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Item No. 14.1

Halifax Regional Council

May 23, 2023

June 20, 2023

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: Original Signed

Cathie O'Toole, Chief Administrative Officer

DATE: April 26, 2023

SUBJECT: Cooling Centres in Designated Locations in HRM

INFORMATION REPORT

ORIGIN

August 23, 2022 Regional Council motion¹ (Item No. 18.1):

MOVED by Councillor Stoddard, seconded by Councillor Hendsbee

THAT Halifax Regional Council direct the Chief Administrative Officer (CAO) to provide a staff report on the cost and effectiveness of providing cooling centres in designated locations in HRM. These cooling centres would provide some cooling comfort due to rising heat temperatures experienced, which are being influenced by global climate change.

MOTION PUT AND PASSED UNANIMOUSLY

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, S.N.S. 2008, c. 39, subsection 34(1) provides: The Chief Administrative Officer is the head of the administrative branch of the government of the Municipality and is responsible to the Council for the proper administration of the affairs of the Municipality in accordance with the by-laws of the Municipality and the policies adopted by the Council.

¹ <https://cdn.halifax.ca/sites/default/files/documents/city-hall/regional-council/220823rc181.pdf>

BACKGROUND

Climate change is increasing the frequency, duration, and intensity of the number of very hot days over 30°C in Canada². In the summer of 2018, temperatures in Montreal soared for eight days straight, reaching a searing high of over 40°C with the humidex. Sixty-six people died from the heat.³ In late June 2021, British Columbia (BC) experienced an unprecedented heat dome which resulted in record temperatures across many parts of the province over several days. At the peak, temperatures reached over 40°C in many parts of the province. During the week of the extreme heat event, the BC Coroners Service responded to a sudden and significant increase in deaths, with 619 of these deaths later identified as being heat related.⁴

In Nova Scotia in 2022, heat warnings were issued in July and August. Environment Canada issues heat warnings in Nova Scotia when daytime maximum temperatures are expected to reach 29°C or warmer and nighttime minimum temperatures are expected to fall to 16°C or warmer or when 2 or more consecutive days of humidex values are expected to reach 36 or higher⁵.

For Halifax, hot summer days (+25°C) are projected to more than double from an average of 18 days in the period 1976-2005, to 39 days in 2021-2050; and up to 66 days in 2051-2080 (Figure 1).

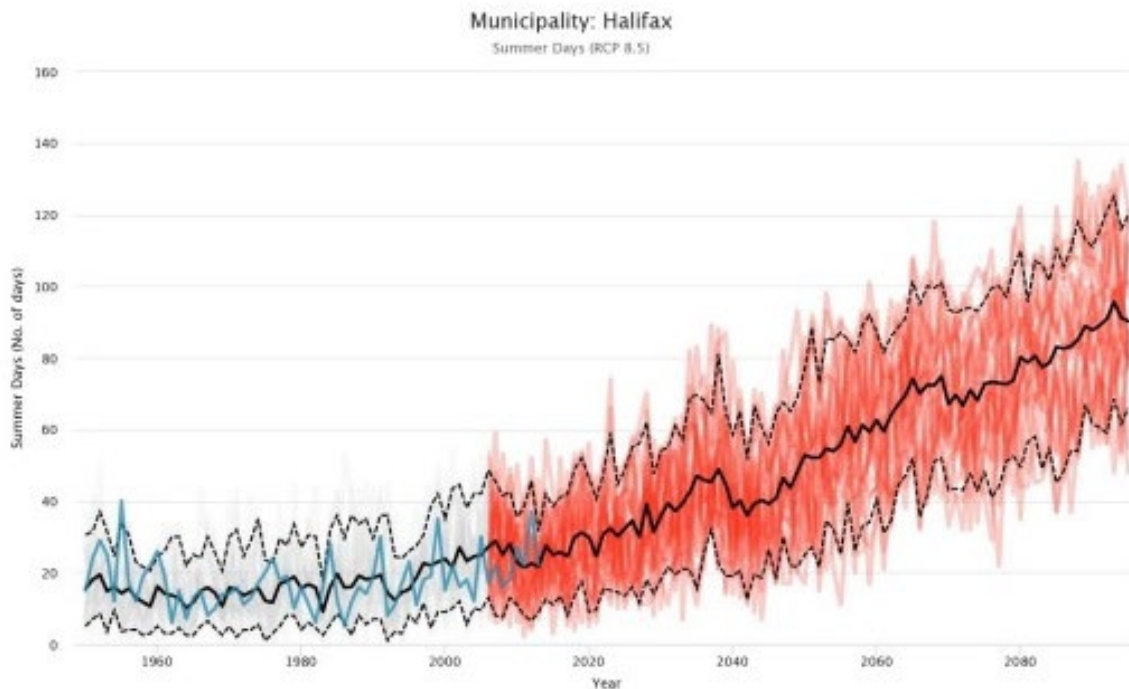


Figure 1: Projected number of summer days (+25°C) to 2100

² <https://ncceh.ca/environmental-health-in-canada/health-agency-projects/extreme-heat>

³ <https://climateatlas.ca/sites/default/files/PCC%20-%20Heat%20Waves%20and%20Health%20-%20Nov%202019.pdf>

⁴ https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf

⁵ <https://www.canada.ca/en/environment-climate-change/services/types-weather-forecasts-use/public/criteria-alerts.html#heat>

Many people are at risk from suffering heat exhaustion or heat stroke when nighttime temperatures fail to drop below 20 °C. Elderly people, people experiencing homelessness, and those who live in houses or apartments without air conditioning are especially vulnerable during these heat events, particularly if they last for more than a few days. For Halifax, hot “tropical nights” (+20°C) are projected to increase from an average of 0 days in the period 1976-2005, to 10 days in 2051-2080 (Figure 2).⁶

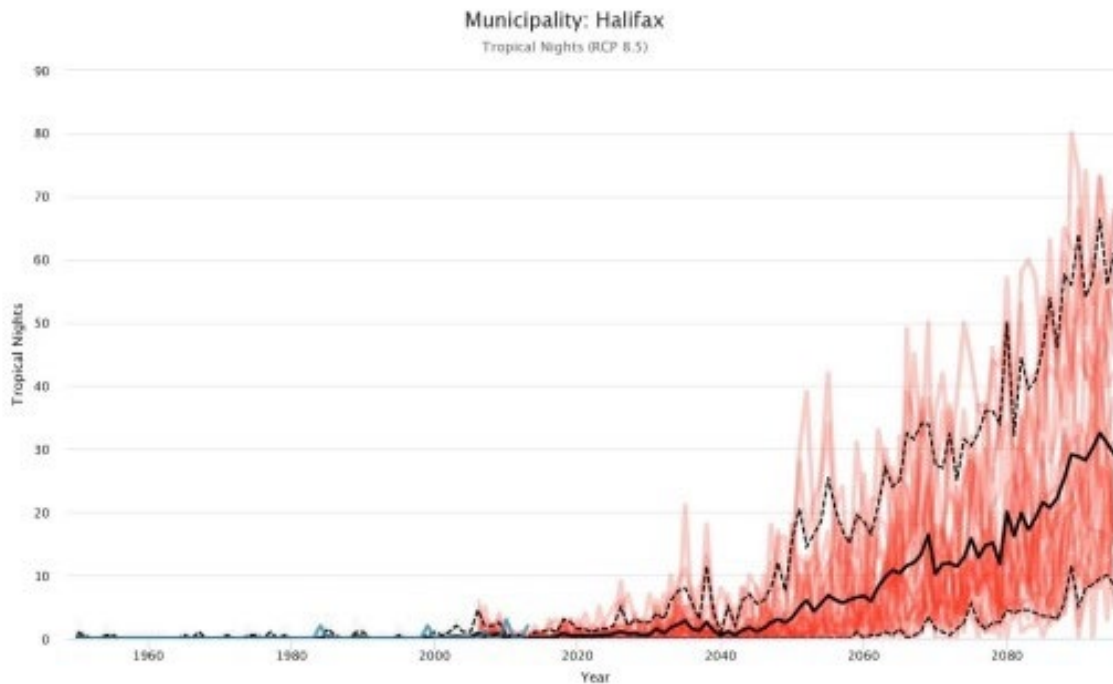


Figure 2: Projected number of tropical nights (+20°C) to 2100

The HalifACT Climate Action Plan identifies that:

The impacts of climate change are expected to affect the emergency management sector's capacity to support preparedness, response and recovery efforts. As extreme events increase, so will the demands on full-time and volunteer emergency service personnel and non-government organizations. Demands are likely to increase from both chronic stresses, such as higher average temperatures, and acute shocks, specifically extreme events such as heat waves and flooding, as a result of the growing impacts on human health.⁷

Regional Council and municipal staff have received communication from residents expressing an interest in cooling centres to support vulnerable persons during extreme heat events. Council has requested this report for information about the effectiveness and cost of cooling centres in Halifax Regional Municipality.

Cooling centres are a commonly used intervention to help protect residents from the health impacts of extreme heat events. Typically, a cooling centre is an air-conditioned indoor space made available to the public during a heat wave. These centres can be situated in municipally owned buildings such as community recreation centres and libraries. Additionally, malls and other air-conditioned public spaces can form part of a network of cooling locations.

⁶ Adaptation Baseline Report for HalifACT https://cdn.halifax.ca/sites/default/files/documents/about-the-city/energy-environment/Adaptation%20Baseline%20Report_0.pdf

⁷ [HRM_HaliFACT_vNew_Logo_.pdf \(halifax.ca\)](#)

DISCUSSION

Many jurisdictions are considering or have recently implemented cooling centres in their communities as part of their response to extreme heat events. While the intention of cooling centres is to protect residents from the impacts of extreme heat, there are in fact very few studies which link direct health outcomes to the use of cooling centres specifically. Accordingly, evaluating their effectiveness is challenging.

The Centers for Disease Control and Prevention (CDC) released a report in 2017 entitled 'The Use of Cooling Centres to Prevent Heat-Related Illness: Summary of Evidence and Strategies for Implementation'. The report contains a literature review and consultation findings regarding the effectiveness of cooling centres and identifies barriers to use. The report also provides practical suggestions for implementation of cooling centres as a part of an overarching heat response plan.

In 2022, the British Columbia Coroner's Service convened a panel to review the deaths of the 619 persons who died because of the extreme heat event that occurred in June and July 2021 in that province. This report proposes a variety of actions to improve public safety and prevent future deaths. Although cooling centres are included as one of a variety of options to provide cooling to residents, the report describes several barriers to the use of cooling centres and proposes several alternatives intended to protect those who are most vulnerable to extreme heat health impacts.

Keeping cool, in and of itself, is an effective way to withstand the health risks of extreme heat. Individuals and families living in homes with air conditioning, who stay well hydrated and avoid strenuous activity, will typically fair well in extreme heat events. However, many Halifax residents do not live in air-conditioned homes and some residents who have air conditioning are unable to afford the utility costs of operating them. Additionally, a power outage during an extreme heat event can jeopardize individuals and families who are relying on their own air conditioning to protect them. For this reason, the provision of a variety of locations that provide cooling is a logical approach to addressing extreme heat in municipalities.

One of the least effective aspects of cooling centres is that high-risk individuals who are most vulnerable to the impacts of extreme heat often face barriers which prevent them from using the cooling centre. Evidence shows that cooling centres are used mostly by low-risk individuals, and, for several reasons, they are not accessible to the high-risk individuals who are most vulnerable to extreme heat impacts.

Extreme heat events do not affect all members of the population to the same degree. Research indicates that those who are most vulnerable to injury and even death are individuals who:

- Are elderly
- Have chronic health conditions
- Have impaired visual, cognitive, or hearing ability
- Are living alone
- Have mobility issues, are confined to bed and/or dependent on a caregiver
- Are experiencing material deprivation (i.e., low or no income, inadequately housed or experiencing homelessness)
- Are socially isolated
- Are newcomers to Canada and visitors who may experience language and literacy barriers, cultural differences or have limited knowledge of cooling resources, heat alerts and heat health risks
- Have difficulty accessing or understanding public health information
- Have mental health issues
- Are taking medications which may amplify health risks

In the BC analysis of the circumstances around the deaths of 619 individuals during the extreme heat event in 2021, the findings showed that most of the deceased were older adults with compromised health due to multiple chronic diseases. These individuals mostly lived alone and died indoors (98% of the decedents). Sixty-seven percent of those who died were 70 years of age or older. Most were in homes without adequate

cooling systems. Heat-related deaths were higher among persons on specific chronic disease registries (schizophrenia, substance use disorder, epilepsy, chronic obstructive pulmonary disease, depression, asthma, mood and anxiety disorders, and diabetes)⁸

There are a variety of barriers which prevent the effective use of cooling centres. Focus groups, surveys and interviews have been conducted by the CDC to gain better understanding of the barriers to use of cooling centres. These barriers include:

Barrier	Details/Examples
Travel/transit challenges	Costs, lack of transportation options (i.e. rural transit limitations) and heat exposure waiting for and in transit were cited
Inability to leave home	Individuals with severe health issues, mobility issues or other ability challenges and those with cognitive decline may not be able to attend a cooling centre
Desire to avoid crowded public spaces	<p>The COVID-19 pandemic was an extreme example of why some residents are reluctant to leave their homes for a place where members of the public are congregating.</p> <p>In addition to health-related concerns about public spaces, some individuals expressed concerns about their physical safety at a cooling centre.</p> <p>Individuals experiencing anxiety and other mental health issues may be more inclined to stay home despite the heat.</p>
Lack of awareness of cooling centres and/or lack of understanding about what the facility will provide	<p>Focus group participants expressed concerns about what would be available at a cooling centre. Questions included:</p> <ul style="list-style-type: none"> - Would there be water available? - Will there be services such as wi-fi, bathrooms, etc.? - Will it be comfortable? - What will I do there? Will I be bored? <p>Individuals reported not knowing where cooling centres were located or being reluctant to travel to an unfamiliar place.</p>
Lack of awareness/ understanding of one's own vulnerability to heat health risk	<p>Some individuals are not aware that they are at risk. This could include those with:</p> <ul style="list-style-type: none"> - cognitive impairment - mental health issues - physical health issues which affect awareness - language barriers which limit understanding and awareness - literacy challenges - medication which amplifies the risks of extreme heat without their knowledge <p>People who have survived heat events in the past may not understand the steadily increasing risk as climate change intensifies extreme heat events.</p>
Concern about leaving pets alone and at risk	The findings indicated that many cooling centres do not allow pets and individuals were unwilling to leave their pets alone during extreme heat events.
Stigma associated with a cooling centre	Focus groups in the CDC report expressed that cooling centres were perceived as being for 'old people' or 'the homeless'. ⁹

⁸ Ibid, page 5

⁹ <https://www.cdc.gov/climateandhealth/docs/UseOfCoolingCenters.pdf>

Taking the needs of all individuals, and particularly of those who are deemed most at-risk of succumbing to extreme heat impacts, into consideration will be key in ensuring effectiveness of cooling centres and other measures that provide cooling and hydration to Halifax residents. A comprehensive extreme heat response plan will likely need to include alternatives which bring cooling to those who cannot easily leave their homes.

Health Canada issued a Best Practices Guidebook in 2012 designed to document the types of measures available to communities to protect citizens through preventative action. This guidebook outlines many of the challenges facing heat-vulnerable groups and emphasizes that 'response plans should consider the ability of first responders and caregivers to reach vulnerable populations'.¹⁰

The BC report identifies that for the most vulnerable, two of the most impactful interventions during a heat event deal with:

1. Ensuring people have a way of staying cool either inside their residence or elsewhere (i.e. a cooling centre, air-conditioned lobby, etc.); and
2. Conducting heat-informed checks on older adults, persons with health conditions, those living alone and those with mobility issues to consult them on their on their well-being and support needs.¹¹

An identified priority action for the BC Ministry of Health was to conduct a review into issuing cooling devices as medical equipment accessible to persons most at risk of dying during an extreme heat event. The proposed date for completion of this action was December 2022, but the result of the review is not yet publicly available. This approach could be an effective way to bring cooling to those who cannot leave their homes. However, having a cooling unit does not guarantee that an individual can afford to use it or that they are using it properly when it is required. Wellness checks or other measures of targeted support would still be required to protect those vulnerable individuals.

Mobile cooling centres may be a useful measure to provide cooling to those who cannot easily leave their residence. Deployment of such units would require access to the registry of individuals who are most vulnerable to extreme heat.

The CDC's report on the effectiveness of cooling centres in preventing heat-related illness summarizes that:

*While there is a lack of research directly assessing use of cooling centres to health outcomes, there is strong evidence that extreme heat is harmful to health and staying in a cool environment can help to maintain a safe core body temperature and reduce mortality. The evidence suggests that implementation of broader heat response plans that include cooling centres as one strategy has saved lives. The use of cooling centres is not a stand-alone strategy, and their effectiveness is enhanced if they are part of a comprehensive heat response plan.*¹²

The report summarizes that communication strategies, community outreach, diverse stakeholders, heat alerts and targeted outreach to the most vulnerable populations would assist in the implementation and utilization of cooling centres.

The Health Canada Best Practices Guidebook emphasizes the importance of measures such as:

- Identification of heat-vulnerable populations and target groups
- Plans created and shared in advance of an extreme heat event
- Deployment of public health staff to cover extreme heat emergencies
- Thorough dissemination of resources

¹⁰ [response-intervention-eng.pdf \(canada.ca\)](#)

¹¹ https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf

¹² [The Use of Cooling Centers to Prevent Heat-Related Illness: Summary of Evidence and Strategies for Implementation \(cdc.gov\)](#)

- Development of plans for power outages
- Initiatives to make cooling units more affordable – such as supports for higher electrical bills when running air conditioning, rebates for fans and air conditioning units
- Ways to enhance in-home preventative action, including: a registration service for residents to receive notifications or home visits, developing a “buddy system” or neighbourhood watch program
- Disseminating drinking water for those in need
- Identifying all opportunities to provide cooling options, including cooling centres, pools, splash pads, etc.

British Columbia identified priority actions to support those most at risk of dying during extreme heat emergencies. These actions were to be undertaken by different levels of government, with the provincial health authority identifying and prioritizing clients who were listed on chronic disease registries for home visits, wellness checks, contact, issuing cooling devices and implementation of actions specific to vulnerable populations.

Priority Actions outlined in the BC report were grouped into three recommendations:

1. Implement a coordinated provincial heat alert and response system (HARS)
2. Identify and support populations most at risk of dying during extreme heat emergencies
3. Implement extreme heat prevention and long-term risk mitigation strategies.

Priority Actions under Recommendations 1 and 2 focused heavily on collaboration between provincial health and community services departments in both identifying most vulnerable citizens and in applying an equity lens to all actions to ensure that they help those who are deemed most vulnerable. Making use of existing registries to identify vulnerable individuals was a crucial element of that collaboration, since 91% of the individuals who died in BC in 2021 due to the extreme heat event were assigned to at least one chronic disease registry.¹³ However, sharing personal health data comes with some privacy challenges. Close alignment with provincial health and community services departments is required in communicating the risks of extreme heat and disseminating information about available responses and actions that individuals can take to protect themselves. Health Canada’s Best Practices Guide describes the importance of having trusted social service and health care providers counselling individuals about extreme heat risks and protective actions.

There are a variety of options that Halifax Regional Municipality can use to provide cooling for residents during extreme heat events. A municipal approach which introduces different cooling options while thoroughly evaluating their use and effectiveness and identifying barriers to access would be advisable.

The Health Canada Best Practices Guidebook recommends several communication strategies for the successful use of cooling facilities. These include:

- Make residents aware of the existence and location of cooling facilities well in advance of an extreme heat event;
- Make the details of the facility very clear (i.e. who they are for, what type of services visitors will receive, whether pets are welcome, etc.);
- Identify credible messengers for each target group to deliver information
- Use multiple communication channels to reach those who need the cooling facilities; and
- Educate the public about health risks and the importance of cooling during extreme heat events.

¹³ Ibid page 14.

To maximum the effectiveness of all preventative action taken within Halifax, including the use of cooling centres, the municipality would benefit from:

1. A partnership with the provincial departments of Health and Community Services, to access data about vulnerable populations from health registries.
2. A collaborative communication campaign that makes information (about health risks, actions to be taken and resources available to residents) available using both communication tools (media, social media, print, etc.) and engaging trusted individuals such as health care providers, social workers, in-home care providers and others disseminating information to their clients/patients to ensure better awareness and understanding.
3. Reliance on a variety of cooling options and related supports, including:
 - temporary free transit to cool spaces
 - mobile cooling centres which can be deployed to high-risk locations (seniors' homes, areas identified in heat hazard mapping as hot spots)
 - 'pop-up' outdoor cooling options in shaded spaces, using tents, fans and/or evaporative coolers, hydration options, misting stations, splash pads, showers and comfortable seating
 - Well promoted cooling centres
 - Further collaboration with Halifax Water for outdoor water taps for vulnerable populations
 - Enhanced promotion of air-conditioned public spaces such as malls. As an example, Toronto created a website called 'Cool Spaces Near You'¹⁴ to help their citizens find cooling alternatives in extreme heat. The website allows users to filter the spaces based on accessibility, whether they are pet friendly and whether they have Wi-Fi and water fountains.
4. Evaluation of the use of these preventative measures to assess effectiveness and identify and address barriers and gaps.

As next steps, staff will engage with the provincial departments of Health and Community Services as well as Environment & Climate Change to see what work has been done to date for Nova Scotia and to suggest a collaboration on extreme heat response. Staff will also develop a communication campaign for residents about extreme heat and how they can safeguard against it. This campaign will occur in advance of hot summer temperatures.

Community Safety and Environment & Climate Change will work together to progress community resiliency to extreme heat and other extreme weather impacts as they continue to increase capacity for this work.

FINANCIAL IMPLICATIONS

There are no financial implications with this information report. The costs of cooling centres and other preventative actions will vary depending on the scope of future work. As HRM begins to collaborate with key partners and explores strategies to expand support, the associated budget impacts will be vetted through municipal budget and business planning processes similar to expanding the installation of generators for comfort centres through the capital budget.

COMMUNITY ENGAGEMENT

No community engagement was required.

¹⁴ <https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/hot-weather/cool-spaces-near-you/#location=&lat=43.675011&lng=-79.221361>

ATTACHMENTS

None

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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