

January 10, 2020

Submission to the Climate Preparedness and Adaptation Strategy
Ministry of Environment and Climate Change Strategy
Submitted by email to ClimateReadyBC@gov.bc.ca

About Canadian Home Builders' Association of BC (CHBA BC)

CHBA BC represents over 2,200 member companies in the residential construction industry who work as home builders, renovators, tradespeople, suppliers, service professionals, and others. CHBA BC members are small and medium-sized businesses creating jobs and economic benefits in all areas of the province. Overall, the residential construction industry represents over 207,184 on-site and off-site jobs, \$12.6 billion in wages, and \$28.3 billion in investment value.

Overview

As residents and business operators in British Columbia, the full range of climate risks identified by the Ministry of Environment and Climate Change Strategy are of concern to our industry. In order to provide the most useful input to the government in relation to climate adaptation and resilience, we have confined our comments and observations to those areas where:

- a) there is likely to be a significant and direct impact on the economic functioning of our industry; and/or
- b) where actions taken by our industry can assist directly in mitigating a specific risk.

Reflecting this, our comments and potential actions are organized in two groups as follows:

Risk Areas of Direct Involvement	Risk Areas of Indirect Involvement
• Severe Wildfire Season	• Seasonal and Long-term Water Shortage
• Pluvial and Fluvial Flooding	• Heat Wave

Discussion

1. Severe Wildfire Season

British Columbians are all too familiar with the risks associated with wildfires, especially those at the wildland urban interface (WUI), and the more widespread impacts of reduced air quality caused by wildfire smoke. As highlighted in the [Preliminary Strategic Climate Risk Assessment for British Columbia](#), the risk associated with severe wildfires are likely to worsen in the coming decades, and these events can have catastrophic consequences for affected communities and residents, as well as more diffuse health impacts on the broader population of the province.

While wildfires play an integral role in the re-establishment of some ecosystems, CHBA BC recognizes the need to take action to reduce and manage the human and property impacts resulting from these events. In relation to the WUI wildfire risk, considerable work is already underway in Canada to develop a coordinated national and comprehensive approach to this problem. At a national level, CHBA is engaged in the development of a Canadian Wildland-Urban

Interface Guideline under the auspices of the National Research Council of Canada. The Guideline is expected to be completed and released in mid-2020.

The Guideline recognizes that effective WUI risk mitigation is a complex challenge involving multiple jurisdictions, and takes a comprehensive approach to WUI risk mitigation: setting out new protocols for assessing hazard and exposure levels; mitigating structure ignition; community resources and design; and resident outreach and emergency response. It provides technical requirements for new development and buildings aimed at reducing wildfire risk, but also recognizes the need to improve the WUI resilience of existing buildings and homes, as well as the property surrounding them.

Many of the measures included in the Guideline reflect proven FireSmart approaches, but where applicable, these are defined in a manner that would support mandatory application by authorities having jurisdiction or by property insurers. The Guideline specifies a range of construction requirements for new homes ranging from non-combustible to fire-resistant exteriors, addressing likely risk exposures including flame impingement, high radiant heat loads, and ember exposure. Construction requirements are dynamic and calibrated to the likely exposure levels in a given location. CHBA BC encourages the province to utilize the framework of the Guideline in developing provincial responses to WUI risk. While some of these construction requirements are fairly straightforward, affordability and evidence-based decisions must be a key objective when regulation changes are considered and should not impose undue costs on new home buyers.

Specifically, the Guideline notes the importance of accurate risk mapping in determining the technical requirements for building construction, landscaping and vegetation control. As with other climate risks like flooding, effective mapping of WUI risks is essential to specifying appropriate requirements and measures. The province should take the lead in defining a technical standard for WUI risk mapping for British Columbia to ensure consistency and accuracy. In particular, rural municipalities may require significant assistance in order to develop mapping that is adequate to support informed zoning and development decisions.

Effective WUI risk mitigation requires ongoing maintenance of landscaping and vegetation control measures by property owners to remain effective. Development standards and building codes alone will not ensure this outcome. Broader consideration of how best to incent or require maintenance of WUI-related property standards will be needed. The property insurance industry may well have a role to play in this area, as it gains more insight into the financial risks posed by wildfires in the longer-term. The cost of property insurance, conditionally linked to compliance with vegetation control measures, may be persuasive for property owners in WUI-exposed areas.

The other significant challenge in relation to WUI risk mitigation lies in addressing the existing stock of buildings and homes, and the lands they are located on. More stringent WUI-related building code requirements will have limited impact on the existing stock based on current practices. Careful consideration of how best to incent or require existing property owners to comply with the specified WUI construction and landscaping requirements will be needed. There are some 'low hanging fruit' in areas such as re-roofing that can be addressed at little to no cost to current owners if properly integrated into the replacement cycle.

The other area of wildfire impact is the more widespread health impact related to smoke exposure. It should be noted that the BC Building Code already requires the installation of balanced, mechanical ventilation in all new housing units. Such systems provide a means for adding air

filtration to supply air, including HEPA filters to remove particulate from indoor air. Adding such filtration in older existing homes is more problematic, as ventilation is most often natural and uncontrolled, so different strategies will be required.

2. Pluvial and Fluvial Flooding

Floods are consistently the most expensive extreme weather events in Canada. According to research by the Insurance Bureau of Canada, about 20 percent of Canadian homes are at risk from overland flooding, including fluvial (riverine), pluvial (extreme rainfall) and coastal floods. The limited insurability of overland flood risk has meant that taxpayers and home owners are bearing the majority of costs related to catastrophic overland flood damage in Canada, and these costs have escalated rapidly over the last decade.

The Minister of Public Safety and Emergency Preparedness's [mandate letter](#) included a directive to "to create a new low-cost national flood insurance program to protect homeowners at high risk of flooding and without adequate insurance protection, as well as to develop a national action plan to assist homeowners with potential relocation for those at the highest risk of repeat flooding." While the development of a national flood insurance program would be of benefit to affected property owners, catastrophic floods will continue to impose very high public costs and inflict trauma on those affected. Insurance does not prevent floods.

2.1 Flood Mapping

As with other climate risks, effective flood risk mitigation must start with effective hazard mapping. As noted by Public Safety Canada in 2017, "Canada lacks effective flood hazard maps, which are considered essential risk assessment tools." In many parts of Canada, flood maps are out-of-date and inaccurate, which was highlighted in a [Globe & Mail article in April 23, 2019](#): "much of the populous Lower Fraser Valley still hadn't been mapped or was served by maps dating from the 1960s."

The province must address the urgent need for up-to-date flood mapping that incorporates climate change adjusted assumptions concerning future flood levels and return periods, both for fluvial and pluvial events. We recommend that the province adopt the current Federal Flood Mapping Framework that would ensure the use of consistent and accurate geospatial data supporting the production of flood maps. Such data is essential for sound, evidence-based decision-making. Once generated, this data should be made publicly available, so that current and future property owners can better understand the potential flood risk they face, and take steps to mitigate this risk where practical. High quality flood maps can be an invaluable resource for Canadians in coming to terms with the need for climate change adaptation, but unfortunately most British Columbians do not have access to such maps.

2.2 Increasing the Flood Resilience of New Communities and Homes

It is important to delineate between existing communities and new communities, as the flood risk mitigation challenges between the two are significantly different. Current land development standards and practices generally incorporate careful consideration of storm water management, and local authorities generally restrict development on flood-prone lands, including flood plains and flood margins. Land developers also bring a more varied 'toolkit' to storm water management, including Low Impact Development approaches, the incorporation of 'Green Infrastructure' and the preservation of existing natural features such as wetlands. As well, a new standard, [CAN/CSA W204:19](#) *Flood resilient design of new residential communities*, will support more consistent

application of best practice design to reduce flood risk in new neighbourhoods. The tools to build flood-resilient new communities exist and should be utilized.

2.3 Increasing the Flood Resilience of Existing Communities and Homes

The bulk of flood risk resides in existing neighbourhoods that were developed before contemporary standards existed, and before land zoning and development regulations reflected a sound understanding of flood risk. Existing flood risks tend to reflect one of two conditions:

- Neighbourhoods and critical infrastructure constructed on flood plains or flood fringes, where climate impacts are likely to increase the frequency and severity of fluvial flooding.
- Insufficient storm water, sewage and road infrastructure to manage extreme rainfall events without uncontrolled overland flooding and sewage back-up.

Specific strategies for reducing flood risks in existing neighbourhoods and communities will depend on specific case-by-case assessments and through accurate flood mapping, and the incorporation of forward-looking climate assumptions. At the community level, this may require upgrading of existing storm water management systems and the hardening of critical infrastructure. When carried out in conjunction with normal infrastructure maintenance and replacement cycles, such upgrades will have a less severe financial impact on municipalities. At the property level, mitigation may involve a wide range of measures from installation of sump-pumps and back-flow preventers, to re-grading of lots, the creation of swales and other drainage features, and the reduction of non-porous landscape features.

Once proper mapping and assessment of various flood risk vectors has been carried out, including consideration of forward-looking climate models, planning and budgeting of mitigation measures will be required. A significant concern for our industry will be how such costs are apportioned and paid for. Given that new development will be held to a much higher standard of flood resilience, it would be inappropriate for development-based levies to be used to fund upgrading that exclusively benefits existing areas of the community. Where common critical infrastructure investment that benefits the whole community is required, this cost can more properly be shared amongst all existing and new property owners.

With respect to flooding related to ocean rise and coastal storm surge, these are longer-term concerns in some coastal B.C. communities, including in the Lower Mainland. As with other flood risks, we would encourage the government to develop forward-looking flood mapping around this specific issue in order to stimulate both community dialogue and evidence-based planning. To the extent that active mitigation of these risks is subsequently undertaken, how such public infrastructures are paid for and how costs are apportioned will be of interest to our industry.

2.4 Strategic Retreat Where Risks Are Unacceptable and Unmanageable

The [Preliminary Strategic Climate Risk Assessment](#) suggests that the currently defined 500-year flood of the Fraser River may become a 100-year norm due to climate change. Under such a risk scenario, a home purchased in the affected Fraser Valley area, with a 25-year mortgage, would stand a 22 percent chance of experiencing such a flood before their mortgage was paid off.

Repeated and more frequent flooding at or above 100-year levels is leading to discussion of the need for 'strategic retreat' from the most at-risk areas. In the face of more frequent catastrophic flood events and rapidly rising flood assistance costs, Québec, Ontario and Alberta have taken steps to limit future liability for uninsured repeat flood losses, or begun discussing programs to buy-

out the most problematic properties so that residents can relocate to safer areas. Public policy around strategic retreat appears in the initial stages, but deserves broader discussion among policy makers and the public. It is likely that there will be properties, if not entire neighbourhoods, where effective flood defenses are either technically impossible, or come at a cost that greatly exceeds the value of what is being protected. This will be most likely for particularly vulnerable properties exposed to extreme fluvial flood risks.

We encourage the Government of British Columbia to begin a dialogue with potentially flood exposed communities, as more accurate forward-looking flood maps are produced. This conversation should address the fact that there will be climate impacts that simply cannot be mitigated, and we need fair and reasonable ways to address such eventualities and those affected.

3. Seasonal and Long-term Water Shortage

The residential sector has already adopted standards for water conserving fixtures, and in dryer areas of the province, has experience with low/no water landscaping. It is worth noting that many communities in drought-prone regions, and at greatest risk of chronic water shortages, are more susceptible to wildfires. Low-water landscaping practices that address both of climate risks should be pursued.

Water conservation efforts should also include existing homes, and our industry would be interested in exploring incentive-based initiatives to accelerate the replacement of high water-consumption fixtures with home renovations.

4. Heat Wave

Under the BC Energy Step Code, new residential construction is designed to achieve higher levels of energy performance, which provide improved health benefits by better managing temperature changes, such as a prolonged heat wave. Further considerations exist under voluntary programs such as CHBA's Net Zero Home Labelling Program, which requires an assessment for space cooling. Approximately 95 percent of CHBA Qualified Net Zero Homes have been equipped with heat pump systems, which provide both space heating and cooling.

Addressing extreme heat events within the existing housing stock should be a primary concern, and will likely be a significant issue for older, multi-family buildings that are poorly insulated and not equipped with existing mechanical ventilation that would allow for simple retrofitting of space cooling systems. This issue is already being discussed through the [Mobilizing Building Adaption and Resilience \(MBAR\)](#) project, led by BC Housing. CHBA BC has indicated its interest in further discussions with the province on approaches to increase energy performance for home retrofits, and extreme heat event mitigation can likely be addressed through that process as well.

Follow up

Thank you for the opportunity to participate in this consultation. We recognize this is an ongoing conversation and would be pleased to participate in any additional consultations or discussions on this topic.