



COMMITTEE REPORT

NO: P009

DATE: September 14, 2015

PUBLIC SAFETY COMMITTEE

TO: Mayor & Council

DATE: September 14, 2015

FROM: Fire Chief

FILE: 0540-20

SUBJECT: Smoke Alarm and Educational Campaign Update

RECOMMENDATION

The Fire Services Department recommends that Council receive this report as information.

INTENT

The purpose of this report is to advise Council of the update of a *HomeSafe* smoke alarm and educational campaign commenced on September 4, 2015, to reduce fire related injuries, deaths and property losses in the City of Surrey. It corresponds with *Fire Prevention Week* on October 5-11, and is intended to advance the *Smoke Alarm Movement* both in Surrey and in the province of British Columbia (BC).

BACKGROUND

A study conducted by the University of the Fraser Valley (UFV) in 2008 examining nearly 5,000 structure fires in Surrey over a 20-year period demonstrated that high-risk people, properties, and places have a greater fire risk than others. The study found that the risks of fatality in the event of a residential structure fire are unevenly distributed across BC society. It determined that risks are elevated for households with at least one young child, seniors, or person with a disability. In addition, rental units, households in low-income areas, and houses in rural and BC First Nations communities also experience elevated risk.

A companion study carried out in 2012 had confirmed these earlier findings and made three main points:

1. present, functioning smoke alarms save lives;
2. smoke alarm functionality deteriorates with time; and
3. targeted prevention and education efforts increase functioning smoke alarm coverage.

It estimated that the death rate per 1,000 fires in the absence of a present, functioning smoke alarm was 74 per cent greater than when a functioning smoke alarm was present. The 2012 report was intended to challenge the communities of BC to work collaboratively to ensure there is a present, functioning smoke alarm in every home in the province. Building on these three main points and in response to this challenge, the *BC Smoke Alarm Movement* was launched in October 2012 by the then Justice Minister and Attorney General of BC, the Honourable Shirley Bond and Minister of Children and Family Development, the Honourable Stephanie Cadieux.

Since 2012, more than 41,000 smoke alarms have been distributed and installed across BC, approximately 20,000 of which have been provided to BC First Nations communities. Momentum has gathered to include commitments from many agencies across the province including fire, police, ambulance services, municipal and provincial governments, as well as non-government agencies. To ensure long-term and sustainable change, the government commitment that has been displayed so far must be nurtured and expanded, and Surrey Fire Service continues to take a leadership role in this respect in Surrey and throughout the province of BC.

To this end, Surrey Fire Service continues to employ a data-driven, research-based approach to drive down residential fires in the city. The internationally-recognized *HomeSafe* program has involved on-duty firefighters going door-to-door in the city's highest fire risk neighbourhoods, distributing fire prevention information, checking for working smoke alarms and installing free smoke alarms as required. The *HomeSafe* program continues to evolve as a risk surveillance system and by leveraging data analytics residential properties with a heightened risk of fire can be treated with optimal fire prevention resources. Surrey Fire Service has enlisted the support of Surrey Crime Prevention volunteers in distributing educational material to the public, and conveying the message to residents about the power of working smoke alarms. Their efforts commence on September 14, 2015, and the plan of action is outlined in this report.

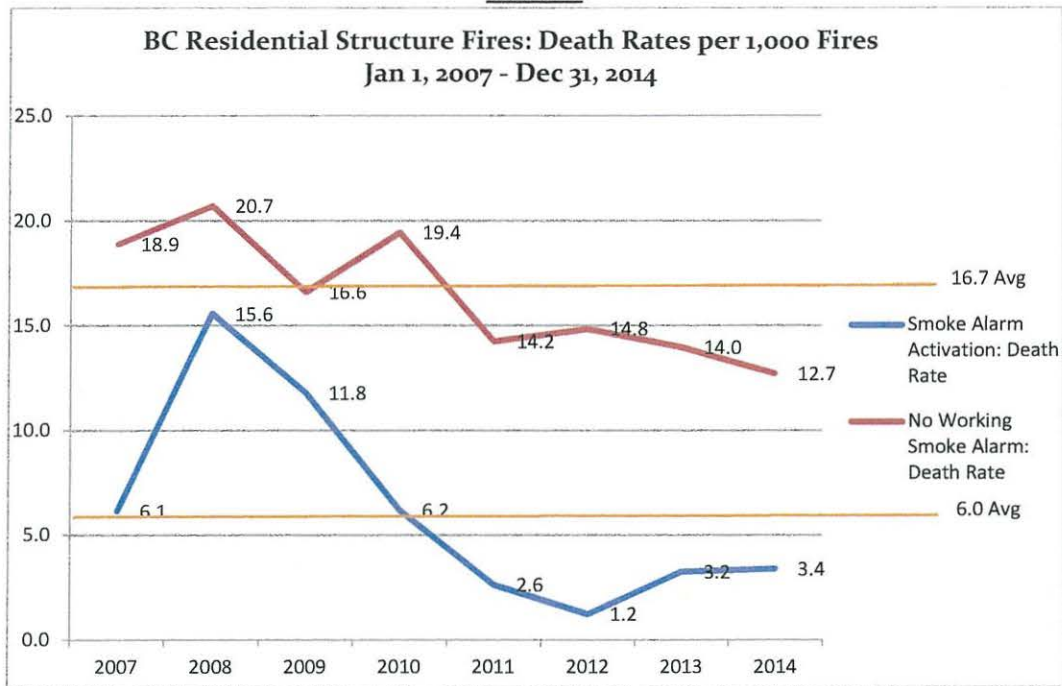
Research and Best Practices

A UFV study prepared in September 2015 had confirmed earlier research findings about the importance of smoke alarms in saving lives. It re-emphasized the need for targeted prevention and educational campaigns triaging out the most vulnerable residential properties for treatment and monitoring outcomes. The study determined that for all residential structure fires in BC between 2007 and 2014 the death rate was 16.7 per 1,000 fires in the absence of a working smoke alarm and 6.0 in the presence of a working smoke alarm: a difference of 177 per cent. With respect to residential structure fires and the Smoke Alarm Movement that commenced in 2012, comparing the time period between 2007-11 with the time period between 2012-14:

- Deaths per 100,000 citizens declined by 65 per cent;
- Deaths per 1,000 fires declined by 37 per cent;
- Present, functioning smoke alarms per 1,000 fires increased by 26 per cent; and
- Fires without any smoke alarms decreased by 17 per cent.

In order to continue to ensure the safety of all Surrey residential properties and households, Surrey Fire Service continues to conduct research with the intent of developing treatment strategies and evaluating outcomes and determining their successes. The evidence so far is compelling. In analyzing residential structure fires and death rates per 1,000 fires in BC from 2007 to 2014, the data reveals a steady decrease in fire-related deaths for the province. Over the past several years, BC Fire Departments have implemented an aggressive smoke alarm movement across the province. While there is room for improvement, research shows that in terms of residential structure fires the rates of smoke alarm activations have increased year-over-year. Chart 1 examines the death rates at residential properties in BC where smoke alarm activation was present, or absent, and tells a remarkable story.

Chart 1:



The chart reveals that the death rate when smoke alarms were activated at residential structure fires in BC is considerably less than the death rate in the absence of a working smoke alarm, attesting to the power of smoke alarms. Overall, the death rate between 2007 and 2014 was 6.0 for functioning smoke alarm and 16.7 in the absence of a working smoke alarm. Chart 2 shows total deaths at residential structure fires in BC, and the continued year-over-year decline. From 2008 to 2014, there have been 27 fewer deaths in the province.

Chart 2:

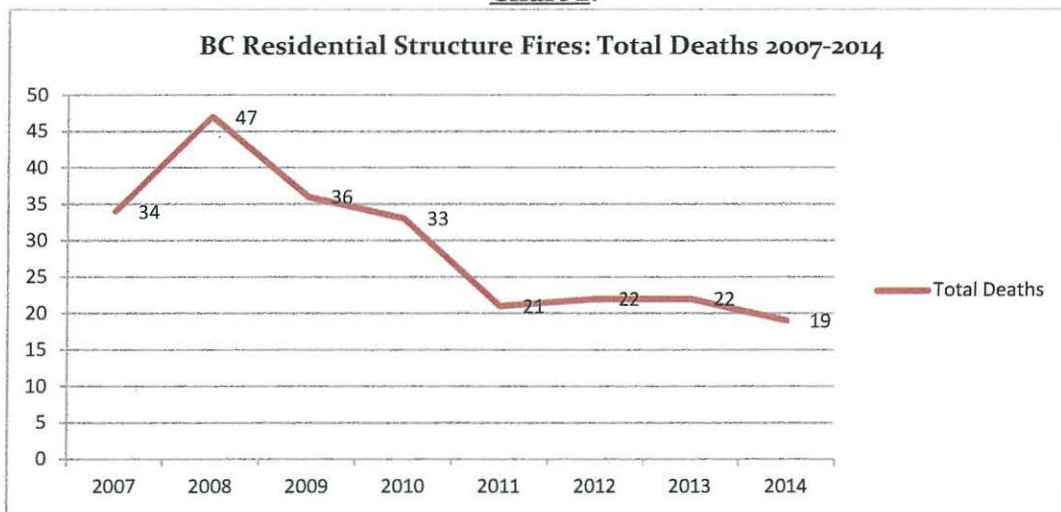


Chart 3 reveals the continued growth of smoke alarm activations in the City of Surrey from 2007 to 2014 which has been prompted, to a large extent, by public awareness gained through the *HomeSafe* program and increased installations and testing of smoke alarms in residential dwellings. There has been a 29 per cent increase in residential smoke alarm activations in Surrey from 2007 to 2014.

Chart 3:

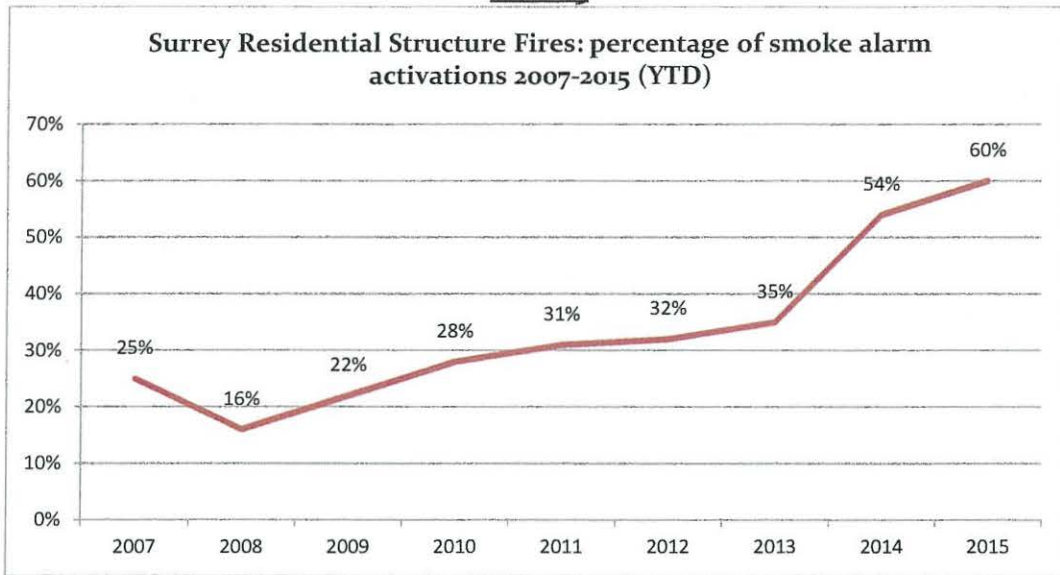
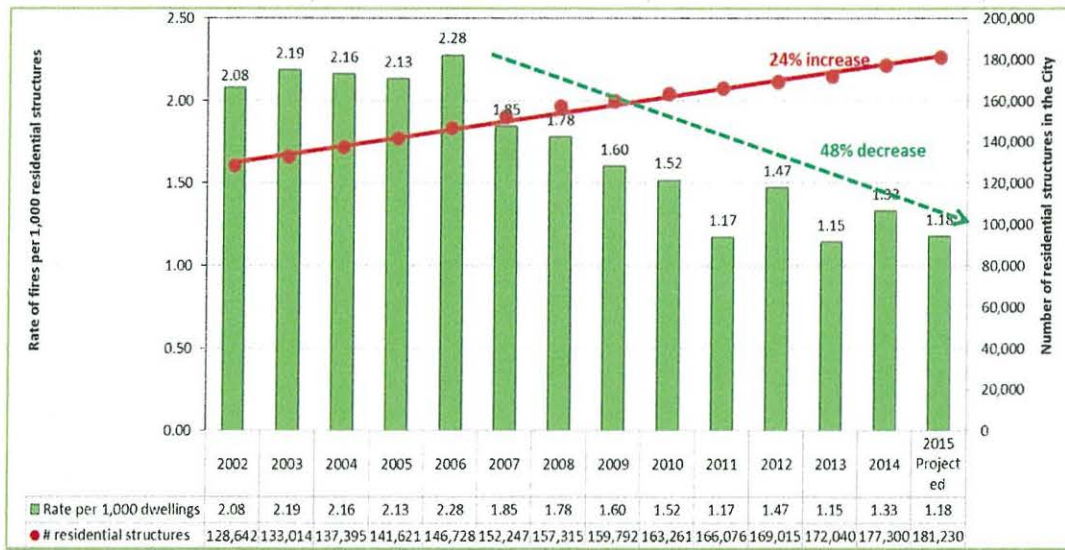


Chart 4:

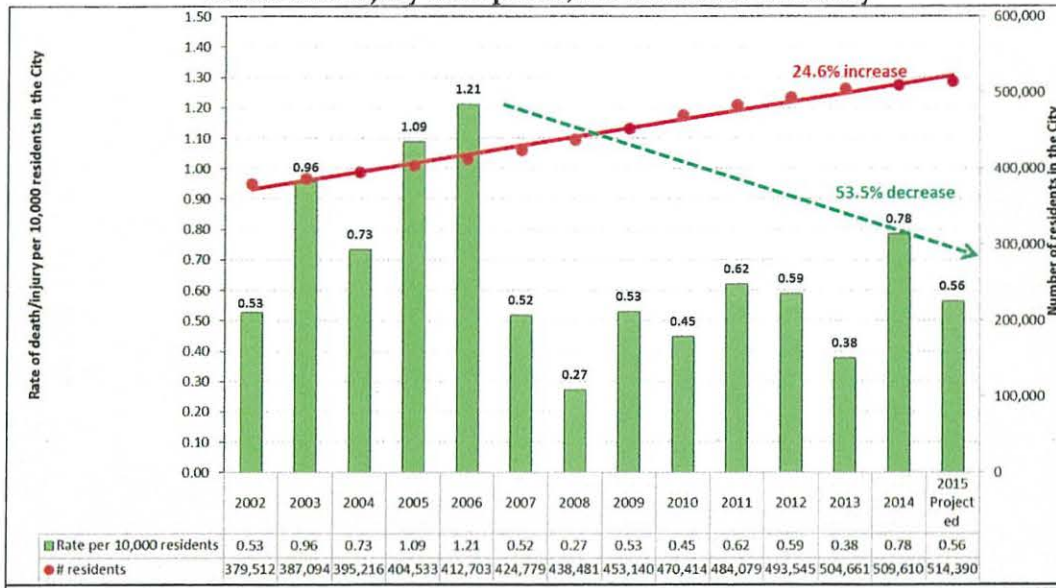
**City of Surrey Fire Incident Reporting for years 2002-2015 (Projected):
Rate of Fire per 1,000 Residential Structures**



An examination of fire incident reporting in Surrey reveals a 48 per cent decrease in the rate of residential structure fires per 1,000 dwellings from 2006 to 2015 (projected), and a 24 per cent increase in the number of residential structures from 2002 to 2015. Chart 6 shows the death and injury rate per 10,000 residents in Surrey. An examination this data reveals a 53.5 per cent decrease in the death and injury rate per 10,000 residents from 2006 to 2015 (projected), and a 24.6 per cent increase in the number of residents from 2002 to 2015. These are important findings when considering the rapid growth of the city and housing starts. Surrey's population has grown significantly between 2004 and 2014. During these 10 years, the city's population has increased by over 100,000 residents (Estimates are based on a combination of Surrey's building permit data and BC Assessment information). Surrey's population is projected to increase by over 300,000 people in the next three decades. Based on current projections, Surrey will have a population

approaching 1 in 4 residents of Metro Vancouver around the year 2046. It is imperative, therefore, to keep the *HomeSafe* program and the *BC Smoke Alarm Movement* in motion well into the foreseeable future in order to ensure the ongoing safety of all residents in Surrey. This is particularly important as seniors (65 years and over) in BC are at an elevated risk at 28 per cent deaths compared to 15 per cent of population.

Chart 5:
Death and Injury Rate per 10,000 Residents in Surrey



From Knowledge to Action

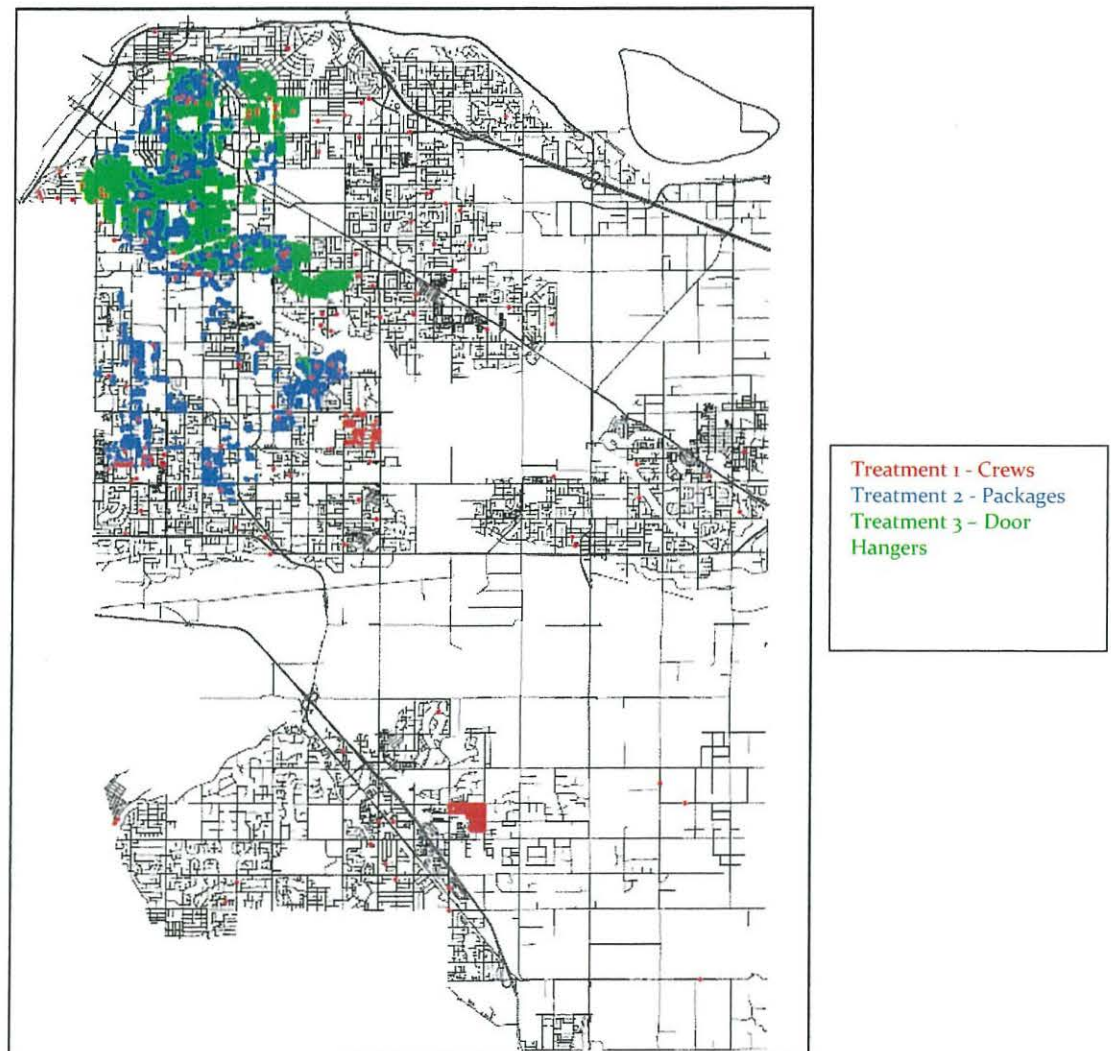
Through the identification of heightened fire rates at residential properties within Surrey and the presence of new census tracts, we were able to isolate dwellings that require special attention. A multi-faceted treatment strategy has commenced, and will see Surrey firefighters, including Surrey’s Crime Prevention volunteers, provide fire prevention material to the public at residences that warrant special attention. The plan of action has three corresponding tiers, and will be launched simultaneously with outcomes evaluated post-deployment.

- **Treatment 1A:** Firefighters will visit 570 newly-identified residential properties in hall areas 9, 11 and 17 (labeled as “Cohort 14”). These contain a high-risk population that have not yet been visited.
- **Treatment 1B:** Surrey firefighters will provide owners/occupiers of residential properties that have had a fire with specific fire prevention information, as well as coaching opportunities on the benefits of functioning smoke alarms (n=172). Firefighters will refer to the previous fire incident and absence of a functioning smoke alarm, and offer to either install one or test the existing alarm. Crews will reinforce the message that the chances of surviving a house fire is increased by 74 per cent with a working smoke alarm.
- **Treatment 2:** Cohort addresses by hall areas which saw statistically-significant increases in the rate of fire were identified. These are Cohort 13, hall areas 1, 2 and 10 and each pose unique fire risks and require a tailored message and educational material. These

residential properties will be visited by Surrey Crime Prevention volunteers who will engage owners/occupants with fire prevention information and reinforce the benefits of a working smoke alarm (n=4,929). Packages containing specific fire safety information will be provided to the residents of these identified properties. Individual treatment areas will require unique messaging and pamphlets appropriate to addressing the prevalent fire risk (i.e., hall 10 experienced 50 per cent of fires from cooking).

- **Treatment 3:** This strategy involves the placement of door hangers at residential properties, an effective method of conveying fire safety information to the public. Spatial clustering and outlier analysis was used to determine which residential properties in Surrey to leave door hangers as an educational reference (n=8,740). Door hangers will remind residents to install, test, and replace alarms older than ten years of age. Door hangers include Surrey Fire Prevention contact details and direct residents to a website to book a free alarm installation. www.surrey.ca/freesmokealarm or they can call (604) 543-6780.

The map below shows the areas to be treated:



As of August 31, 2015 Surrey Fire Service have met with 1,909 individual households in food bank line-ups and 10,239 within tax line-ups. By the end of September 2015, over 14,411 will have been visited by firefighters and Surrey's Crime Prevention volunteers with a tailored message about fire prevention, emphasizing the fact that working smoke alarms save lives. This constitutes 13 per cent of all residential properties listed in the 2015 Surrey building inventory (N=111,495), focusing on residential properties experiencing a heightened risk of fire. Astoundingly there will be 28,900 points of contact made in 2015.

Evaluation of Outcomes

Immediately after the September smoke alarm and educational campaign, Surrey Fire Service will review the outcomes of each treatment using statistical analysis and mapping technologies to determine whether the program had successfully addressed fire risk in these designated areas. Surrey Fire Service has developed a business intelligence system that effectively tracks treatment successes, and measures pre and post-treatment outcomes. The *HomeSafe* dashboard provides at-a-glance identification and monitoring of at-risk residential properties and allows for in-depth analytics. The dashboard application is being continually enhanced to take into account population growth, demographic shifts and housing starts in the city to ensure that fire prevention services are delivered to households experiencing a heightened risk of fire.

CONCLUSION

Research undertaken at UFV in partnership with Surrey Fire Service confirms that present, functioning smoke alarms have been demonstrated to save lives, reduce fire-related injury, reduce the spread of fires, and reduce the damage of fires. It demonstrates that high-risk people, places and properties are vulnerable to fire risk, and require specialized programming to address fire risk within the city. Surrey Fire Service will continue to identify, treat and monitor these residential properties to ensure the safety of all residents.



Len Garis
Fire Chief

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