

From: **"Mochrie, Paul"** <[Paul.Mochrie@vancouver.ca](mailto:Paul.Mochrie@vancouver.ca)>

To: **"Direct to Mayor and Council - DL"**

Date: 3/10/2022 11:49:34 AM

Subject: **Council Memo - Planning for Extreme Heat and Air Quality Mitigation in Vancouver - RTS 14654**

Attachments: **Memo to Mayor & Council - Planning for Extreme Heat and Air Quality Mitigation in Vancouver RTS14654.pdf**

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Dear Mayor and Council,

Please find attached a memo from Theresa O'Donnell in response to a Council motion adopted on July 20th, 2021 directing staff to respond to a memo to Council from the Vancouver City Planning Commission (VanRIMS No: 8-3000-11) titled "Climate Emergency: Extreme Heat and Air Quality Mitigation".

In summary, the attached memo:

- Introduces the 10 short term actions underway now to prepare for summer heat in 2022. These actions respond to the Vancouver Planning Commission (VPC) recommendations and the heat dome After Action Report;
- Briefly reviews existing City of Vancouver heat and air quality response plans and long term planning strategies; and
- Includes a table that corresponds directly to the VPC memo outlining existing actions and future considerations relative to the VPC recommendations."

Should you have any questions, please do not hesitate to contact Theresa O'Donnell ([Theresa.O'Donnell@vancouver.ca](mailto:Theresa.O'Donnell@vancouver.ca)).

Best,  
Paul

**Paul Mochrie** (he/him)  
City Manager  
City of Vancouver  
[paul.mochrie@vancouver.ca](mailto:paul.mochrie@vancouver.ca)



The City of Vancouver acknowledges that it is situated on the unceded traditional territories of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and səlilwətał (Tsleil-Waututh) Nations.

## MEMORANDUM

March 10, 2022

TO: Mayor and Council

CC: Paul Mochrie, City Manager  
Karen Levitt, Deputy City Manager  
Armin Amrolia, Deputy City Manager  
Katrina Leckovic, City Clerk  
Lynda Graves, Administration Services Manager, City Manager's Office  
Maria Pontikis, Director, Civic Engagement and Communications  
Anita Zaenker, Chief of Staff, Mayor's Office  
Neil Monckton, Chief of Staff, Mayor's Office  
Alvin Singh, Communications Director, Mayor's Office  
Magnus Enfeldt, Chief Safety Officer  
Daniel Stevens, Director Vancouver Emergency Management  
Doug Smith, Director Sustainability  
Laura Vajanto, Chief Risk Officer

FROM: Theresa O'Donnell  
General Manager, Planning, Urban Design and Sustainability

SUBJECT: Planning for Extreme Heat and Air Quality Mitigation in Vancouver

RTS #: RTS 14654

This memo is in response to a Council motion adopted on July 20<sup>th</sup>, 2021 directing staff to respond to a memo from the Vancouver City Planning Commission (VanRIMS No: 8-3000-11) titled "Climate Emergency: Extreme Heat and Air Quality Mitigation". It provides an overview of existing heat preparedness, short term actions underway to prepare for the 2022 summer season, and longer term considerations for planning for heat and poor air quality.

### Existing Heat Preparedness

Following a fatal heatwave in 2009, the City adopted Phase 1 of an Extreme Hot Weather Preparedness and Response Plan with a focus on vulnerable seniors and individuals experiencing homelessness or who are marginally housed<sup>1</sup>. A heat response plan (Extreme Heat Initial Response Guideline) was developed which included the activation of cooling centres and other measures. Since then, efforts to better prepare for heat across the City have been

<sup>1</sup> 2010 Extreme Weather Preparedness and Response:  
<https://council.vancouver.ca/20100706/documents/rr1.pdf>

incorporated into the Climate Change Adaptation Strategy, the Urban Forest Strategy, Healthy City Strategy, Resilient Vancouver Strategy and many other policies and projects.

Climate projections show that by the 2050s, very hot days will increase from 32°C to 37°C and the number of days over 25°C will double. The provincial Preliminary Strategic Climate Risk Assessment identifies severe wildfires and heat waves in the top three risks province-wide<sup>2</sup>. Heat and air quality due to wildfire smoke have been identified through the City's Climate Change Adaptation Strategy as some of the top climate risks for Vancouver.

Hazards such as heatwaves disproportionately impact individuals and groups that are predisposed to heat illness and face systemic inequalities. Early results from the BC Centre for Disease Control (BCCDC) research into the 2021 heat dome event found a number of factors increased the risk of heat-related mortality. These include material and social deprivation (including isolation), mental illness (specifically schizophrenia and depression), being farther away from 'greenness' (naturalized areas) and being between 65 and 85 years of age<sup>3</sup>.

The summer 2021 heat dome event shattered temperature records across the province. The weather station at the Vancouver Harbour<sup>4</sup> measured maximum daily temperatures over 33°C between June 26<sup>th</sup> and June 28<sup>th</sup> inclusive. During the heat dome event, 526 people died in B.C. of heat-related illness with 99 deaths in Vancouver<sup>5</sup>. The City worked with non-profit organizations, community groups, Vancouver Coastal Health and other levels of government throughout the heatwave to reduce its impacts. The City opened 10 cooling centres at community centres and 17 at libraries, installed 13 misters including some in parks, installed 10 temporary drinking water fountains and 10 temporary hand washing stations (with water taps for drinking), distributed bottled water, increased monitoring of outdoor spaces such as parks and shaded parklets.

Heat events and air quality alerts often occur together. Air quality alerts due to wildfire smoke were relatively non-existent in Vancouver before 2015. Cumulatively since then we have experienced 60 days with air quality advisories<sup>6</sup> largely due to PM<sub>2.5</sub> concentrations (the small particulates associated with wildfire smoke). In 2019, the City designated four clean air spaces, which are City-owned spaces with a high level of air filtration. These were opened in September, 2020 during a poor air quality advisory.

Please see appendix A for a table of existing and ongoing actions and future considerations organized by the recommendations made in the VPC memo. The actions in appendix A are all **additional** to the short and long term actions listed below.

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<sup>2</sup> Preliminary Strategic Climate Risk Assessment Summary:

<https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/climate-risk-summary.pdf>

<sup>3</sup> Analysis of Community Deaths During the Catastrophic 2021 Heat Dome:

[https://journals.lww.com/environepidem/Fulltext/2022/02000/Analysis\\_of\\_community\\_deaths\\_during\\_the.8.aspx](https://journals.lww.com/environepidem/Fulltext/2022/02000/Analysis_of_community_deaths_during_the.8.aspx)

<sup>4</sup> Environment and Climate Change Canada monitored station with historical data available.

<sup>5</sup> BC Coroner's Report.

<sup>6</sup> Metro Vancouver Clean Air annual reports

## **Short Term Actions (Goal to complete by July, 2022)**

Short term actions were developed by a cross-departmental working group that includes frontline staff and staff involved in the heat dome event response and after-action reporting. These actions are being done now to help prepare for summer 2022.

1. Developing and implementing neighbourhood-based solutions in priority areas to improve heat-response infrastructure including indoor and outdoor cooling spaces (both civic and non-civic) and access to water. Spatial information, including but not limited to, temperature, heat vulnerability and demographics is being used to identify priority areas.
2. Engaging with non-profit organizations and community serving groups to develop and implement solutions that support seniors, people who are experiencing homelessness, people with disabilities, culturally and linguistically diverse community groups and those who need transportation support to access cooling centres.
3. Improving access to cooling/clean air centres by providing space for pets and belongings, offering overnight hours and removing barriers generally.
4. Reaching out to housing organizations prior to extreme heat events to share information about steps they can take to reduce the impacts of heat events on residents.
5. Maintaining a stockpile of bottled water that will be distributed during extreme heat.
6. Implementing an internal Extreme Heat Event Communication Plan that will guide the communication, planning and execution of heat response activities internally.
7. Working with partners such as the health authority and Environment and Climate Change Canada (ECCC) to ensure effective public communication of heat alerts and warnings.
8. Developing a process and identifying funding to enable neighbourhood Peer Networks to support communities during response to heat events. Peer supports have been integral in getting information out and guiding people to cooler locations.
9. Releasing one-time Resilient Neighbourhoods Grants for community-based organizations to collaborate with the City on extreme heat planning, purchase equipment, conduct training, or otherwise support extreme heat preparedness and response in 2022.
10. Planting street trees in areas known to be heat islands, such as East Hastings, using Climate Levy funding approved by Council in the 2022 budget.

## **Long Term Actions**

The Climate Change Adaptation Strategy is focused on climate-related risks such as heat and air quality. The strategy was first approved in 2012 and refreshed in 2018, with another comprehensive update due in 2023. Each plan has considered heat and air quality in building design and retrofits, including in City facilities. The upcoming refresh will include a focus on our approach to improving both the safety and quality of existing buildings and the protection of residents within those buildings. The recommendations from the Vancouver Planning Commission memo will aid in directing work on heat and air quality planning during the update.

In addition, the Vancouver Plan is beginning to incorporate climate-related risk mitigation into land use planning and the engineering asset management policy includes assessment of climate risk. Likewise, the Urban Forest Strategy is currently being updated with a new target set by Park Board of 30% canopy cover by 2050. Staff are also working collaboratively with Vancouver Coastal Health and BC Housing to better understand the impacts of extreme heat

and other hazards on different communities across the city, and examine unique risk profiles inherent to neighbourhoods.

Please direct any additional questions or concerns to Theresa O'Donnell ([theresa.o'donnell@vancouver.ca](mailto:theresa.o'donnell@vancouver.ca)) or Doug Smith, Director of Sustainability ([doug.smith@vancouver.ca](mailto:doug.smith@vancouver.ca)).

A handwritten signature in black ink that reads "Theresa O'Donnell". The signature is fluid and cursive, with the first name "Theresa" and last name "O'Donnell" clearly legible.

Theresa O'Donnell  
General Manager, Planning, Urban Design and Sustainability  
604.673.8434 | [theresa.o'donnell@vancouver.ca](mailto:theresa.o'donnell@vancouver.ca)



## Appendix A.

Table 1. Responding to the VPC memo recommendations with existing actions and further considerations.

VPC Motion Category	Existing City Efforts	Long Term Actions and Planning Considerations
1.Equity and Accessibility	<p>Strategic direction on equity is guided by Vancouver's recently adopted <u>Equity Framework</u> – a race-forward equity approach. The City's Climate and Equity Working Group, and the forthcoming Climate Justice Charter, will also help inform and shape our adaptation work going forward.</p> <p>Short and long-term actions in this memo focus on groups disproportionately impacted by heat and poor air quality, and barriers to accessing existing City supports. Mapping of hot areas, existing cooling infrastructure and social vulnerability is being used to identify gaps in risk management.</p> <p>Annual planning for heat response includes working with front line service staff to identify the best locations for temporary infrastructure such as misters and water fountains.</p>	<p>Build on the Resilient Neighbourhoods Program pilot to expand community-based support during emergencies and develop a community-led DTES Response and Recovery Plan that identifies block by block heat response considerations for the DTES and DT (Res. Van. Strategy action).</p> <p>Explore options for a sustainable resilience grants program.</p>
2/10.Shade and Seating	<p>Engineering installed 12 parklets in 2020 that are still supporting community and allow for additional areas of seating and respite. Some of these parklets provide</p>	<p>Council has given direction to staff to adapt the policy directions in the Downtown Public Space Strategy for city-wide policy and</p>

	<p>shaded seating and many are co-located with spaces near social services.</p> <p>Staff recognize the importance of accessible covered and shaded outdoor seating. The Downtown Public Space Strategy (Places for People), adopted by Council in May 2020, gives policy direction to support the provision of ample and diverse public open spaces in each downtown neighbourhood. These smaller open spaces, in particular, are critical to providing access to seating and shaded areas in close proximity to residents' homes, local businesses, and throughout the public realm.</p> <p>Park and active transportation design consider the impacts of climate change including shade provision<sup>7</sup>.</p> <p>Parks are open 6am until 10pm unless otherwise posted and the Park Control By-law is not actively enforced if there are no behavioural issues being reported. Beaches are supervised by lifeguards in the summer until 8:30pm. Outdoor pool operations and beach lifeguarding rely on appropriate levels of light as a key factor for safety (lifeguarding) and extending hours later would present a staff safety issue.</p> <p>The Climate Levy has provided funding for improvement of the urban forest in 2022. Tree planting efforts will continue targeting neighbourhoods with low canopy cover, high summer temperature and those identified in the Van Play Equity Initiative Zones.</p>	<p>through Vancouver Plan this work is underway.</p> <p>Provision of shaded seating in parks is an action in Van Play that will be implemented through park refurbishment and design standards. Staff will also be exploring opportunities to expand the types and quantities of seating on sidewalks offered through a new Street Furniture Contract. The current 20-year contract expires at the end of 2023 and planning for a new contract is underway.</p> <p>Van Play, and the Urban Forest Strategy prioritize historically underserved areas for new or improved parks and canopy cover. The Park Board adopted a canopy cover target of 30% (a 7% increase) by 2050 and a refreshed UFS is currently being developed.</p> <p>Included in urban forest considerations is sidewalk accessibility and risk management. As lot coverage increases to allow for density, less space is available for trees. Staff need to collaborate across departments to consider novel ways of providing enough space for trees and sidewalks and testing new streetscape typologies. Appropriately resourcing the urban forest requires further attention to ensure long term tree health and reduced conflict with infrastructure.</p>
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<sup>7</sup> From Van Play Park Master Plan: "new and renewed parks provide protection from heat and rain, adequate drinking water, places to sit, and sufficient tree canopy so they can be resilient to, and are able to provide comfort to the community during extreme weather."

3.Cold Water	<p>The City's Arts, Culture and Community Services (ACCS) and Engineering departments collaborate annually to identify locations for water assets using an equity framework with an applied intersectionality score. To ensure those populations most vulnerable are served, 10 temporary drinking fountains and 10 handwashing stations (with water drinking access via a side tap) were deployed in 2021 (in addition to the 240 permanent water fountains) as well as 13 misting stations. This initiative will be continued in the summer months of 2022. In 2021, these temporary installations were augmented by VFRS installing additional heavy misting stations in the DTES.</p> <p>In 2021 staff facilitated distribution of bottled water from the Foodbank and the City to the Atira Hub, VPL locations, Carnegie, Evelynne Saller, and the Gathering Place community centres for distribution to the community.</p>	<p>Both engineering and the Park Board continuously review opportunities for access to water and have programs to add water fountains in deficit areas. The City will be exploring strategies to increase access to water and washrooms through the forthcoming city-wide Water &amp; Washrooms Strategy.</p> <p>Van Play includes the target of adding one net new spray park across the network each capital plan. The rate of addition is limited by increasing costs. In 2023-2026 the Park Board anticipates adding a full spray park at Memorial Park south, as well as a more modest feature at Collingwood Park. They are also in the early stages of scoping the feasibility of adding misting/cooling play features during playground renewals. Park's staff are also reviewing wading pool hours.</p>
4.Washrooms	<p>The <a href="#">Parks Washroom Strategy</a>, adopted in November 2020, is based on Van Play's Equity Initiative Zones. During the COVID-19 pandemic, the City implemented pilot initiatives to expand access to water and public washrooms, including temporary washrooms and water stations in the Downtown Eastside and temporary portable washrooms at alcohol consumption pilot plaza sites.</p> <p>There are a total of 18 washroom facilities in the city that are open 24 hours a day throughout the year. There are six automated public toilets (APT) and 12 portable toilets (located in parks). An additional 50 portable toilets are</p>	<p>The City is exploring strategies to increase access to water and washrooms through the forthcoming city-wide Water &amp; Washrooms Strategy, including during periods of extreme heat or other extreme climate events. As part of the project, City staff intend to consult with various stakeholders and demographic groups.</p>



	<p>added during the summer months. Across the city there are also washrooms in libraries, community centres and field houses which are open largely during the daytime. An additional 11 public washroom facilities such as portable washroom trailers are open during various hours ranging from 6am to midnight.</p> <p>Through Homelessness Services and Social Policy (ACCS), staff are working with non-profits to address location and population gaps when it comes to access to safe washrooms. The Washroom Trailer Program is one example of tailoring washroom programs for people who are homeless/precariously housed, people who use drugs, sex workers and 2SLGBTQQIA and racialized people in the DTES, Downtown South, and Kingsway area.</p> <p>For people without internet access, the City communicates resources through peer and non-profit partner networks, and by locating access to water and washrooms where people are at. In addition, clear signage is provided at the entrance to public washrooms.</p>	
5.Charging Stations and Internet Access	In 2021 staff worked together across departments to provide outdoor wifi access at pop up parklets across the city.	Through the next four-year capital plan, staff are exploring outdoor public wifi opportunities.
6.Poorly Housed	The City's Non-market Housing Operations (NMHO) provides common cool rooms with HEPA filtration during heat events either on a permanent or temporary basis. During heat waves or extreme heat periods, NMHO provides bottled water to tenants, personal desk-top fans for those individuals living in SROs, and increases	Staff will be exploring options to require building operators and landlords to make provisions for heat wellness checks, have a heat emergency response plan and provide cooling and air filtration in common spaces.

	<p>daily wellness checks to twice per day. NMHO maintains a tenant lists of those individuals who have health conditions, mental health complexities, mobility barriers, disabilities, are senior, or at greater risk in order to be able to easily identify who among the tenant population requires reinforced supports in times of crisis or emergencies. The City also completed a cooling study of six NMHO buildings to outline future capital projects.</p> <p>The City has formalized and strengthened its relationship with the Downtown Eastside (DTES) SRO Collaborative, a grassroots advocacy organization established in 2017 to promote the wellbeing and rights of SRO residents (including seniors and people with disabilities) through peer-led initiatives. The City team works closely with this group in preparation for summer heat.</p>	<p>Promotion of the BC Housing toolkit for building operators will be expanded to support key actions to take during a heat event.</p> <p>Likewise, staff will be working with other levels of government on improved access to affordable air purifiers and air conditioning units for individuals most disproportionately impacted.</p>
7.Unhoused	<p>Cooling centres are provided at 12 community centres and most library branches all of which are wheelchair accessible. Pets are permitted at several cooling centres to reduce barriers to access. In summer 2021 the City added two overnight cooling centres to the response plan for heat events. During heat response, homelessness services outreach teams actively help get people to cooling stations and aid in removing individual barriers.</p> <p>Relocating individuals to hotels with air conditioning is not a feasible option at this time.</p>	<p>Staff will continue to expand the cooling centre and clean air space network both within City facilities and throughout the community in partners' facilities.</p> <p>Staff will also be removing barriers for individuals accessing cooling centres such as accepting belongings and pets and transport to the centres.</p> <p>The City partners with BC Housing as the operator to run temporary shelters and will ensure that these spaces have appropriate means of cooling and air filtration.</p>

<p>16. Buildings Design Standards: heat and air quality</p>	<p><b>Heat:</b> Currently the VBBL includes Canada’s first code requirement for limiting indoor air temperature to reduce the risk of overheating in buildings resulting in an approximate 70% reduction in overheating compared to typical multifamily buildings designed prior to 2016. The VBBL also <i>recommends</i> even more stringent limits to nearly eliminate overheating in buildings with vulnerable populations, which has prompted housing providers such as BC Housing to design for air conditioning in most new building designs.</p> <p>Staff are proposing to require air conditioning in residential spaces for all new buildings via changes to the Vancouver Building By-Law in 2025. Staff are also working on developing requirements for passive building strategies to limit over-reliance on air-conditioning.</p> <p>Other proposed changes include building modelling using future temperature files (temperatures projected from climate models for the future) to ensure buildings can keep occupants within safe thermal conditions throughout the life of the building. Staff are also exploring new metrics from the National Research Council on temperature limits and overheating risks in buildings based on health research.</p> <p><b>Air Quality:</b> Due to recent improvements resulting from the Zero Emissions Building Plan (2016), the Building By-law (VBBL) today includes many stipulations that support cleaner indoor air including airtight building envelopes keeping pollutants out and fresh air ducted directly to suites improving air circulation. Information from the BCCDC is available on the City’s website</p>	<p><b>Heat:</b> Provincial and National codes and standards development are now prioritizing overheating and extreme heat as an issue of life-safety and accessibility. Staff will participate in codes and standards development where possible and explore pro-actively adopting new standards as they become available.</p> <p><b>Air Quality:</b> Vancouver Plan is exploring the question of where new homes should be located within the city, as well as the relationship of housing, transportation, natural systems and many other considerations.</p> <p>The Climate Emergency Action Plan actions will improve air quality through mode shifts in transportation, lower building emissions, increased vegetation in the city, etc.</p> <p>Staff will continue to work with experts at Metro Vancouver, Vancouver Coastal Health and C40 to promote best practices for land use and building design related to air pollutants generally.</p>
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	<p>including what filters to buy to reduce wildfire smoke indoor air pollution and how to make a simple filter.</p> <p>Staff have completed a study on filtered air in multifamily buildings to mitigate traffic-related and other air pollution such as wildfire smoke and are proposing to require higher levels of filtration for all new construction for Building By-law changes for 2023.</p>	
8.Tenant Rights		<p>Staff will explore policy and regulatory options to promote building operators and landlords to make provisions for heat wellness checks, have a heat emergency response plan and provide cooling and air filtration in common spaces and post information on the closest cooling options. Likewise, staff will explore advocacy opportunities related to heat/air quality and the Residential Tenancy Act.</p>
9.Check-ins and Supports	<p>The Current Initial Response Guideline for heat includes increased park monitoring by Park Rangers.</p> <p>Staff are exploring the options for conducting heat wellness checks via 311 and in partnership with community-based organizations and networks.</p> <p>VEMA currently offers a course in emergency preparedness and has several programs and toolkits available such as the: Neighbourhood Emergency Program (NEPP), the Resilient Neighbourhood Toolkit and the Business and Employer Emergency Preparedness tools.</p>	<p>The Green and Resilient Buildings Team in Sustainability is exploring policies to improve resilience in buildings. This includes a focus on improving both the safety and quality of existing buildings and the protection of residents within those buildings.</p>

12. Communication	<p>A toolkit on heat for building operators was developed by BC Housing. The City partnered on developing a series of webinars with BC Housing and BC Non-profit Housing Association on heat response which are available. City communications will ensure these are linked to on the City heat website.</p> <p>In 2020, Updated signage with translations was provided to community centres and libraries with air-conditioning, to identify these locations as cooling centres.</p> <p>The City has adopted the Alertable public alerting platform for our own emergency notifications. This app-based tool can be used to send alerts to residents informing them of hazard events and where they can seek support.</p>	
13. Unintended Consequences	<p>The Vancouver Plan, under development at time of writing, is considering climate change related risks such as extreme heat across all the chapters to mitigate against unintended consequences.</p> <p>The spatial information used in the needs assessment highlighted in the body of this memo will include identifying neighbourhood areas with high proportions of individuals likely to be more vulnerable during heat events.</p> <p>The Climate Equity Working Group has been working with staff to review the impacts of climate change policy and provide direction. The group and staff are currently working on a Climate Justice Charter.</p>	Staff will continue to explore and improve understanding of building types and areas that are disproportionately impacted by heat and poor air quality events and incorporate measures into land use planning and heat preparedness and response planning.
14. Mobile and Flexible Solutions	See short term action in the body of the report. Staff are working closely with Vancouver Coastal Health, the	Staff explored the option of using public buses as cooling stations during heat response in summer 2020. Translink does not have the



	Province and other partners to explore options for transportation to cooling centres.	fleet or capacity to have buses out of service providing cooling. They have added and will continue to add air conditioned buses to their fleet.
15.Collaboration and Community Building	As mentioned in the body of the report, there are a range of short term actions with a focus on engaging partners, advisory committees and community organizations serving those most disproportionately impacted by heat events. Staff are soliciting feedback from Council Advisory Committees and will be organizing workshops with community-based organizations prior to summer 2022.	Building on the Resilient Neighbourhoods Program, staff plan to set up an improved network of community-based partners to lead place-based resilience actions and for heat and poor air quality planning and response and more regular opportunity to engage.