpower required except where this additional manpower regularly responds in the time allotted, as occurs in some volunteer or composite fire departments.

The table gives travel times for apparatus AFTER dispatch and turn-out. Under very exceptional conditions affecting total response time, these nominal figures should be modified.

Capital Operating Summary

Initiative	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total Costs
Facilities			Stn 5/Training Centre (Glenmore/UBC) Location Analysis	New Stn 5/Training Centre Detail Design	Construct & Open Stn 5 & Training Centre	Fire Hall Upgrades (Water St, Enterprise Way)	Stn 6 Location(KLO) Analysis Fire Hall Upgrades (Rutland, Mission)	Stn 6(KLO) Detail Design	Construct & Open Stn 6	Stn 2 Relocation Detail Design	Fire Protection Analysis for Black Mtn and South Slopes Areas & Construct Stn 2	
Vehicle Replacements	Bush Truck	Engine 9, L-1	R-1, Side by Side ATV/Trailer	E-2	Aerial 5, Bush 5		Bush 4	E-7	E-4		T-4, T-1	
Total Vehicle Costs	$135,000.00	$1,350,000.00	$480,000.00	$600,000.00	$935,000.00		$135,000.00	$500,000.00	$600,000.00		$600,000.00	$5,335,000.00
Staffing		4 Career Fire Fighters $340,000.00	4 Career Fire Fighters $340,000.00	4 Career Fire Fighters $340,000.00	8 Career Fire Fighters $680,000.00	4 Career Fire Fighters $370,000.00	4 Career Fire Fighters $370,000.00	4 Career Fire Fighters $370,000.00	8 Career Fire Fighters $740,000.00			
Annual Budget Offset						($40,000.00) Country Rhodes, ($200,000.00) LC Contract						
						-$240,000.00						
Net Annual Budget	$0.00	$340,000.00	$340,000.00	$340,000.00	$680,000.00	$130,000.00	$370,000.00	$370,000.00	$740,000.00	$0.00	$0.00	$3,310,000.00
Vehicle Reserve	$1,625,467	$1,700,086	$591,009	$452,282	$216,179	-$368,731	$126,520	$534,468	$519,530	$370,196	$946,004	
Equipment Cost	-$135,000	-$1,350,000	-$480,000	-$600,000	-$935,000	$0	-$135,000	-$500,000	-$600,000	$0	-$600,000	
Inflation 2%	$0	-$27,000	-$19,392	-$36,725	-$77,074	$0	-$17,032	-$74,343	-$102,996	$0	-$131,397	
Total Reserve	$1,490,467	$323,086	$91,617	-$184,443	-$795,895	-$368,731	-$25,512	-$39,875	-$183,466	$370,196	$214,607	
Interest 4%	$59,619	$17,923	$10,665	$622	-$22,836	-$4,749	$9,980	$9,405	$3,661	$25,808	$19,584	
Total Reserve	$1,550,086	$341,009	$102,282	-$183,821	-$818,731	-$373,480	-$15,532	-$30,470	-$179,804	$396,004	$234,191	
Total Contribution to Reserve:	$150,000	$250,000	$350,000	$400,000	$450,000	$500,000	$550,000	$550,000	$550,000	$550,000	$550,000	
Total Reserve Remaining	$1,700,086	$591,009	$452,282	$216,179	-$368,731	$126,520	$534,468	$519,530	$370,196	$946,004	$784,191	
Increase to Annual Reserve:	$0	$100,000	$200,000	$250,000	$50,000	$50,000	$50,000	$0	$0	$0	$0	
Inflation	-	1.02000	1.04040	1.06121	1.08243	1.10408	1.12616	1.14869	1.17166	1.19509	1.21899	

Capital Operating Summary

Year	1	2	3	4	5	6	7	8	9	10	Total Costs
Facilities		Stn 5/Training Centre (Glenmore/UBC) Location Analysis	New Stn 5/Training Centre Detail Design	Construct & Open Stn 5 & Training Centre(Subject to Council Priorities)	Fire Hall Upgrades (Water St, Enterprise Way)	Stn 6 Location(KLO) Analysis Fire Hall Upgrades (Rutland, Mission)	Stn 6(KLO) Detail Design	Construct & Open Stn 6(Subject to Council Priorities)	Stn 2 Relocation Detail Design	Fire Protection Analysis for Black Mtn and South Slopes Areas & Construct Stn 2(Subject to Council Priorities)	
Staffing				20 Fire Fighters (Incremental staffing plan based on construction)				20 Fire Fighters (Incremental staffing plan based on construction)			

Vehicle Replacements	Engine 9, L-1	R-1, Side by Side ATV/Trailer	E-2	Aerial 5, Bush 5		Bush 4	E-7	E-4		T-4, T-1	
Total Vehicle Costs	$1,550,000.00	$480,000.00	$600,000.00	$935,000.00		$135,000.00	$500,000.00	$600,000.00		$600,000.00	$5,400,000.00
Vehicle Reserve	$1,700,086	$378,849	$231,635	-$13,293	-$607,382	-$121,677	$276,343	$251,080	$91,008	$655,648	
Equipment Cost	-$1,550,000	-$480,000	-$600,000	-$935,000	$0	-$135,000	-$500,000	-$600,000	$0	-$600,000	
Inflation 2%	-$31,000	-$19,392	-$36,725	-$77,074	$0	-$17,032	-$74,343	-$102,996	$0	-$131,397	
Total Reserve	$119,086	-$120,543	-$405,089	-$1,025,367	-$607,382	-$273,709	-$298,000	-$451,916	$91,008	-$75,749	
Interest 4%	$9,763	$2,178	-$8,204	-$32,015	-$14,295	$52	-$920	-$7,077	$14,640	$7,970	
Total Reserve	$128,849	-$118,365	-$413,293	-$1,057,382	-$621,677	-$273,657	-$298,920	-$458,992	$105,648	-$67,779	
Total Contribution to Reserve:	$250,000	$350,000	$400,000	$450,000	$500,000	$550,000	$550,000	$550,000	$550,000	$550,000	
Total Reserve Remaining	$378,849	$231,635	-$13,293	-$607,382	-$121,677	$276,343	$251,080	$91,008	$655,648	$482,221	
Increase to Annual Reserve:	$100,000	$200,000	$250,000	$50,000	$50,000	$50,000	$0	$0	$0	$0	
Inflation	1.02000	1.04040	1.06121	1.08243	1.10408	1.12616	1.14869	1.17166	1.19509	1.21899	

KELOWNA FIRE DEPARTMENT
2012 STRATEGIC PLAN

Kelowna
Fire Department

Kelowna
Fire Department

OVERVIEW OF PRESENTATION

- Decision Model and Planning Cycle
- Current KFD Strategic Plan
- Operations Standard of Response Cover
- 2012 - 2022 Revised KFD Strategic Plan: Key Outcomes/Recommendations
  - Administration, Training & Fire Prevention
  - Regional Services
  - Operations
- Cost Analysis
- Questions and Feedback

2012 GOALS: STRATEGIC PLAN REVIEW

Kelowna
Fire Department

2012 GOALS: STRATEGIC PLAN REVIEW

Kelowna
Fire Department

CURRENT KFD STRATEGIC PLAN

Kelowna
Fire Department

COMPLETED KEY RECOMMENDATIONS

- Fire inspection frequency & quotas approved/established
- Dispatch performance standards established & monitored
- Communications systems upgrades (ongoing)
- Dispatch supervision established
- 2nd Administration Officer established

Kelowna
Fire Department

COMPLETED KEY RECOMMENDATIONS

- Life Safety Bylaw (Fall 2012)
- Turnout times monitored & measured by Mobile CAD
- Vehicle replacement/life cycle schedule established
- Fire Station upgrades (Station #1 and 10 year Capital Plan) ongoing
- Enhanced Partnerships, Regional Districts & Municipalities

Kelowna
Fire Department

DELETED RECOMMENDATIONS

- Additional Administration Clerk 2012: ($68,750)
- Additional Fire Inspectors(2) 2012-2014: ($195,000)
- Additional Assistant Training Officer 2017: ($115,000)

Kelowna
Fire Department

REMAINING KEY RECOMMENDATIONS

- New Glenmore Station #5 and staffing
- Firefighter training area
- Dispatch staffing analysis
- Establishing Formal Service Agreements (Regional Services & IRs)
- Development & endorsement of response standards
- Formal Public Education Program
- Enhanced Pre-Incident Plan System

Kelowna
Fire Department

OPERATIONS STANDARD OF RESPONSE COVER

METHODOLOGY

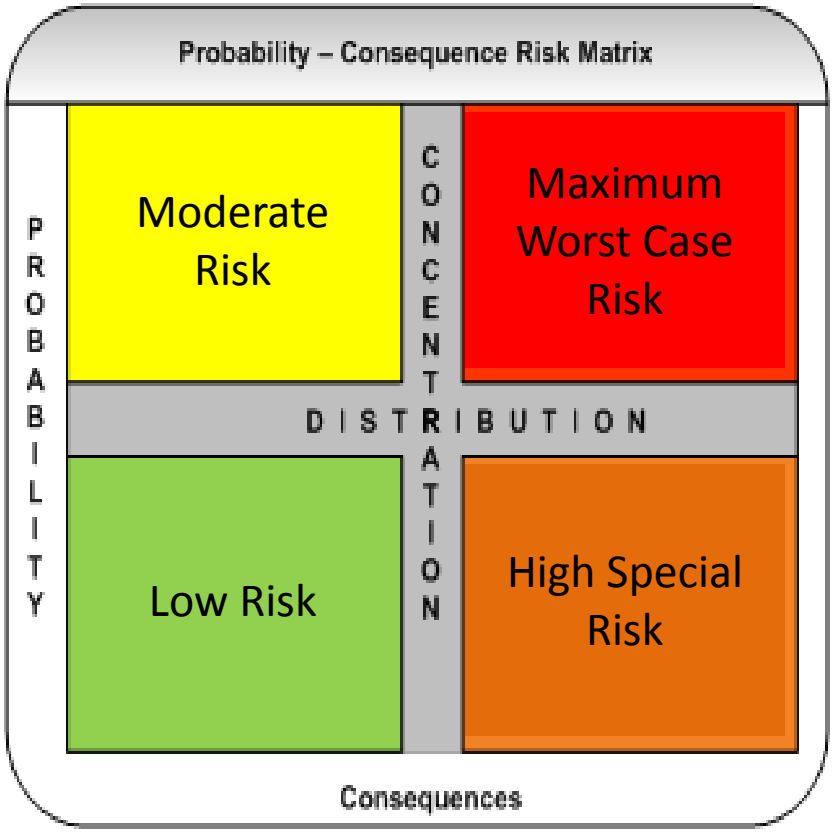
- Current KFD Strategic Plan
- Official Community Plan (OCP)
- 2012 Fire Underwriter's Survey (FUS)
- Industry Standards
- Comparative communities
- KFD historical fire prevention and response data
- KFD operational guidelines and current operational capacities including the distribution and concentration of resources

Kelowna
Fire Department

METHODOLOGY

- Commission on Fire Accreditation International's (CFAI) Standards of Cover 5th Edition
- Analysis of response resources, deployment strategies, operational elements and the overall community risks
- Risk factors specific to Kelowna, including topography, transportation systems, water supply, wild land interface and geographical area
- 23 Determining Observations led to development of KFD Performance Standards based upon Risk Matrix
- Current Strategic Plan only analyzed travel time

PROBABILITY -CONSEQUENCE MATRIX



Kelowna Fire Department

RISK LEVEL DISTRIBUTION FOR STRUCTURES

Risk	Number of Units	% of Total	Sources
Low	-	-	Non-structural; Vacant Lands (urban and rural park land, residential lots and privately owned agricultural land). Risk level varies on time of year, terrain, fuel density and slope.
Moderate	32,596	86%	Residential Structures
High	5,194	14%	A (assembly), B (institutional) D (business), E (mercantile), F1 (high hazard industrial), F2 (medium hazard industrial), F3 (low hazard industrial) ****There are about 35 high risk properties that are considered a "special risk" in that any significant damage or shut down could result in varying impact on infrastructure, employment, sociological and/ or environmental damage to the community. The list includes chemical manufacturing/ storage, private care facilities, sewage and water treatment etc.**
	37,790		

Kelowna
Fire Department

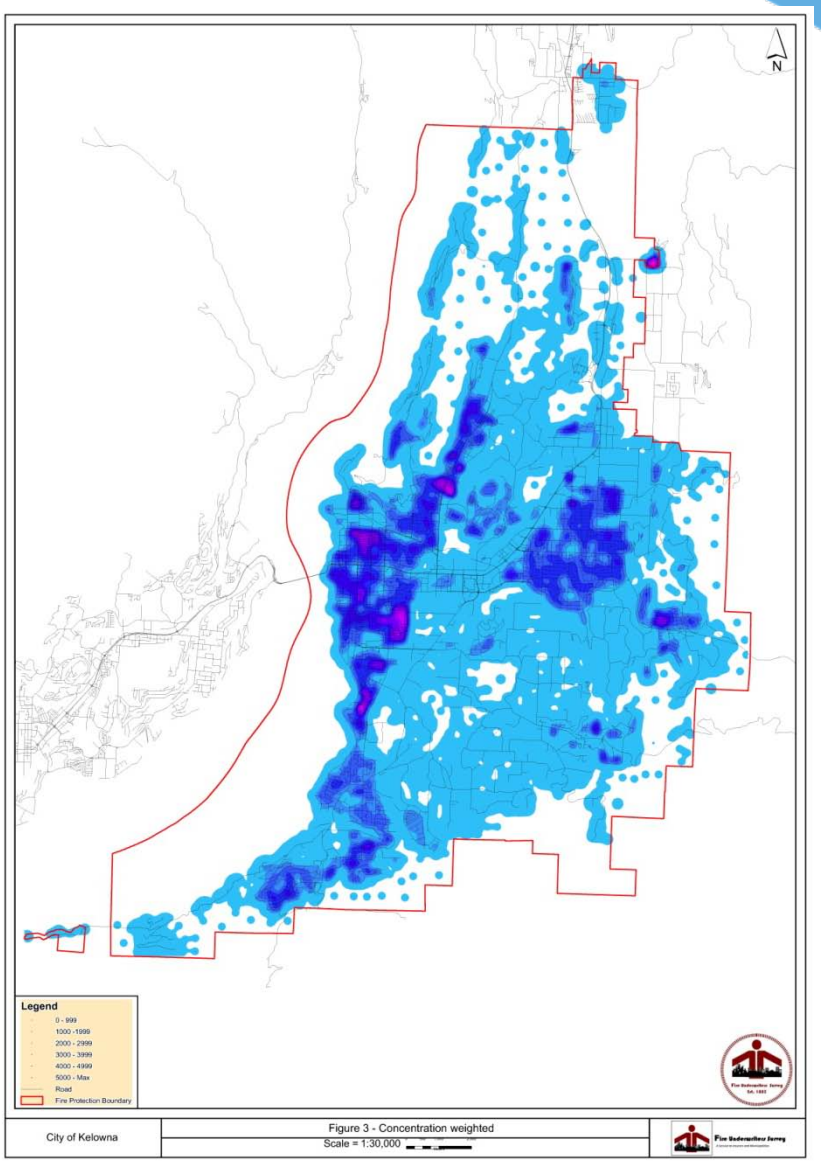
PRIMARY RESPONSE ZONE CHARACTERISTICS EXAMPLES

Response Zone	Population	Area sq. km.	2011 Density Pop. By sq. km.	Primary response zone call for service (2011)	% Industrial Properties (RFF by Zone Group)	% Residential Properties (RFF by Zone Group)	% Commercial Properties (RFF by Zone Group)
Enterprise	21,239	28.8	738	2004	1	89.3	10.1
Downtown	27,096	15.3	1771	3118	1.5	93.2	5.3
Rutland	40,495 *	62.9	644	2210	2.9	74.9	22.1
Mission	23,974	42.7	562	1394	0	81.2	18.8

*Includes UBCO

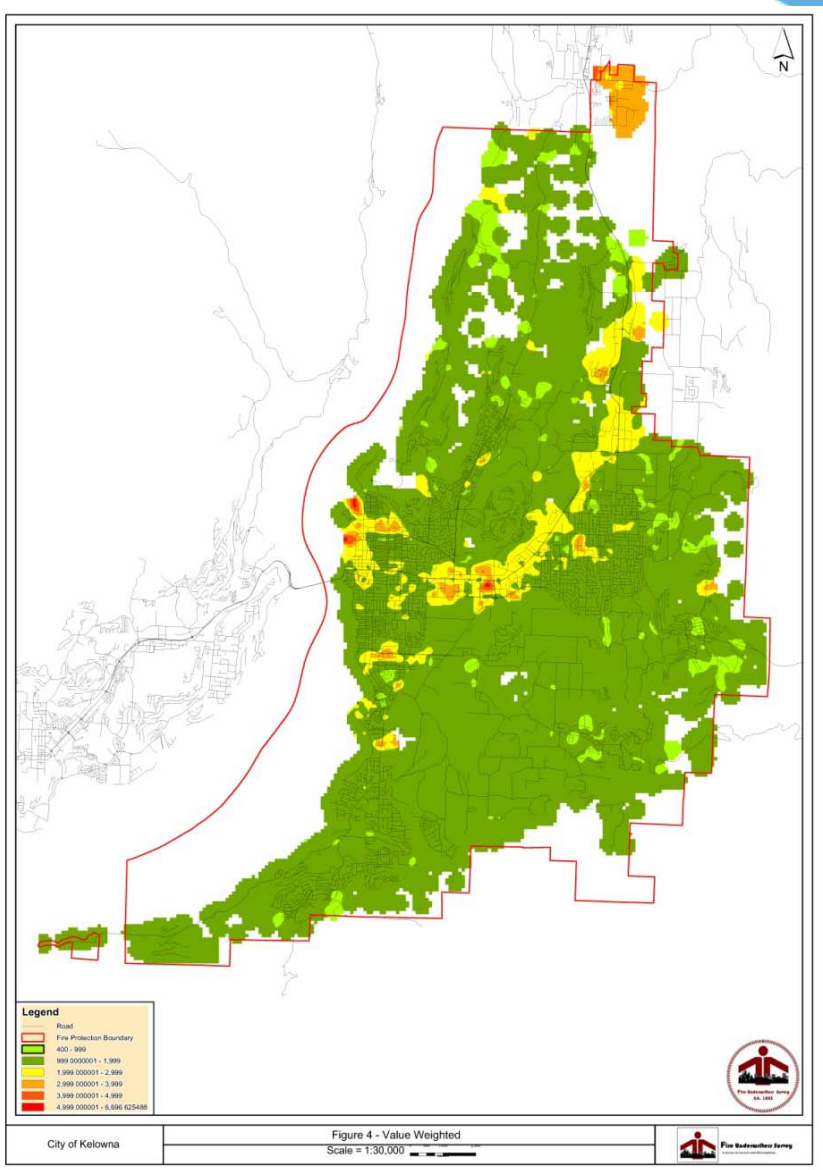
CONCENTRATION WEIGHTED RISK

- Concentration of primarily moderate risk located within the Permanent Grown Boundary:
  - Occupancy/population
  - Construction type
  - Required fire flows
  - Required effective firefighting force

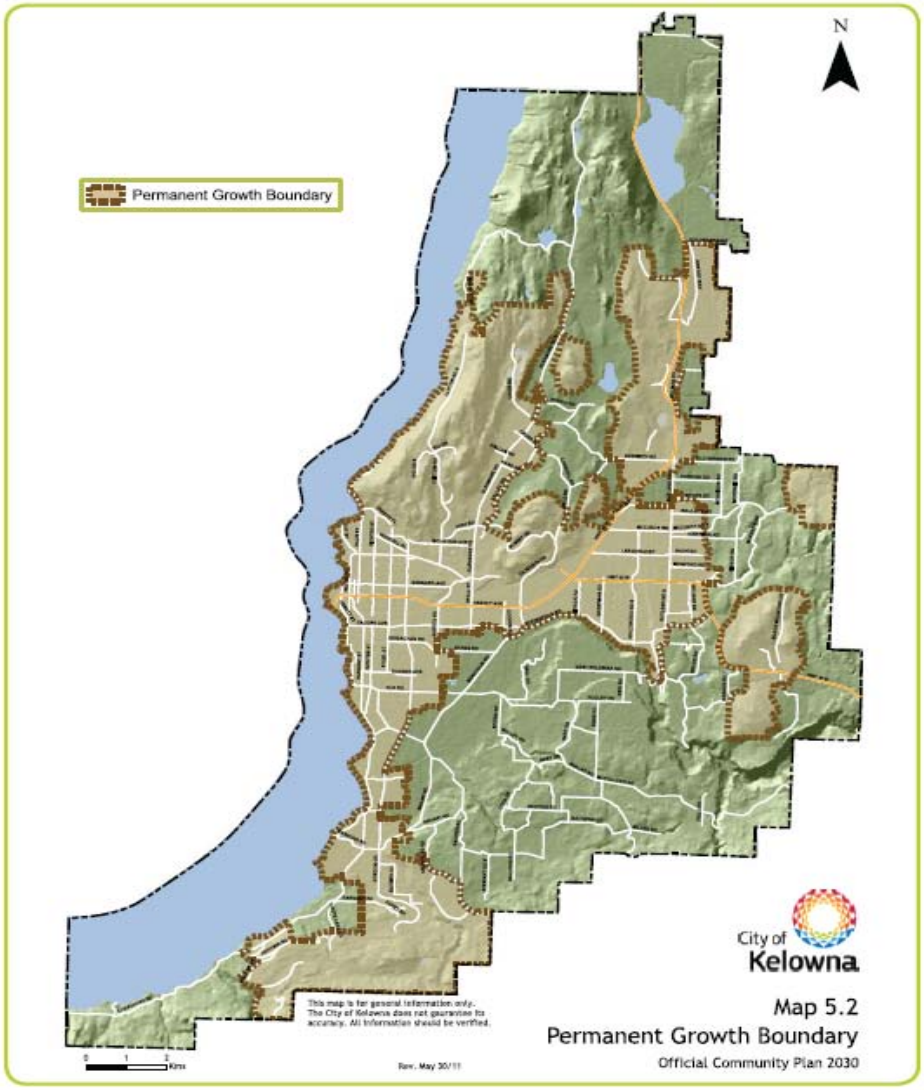


VALUE WEIGHTED HIGH RISK CONCENTRATION

- Located in:
  - North end Industrial area
  - KLO/Pandosy area
  - Highway 97 corridor
  - Airport
  - Lake Country Industrial area



PERMANENT GROWTH BOUNDARY



RESPONSE STATISTICS & CURRENT PERFORMANCE LAST 5 YEARS

- Call for service (responses) increased by 19.53%
- 4 minute travel time for 1st engine arrival 58%
- 6 minute travel time for 1st engine arrival 79%
- 9 minute travel time for 1st engine arrival 90%
- All dispatched units on scene within 8 minutes or less 49% of the time

TARGETS

- Industry Standards: travel time for 1st engine arrival in 4 minutes 90%
  - All assigned resources arrival within 8 minutes 90%
- Current KFD Strategic Plan:
  - 1st Engine on scene in 6 minutes or less 90% of the time in urban zones
  - 1st Engine on scene in 9 minutes or less 90% of the time in suburban zones
  - 1st Engine on scene in 14 minutes or less 80% of the time in rural zones

TARGETS

- Worksafe BC Standards
  - During the initial attack stages of an incident at least two firefighter must remain outside.
  - A suitably equipped rescue team of at least 2 firefighters must be established on the scene before sending in a second entry team and not more than 10 minutes after the initial attack.

Kelowna
Fire Department

COMPARATIVE COMMUNITIES

CITY (2011 Stats)	POPULATION	AREA Sq. KMs	Career FF/ POP.	CALL VOLUME	BUSIEST RESPONSE ZONE
Kelowna	117,000(3rd)	214 (4th)	1to1240 (6th)	9518 (1st)	3318 (1st)
Delta	120,000	364	1 to 716	5625	1871
Kamloops	87,000	333	1 to 837	6228	n/a
Prince George	72,000	318	1 to 686	5520	2703
Saanich	110,000	103	1 to 1146	3657	1624
Coquitlam	135,000	130	1 to 931	5728	2406

KEY DETERMINING OBSERVATIONS

- Kelowna has 5 urban and 5 village centers mixed within city limits
  - Proves challenging to provide equitable service to all areas of the city.
- Fire Behaviour science: 4 minutes (travel time)
- KFD's 4 member Engine companies
- KFD current response capacity = one significant fire in a single family home
- Community growth inevitably results in increased calls for service

KEY DETERMINING OBSERVATIONS

- Specific attention: North Glenmore/ UBCO area and the South Pandosy/ KLO area
- Highest weighted fire risks & greatest volume of risks are in the Permanent Growth Boundary (OCP).
- Demand for KFD's emergency response service is steadily increasing
- 87% of request for service are in the Permanent Growth Boundary
- 68,000 (57%) of the population is currently covered by 4 minute travel time for the first unit on scene

Kelowna
Fire Department

2012-2022 REVISED KFD STRATEGIC PLAN: KEY OUTCOMES/RECOMMENDATIONS

Kelowna
Fire Department

RECOMMENDATION FACTORS

- All Capital costs are estimates and are being refined by Infrastructure Planning and included in the 8 year Capital Plan
- Options/alternatives have been analyzed & identified
- Growth projections and other related factors are trigger points
- Review of the Revised 2012-2022 KFD Strategic Plan will be conducted annually as part of budget process
- Implementation of recommendations is based upon:
  - Council priorities
  - Economic and fiscal realities
  - Other factors

ADMINISTRATION, TRAINING & FIRE PREVENTION

- Formalized Public Education & Pre-Incident Plan program within current staffing
- Review options to distribute the training programs within each platoon
- Multi-use training facility with partnerships
  - Capital $1 million
  - Potential revenues $50-75k per year
  - Alternative: NORD facility
    - Cost $104,000 per year on-going

Kelowna
Fire Department

REGIONAL SERVICES

- Conduct a review of Dispatch to determine efficiencies, opportunities, consolidation & integrations
- Develop staffing plan to optimize capacity & efficiency
- Based upon RDCO Core Services Review establish formal agreements for Dispatch, EM, and Regional Rescue
- Relocate EOC to another suitable location
- Continue with years 2 & 3 of technology upgrades to KFD communications & data systems

Kelowna
Fire Department

OPERATIONS RECOMMENDATIONS

Kelowna
Fire Department

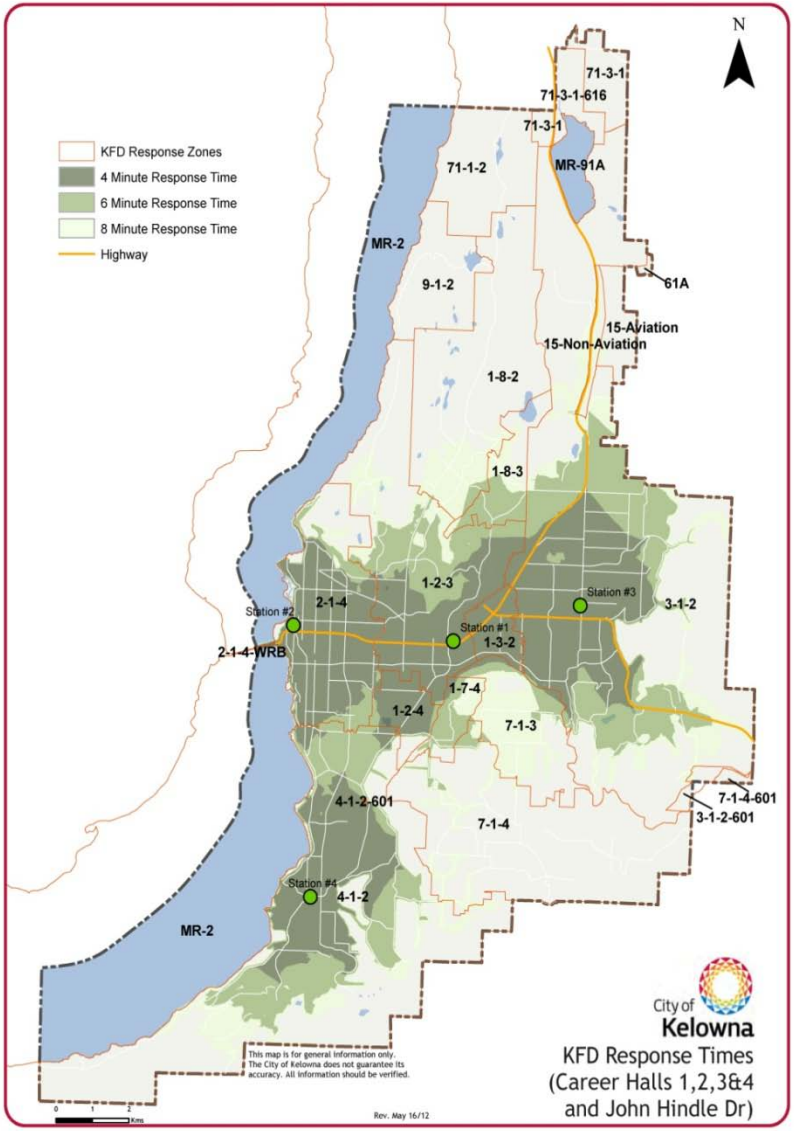
RECOMMENDATION #1

- KFD will endeavour to achieve a 4 minute travel time for the first engine with four professional firefighters for high and moderate risk facilities/structures within the permanent growth boundary in 90% of all occurrences.
- Areas beyond the permanent growth boundary KFD will endeavour to achieve an 8-10 minute travel time for the first engine with four professional firefighters for high and moderate risk facilities/structures in 90% of all occurrences.

CAREER STATION COVERAGE (CURRENT)

- 67,934 people covered in 4 minutes.
- 23,167 more covered in 6 minutes
- 12,685 more covered in 8 minutes or more.
- Total 103,786

- GAP Analysis:
  - North Glenmore/ UBCO
  - South Pandosy/ Gordon Drive.



Kelowna
Fire Department

RECOMMENDATION #2

- Build & Staff the Glenmore Station
  - Station $4 Million
  - Staff $2 Million Annually
  - Fire Engine $800,000
  - Bush Truck $135,000
  - 7000 residents/8000 UBCO coverage in 4mins/1600 calls for service

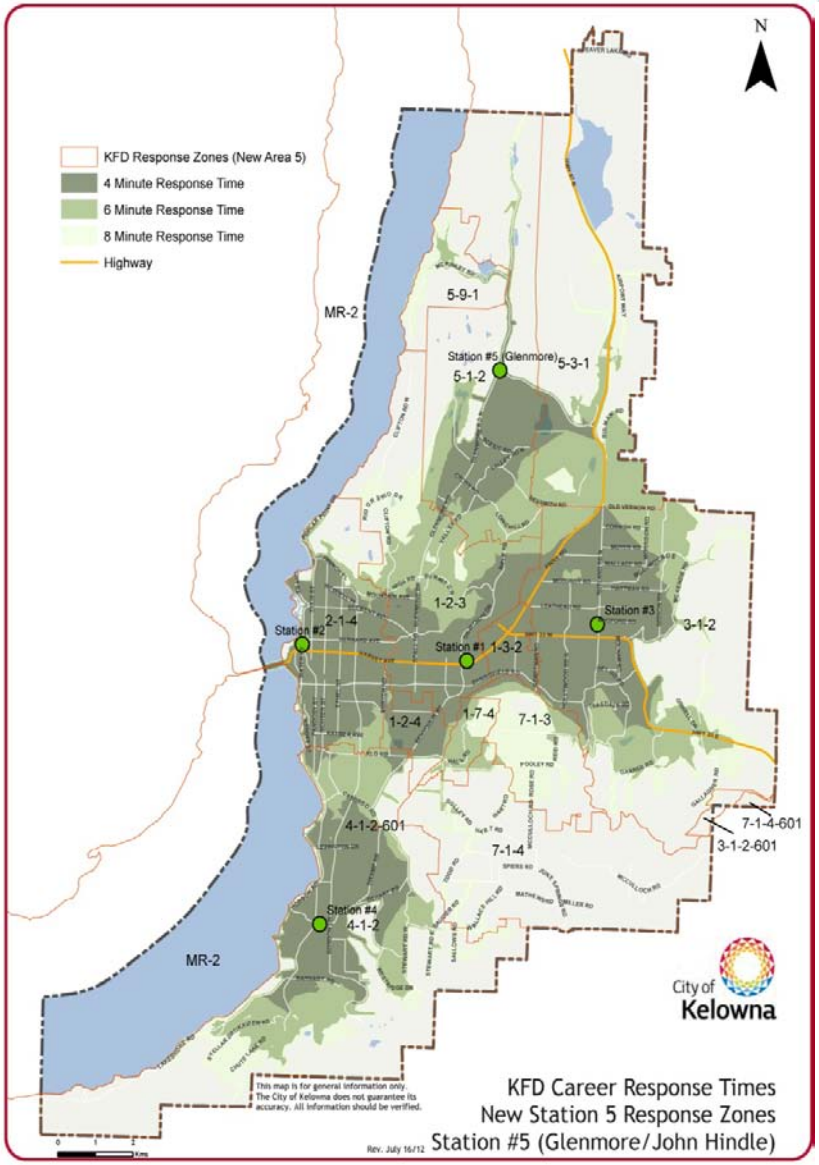
Kelowna
Fire Department

GLENMORE

STATION

- 73,117 people covered in 4 minutes (less 8000 UBCO)
- 25,305 more covered in 6 minutes
- 7,878 more covered in 8 minutes
- Additional 21 sq.kms. covered in 4 minutes

- Improves response to High Risk: UBCO, YLW, Quail Ridge and McKinley Landing
- Primary response area calls for service estimated at 1600



Kelowna
Fire Department

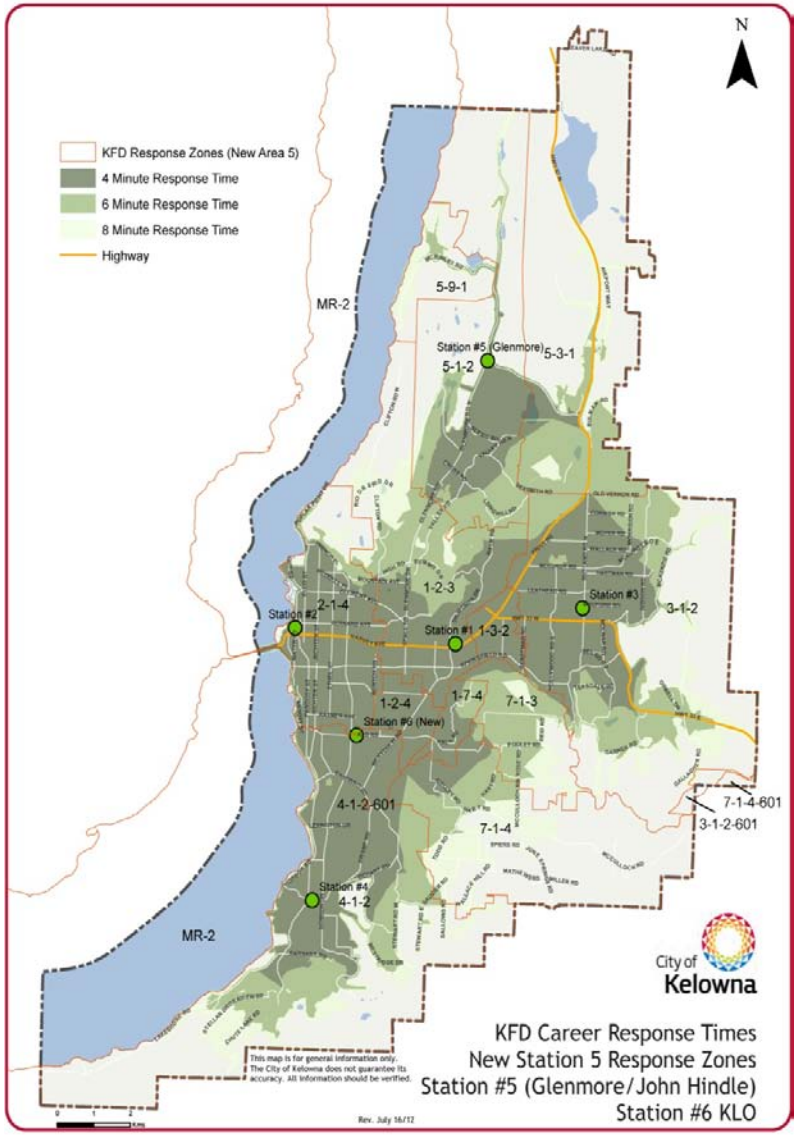
RECOMMENDATION #3

- Build & Staff KLO Station #6
  - Based upon further densification and emergency response statistical analysis
  - Station $3 Million
  - Staff $2 Million Annually
  - 6000 residents, 1700 calls for service/Back up for Mission Station

KLO- GORDON STATION

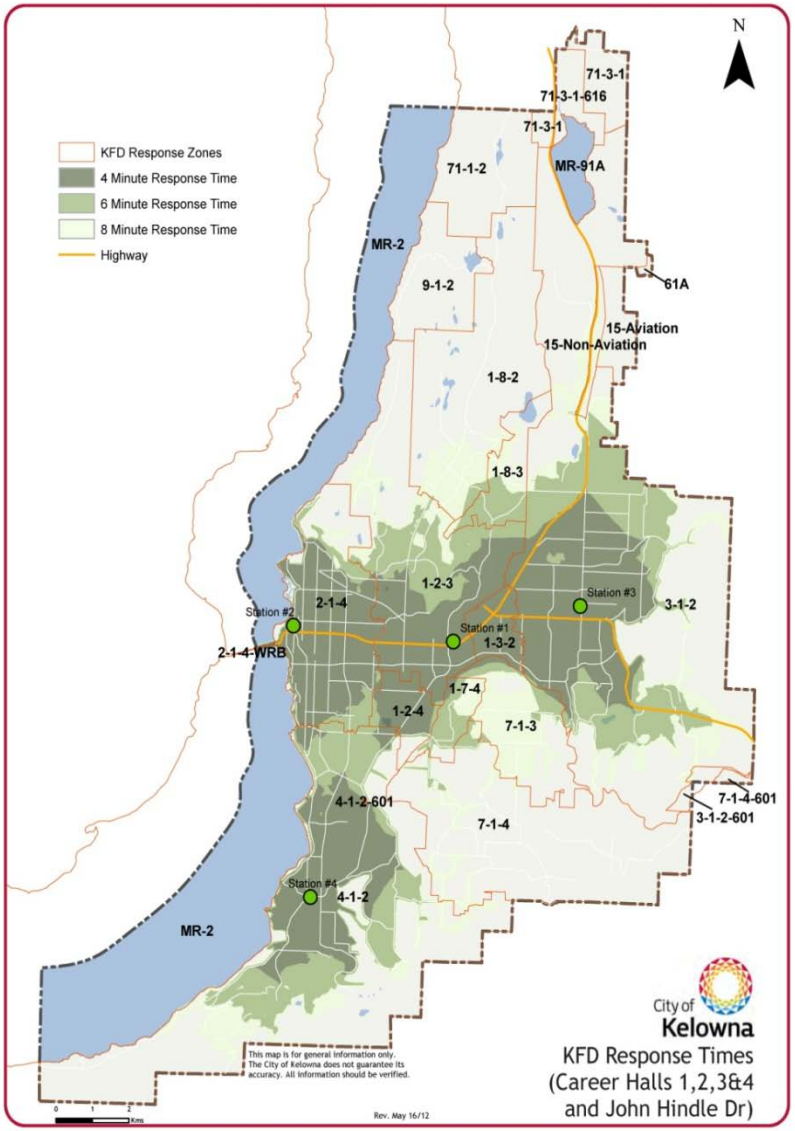
- 80,545 people covered in 4 minutes.
- 18,924 more covered in 6 minutes
- 7,683 more covered in 8 minutes
- Additional 12.5 sq. kms. covered in 4 minutes

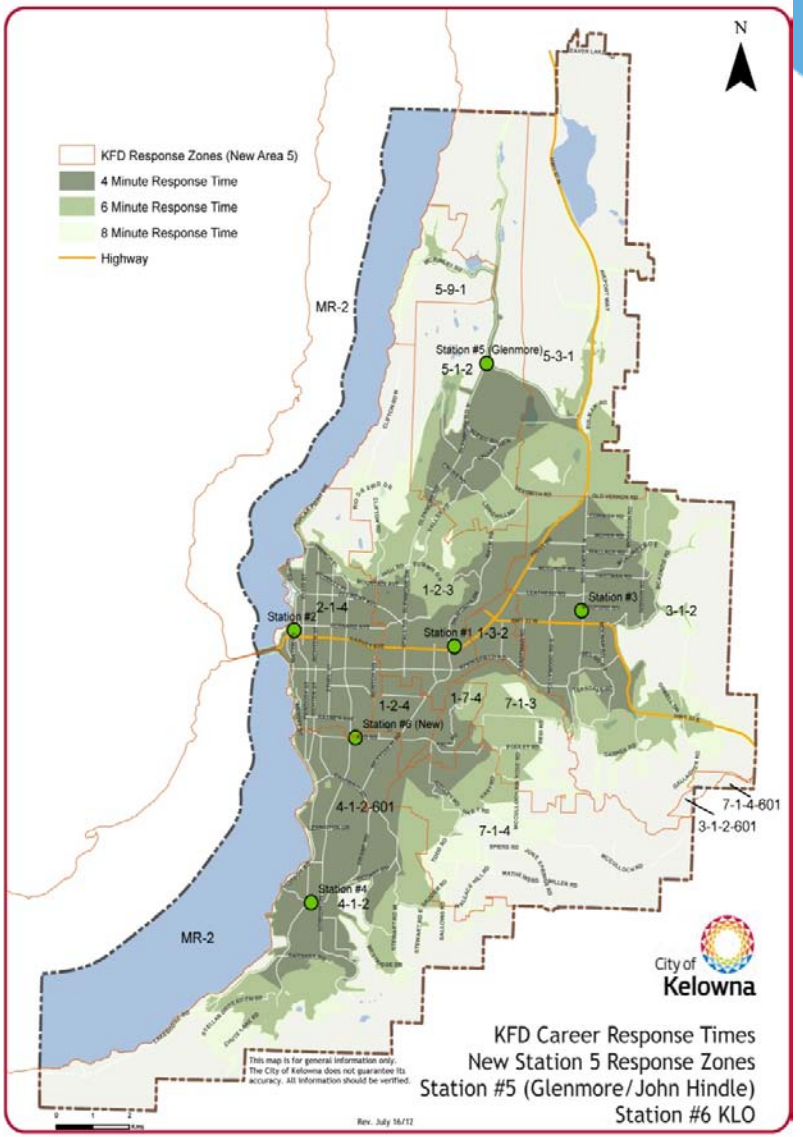
- FUS credit ratings improve in:
- KLO/ Lakeshore area
- Hall Rd area
- Mission area
- Primary response area calls for service estimated 1700



COMPARISON

Kelowna Fire Department





Kelowna
Fire Department

OTHER RECOMMENDATIONS

- Adopt Standard of Cover Performance Targets & establish KFD Master Plan
  - Alternative: Status-quo maintain 4 career & 3 POC stations
- Recruit Paid on Call (POC) firefighters in McKinley Landing and replace Mini fire truck with a pumper truck. Cost $350,000.
  - Alternative: Reduce McKinley Landing to Wild land interface and do not replace the fire truck
- Examine the redistribution & redeployment of the station 1 POC members.
  - Alternative: Status-quo

Kelowna
Fire Department

OTHER RECOMMENDATIONS

- Water Street Station #2's resources move to Clement Ave & Richter St. (New RCMP/Emergency Services Facility)
  - Station $3 million
- Black Mountain and South Mission Slopes
- Trial Staffing of Squad 1
- Condition survey of all Fire Stations

Kelowna
Fire Department

COST ANALYSIS

COST ANALYSIS

KELOWNA FIRE DEPARTMENT
Funding Requirements
Fiscal Years 2013 - 2016

Initiative	2013	2014	2015	2016	2017
Facilities		Stn 5/Training Centre (Glenmore/UBC) Location Analysis, Land Acquisition & Design Schematic	New Stn 5/Training Centre Construction*	Open Stn 5 & Training Centre	Conditional Survey on Existing Fire Halls
Tax % Increase	0.00%	0.00%	0.43%	0.00%	0.00%
Staffing	4 Flex Career Fire Fighters	4 Career Fire Fighters	4 Career Fire Fighters	8 Career Fire Fighters	4 Career Fire Fighters
Tax % Increase	0.19%	0.35%	0.39%	0.65%	0.63%
Vehicle Replacements	Engine 9, L-1	R-1, Side by Side ATV/Trailer	E-2	Aerial 5, Bush 5	
Contribution to Reserve:	$350,000.00	$450,000.00	$550,000.00	$550,000.00	$550,000.00
Tax % Increase	0.35%	0.10%	0.10%	0.00%	0.00%
Total Yearly Tax % Increase	**0.54%**	**0.45%**	**0.92%**	**0.65%**	**0.63%**

* Based on a 20 Year Mortgage (at 4.5% interest) would result in a total cost of approximately $8.6m or annually payments of around $430k.

THANK YOU

Kelowna
Fire Department