

DRAFT FINAL REPORT

National FireSmart Survey

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Executive Summary

FireSmart Canada in conjunction with the University of Saskatchewan developed a national survey administered in French and English to assess the public's awareness of FireSmart, the degree to which they engage in FireSmart activities, and support for strategies to increase in engagement.

The Internet survey was launched June 12th, 2017 in French and English and remained active until the end of Labour Day (Sept 4th). Survey invitations were distributed through Probit, a Canadian survey company specializing in panel data, and via provincial, territorial and national fire agency media (websites, Twitter and Facebook).

Survey invitations were viewed by 62,867 individuals, 3,180 people began the survey, and 2,435 completed the survey for an overall completion rate of 5.1%. The Probit panel resulted in 1,411 completed surveys, while 1,024 were collected through direct posting of the survey link through various fire and government agencies. Data were collected from all provinces, the Northwest Territories and the Yukon. Although the survey was distributed nationally, there were no respondents from Nunavut. In general, survey respondents fell into the following categories:

- 54.1% (n=1,302) male and 45.1% (n=1,093) female,
- 62% (n=1,494)- 45 years and older,
- 90.3% (n=2,173) - Canadian, non-Aboriginal,
- 5.9% (n=143) - Aboriginal,
- 85.4% (n=2,036) - respondents answering as individuals:
 - 52% (n=1,312) - urban residents,
 - 30% (n=744) -rural,
 - 68% (n=1,644) - homeowners,
 - 17% (n=412) - renters,
- 14.5% (n=349) - respondents answering as organizations,
- 49.3% (n=1,184)- believe that their property/community is currently at risk from wildfire,
 - 4.4% (n=104) – experienced damage from wildfire,
 - 13% (n=305) – have been threatened by wildfire.

In determining awareness of and engagement in FireSmart activities survey results show:

- 77% (n=1,844) - Respondents reporting that they had never heard of FireSmart
 - 17% (n=407) – familiar with FireSmart,
 - 6% (n=144) – very familiar with FireSmart (have engaged in FireSmart activities).

Of the 23% who were familiar with FireSmart, they reporting having learned of FireSmart through one or more of the following media:

- Provincial fire agencies – 45.3% (n=234),
- Social media – 26.9% (n=139),
- The FireSmart website – 23.8% (n=123),

- Fire professionals – 23.2% (n=120),
- Print media – 21.9% (n=113),
- Television – 15.9% (n=82),
- All other media ranked at less than 15% (n=381).

Important to note is that only 2.5% (n=13) of respondents reported hearing about FireSmart through insurance agents.

Engagement in FireSmart activities was categorized as individual and organization.

Individual engagement:

- 45.1% (n=412) - individuals that have engaged in FireSmart activities,
- 54.9% (n=501) - individuals that have not engaged in FireSmart activities,
- Top three activities engaged in:
 - Regular cleaning of roof, eaves and gutters – 66.5% (n=274),
 - Regularly removed fuels – 63.6% (n=262),
 - Thinned forest vegetation – 54.1% (n=223),
- Top two reasons for *not* engaging in FireSmart:
 - Do not know what action to take – 52.6% (n=250),
 - Inadequate financial resources – 34.5% (n=164).

Organizational engagement:

- 35% - organizations that have engaged in FireSmart activities (n=121),
- 65% - organizations that have not engaged in FireSmart activities (n=225),
- Top three activities engaged in:
 - Conducted fuel removal, reduction and fuel conversion – 51.7% (n=60),
 - Ensured an adequate water supply – 49.1% (n=57),
 - Reduced surrounding forest density – 37.9% (n=44),
- Top two reasons for *not* engaging in FireSmart:
 - Inadequate financial resources – 41.4% (n=53),
 - Taking action is not my organization's responsibility – 27.9% (n=36).

Respondents were asked the degree to which they would support various actions that would encourage engagement in FireSmart activities. Responses indicated that actions that are positive and not punitive would be preferred, which was true for both organizations and individuals.

- Most preferred – reduction in insurance premiums,
- Least preferred – refusal of insurance.

Primary responsibility for mitigating the effects of wildfire is believed to be the:

- Homeowners' responsibility for private property - 45.6% (n=1,084),

- Local government's responsibility for community protection - 33.8% (n=785).

When examined separately, individuals were divided with the majority of the responsibility resting collectively with communities, local and provincial governments (48%) and second with homeowners (42%). Alternatively, 68.5% of organizations identified homeowners to be primarily responsible for private property protection, versus 21% collectively shared by the community and provincial government.

The majority of suggestions about how to improve awareness of FireSmart and engagement in activities focused on more education and information availability, more communication and collaboration among all parties (individuals, communities, fire agencies and all levels of other government services).

Further analysis of results revealed that the odds of engaging in FireSmart activities were higher for individuals that:

- Live in a rural setting
- Perceive wildfire to be a threat,
- Have experienced damage,
- Are female,
- Are between 55 and 64 years of age,
- Are rural property owners,
- Are familiar with FireSmart,
- Have graduated from university/trade school/college,
- Have a graduate degree, and
- Live in a western province (BC, AB, SK, and MB).

Similarly, results revealed that the odds of engaging in FireSmart activities were higher for organizations including:

- Members of a fire agency,
- Municipal government
- Associations,
- Those who perceive risk from wildland fire,
- Males,
- Respondents younger than 55 years, and
- Respondents having graduated from university, college, or trade school.

Finally, the odds of having heard of FireSmart increase for:

- Wildland firefighters,
- Those working for the:
 - forest industry,
 - government,
 - land-use planning,

- landscaping,
- Those who get information from:
 - a provincial agency,
 - the FireSmart website,
 - the FireSmart community recognition program,
 - fire professionals, and
 - word of mouth, government, or at work.

While most respondents reported FireSmart to appear to be a valuable program, the vast majority had not heard of it. Recommendations to improve FireSmart awareness and engagement would entail focusing first on increasing awareness through the widespread implementation of educational programs and advertising campaigns targeted at rural communities where there is a perceived risk of wildfire. It would be unlikely that those who do not believe they are at risk or that FireSmart could help would adopt strategies and engage in actions to reduce their exposure.

Regarding program adoption, the most cited barrier individuals faced was not knowing what to do. Educational campaigns and targeted advertising that focused on the risk of wildfire, and engaging in the least costly activities would likely yield higher engagement.

Organizations most often reported lack of funding as a primary barrier. Collaborative efforts among agencies to increase awareness and showcase long-term cost savings could be used to increase financial resources.

As reported by respondents, the insurance industry was the least likely stakeholder to provide information on FireSmart, yet the most preferred regarding increased engagement. There is an opportunity to use insurance providers to deliver the FireSmart message, even if premiums cannot yet be tied to FireSmart activities.

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Overview

The Wildland Urban Interface (WUI) is named to describe where urban landscapes meet with environments that are prone to wildfire. FireSmart Canada helps individuals and communities to manage fire on the landscape and to collectively reduce the risk of loss and damage to property and communities. Home protection ranges from simple actions such as regular yard maintenance to more costly and involved renovations, landscaping, and retrofitting. Additionally, FireSmart works with communities to promote vegetation management, structural modification, and to ensure the availability of appropriate infrastructure and access.

The program, modeled after FireWise in the United States, has been available in Canada since 1999. Because the WUI is expanding and values at risk are growing, it is imperative to increase the public's engagement in the program. The objectives of this research were to use an online survey to assess:

- (1) The public's perception of wildland fire risk,
- (2) The Canadian public's awareness of FireSmart,
 - a. Engagement in FireSmart activities (individual and community),
 - b. Reasons for not engaging in FireSmart activities (individual and community), and
- (3) The degree of support for methods to increase FireSmart awareness/engagement.

The survey and questions were developed to inform each of the objectives. Methodology, outcomes, and analysis are presented in the next sections beginning with the survey approach and methodology.

Methodology

To assess the public's perception of fire risk to themselves and their communities, awareness of FireSmart Canada, and its use and perceived effectiveness, we used an online survey, administered in French and English. The University of Saskatchewan, FireSmart Canada, CIFFC, and members of the Wildfire Prevention Working Group worked collaboratively to develop the survey questions in both languages. Additionally, the survey was pretested among group members and revised accordingly. All survey materials were reviewed and approved by the University of Saskatchewan Behavioural Ethics Research Board (BEH #17-163).

The survey was structured to capture responses by individuals, or respondents representing organizations, including communities, wild and structural fire organizations, and government for example. Depending on each respondent's perspective, they would then get a series of questions representing FireSmart activities recommended for individuals (modifications to private property) or activities commonly carried out by organizations at the community level.

We used ZEF (Z-scored Electronic Feedback) survey software, which was developed specifically to collect and analyze electronic data. The results of the survey were analyzed using z-scoring where data are

normalized using a mean of zero and a standard deviation of one. The standardized or normalized values provide a means of comparing the results without opinion distortion. This type of question was used only for opinions on how to enhance wildfire prevention activity.

Data collection

Survey data were collected via two sources simultaneously. Panel data were collected by Probit, a Canadian survey research company; and by provincial and federal agencies using social media. Probit panellists were emailed a request and unique link to complete the survey. Probit panellists were also sent one reminder email if they had not completed the survey in the allotted time. The target panel was approximately 1,500 respondents reflective of the Canadian public.

Unique survey links were developed for each fire management agency to test and compare public engagement in each region. The survey was launched on June 12th, 2017 and remained active until the end of Labour Day, September 4th, 2017. French and English versions of the survey are included in Appendices A and B.

Results

Demographic

Respondents were invited to take the survey through fire agency websites and outreach as well as by direct invitation by Probit. Overall, 62,848 individuals opened the survey link. Of those individuals, 3,159 people began the survey, and 2,427 completed the survey for an overall response rate of 3.9%.

Survey respondents were 54.1% male (n=1,302) and 45.1% female (n=1,039) meaning that males are slightly overrepresented in this sample. Statistics Canada (2017b) reports slightly over half the Canadian population to be female (50.4%).

The majority of respondents identified as Canadian Non-Aboriginal (90.3%, n=2,173). The Aboriginal Canadian respondents represented 5.9% (n=143) of the total. This result is also reflective of the Canadian population. Statistics Canada (2011) reports that the Aboriginal population in Canada was 4.3% and expected to grow. Fifty-eight people chose not to declare (2.4%).

The survey asked respondents to provide the first three characters of their postal code. Results were mapped by Natural Resources Canada to show the distribution across Canada (Fig. 1).

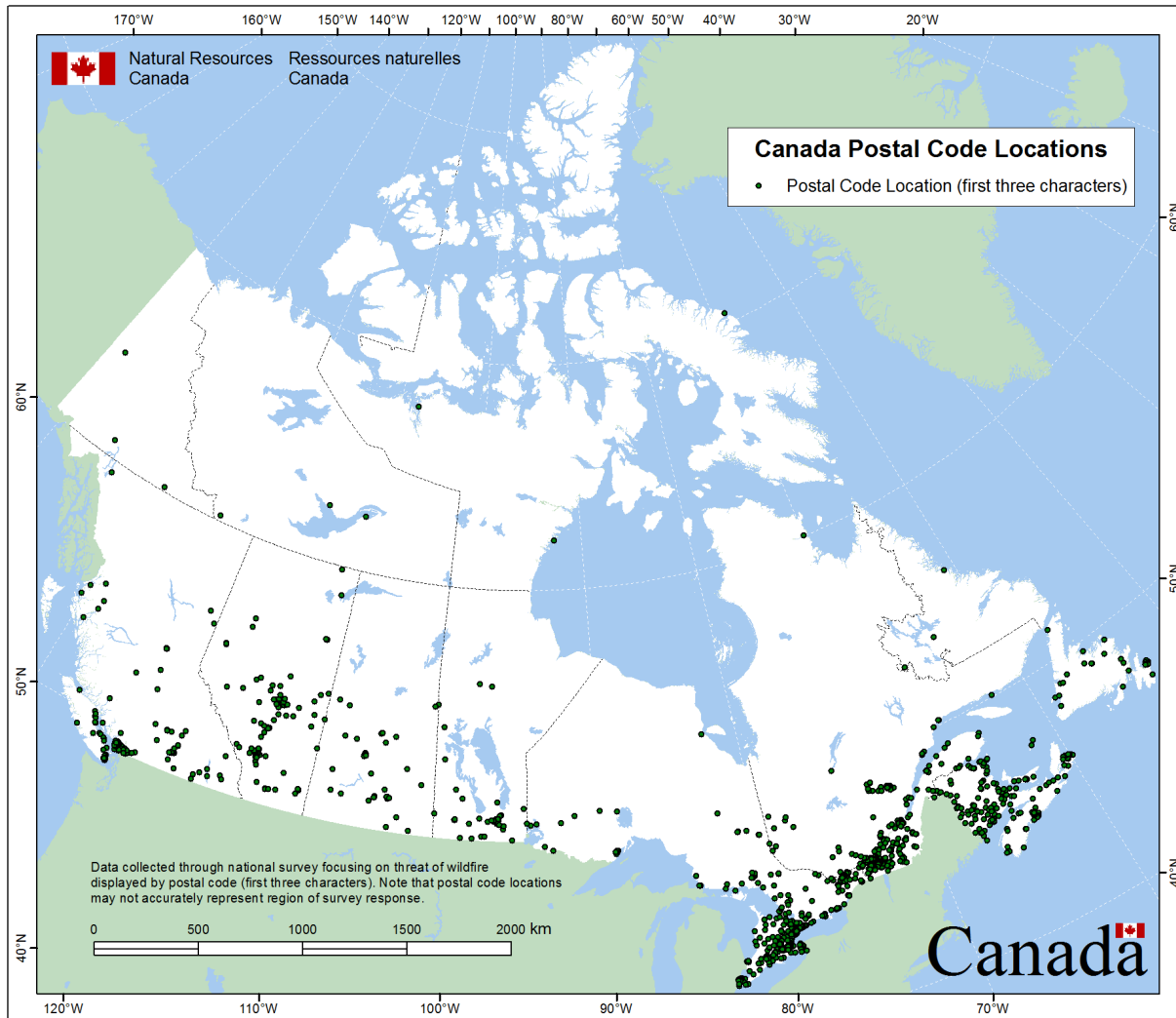


Figure 1: Distribution of survey respondents based on postal code (first three characters)

The greatest number of responses was from Quebec and Ontario (Table 1). Compared to the Canadian population, our sample under-represents Ontario by 14.7%. The greatest anomaly is Nova Scotia with the third highest number ($n=364$) and percentage of responses at 15.1% of the sample, and only 2.6% of the Canadian population. The reason for the higher response in Nova Scotia is likely indicative of fire managers' efforts to ensure the population participated in this research. Note that the map in Figure 1 indicates three respondents from Nunavut as given the postal codes, yet none have listed their province of residence as Nunavut.

Table 1: Population distribution

Province	Survey sample		Canada)	
	#	%	# ('000s)	%
Alberta	194	8.1	4286.1	11.7
British Columbia	259	10.8	4817.2	13.1
Manitoba	80	3.3	1338.1	3.6
New Brunswick	163	6.8	759.7	2.1
Newfoundland and Labrador	68	2.8	528.8	1.4
Northwest Territories	5	0.2	44.5	0.1
Nova Scotia	364	15.1	953.9	2.6
Nunavut	0	0.0	38	0.1
Ontario	578	24.0	14193.4	38.7
Prince Edward Island	10	0.4	152	0.4
Quebec	603	25.0	8,364	22.8
Saskatchewan	71	2.9	1163.9	3.2
Yukon	14	0.6	38.5	0.1
Total	2409	100	36708	99.9

Respondents 18 years and older were invited to participate in the survey and asked to identify their age by category (Fig. 2). The greatest number of respondents reported their age to fall between 45-54 years at 25.2% (n=608).

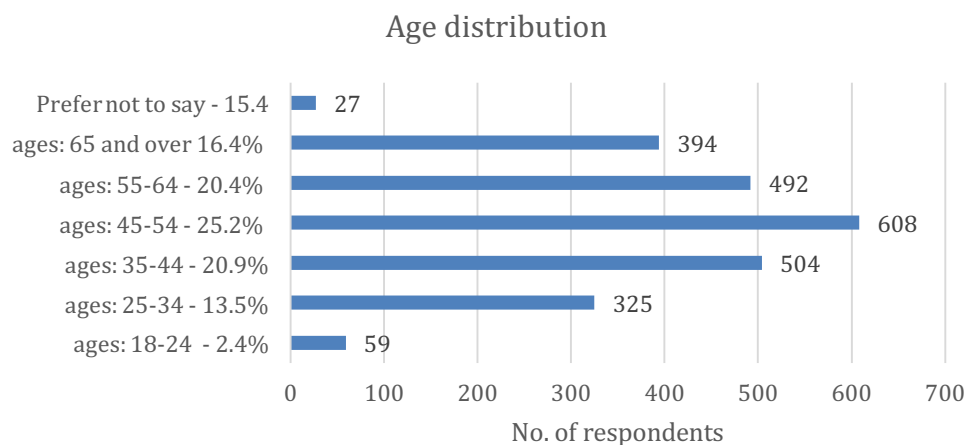


Figure 2: Age distribution

Respondents provided employment information, with most (40.1%) selecting “other,” and specifying the industry. The results for “other” were categorized as the private sector (46.2%), retired (30.4%), and the public sector (23.4%). Industries potentially affected by fire are listed in Fig. 3.

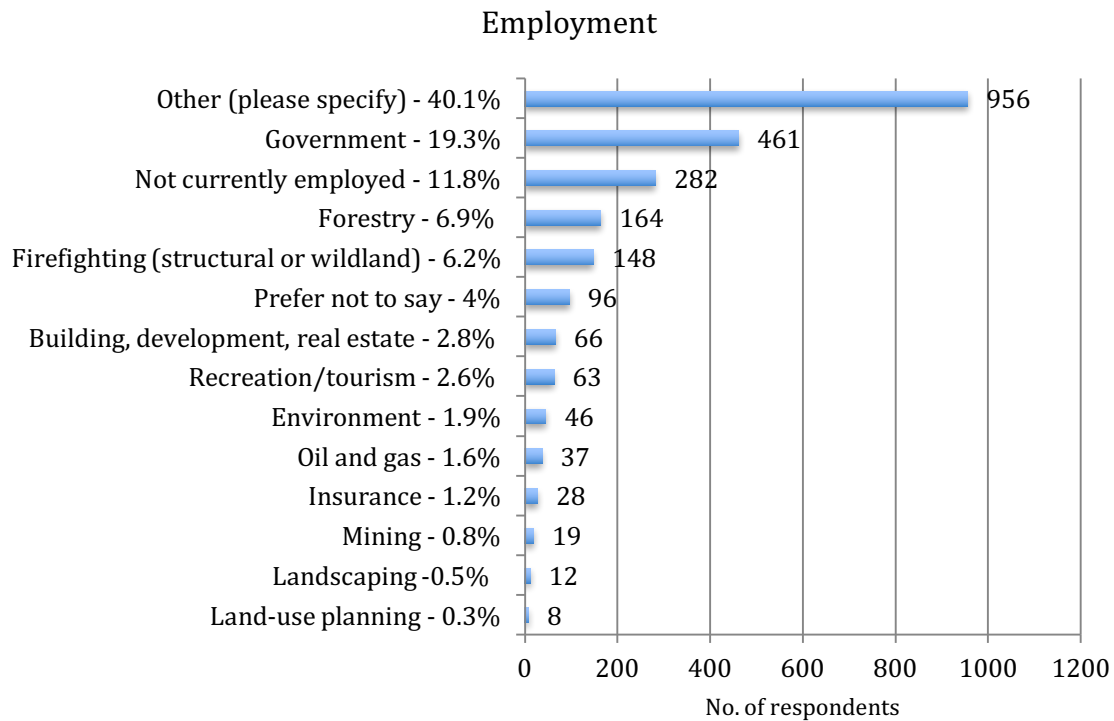


Figure 3: Employment by sector

Respondents also provided education levels with the majority (45.8%) reporting having completed college, university, or trade school (Fig. 4). The second highest education category included respondents with graduate degrees at 24.4%, which is higher than the population average, but not unsurprising given that online surveys tend to attract more highly-educated respondents (Szolnoki and Hoffmann 2013).

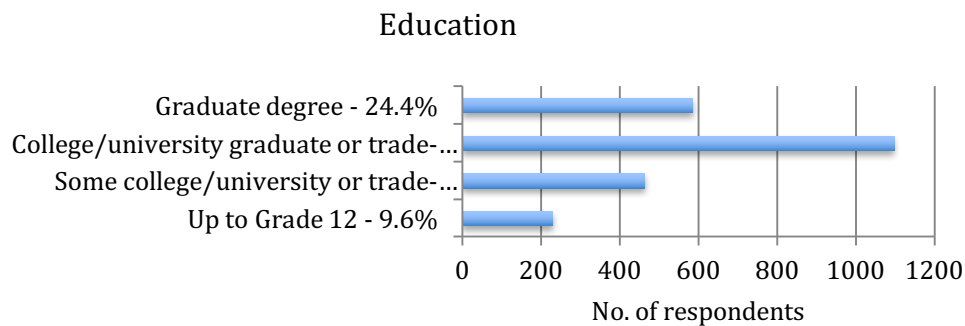


Figure 4: Educational distribution

Respondents were asked to identify their income by category (Fig. 5). The top two income ranges fell between \$40,000 and \$80,000 making up 35.5% of the total. Although survey responses were anonymous, 15.4% of people chose not select a category.

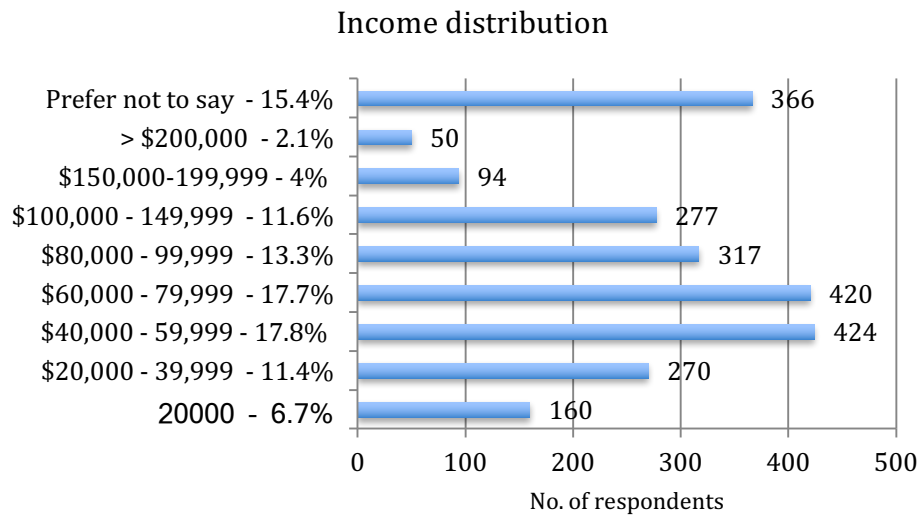


Figure 5: Income distribution by category

Summary statistics

We asked respondents to identify as an individual or as representing an organization (Fig. 6). If respondents self-identified as individuals, they were directed to questions aimed at individuals that assessed their perceptions of FireSmart activities and programs. Those responding as an organization were presented with FireSmart activities and programs for communities.

Those responding as other organizations selected local government (n=10), provincial government (n=36), and federal government (n=4). Other categories were volunteer fire department (n=8), police and military (n=2), and other (n=11).

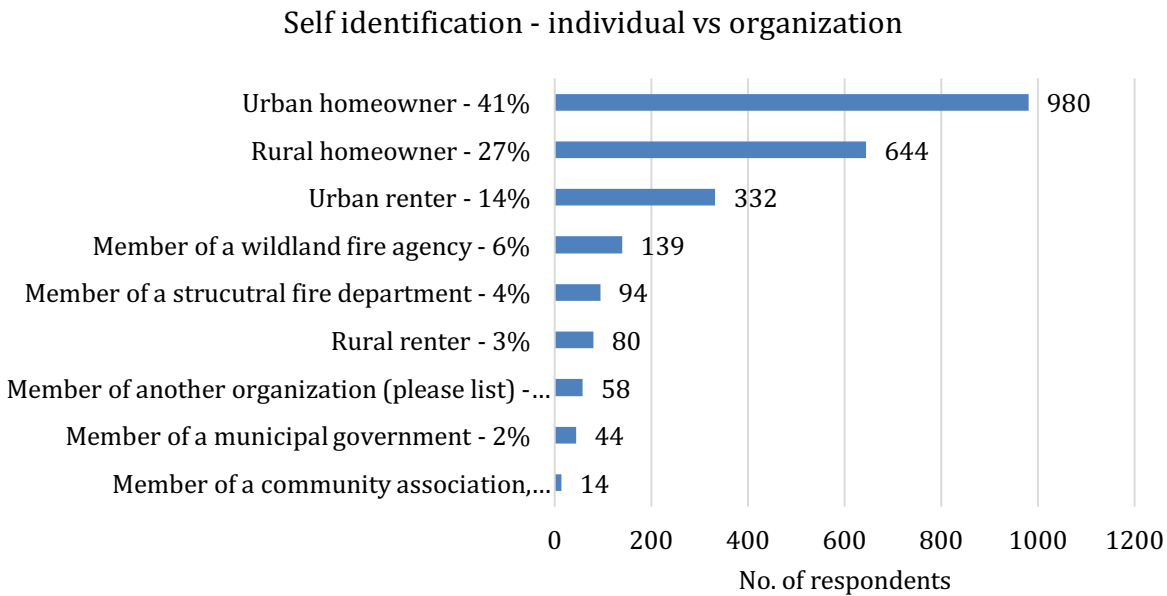


Figure 6: Survey respondent self-identification as individual vs. organization

Individuals were also asked to identify as rural or urban, and whether they owned or rented (Fig.7). The majority of respondents self-identified as urban homeowners (41.1%), whereas 27% self-identified as rural homeowners. Renters made up only 17.3% of the total number of respondents.

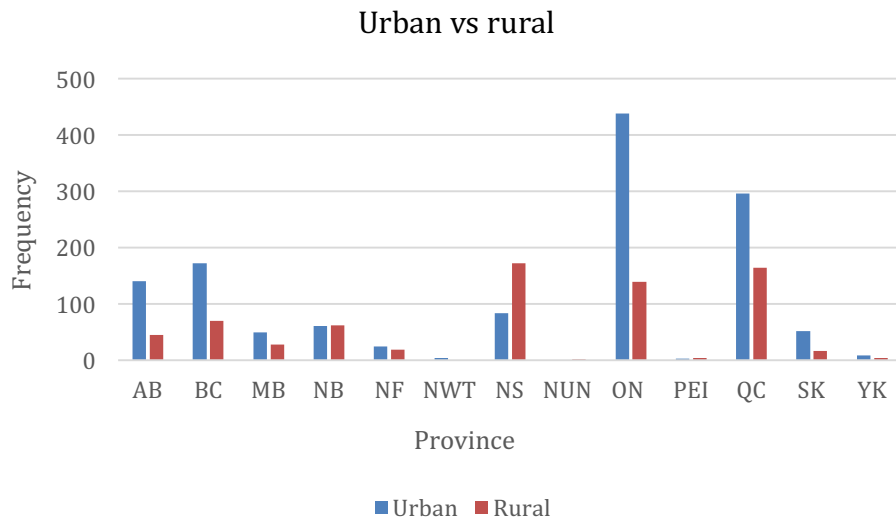


Figure 7: Rural and urban respondents by province

The second question assessed respondents' level of awareness of FireSmart Canada. The majority of respondents had never heard of FireSmart Canada (77%), which precluded them from answering questions about the effectiveness of the program. Respondents who were either familiar (17%) or very

familiar (6%) with the program and services made up 23% of the total. Table 2 provides familiarity by province.

Table 2: Familiarity with FireSmart by province			
Province	No. Respondents	No. familiar with FireSmart	%
AB	209	73	34.9
BC	272	104	38.2
MB	85	32	37.6
NB	171	43	25.1
NF	69	34	49.2
NT	5	4	80.0
NS	378	136	35.9
NU	2	1	50.0
ON	602	51	8.4
PEI	12	2	16.6
QC	626	80	12.7
SK	80	15	18.7
YK	15	14	93.3

Only those who had heard of FireSmart were asked to select all media by which they had heard of the program (Fig. 8).

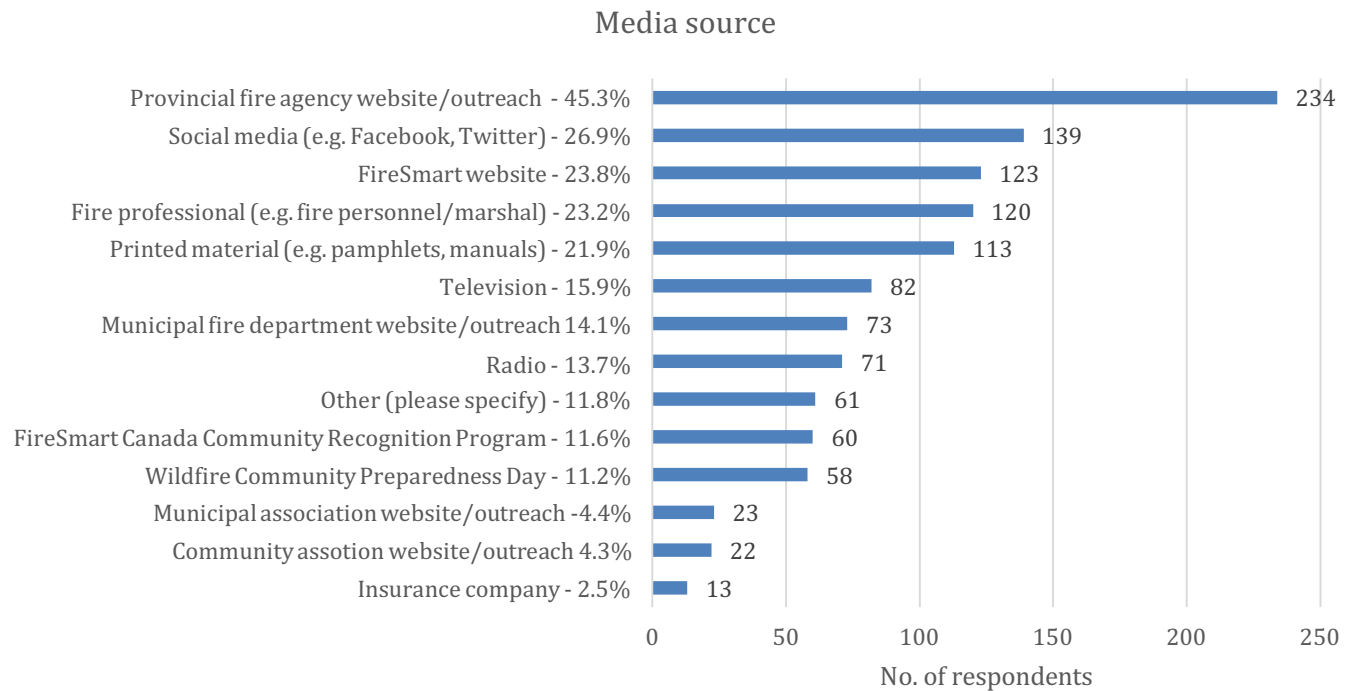


Figure 8: Awareness of FireSmart - media source

Respondents were asked to select all that applied.

- Provincial agency websites were the most frequently cited at 45.3%,
- Social media sources were second (26.9%),
- Third were the FireSmart website (23.8%), fire professionals (23.2%), and printed material (21.9%),
- Ranking in the 10-20% category were television (15.9%), municipal fire departments website/outreach (14.9%), radio (13.7%), FireSmart Community Recognition (11.6%), Wildfire Community Preparedness Day (11.2%) and other (11.8%).

If respondents selected “other,” they were asked to identify the source using a comment box. The majority of respondents selected:

- Work (30%),
- Government (17.9%), and
- Word of mouth/personal contacts (10.4%).

Other comments also listed choice items already presented such as social media (n=5), signs and print material (n=10), and the FireSmart website (n=6). The remainder were not sure where they had heard of FireSmart.

All respondents were asked whether they believed wildfire would be a threat to their community or personal property. Responses were relatively evenly divided:

- Yes 49.3% (n=1,184)
- No 50.7% (n=1,217)

Additionally, respondents were asked whether they had experienced damage from wildfire, or were threatened:

- 4.4% (n=104) – experienced damage from wildfire,
- 13% (n=305) – have been threatened by wildfire.

Natural Resources Canada used postal code information to map respondents' reports of both threats from wildfire (yellow dots) and actual damage from wildfire (red dots). The greater the number of reports, the larger the dots (Fig. 9).

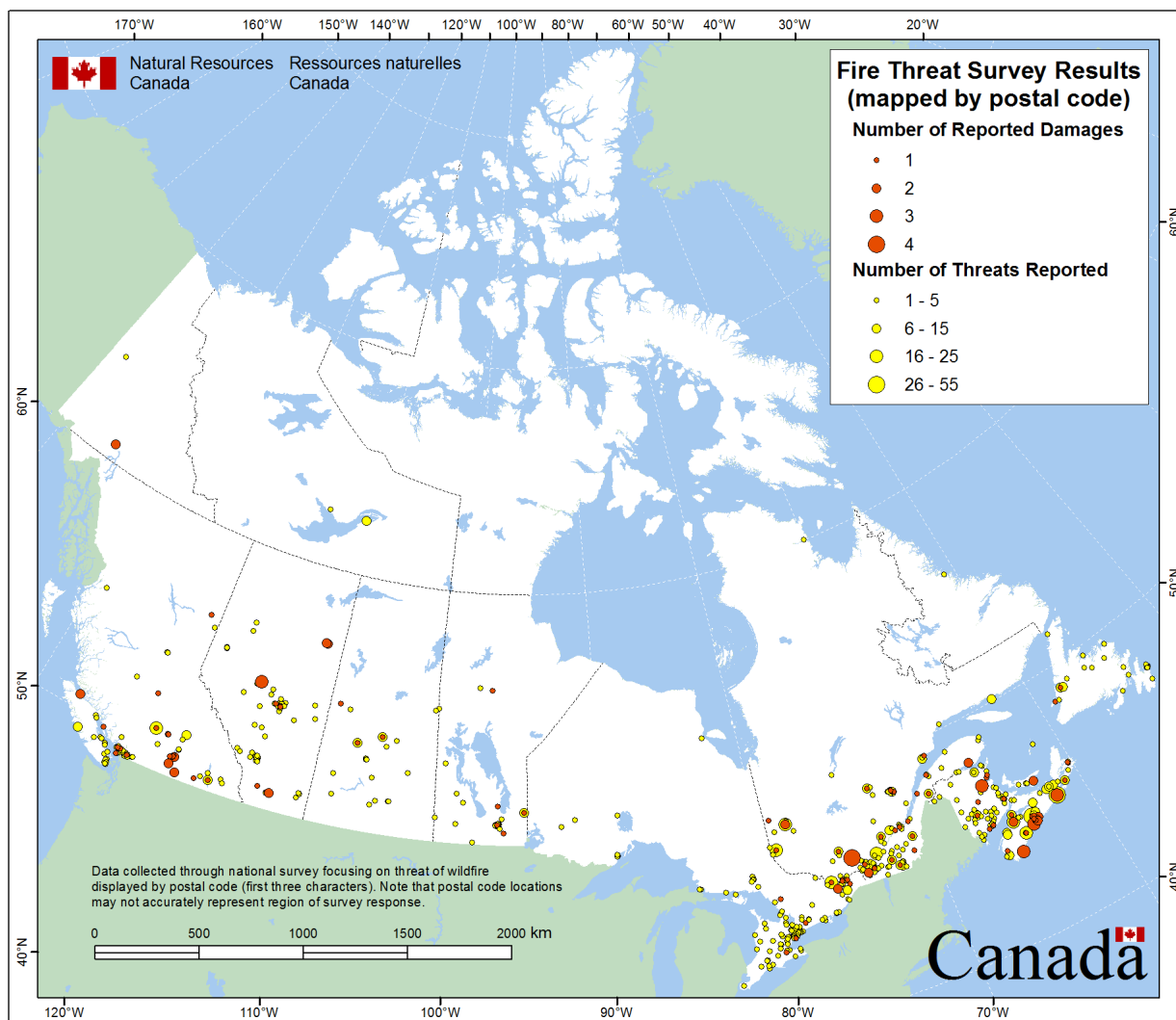


Figure 9: Threat and damage from wildland fire - respondent reports

Individual Responses

Because FireSmart recommends activities for both individual homeowners and community organizations, we evaluated engagement separately. Individuals were first asked whether they had conducted FireSmart activities on their properties. Their responses indicated that slightly more than half had not engaged in FireSmart activities:

- No - 54.9% (n=501)
- Yes - 45.1% (n=412)

Those who answered yes were asked to select all activities in which they had engaged (Fig. 10). Because many respondents selected more than one activity, percentages add to more than 100%.

Results suggested that respondents engaged mostly in activities that did not result in significant structural modifications or renovation. Rather, the most cited activities focused on cleaning and maintenance including roof cleaning (66.5%), fuels removal (63.6%), and thinning (54.1%).

Preparing a disaster plan ranked fourth (37.6%), followed by providing better access for emergency vehicles (28.9%). Retrofitting roofing, and doors and windows was selected 24.8% and 20.4% of the time. Landscaping with fire-resistant plants was selected 15.8% of the time. Changes to siding and other flammable materials was selected 13.8% and 9.2%. It is likely that these changes were selected less frequently given the amount of effort and expense.

Respondents were also given a chance to comment on other activities in which they engaged to mitigate potential damage from wildland fire. Thirty-one individuals listed the following activities:

- Increased water availability – 38.7% (n=12)
- Changed behavior – 22.6% (n=7)
- Yard maintenance – 22.6% (n=7)
- Built new with fire-resistant materials – 16.1% (n=5)

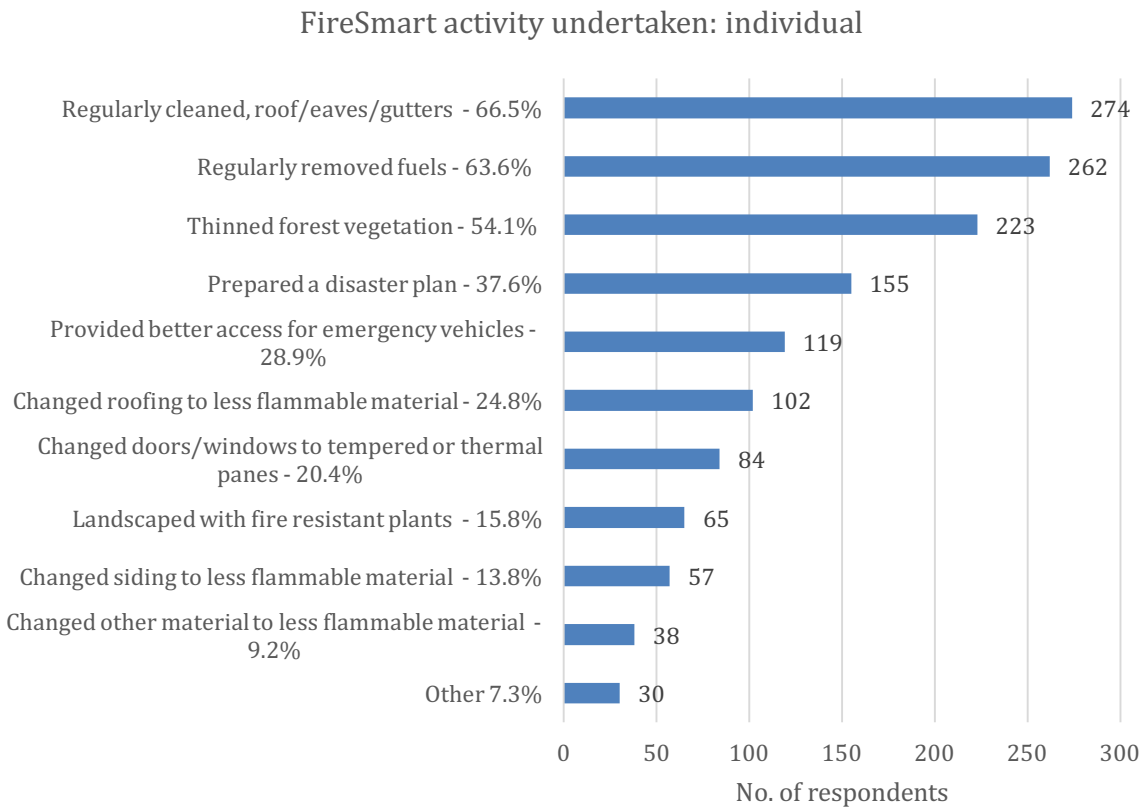


Figure 10: Individual FireSmart activity undertaken (select all that apply)

Respondents who had not already taken action were asked to select the top three reasons they had not (Fig. 11). The most commonly cited was “not knowing what action to take” (52.6%), followed by “lack of financial resources” (34.5%). This outcome also is consistent with respondents’ comments.



Figure 11: Top reasons for not taking action – individual (select the top three)

The three top reasons of those who responded “other,” were the lack of time (34%, n=17), that the property was not theirs (22%, n=11), and that it would not matter regarding effectiveness (20%, n=10).

Organization Responses

Community respondents were asked whether FireSmart activities had been undertaken in their communities. The results indicate that the majority of respondents did not take action:

- No - 65% (n=225)
- Yes - 35% (n=121)

The respondents who answered “yes,” were asked to identify all the activities their organizations had engaged in (Fig. 12). The top two were fuels removals (51.7%) and ensuring an adequate water supply (49.1%). The category least selected involved retrofitting buildings (6.9%). It appears that the more expensive and involved an activity, the less likely it is to be adopted.

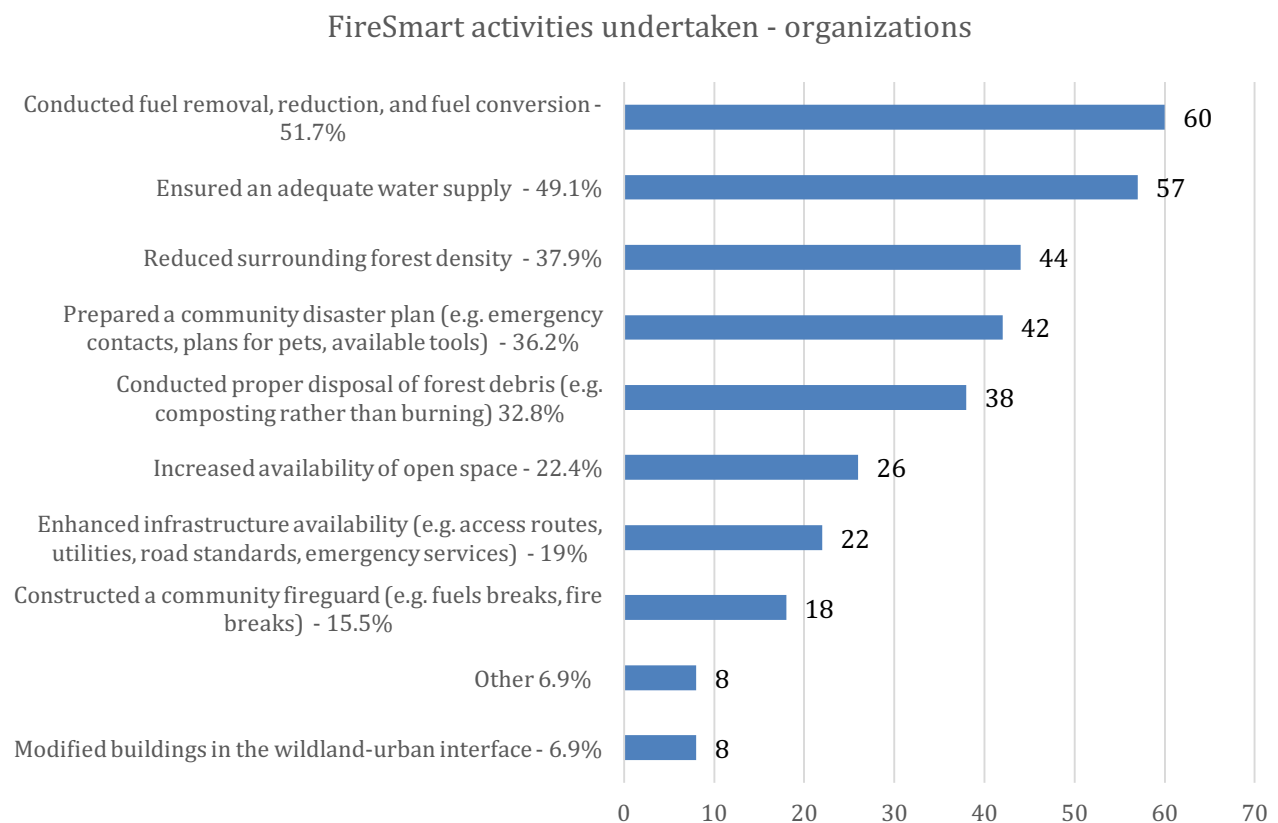


Figure 12: FireSmart activities undertaken by organizations (select all that apply)

There were only six comments indicating “other” activity, which included increasing awareness (n=4), implementing a fire ban (n=1), and using education to increase awareness (n=1).

When asked why FireSmart activities had not been undertaken (Fig. 13), the most cited reason was the lack of financial resources (41.1%, n=53). Lack of responsibility was selected 27.9% of the time, and not

knowing what action to take was selected 24.8% of the time. Results are supported by respondents' comments. Only 14% believed fire would not affect their community negatively.

There were 13 comments that indicated other reasons including a lack of leadership (n=4), lack of awareness of risk (n=4), that FireSmart was not a priority (n=3), and that regulations would be required to conduct any activity (n=2).

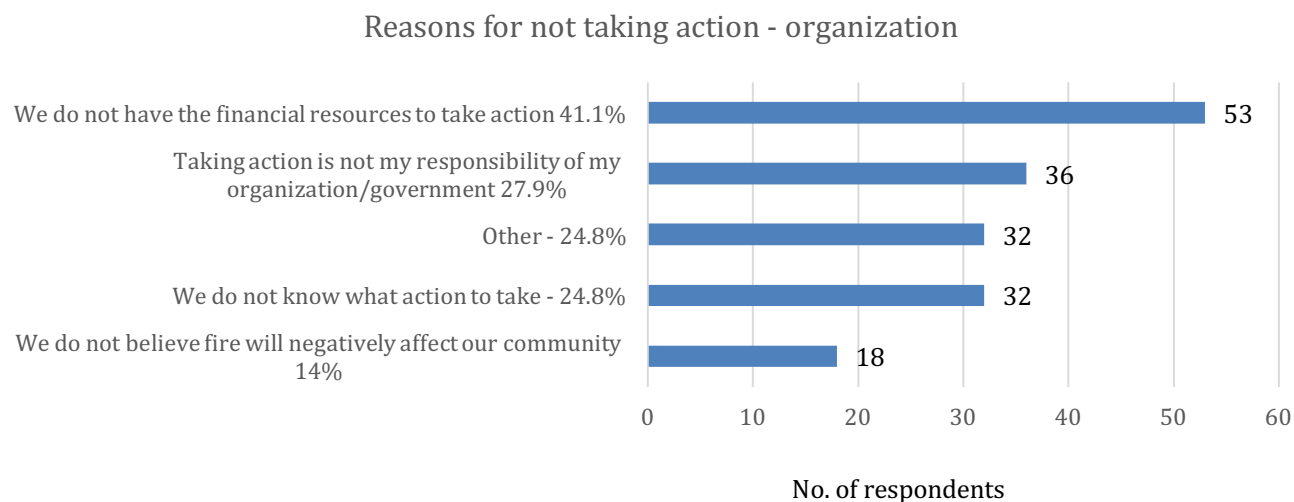


Figure 13: Top reasons for not taking action - organization (select the top three)

Compliance

All respondents were asked what would encourage them to take action on their property or in their community to reduce the risk of damage from wildfire. Respondents were presented with eight options, one at a time, and presented with a measure on a sliding scale from no support, to strong support.

The question numbers correspond to the numbered circles in Fig. 11. Responses were normalized to reflect relative support. The shaded area around each response indicates the standard deviation. Results are displayed for organizations (left) and individuals (right).

Questions were designed to reflect both monetary and non-monetary positive measures (e.g., reductions in insurance premiums, and assistance), as well as negative measures (e.g., fines and regulations).

The most supported method to encourage respondents to engage in FireSmart activities would be a reduction in insurance premiums for those in compliance with FireSmart standards (4). This outcome was supported by both organizations and individuals. Alternatively, the least supported option by both groups was the refusal of insurance for failing to acquire compliance (6).

What would encourage you to take action on your property or in your community to reduce wildfire risk? Please indicate your level of support.

1. Monetary fines for non-compliance with FireSmart standards
2. Peer pressure from community members to engage in FireSmart activities.
3. Mandatory building codes (legislation)
4. Reduction in insurance premiums for compliance with FireSmart standards
5. Land use/zoning policies
6. Refusal of home insurance unless in compliance with FireSmart standards
7. Refusal of fire suppression engagement due to fire responder safety concerns
8. Technical assistance from FireSmart personnel

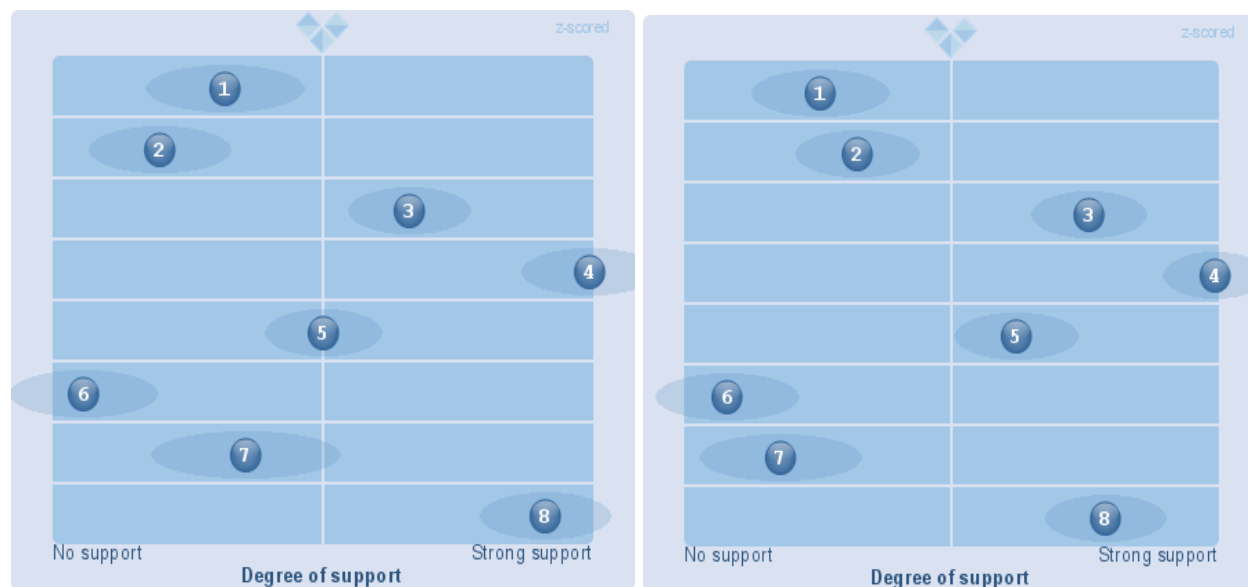


Figure 14: Degree of support by organizations(left) and individuals (right)

There was also support for technical assistance (8), and mandatory building codes (3). Land use/zoning policies (5) received slightly more support from individuals than organizations.

There was significantly less support for other negative approaches as indicated by results for peer pressure (2), monetary fines (1), and refusal of fire suppression (7). While both groups indicated less support these four options, the ordering was slightly different – organizations ranked peer pressure seventh, whereas individuals ranked it fifth. Similarly, refusal of fire suppression was ranked fifth by organizations, whereas individuals ranked it seventh.

Respondents were also invited to provide suggestions that they believed would encourage people to take action individually or in their communities. Eighty-one people chose to comment suggesting largely positive actions:

- Education and outreach – 27.1% (n=22)
- Financial incentives (subsidies, tax breaks, loans) – 26% (n=21)
- Resources and assistance – 12.3% (n=10)
- Regulations – 12.3% (n=10)
- Prevention – 10% (n=8)

Very few respondents suggested punitive measures (fines (6.1%, n=5), and several suggested being left alone to manage private property as they saw fit (no more regulation/no interference – 13.6%, n=11). Several comments that capture the majority of suggests are listed in Appendix C.

Responsibility

Private homes/property protection

Respondents were asked to specify who they believed was most responsible for protecting private homes and property. The survey included a list to choose from and respondents were also invited to submit their answers. Results are presented in Fig. 15 (individual responses) and Fig. 16 (organizational responses).

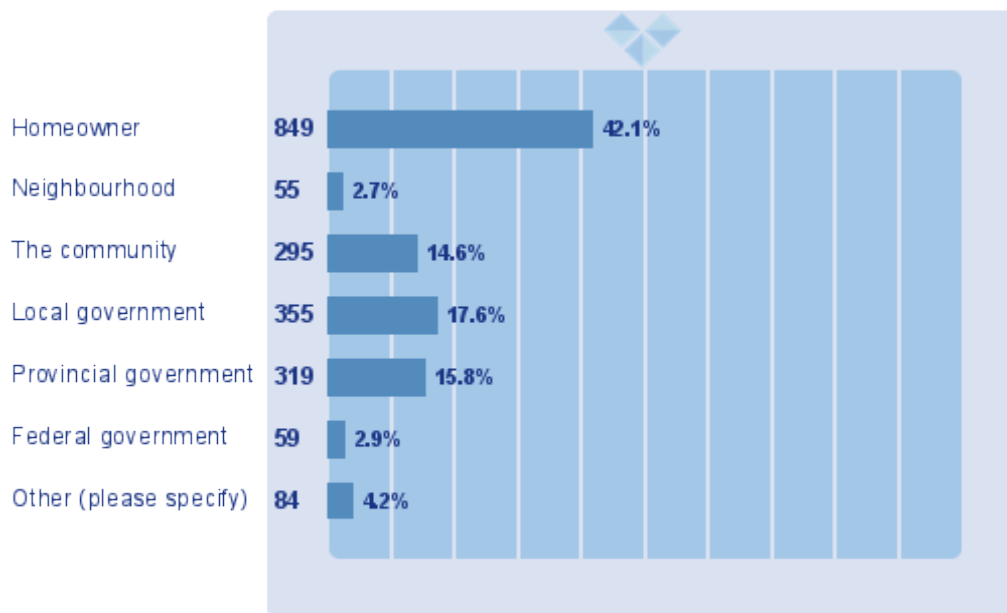


Figure 15: Perceived responsibility for private home/property protection (individual response)

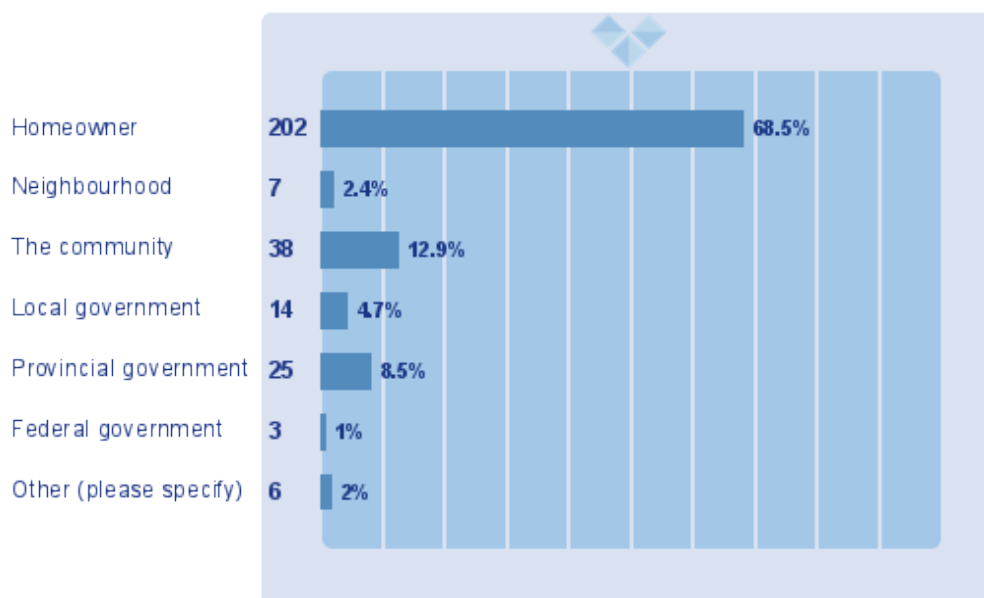


Figure 16: Perceived responsibility for private home/property protection (organizational response)

The majority of respondents from both groups believe that homeowners are responsible for their own protection: however, there was stronger support from organizations (68.5%) than individuals (42.1%). Individual respondents place more responsibility on local (17.6%) and provincial governments (15.8%), and the community (14.6%).

The two entities believed to be least responsible were neighborhoods, and the federal government, which is not surprising given that wildland fire management is largely a provincial responsibility.

The collective majority (70%) of those who selected “other” (n=97) suggested that everyone is responsible for protection: that protecting private property should be a collaborative effort. The remainder of open comments (30%) suggested a combination of one or two entities from the list presented.

Community protection

All respondents were asked who they believe is responsible for community protection from wildfire, the results of which are captured in Fig. 17 (individuals) and Fig. 18 (organizations).

Local government was the first choice for individuals at 35.3% followed by the community (23.1%) and provincial government (22.5%). Only 8.8% of respondents selected homeowners.

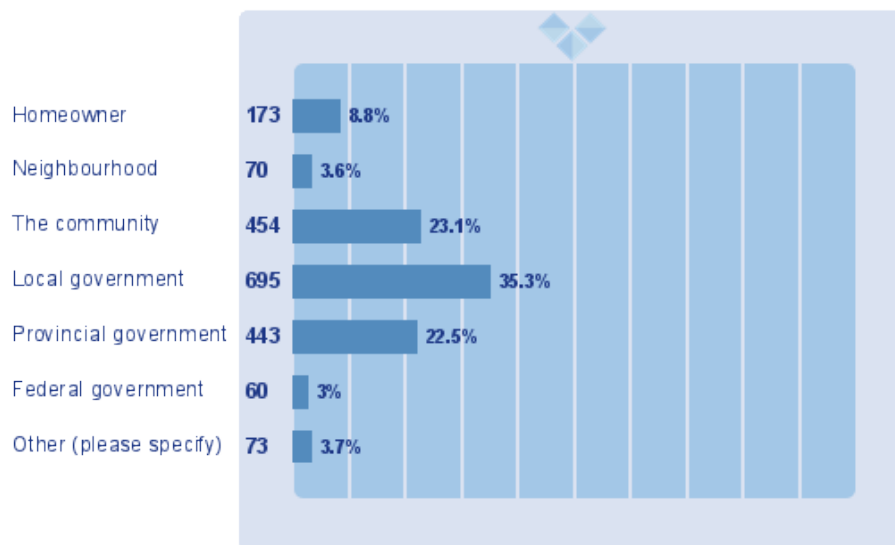


Figure 17: Perceived responsibility for community protection - individual response

Organizations selected the community to be most responsible for community protection, followed by local government (23.7%), homeowners (21.4%) and provincial government (19%).

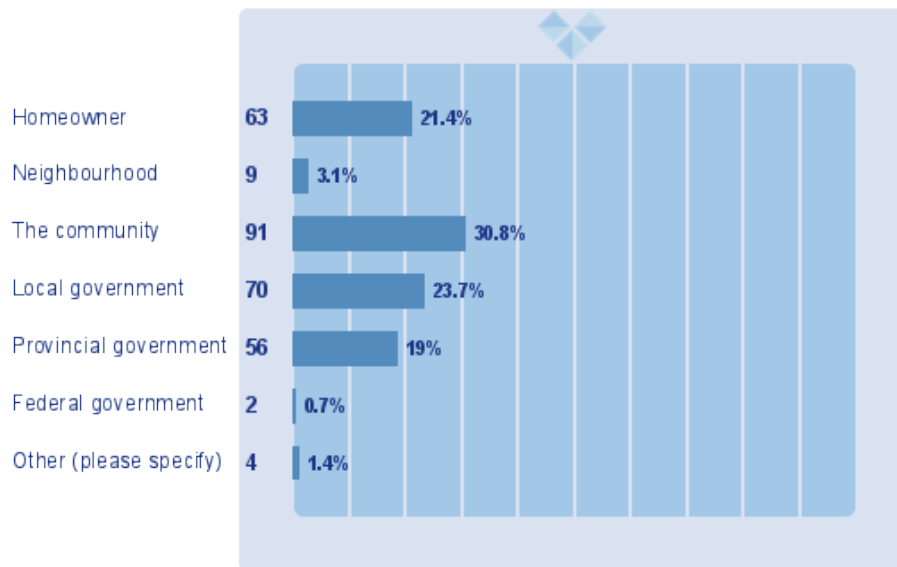


Figure 18: Perceived responsibility for community protection – organizational response

Collectively, those selecting “other” (n=87) also suggested that responsibility was a joint effort and that fire prevention activities were the responsibility of all parties (62%). The remainder selected different combinations of one or two parties listed (38%).

Increased participation

The final question asked respondents their opinion on how to increase participation in the FireSmart program (Fig. 19). Suggestions were provided by 406 respondents and were sorted and presented by category.

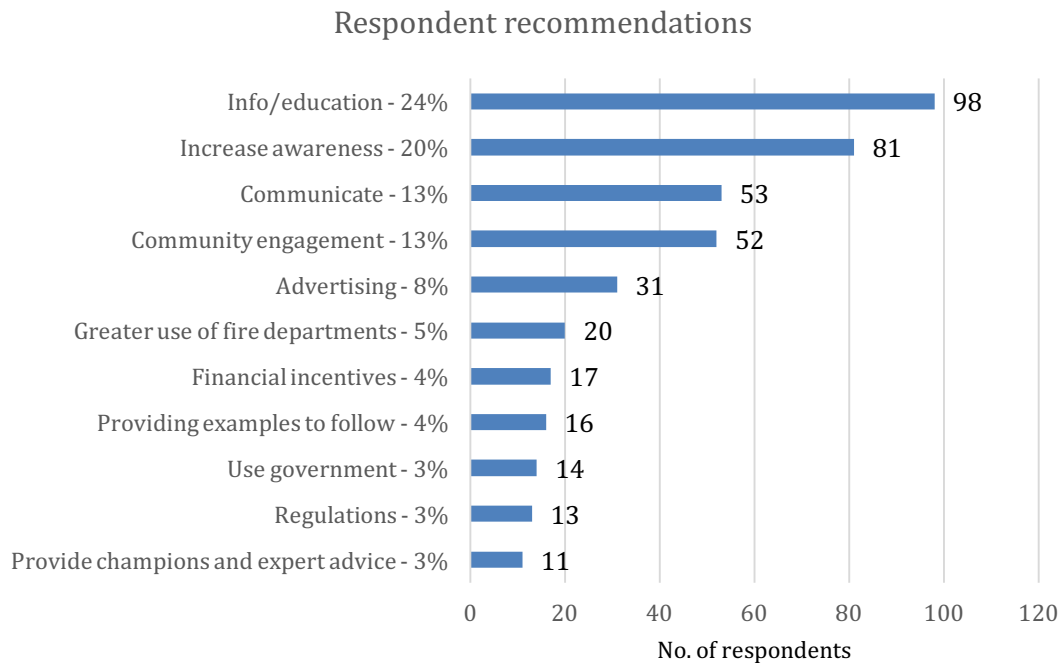


Figure 19: Suggestions for increasing FireSmart participation (open comments by category)

The top four suggestions all involve continuous learning, communication, and collaboration and add up to 70% of the total.

The first category – suggestions to increase education and information – focused largely on educating communities and individuals of the dangers to private property, and to communities in general.

Recommendations

The survey revealed that most respondents (77%) had never heard of Fire Smart, and of those who had, only 6% were very familiar with the program. Furthermore, individuals identified their lack of knowledge regarding how to reduce the risk of fire to their properties as their greatest barrier.

To increase engagement, it will be important to first increase awareness of the program. Respondents overwhelmingly suggested that education was necessary to advertise the program's existence and the activities that would reduce the risk of damage. They offered extensive suggestions regarding advertising (using all media outlets), increasing awareness of wildland fire risk, and therefore, the need to mitigate risk. The top three suggestions were education/provide information, increase awareness be advertising, and greater collaboration among all stakeholders.

Statistical results also show that respondents who perceived a risk from wildland fire were 535 times more likely to engage. This result indicates that education should focus on increasing awareness of the dangers people face if they do not mitigate risks.

Regarding engagement in FireSmart activities, the most commonly cited mitigation strategies appeared to be those that required the least effort, knowledge, and cost. Promoting these activities could be an effective way to begin to mitigate risk for individuals.

Concerning organizations, a smaller proportion of respondents had engaged in FireSmart activities citing the lack of financial resources. While it would not be FireSmart Canada's mandate to secure funding, following recommendations for greater collaboration among stakeholders could lead to greater opportunities to secure resources, particularly where such activities could be associated with reductions in loss and damage.

An interesting result regarding perceived responsibility for taking action is the difference between individuals and organizations. Both groups indicated that the homeowner was most responsible for protecting private property. However, 68.5% of organizations selected homeowners with the next largest category being communities and provincial governments (21%). Only 42.1% of individuals selected homeowners with the second combined group being split among the local government the community, and the provincial government (48%). This result could explain the lack of uptake by individuals given that they believe other organizations are collectively more responsible for private property protection. This result also makes collaboration among stakeholders a more appealing solution given perceptions about responsibility.

One of the greatest opportunities available is to engage more with the insurance industry. Respondents revealed that they were least likely to have heard of FireSmart through an insurance agent/broker. Organizations and individuals also revealed that the most supported strategy to encourage engagement would be to associate actions with reductions in insurance premiums. While the financial costs from losses and damage attributed to wildland fire are actuarially very small, the insurance industry could be a venue to at least provide information about FireSmart to increase awareness and the perception of risk. Subsequently, the industry could continue to work more closely with FireSmart Canada to create incentives to change individual behaviour.

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Appendix A: Respondent suggestions for how to increase engagement in FireSmart

Substantive and representative comments are included here with suggestions for increasing engagement in the FireSmart program for communities and individuals.

We are already a firesmart community recognized in 2016. It is important to let residents know what they can do to mitigate risk. The grant funding that is available should be paid to the group rather than the group having to pay first and waiting to get reimbursed by city. Fire dept personnel involved in educating residents through community events

Adverts at the library, local publications and TV stations. I would also approach schools in the community from JK to local colleges. Lastly youth organizations like Beavers, Girl Guides, Cadets, etc.

Approaching Fire Department to look at the wildfire risk around their community. My local fire Department is comprised of volunteers from the community aka people with a vested interest.

As I have never heard of FireSmart standards, I think first, you might want to start a educational program. Second, a support program for those with minimum financial means to implement the standards. I completely disagree with a monetary fine when someone is not educated nor financially able to do everything. If you want to have standards embraced and adopted moving forward, then work with people don't make it hard. Make it reasonable, affordable and even fashionable. When I saw "Peer pressure" I saw red, that is not hope you gain acceptance or have a program adopted... you might just as well bully people. Not cool! As for mandatory building codes... well take a look around rural NS, we have some old homes and a lot of seniors on fixed incomes... are you going to enforce a building code... think about it. Perhaps some clarity on the question... mandatory building codes for new builds?

As mentioned, I am already actively engaged and using social media to get the message out. If government wants to participate more directly, legislate benefits to those who participate by modifying their properties and taking precautions. reduced property tax and insurance rates would reinforce the message significantly. I would volunteer my time to inspect mitigation efforts and I'll bet you would find plenty like-minded volunteer firefighters prepared to do the same.

By creating events in the RCMs such as gathering in the community or schools to present interactively all the features and so on. It is often young people who bring parents especially if the equipment is in place. In the form of games, challenge, free-trade video.

Commercials on tv and radio. As well as flyers and fire department involvement. If insurance rates go down this will also get neighborhoods interested.

Communities should offer tax incentives for homeowners around the community boundaries to build/install/renovate to FireSmart standards. Compliance should then be mandatory.

Community meeting hosted by FireSmart reps and Insurance reps

Create a sense of need by education on risks and community susceptibility to a wildfire event.

Depends on what you mean by involvement... PSAs are always a good option, again, regulatory oversight (and the promotion of the regulations) ... It is important that this not be 'downloaded on the individual'... particularly those who have little capacity to mitigate. It is also imperative that governments (all levels) take their responsibilities seriously.

Door to door advertising of a community information session. Often the news of a session isn't widespread enough. Also, door to door information would be valuable for disabled/infirm individuals.

Education... through all forms of social media and in all languages and learning strategies for people who require visual or practical opportunities to understand Firesmart practices and the benefits to all...

Fire Smart is supposed to be a community engagement but with a small tax base and low population, the Fire Smart program appears to be left to the local volunteer fire department to push. Which we do. But we have limited funds for public education and prevention and must concentrate on operational issues such as increasing our water storage capabilities.

First the community needs to understand the program and how it will benefit them/us. It should not be "preachy" and there needs to be people who understand the nuances of the social fabric in the community.

First you have to prove that doing all of this will actually work otherwise I'm spending good money for nothing. Whoever is proposing this as legislation should move back to 1960 communist Russia.

First, of all you need to know what Firesmart is all about. There are so many rules and regulations regarding home ownership that are put in place by city councils and enforced by bylaw officers, it is ridiculous. Many bylaw offices are rude and offensive. Please help people meet the standards of Firesmart by providing advice, help and money. Please don't punish these people who can't afford to meet all the conditions. however, if the owner is irresponsible such as piles of junk in house or yard, then they should pay a fine or start a fire by carelessness. We are too quick today to make new rules that are unaffordable to people.

Have someone that has the FireSmart knowledge to come to a meeting for the community

*Have the community leagues put together *funded* programs and assistance (re: instruction/information, access to materials, demonstrations and cooperative labour) for FireSmart principles. I would also seek grants from government agencies in order to fund teams to assist homeowners with starting up and maintenance of FireSmart strategies, particularly for community homes (i.e., senior complexes and apartments).*

I believe that each municipality should send each resident information about Intelli-feu.

I don't really know. I think the first step is just public awareness. I have never head of this before. So, advertising, public service announcements, etc. Also, make businesses more aware (e.g., contractors, home improvement stores).

I have no idea...public outreach? Attending community events. Advertising? I doubt most people know this program exists. Homeowners shouldn't have to know this program exists. Builders should be forced to comply with FireSmart minimum standards in order to build or sell a property, with heavy fines if they don't comply. Like, actual heavy fines, not a slap on the wrist. Municipalities and provincial and federal funding should be in place to offer subsidies to homeowners who have to retrofit their older homes to comply with the standards.

I suppose that people here need to believe in the risk. South eastern Ontario experienced a drought last year and I think a wildfire could have occurred. Normally, the risk of wildfire in our area is pretty low. I admit until this survey I didn't really consider the possibility here.

I would like to be educated more on the nature of firesmart through community education evenings so I would know how to advise others.

I would start at the community level. The city of Prince George is drastically not prepared for interface fires. If the city started a program to clear and prepare city and crown land interface areas then prescribe the changes to landowners it would get the ball rolling and awareness up.

Information on dangers of urban interface fires at School Fire Prevention Programs and Open Houses including local photos of damage.

Initially through public information followed up by local government surveying areas to see if people are getting it, i.e. we still see lots of wood chips in landscaping. It is unclear if people don't know better or don't care.

It needs to be everyone's responsibility and there should be civic enforcement of policies designed for the safety of all. I would advertise for homeowners what is expected and enforcement should have provincial guidelines and implemented by civic level authorities. That's what i would try and do.

Like a census report, send in prior to fire season, precautions taken. Register with city. Appropriate fines to those who fail to comply. Random, regular inspections of property that has been found to be negligent on a regular basis. Incentives to those who aren't negligent.

Lobby provincial and federal governments to provide monetary incentives to use firesmart building materials in construction and or renovation of homes

Make it fun, inspiring, maybe a challenge... too much negativity around already so help people realize is easy to prevent fire damage by investing their efforts asap.

Mandatory Firesmart building materials in any new construction

Media/ad campaign to raise awareness

Meet with my neighbours and discuss it; invite a FireSmart technical specialist to make a presentation and answer questions; develop an action plan; implement and follow up.

meetings to discuss risk, strike committee with timeline and deliverables - yearly report on risk and mitigations, info on how to improve or mitigate risk, funding sources or tax breaks etc...

Meetings, door-to-door visits, financial incentives, community incentives like posting a list of homeowners who are meeting the FireSmart guidelines

More publicity/information for people who are not sure what they should be doing, plus strict fines/repercussions for those who have been informed, but choose not to care. (e.g. people who throw cigarette butts during dry/high risk times, etc.)

Perhaps set up booths at the MANY local fairs, also local malls, also develop programs for Junior/Intermediate level students in publicly funded schools, set up booths in church lobbies on Sunday mornings, perhaps design posters and pamphlets for display in local doctor & dentists' offices- linking to the health related consequences of fires- perhaps display the same material in Ministry of Transportation offices for driver's license renewals?

Posters to advertise fire safety, prevention of (wild)fires, encourage property cleanup of debris, old fire fuel sources. Local fire prevention programs run/encouraged by fire department. Perhaps a reduction in insurance, based on inspection by fire prevention personnel.

Posters to advertise fire safety, prevention of (wild)fires, encourage property clean-up of debris, old fire fuel sources. Local fire prevention programs run/encouraged by fire department. Perhaps a reduction in insurance, based on inspection by fire prevention personnel.

Program should start in the fire department with results published scoring each subdivision, so there is a natural competition to do well between subdivisions. Fire Department should guide efforts and provide info and feedback.

Provincially funded grants as many homeowners such as seniors cannot afford alternations. Provincially funded forest thinning around interface areas is a logical approach which is long overdue.

Public awareness, local government incentives, insurance rebates for different risk mitigation, Gov't rebates for home fire safe renovations

Publicize and raise awareness of the existence of FireSmart and proposed measures. Establish standards in the building code or through municipal planning and regulation to define, with clear indicators, populated areas at risk of forest fires and that appropriate regulations be associated with these areas.

Publish information in local newspapers and media, because I had not heard of the program until now.

Rebate programs for making FireSmart construction choices.

Rebates, financial assistance, and tax breaks for homeowners who employ FireSmart strategies such as switching to metal roofs would be very helpful. For example, I would love to upgrade various aspects of my home to FireSmart standards, but I literally can't afford to do so.

Revamped building codes that take account of environmental risks to human safety, such as those associated with "where" a building is located -- i.e., in or near the bush.

Subsidize the local authorities to conduct an outreach programme to all homeowners, permanent and seasonal. The town itself is economically highly challenged. A major source of revenue are property taxes paid by people like me who own 2nd residences (i.e., all-season cottages) on the many lakes surrounding the town.

talk to them. we are in a condo so through our Board, by example, bringing it up at AGMs, volunteer projects to reduce fuels in neighbourhood, personal landscaping and encouraging the removal of flammable plantings and encouraging non-flammables

Targeted fire smart assessments for homes or neighborhoods with elevated risks

There should be incentives and rules put into place to deal with such things. Currently many communities figure putting more houses in and using up the property but they don't seem to realize the more houses the hotter becomes the area as no vegetation or very little to offer reflection and shade.

This is a very important issue in the community. Fire smart should carry out more education and sensitization on this topic. Prevention is better than cure. It is better for Fire smart to lay more emphasis on awareness rather than fines. Distribute tracks in apartments on how to best manage the various ways in which fire disaster may occur in a home. Best practices in using our home appliances.

To make the entire community aware of the dangers and benefits of their surroundings to situations of forest fires.