CANADIAN FIRE CHIEFS

2015 STRATEGIC LANDSCAPE

A DARKHORSE ANALYTICS REPORT

Acknowledgements

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Executive Summary

The Darkhorse 2015 Strategic Landscape Report is based on the Strategic Priorities Survey responses of 22 fire chiefs and deputies, whose departments collectively serve roughly one third of the Canadian population.

The first question asked what major changes leadership have witnessed over the previous decade. Financial and performance accountability was most frequently cited as having a significant impact on the service. They are being required to justify and link budget increases to performance measures. The second most frequent response was changing demand patterns. Fire departments are becoming an "all hazards" service that deal with Chemical Biological Radiological and Explosive (CBRE), hazmat, technical rescue and large-scale events. Third, respondents cited the increasing importance of mental health as an area of focus for staff health and safety. They have recognized the human and financial cost of Post-Traumatic Stress Disorder (PTSD) and are actively identifying and treating it within their services.

The top factors of the previous decade: financial & performance accountability, changing demand patterns, and a focus on staff mental health.

Technology continues to impact the fire service, and most services cite IT and analytics as the leading technological change. It is being used in a wide array of applications from streamlining inspections, to prioritizing prevention, to justifying station additions. Analytics in particular is gaining prominence. The majority of services are planning to bolster their analytics capabilities going forward.

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In looking at the short-term priorities for services (a budgetary wishlist), there were two areas cited most frequently as areas requiring immediate investment: additional response capacity,

and fire prevention and education. Some were looking to add specialty capabilities (e.g. technical rescue, hazmat), while others were looking to fill immediate needs in response capacity. Prevention and public education was also top of mind.

The main priority over the mid term is prevention and education.

For mid-term priorities, prevention and education topped the list. It was cited by nearly sixty percent of respondents as one of their top three priorities. A number of services are looking to use a targeted prevention approach that would prioritize high risk locations for inspections. This has been used very effectively in British Columbia.

The next four issues are closely related: maintaining financial sustainability, dealing with growth, adding stations, and improving response performance. Each was cited by more than a third of respondents. Some are responding to pressure from stakeholders to justify budgets while others are looking to meet certification requirements.

In the long term, fire service is facing a profound change in its business.

The long-term is dominated by an understanding that the fire service is facing a profound change in its business. As an example, the proportion of traditional structure fire responses is continuing to shrink. As services focus their efforts on prevention, this trend will continue, and possibly accelerate. Medical responses continue to grow, and there is need for a conversation about what the fire service should become and how it can effectively serve the community.

Overview

The Strategic Landscape Report is based on a long-form survey of 22 fire chiefs and deputies representing municipalities that serve approximately 10 million Canadians. Conducted in late 2015, the goal of the survey was to hear from Chiefs and Deputies from across the nation regarding challenges and opportunities that they currently face and the strategies used to address these issues.

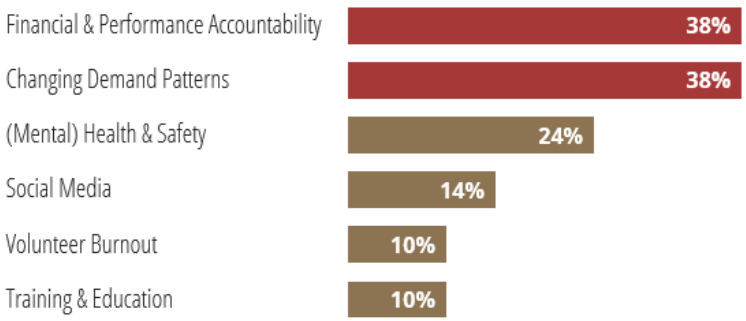
The survey did not cover the maritime provinces, but reflected responses from both urban and rural services in Ontario, Quebec, the prairie provinces, and BC. The seven largest fire services in Canada participated, ten mid-sized services (50,000 to 500,000 people), and five smaller services (less than 50,000). All but four of the surveys were conducted with the fire chief of the respective service.

The survey itself covers four major aspects of strategic planning: **external pressures**, **changes in internal capabilities**, **short term strategies**, and **long-term strategies**. The remainder of this document is organized around those four major themes.

External pressures

We first asked respondents to identify the major changes that the service has dealt with over the past several years and categorized the changes into external pressures and internal capabilities.

EXTERNAL PRESSURES



Increased accountability and changing demand patterns were the most frequently-cited external pressures.

Financial and Performance Accountability

The number one external pressure identified by the respondents was increased financial accountability. Budget increases are not to be taken for granted. Services are required to justify expenditures, and in many cases, justify those expenditures with improved service levels. Nearly 40% of respondents cited increased budget or service level scrutiny as the most important change in the last several years.

There are a number of reasons for this increased scrutiny. One is that the cost of equipment and labour has generally outpaced inflation. Another is that municipalities themselves have become more budget-constrained and

"We need to educate the public and council on the nature and costs of risk. What level of risk are we willing to bear at what cost?"

Chief Ken Block, Edmonton

are looking for ways to cut costs. Typically, fire services are one of the two or three most costly line items for a municipality and, thus, receive proportional scrutiny.

The September 11th terrorist attacks were also cited as one of the contributing factors to budget pressures. Immediately after 9/11, all levels of government invested heavily in public safety. Spending on technical rescue, CBRE, and specialized training and equipment increased and budgets were generally approved. The public support was high as they were keenly aware of the risks faced by first responders.

"9/11 was the worst thing that ever happened to us for so many reasons."

Chief Ernie Polsom, Regina

As public perceptions shifted and focused more on the economy and taxes, some services found it difficult to adapt their budgetary processes to the fiscal constraints now placed on them. The easy money suddenly stopped.

Closely related to fiscal accountability is a move toward performance accountability. Municipalities (including fire services) have collected detailed information for decades, but have recently begun to convert this data into metrics in order to derive service level expectations. This is coupled with a broader move toward evidence-based decision-making. Fire services are no exception.

"Budget is an issue. The service needs to change public perception so they realize that we're not just firefighters; we're all hazards."

Chief Gerry Pingitore, Ottawa

Changing Demand Patterns

Changing demand patterns is cited as the second most common external pressure. In some cases, there is a sense that services are now expected to be "all hazards" responders as opposed to just fire and rescue responders.

There is a particular emphasis on technical rescue, hazmat, and CBRE.

In addition to this, the growth in medical first response (or EMS response for combined services) has continued to outstrip any growth in fire response.

Looking more closely at the fire response, fires that occur in newer construction have become more dangerous – particularly where victims may be trapped inside. The speed with which new materials burn and the proximity to neighboring structures changes the risk profile of these neighborhoods. Furthermore, changes in the building code that allow taller wood structures drive the needs for appropriate response units.

On the other hand, sprinklers, fire alarms, and better wiring and materials have reduced the likelihood of certain types of fires getting out of control. This, along with prevention and education efforts, has contributed to an overall decrease in the incidence of structure fires.

"Automatic sprinklers and smoke detectors have made a huge difference in high rises. This has reduced the number of fires and the cost in lives, injuries and property damage."

Division Chief Gordon Routley, Montreal

Staff (Mental) Health and Wellness

The third most commonly cited external pressure is the growing awareness and emphasis on health and wellness – particularly in the area of mental health and Post-Traumatic Stress Disorder (PTSD). Some of this has been driven by recent research conducted mainly on military veterans and then extended to public safety professionals. Services are recognizing both the human and financial impact of mental health issues and there is a far greater acceptance of it as a treatable condition.

"We're taking a holistic view of PTSD. We're reducing the stigma of needing help and moving toward screening and prevention."

Chief Ken Block, Edmonton

Other Pressures

Other major pressures mentioned include:

- the rising role of **social media** as a two-way communication channel between the public and the fire service
- an increasing emphasis on **prevention instead of response**
- **volunteer burnout** driven partly by the burden of growing medical responses.

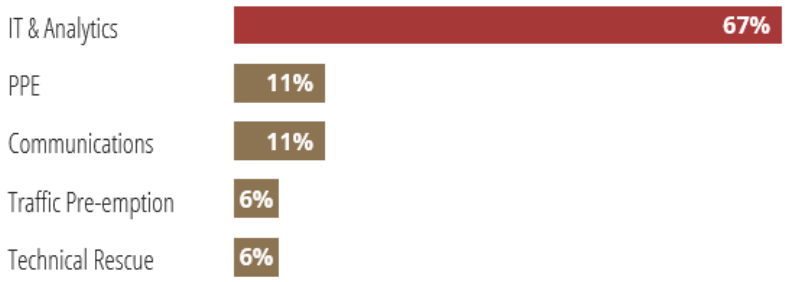
Internal Capabilities

We characterized internal capabilities through two questions. First, we asked which technologies have fostered the most internal change over the last several years. Second, we asked how the use of analytics has impacted decision-making.

Technological change

These answers were the most consistent of any question in the survey.

WHICH TECHNOLOGICAL CHANGES HAVE THE MOST IMPACT?



IT & Analytics has had the most impact on services' capabilities.

Fully two-thirds of respondents identified **information technology and analytics** as the technological change having the most impact. For some, this meant the use of mobile tablets for inspections to improve the accuracy of data collected and lower the amount of time required to create inspection reports. For others, this meant the use of automated data input for the Computer-Aided Dispatch (CAD) system to improve accuracy and accountability. For

still others, it meant the use of data and models to select priority neighborhoods for inspection.

Although the breadth of uses for information technology and analytics is wide, the impact is profound. It reduced cost, improved customer service, streamlined stakeholder approvals, and generally supported better decision-making.

Other technologies cited by respondents are:

- **personal protection equipment** that is both safer and easier to use
- **communication equipment** and radio systems that work in demanding environments, are compatible with other services, and that scale for large events
- **technical rescue tools** that allow fire staff to respond to a wide array of rescue calls
- sophisticated **traffic preemption** systems that expand a station's halo of coverage and improve incident response times

"The industry has made firefighting safer. The PPE is far better than it was in the past. Unfortunately the construction industry has developed new technologies that make housing less safe in a fire."

Chief Richard Hildebrand, Lethbridge

Analytics

We took a deeper look at analytics and its use in fire services. In general, analytics are used for two purposes:

1. **reducing decision risk** by clarifying the likely impact of a particular course of action.
2. **convincing external stakeholders** – particularly those who are demanding a more evidence-based approach to budget allocation

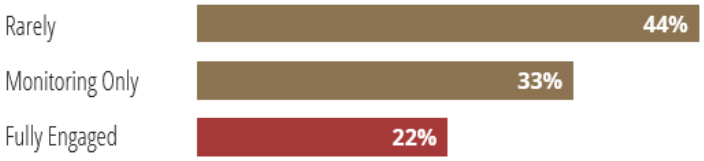
"We're looking for decision support tools--applications that go beyond basic BI and reporting"

Deputy Chief Darrell Reid, Toronto

We divided services into three groups: those who do not use analytics or are just starting to, those who use them

internally for reporting and performance improvement, and those who use them for both internal decision-making and for convincing stakeholders.

ANALYTICS CAPABILITIES



Less than a quarter of services are regularly using analytics for decision-making.

Nearly 45% of services use analytics very little or not at all. In general, these are the smaller or mid-sized services where there exists either tight budgets or a fairly stable environment which allows for a more traditional approach to decision-making. Some use outside consultants on a project basis (for example, yearly reporting or station location planning) while others are utilizing the basic analytical capabilities of their Computer-Aided Dispatch (CAD) systems. None have dedicated analytical personnel. Nearly all of these services recognize the value of analytics and are moving toward incorporating it more in their processes.

"The fire chief of the future will almost have to be a statistician. You may know you're doing a good job, but you're going to have to prove it."

Chief Ray Richards, St Albert

Half of the respondents are using analytics to some extent within their organizations. Most often, this is for internal performance reporting and monitoring (e.g. turnout times or response performance). A few have analytical resources – often shared with IT or with the municipality. They also make use of some of the analytical software tools for planning and operations. Again, many of these services are looking to use analytics more broadly – either

for strategic purposes, for different aspects of their service, or to support decision-making in front of stakeholders.

Just under a fifth of respondents are heavy users of analytics and could be characterized as *evidence-based* in their approach to most decisions. They use analytics for performance monitoring, strategic planning, and to inform and convince stakeholders. In some cases, they are influencing policy and practice at a national level because of their analytical research.

"We aim to have an evidence-based approach from top to bottom. Analytics informs our daily operations and our stakeholder decisions."

Chief Len Garis, Surrey

Strategic Priorities

In the face of these external pressure and technological trends, fire services have adopted a number of differing strategies and priorities. We asked three questions to identify strategic priorities:

1. If you had immediate access to significant budget that had to be spent within the year, where would you invest?
2. What are the top three strategic priorities for your service in the upcoming one or two years?
3. Over the long term (next ten years) what issue do you think will become a priority that isn't currently? In other words, what would you warn your successor to watch out for that you won't have had to deal with?

We analyzed the responses to these three questions in terms of short-term priorities, mid-term priorities and long-term priorities.

Short-Term Priorities

Note, we've tried to separate out the immediate priorities from the main strategic initiatives. While the majority of our study is on the mid- to long-term we did take time to note some of the more frequent short-term priorities.

Two issues were most commonly cited as the immediate priority for the services: **adding capacity** (in the form of vehicles and staff), and **public education and prevention**. Each of these accounted for roughly one third of responses. In some cases, capacity additions were targeted for specialty staff and equipment (e.g. technical rescue or hazmat) while in others, general capacity to fill an obvious need.

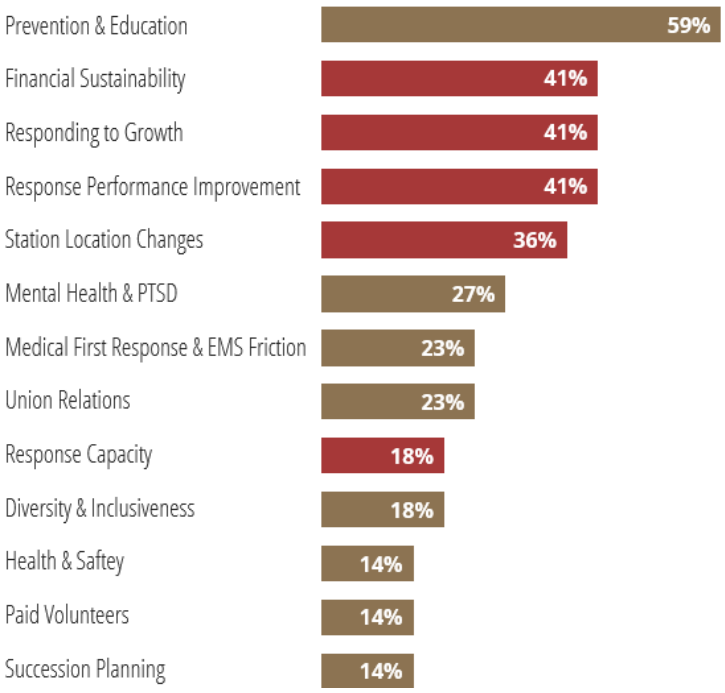
Other short-term priorities were:

- Staff training
- Analytics capacity
- Personal protection equipment
- Mental health resources

Medium-Term Priorities

We asked each service to list their top three strategic priorities, particularly those that they expected to be an organizational focus over the next two years. These were often, but not always, taken from the five-year master plan or business plan documents. The chart below illustrated the top ten most commonly cited priorities.

MEDIUM TERM PRIORITIES



Prevention and education was the most frequently-cited priority. However, the highlighted items suggest that the increased accountabilities (both financial and performance) have a significant influence on planning.

Public Education and Prevention

Nearly sixty percent of respondents identified public education and prevention as one of their top three priorities over the next two years. In fact, many of the services had allocated significant resources toward this end. Some services are hiring new management staff to lead prevention efforts, while others are training front-line staff to engage in prevention efforts like alarm inspections or public education.

A number of services were engaging in or considering a more targeted approach to inspections. A blanket approach is untenable. With hundreds of thousands of structures in large cities, most of those visits would be wasted on newer structures with working alarms and a very low fire risk.

Research done by the Surrey Fire Service in partnership with the University of Fraser Valley has shown that a small proportion of structures account for the majority of fire calls, property damage, fire injuries, and fire deaths. The results of the Surrey study were so striking (a one third drop in fire mortality) that the provincial coroner extended the practice to the whole province. Several services cited this study and have begun to implement a similar approach of identifying high risk facilities and prioritizing inspections of these structures. (This subset of structures can be easily identified with readily available data such as a combination of prior failed inspections, area demographics, etc.)

Research done by the Surrey Fire Service in partnership with the University of Fraser Valley has shown that a small proportion of structures account for the majority of fire calls, property damage, fire injuries, and fire deaths.

Three strategic priorities were the next most commonly cited: **improving response performance**, **responding to growth**, and **achieving financial sustainability**. Each of these was cited by just over 40% of respondents.

Improving response performance

Measuring response performance and meeting response targets is top of mind for strategic planning. In some cases, this is driven by a desire to achieve or maintain Commission on Fire Accreditation International (CFAI) certification. In other cases it is a mandate from municipal stakeholders and part of a wider move toward performance measurement and accountability. A number of services participate in benchmarking activities (the Ontario Municipal Benchmarking Initiative in particular). There is an appetite for standardized measures that can be used to evaluate one's performance against a cohort of similar departments.

More than half of services plan to add or move stations in the short- to mid-term

Improvement initiatives take a number of forms. More than half of services plan to add or move stations in the short to mid term. Several others plan to add general or specialty units and staff. The cost of traffic pre-emption has fallen dramatically and some services are taking advantage of its ability to increase a station's coverage radius.

Services are also engaging analytics consultants or implementing analytics tools to guide their

interventions. With increased budget scrutiny, they are no longer able to add expensive capacity without strong evidence to support it. The most sophisticated are able to identify the expected performance impact of each intervention (adding or moving stations, implementing pre-emption, sounding pre-alerts, improving egress, adding units and staff, etc.) and then choose the most cost-effective approach to improvement.

Some services use analytics to identify the most cost-effective approach to performance improvement.

Responding to growth

Services are contending with three types of growth: call volumes, geographic area, and vertical response. Each of these suggests a different remedy and the approaches are similar to those discussed above (in improving response performance).

Geographic growth can be addressed on either the supply or the demand side. On the supply side, fire services are investing in traffic pre-emption and additional stations to improve their proximity. But proactive services are also attempting to influence the demand side. They're involved in zoning and building code discussions so that high call-volume drivers (seniors or low-income housing) are not approved for the extreme periphery of a community (far from existing stations). Failing that, they are discussing area structure plans early and developing call forecasts so that they can ensure new stations are placed at the appropriate time and location.

Densification leads to higher call volumes and thus impacts unit availability. A number of services are facing infill and rezoning that will increase demand in areas where station infrastructure is limited. In some cases, this is creating opportunities to move stations to better locations as land is redeveloped. More than one service is looking to capitalize on high downtown land value by closing underperforming locations and reinvesting in new better located stations.

Vertical growth is closely related to densification, but is increasingly becoming a problem. For some for some of the smaller services, building code changes are requiring them to acquire new equipment to serve taller buildings. In large urban centres, a greater proportion of calls are emanating from high rises with a much longer time to suppression or time to patient side. These services are exploring ways of both tracking this time and mitigating the risks imposed by more high rises.

Financial Sustainability

The confluence of rising labour costs, high equipment costs, and tighter budget scrutiny have brought financial sustainability to the forefront. Over 40 per cent of fire services cite this as a major priority in the next two years. There are a number of approaches used to address it. Educating the public and stakeholders on the tradeoffs between service cost and risk is one component. Using analytics and

> "It's going to be difficult to provide a service that the customers demand, at a price they're willing to pay."
>
> **Chief Brian Stauth, Medicine Hat**

benchmarking to reassure stakeholders that the service is efficient and in line with similar communities is another. But it seems this is an issue that is not likely to reverse in the near term.

Other priorities cited by more than two services are:

- Addressing the **mental health** of staff – particularly PTSD
- Engaging the **union** to find solutions to financial sustainability, workplace safety, prevention, and other issues
- Addressing the friction between **medical response** and EMS service and for combined services dealing with multiple paymasters (municipalities and health ministries).
- creating a more **diverse and inclusive** workforce that better reflects the customers it serves
- adding the appropriate **capacity (vehicles and staff)** to the system to meet performance goals or to address specialized call types (for example hazmat or technical rescue)
- developing **succession plans** for not just the senior leadership, but further down into the organization
- managing the interface between **volunteers** and career staff and in some cases transitioning to a full career service
- Ensuring the **health and safety** of staff through training, proactive health monitoring, and improved personal protective equipment

"Our workforce needs to more closely resemble the communities that we serve. In the past, diversity wasn't a consideration."

Chief Steve Dongworth, Calgary

Long-term issues

When asked what advice they would give to their successor in terms of a major trend to be aware of, almost 70 percent cited financial sustainability. The growing cost of equipment and personnel along with the long-term decline in structure fires per capita, are trends that are unlikely to change. Both of these will have a profound impact on how a fire service of the future operates. Many respondents spoke of *reinventing* the fire service and *reimagining* their business.

Closely linked to this is the relationship between fire and Emergency Medical Services. EMS calls are growing at a much faster rate than fire, and this trend is likely to continue. This means that medical first response will become a larger part of the fire services business, and for combined services, EMS staff will grow proportionally faster than Fire staff. In some communities, this is already causing friction. There are different unions, different cultures, and different paymasters. Navigating these conflicts will continue to be a challenge.

"Ten years out, a chief will have to look closely at the service delivery in its entirety. How do they retool themselves to survive?"

Chief Tim Beckett, Mississauga

Conclusions

The survey results illuminate three major trends, or waves. First, over the last decade there has been a move toward both **financial and performance accountability**. No longer are services just collecting data, but they are expected to use the data to monitor performance and justify expenditures. Fire services are in different phases of this process, but it was almost universally mentioned as impacting business.

The second wave is the move toward **prevention and public education**. As one chief put it, “we can’t just sit around waiting for fires anymore.” This has staffing and training implications, but it also impacts culture. It is a major cultural change to move from reactive to proactive. A new recruit may find that over 80% of his time is spent interacting with the community through inspections and education as opposed to fighting fires. Transitioning the culture so that it excels at these customer-facing activities is a challenge that many services are facing.

> “It's easy to stay in the station. It's useful to be in the public eye.”
>
> **Chief Tim Beckett, Mississauga**

The third wave is an even greater transformation; it is a **re-evaluation of the fire services’ role**. Successful prevention, education, and changes in building codes will continue to reduce the rate of structure fires and the associated workload on the service. In many services, medical calls make up the bulk of responses already. Over the next decade, this will have a profound effect on how the public views the fire service and how the fire service sees itself.

Many services recognize this trend and are already driving the conversation with stakeholders. They are asking the tough questions about how fire should fit within the public safety sphere, how emerging risks should be addressed, and how the service can adapt to most effectively serve the community.

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