

CityStudio Partnership**Public Infographics for Special Weather Statements and other Small-Scale Emergencies****Project Summary:**

For students to come up with engaging, accessible graphics for release through social media and/or poster format on less-frequently discussed emergencies like extreme weather, power outages, or chemical spills. Language and graphics should not scare people, but should empower them to undertake safety behaviours and actions.

Background:

Each year, the City of Vancouver experiences small-scale emergencies that impact members of the public. While we have information on what safety-behaviours and actions we want members of the public to take in these scenarios, we don't have an engaging, visual way of getting this information out across multiple channels.

Audience:

Members of the public who work or live in the City of Vancouver and may be, or may know someone who may be, impacted by frequent, smaller scale emergencies.

Possible Topics:

1. Extreme Heat
2. Extreme Cold
3. Power Outages
4. Stay Indoors or Shelter In Place
5. Gas Leaks

Note: there is definitely overlap in the messaging around these. For example, gas leaks and chemical fires may trigger stay indoors directives, extreme cold may cause power outages, etc.

See below for a detailed description of each topic and the desired safety actions/behaviours associated with these topics.

Extreme Heat**General Information and Definitions:**

Extreme heat events are periods of time when the temperature is high enough that we can expect to see adverse health effects. There are two levels of extreme heat outlined below. These levels have been developed by Environment Canada and local health authorities based on data showing correlation between predicted temperatures and adverse health effects.

1. Special Weather Statement for Hot Weather / VCH Hot Weather News Release

When temperatures $\geq 32^{\circ}\text{C}$ are expected for at least two consecutive days at Abbotsford, Hope or Pitt Meadows weather stations, Environment Canada will issue a *Special Weather Statement for Hot Weather* and Health Authorities will issue a *Hot Weather News Release*.

2. Heat Warning / VCH Heat Health Warning

In more severe cases, a *Heat Warning* (Environment Canada Bulletin) may be issued when the average of today's 14:05h temperature and tomorrow's forecasted high is $\geq 34^{\circ}\text{C}$ at Abbotsford or $\geq 29^{\circ}\text{C}$ at Vancouver. This average predicts a high of $\geq 36^{\circ}\text{C}$ in Abbotsford and $\geq 31^{\circ}\text{C}$ in Vancouver. During such periods, there is a potential for hot weather conditions to result in an unacceptable level of health effects; VCH Medical Health Officers will issue a Heat Health Warning to the media and local governments.

Risk and Vulnerable Populations:

In 2009, the Lower Mainland extreme heat event led to approximately 120 excess deaths. North American heat waves are already responsible for more deaths annually compared to flooding, hurricanes and tornadoes. Longer lasting extreme heat events are forecasted globally. Extreme heat effects are exacerbated by social isolation and lower incomes. Individuals at higher risk include homeless populations; seniors (particularly those homebound); small children; people who work or exercise outdoors; and those with health problems (addiction problems, breathing difficulties, heart conditions, and/or mental illness). The occurrence of high levels of humidity, reduced air quality levels, and/or extended durations of heat events are all potentially aggravating factors that can negatively affect health and put people at increased risk.

Desired Actions and Behaviours:

When outside temperatures are very high, the danger for heat-related illnesses like heat exhaustion or heat stroke increases. The following are some precautions you can take to help prevent these serious illnesses:

- **Stay cool:** Spend several hours every day in an air-conditioned facility. Avoid sunburn, stay in the shade, or use sunscreen with SPF 30 or higher.
- **Drink plenty of water:** Drink cool, non-alcoholic beverages (preferably water) irrespective of your activities. Don't wait until you are thirsty. A map of water fountains throughout Vancouver can be found here: <http://vancouver.ca/home-property-development/water-fountains.aspx>

- **Check in on others:** People living alone are at high risk of severe heat related illness. Check regularly on older people, children, those with chronic illness, and anyone else unable to leave their un-air conditioned homes.
- **Never leave children or pets in a parked car:** Temperatures can rise to dangerous levels within minutes in an enclosed vehicle when the outside temperatures are elevated. Leaving the car windows slightly open or "cracked" will not keep the inside of the vehicle at a safe temperature.
- Avoid strenuous work during the warmest part of the day. Use a buddy system when working in extreme heat, and take frequent breaks.
- Dress in loose-fitting, lightweight, and light-colored clothes that cover as much skin as possible. Avoid dark colors because they absorb the sun's rays.
- Protect face and head by wearing sunblock and a wide-brimmed hat.
- Postpone outdoor games and activities.
- Stay indoors as much as possible and limit exposure to the sun.

For updated weather information, please visit: https://weather.gc.ca/city/pages/bc-74_metric_e.html

General Information and Definitions:

The World Meteorological Organization defines Severe Weather as “any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life”. Such weather events are not easy to predict as they may be localized and occur with little warning. For the purpose of emergency response, severe cold weather events in Vancouver are defined as:

- Snowfall
- Extreme cold
- Winter storms, freezing rain, or blizzards

Special Weather Statements and Warnings issued by Environment Canada (EC) are useful prompts for local risk assessments. However, these alerts are regional and do not always provide sufficient details regarding the Vancouver microclimate (i.e. snowfall levels are often higher in parts of the Fraser Valley). See table below for details.

Risk Assessment:

The 2008 City of Vancouver (COV) Hazard Risk and Vulnerability Assessment (HRVA) and the 2013 Metro Vancouver HRVA both identify extreme weather as a primary hazard of concern for our region. Furthermore, COV’s Climate Adaptation Strategy highlights the risks from severe weather episodes which are becoming more frequent and damaging.

Although the safety of first responders and the public are of primary concern, the potential effects of severe weather on transportation, energy, utilities, communications/IT, and water infrastructure can heavily impact the City’s capacity to provide critical municipal services.

Individuals suffering from social isolation, those living alone with mobility and health issues, and homeless populations are particularly vulnerable to severe weather episodes (particularly long term events).

Public Messaging:

Environment Canada has issued a Severe Weather Statement or Warning affecting the City of Vancouver.

- COV is implementing its Severe Weather plan to counteract any adverse impacts on the public, critical infrastructure, or municipal services.
- The public is encouraged to stay informed with regard to public warnings, advice, and other messaging from the City of Vancouver (via COV news media, social media).
- The City is encouraging everyone to look out for others, especially vulnerable populations such as the elderly, homeless, persons with underlying health conditions and mobility challenges
- More information on Severe Weather Statements or Warnings can be found at weather.gc.ca/warnings.
- Information on the City’s response may be found at vancouver.ca or by calling 311.

If you are able to safely get outside, we are requesting the following support:

1. Shovel snow off of your sidewalks.
2. Assist your neighbours with clearing snow from their sidewalk spaces.
3. Salt shovelled areas to prevent ice build-up.
4. Check on neighbours, family and friends who may be vulnerable in these weather conditions.
5. Report any street ice or other snow-related hazards to 311 (alternate number for 311 is 604.873.7000).
6. Get the VanConnect app – a quick and easy way to connect with the city 24 hours a day, 7 days a week. VanConnect can help you to report hazards, flooding or other issues. Give a short description, add the location and upload a photo with your submission. <http://vancouver.ca/vanconnect.aspx>

As always, safety is our priority. Please ensure you are wearing necessary personal protective equipment, try to use a buddy system, and if you come across any hazardous areas, stay clear and be safe. Please do not put yourself in harm's way.

Severe Weather Definition Table:

Hazard	Environment Canada Thresholds for Metro Vancouver Weather Warnings	Thresholds of Concern for COV Departments
Snowfall	1. 10 cm or more of snow falls within 12 hours or less; OR 2. 5 cm or more of snow falls within six hours or less.	Snow accumulations over 5cm for an extended period of time, with temperatures of 3°C and below.
Extreme Cold OR Arctic Outflow	Extreme Cold: Issued when the temperature or wind chill is expected to reach minus 35°C for at least two hours. Arctic Outflow: Any combination of wind speed and temperature giving a wind chill of -20°C or lower for 6 hours or more. A separate Wind Warning is not required.	General concerns when temperature expected to reach -10°C for two consecutive nights. GVSS Shelter Activations occur at -2°C, near 0°C with heavy rain, high winds or snow accumulation
Freezing Rain	1. Occurrence of freezing rain that is expected to pose a hazard to	

	transportation or property; OR 2. Freezing rain of duration 2 hours or more.	
Wind	1. 70 km/h or more sustained wind; and/or 2. Gusts to 90 km/h or more.	

Power Outages**General Information and Definitions:**

A power outage is generally understood as *the loss of primary power from BC Hydro*, which can result from damage to generation infrastructure (e.g. hydroelectric facilities), transmission infrastructure (e.g. high-voltage power lines, submarine cables, substations & transformers) and/or distribution infrastructure (e.g. distribution lines and meters).

Significant outages:

- Affect more than 5,000 customers
- Have an Estimated Time of Restoration of more than 4 hrs
- Seriously disrupt the delivery important services or damage critical assets / infrastructure
- Cause considerable inconvenience to residents and businesses
- Threaten the well-being of vulnerable populations

Risk Assessment:

Power outages are not uncommon events and in most cases, interruptions are managed efficiently and do not require the implementation of emergency plans. Significant outages however, can be very disruptive to municipal operations, threaten the health and safety of residents and have a negative impact on the economy. While most impacts are readily managed by City departments, the range and variety of issues combined with the number of stakeholders affected may necessitate enhanced situational awareness or coordination.

Widespread and prolonged outages can create numerous problems for the City and its residents. From a public safety perspective, risks may include:

- Absence of indoor and outdoor lighting creates an increased public safety risk;
- Reliance on flame or fuel-based lighting, cooking and heating sources indoors can be a serious fire and carbon-monoxide hazard;
- Fire alarm and security systems create issues for responders when off-line and when they suddenly come back up (this can generate many false alarms and tie up responder resources in the field);
- Downed power lines and trolley lines can pose an obvious life safety risk to the public.

Services that are essential for day-to-day activities within the City can also be impacted when power is out, such as:

- The safe and efficient movement of goods and people when traffic signals are not functioning;
- SkyTrain, Canada Line and trolley bus services may be impacted and traffic may be re-routed;
- Interruptions to electronic communication (device and infrastructure);
- Impact to businesses that are power dependent but do not have access to generators or have continuity plans.

Special populations may also be at increased risk during major power outages and may require additional assistance or support from the City, such as:

- Mobility impaired individuals may be stranded in multi-storey buildings and require evacuation;
- Electricity and battery dependent individuals (e.g. home dialysis patients) may become medically or functionally vulnerable.

Public Messaging:

- The City is working with Hydro to expedite the restoration of services so we can get back to normal as quickly as possible.
- The COV has implemented its Power Outage Plan. Our priorities are to maintain essential services and provide assistance to people who are especially vulnerable at this time.
- The City is encouraging everyone to look out for others, especially those with disabilities or special needs and the elderly.
- More information can be found at vancouver.ca, @CityofVancouver, bchydro.com, @bchydro or by calling 311.

In addition to the above information, students may feel free to use information from the BC Hydro website: <https://www.bchydro.com/safety-outages/power-outages/prepare-for-outages.html> or the Government of Canada website: <https://www.getprepared.gc.ca/cnt/hzd/pwrtgs-drng-en.aspx>

General Information and Definitions:

Shelter-in-place entails people taking shelter inside their homes, schools, workplace, or other nearby indoor locations until the threat has passed. For example, during a chemical fire with hazardous smoke or during a gas leak, people may be asked to shelter-in-place or stay indoors to avoid smoke inhalation. Shelter-in-place is generally only used for short periods of time. Some people may be unable to evacuate on their own and may need to shelter-in-place until alternate arrangements can be made. Consideration must be given to the provision of food, water, medical support, and information for those who cannot evacuate.

For hazards that provide little or no warning, or where it is unsafe to evacuate, sheltering-in-place orders may be issued. Individuals who are unable to evacuate will be advised to shelter-in-place until help arrives. Depending on the emergency or hazard, an evacuation may follow shelter-in-place orders. Supporting residents to shelter-in-place may be preferable to evacuations, in particular if relocating residents is likely to cause undue stress, or if the services required by them cannot be provided elsewhere. For example, if support can be provided to enable seniors to safely remain in a senior's facility and maintain sufficient service levels, this may be preferable to relocating them to Group Lodging.

Public Messaging:

- If you are indoors, stay inside.
- If you are not indoors, go to the nearest accessible building.
- Keep windows and doors closed and do not operate vents that allow outside air inside.
- Use stairwells instead of elevators wherever possible.
- Monitor the City of Vancouver Twitter feed for updates.
- Continue sheltering in place until authorities indicate that the shelter-in-place order has been lifted.

Other Shelter-In-Place resources:

American Red Cross:

https://www.redcross.org/images/MEDIA_CustomProductCatalog/m4340182_shelterinplace.pdf

Centre for Disease Control: <https://emergency.cdc.gov/preparedness/shelter/>

Municipality of Wood Buffalo: http://www.rmwb.ca/Municipal-Government/municipal_departments/Emergency-Services---Law-Enforcement/Emergency-Management/Preparing-for-an-Emergency/Shelter-in-Place.htm

General Information and Definitions:

A natural gas leak is defined as an unexpected release of gas from a pipeline or other source into public areas, living areas or any other areas where gas should not be. Natural gas is composed of methane and other hydrocarbons. It is flammable and is a common energy source used for space heating, domestic hot water and cooking within residential and business units. Normally, small gas leaks can be contained by emergency personal and utilities companies, but in some instances, leaks may be serious enough that individuals are asked to evacuate an area.

Risk Assessment:

Leaks have the potential to cause extreme risk to public safety due to the flammable and explosive nature of the gas. The biggest hazard of a gas leak is an explosion. If natural gas accumulations are within the flammable range, the risk of an explosion increases.

While approximately 90 gas leaks occur each year in Vancouver due to damaged FortisBC lines, the majority are managed directly by FortisBC and Vancouver Fire and Rescue Services (VFRS) with minimal impacts to city services, residents and life safety. In some cases though, a coordinated response is necessary.

Public Messaging:

If you smell gas you are asked to:

- Stop what you're doing -do not use your cellphone or landline, do not turn on or off any electrical or battery-powered devices including appliances, elevators, lights or electrical switches as these could create a spark
- Go outside -leave the door open behind you as well as any windows that may already be open.
- Do not pull the fire alarm to evacuate the building
- Once outside -call 911 or FortisBC's 24-hour emergency line (1-800-663-9911)
- More information can be found by following @FortisBC, @VancouverPD, @CityofVancouver, or by calling 311.

The following key messages have been compiled to support the dissemination of information to the public during a gas leak event:	Key Messages
Evacuation	<p>If you have been displaced:</p> <ul style="list-style-type: none"> ■ A Reception Centre has been established at [location TBD] to provide information and support services to those displaced from their home or business. ■ All impacted residents or tenants should register at the Reception Centre. Bring identification & documentation that proves your home or business is in the impacted area. ■ Arrange to stay with friends/family where possible

	<p>■ If you are unable to find accommodation, assistance will be provided to you at the Reception Centre.</p> <p>■ For pet owners requiring assistance with accommodation:</p> <ul style="list-style-type: none"> o [TBD Reception Centre or Animal Shelter] will provide assistance and shelter for your pet [include location & contact info] o Please bring pets & pet care items, including pet carriers, registration information and vaccination records o All exotic animals (snakes, spiders etc.) must be appropriately caged
<p>Re-entry:</p> <p>■ Check with your building manager or Reception Centre staff for updates about re-entry to your home</p> <p>■ Follow [insert appropriate social media feeds] for updates about area restrictions and re-entry</p>	
Safety	<p>Calls to 911:</p> <p>■ All non-emergency calls should be routed to 311 (City of Vancouver services) or FortisBC (1-888-663-9911)</p>
<p>If you smell rotten eggs or hear the sound of gas escaping:</p> <p>■ Stop what you're doing - do not use your cellphone or landline, do not turn on or off any electrical or battery-powered devices including appliances, elevators, lights or electrical switches as these could create a spark</p> <p>■ Go outside - leave the door open behind you as well as any windows that may already be open</p> <p>■ Do not pull the fire alarm to evacuate the building</p> <p>■ Once outside - call 911 or FortisBC's 24-hour emergency line (1-800-663-9911)</p>	
<p>If you have been allowed to return home but do not have your natural gas restored yet:</p> <p>■ Do not attempt to re-light pilot lights yourself. Call FortisBC (1.877.711.8877) to schedule your re-lights.</p> <p>■ If your heat or cooking sources are out of service, arrange to stay with family/friends, register at a Reception Centre or call 311 for support</p> <p>■ Do not attempt to heat your home by using a BBQ or other outdoor heating devices like patio heaters. They are a fire and safety hazard, can emit deadly carbon monoxide and therefore should NEVER be used indoors.</p> <p>■ Never plug a portable generator into a regular household electrical outlet. It is not permissible to connect a home portable or stationary generator directly to a house wiring system without the proper installation of a CSA-approved transfer switch.</p> <p>■ Gas powered generators should never be used indoors. They</p> <p>■ Only operate portable generators and stoves outdoors and in locations where the exhaust cannot enter into your home (or other buildings) through doors or windows. They are a fire and safety hazard, can emit deadly carbon monoxide, and therefore should NEVER be used indoors.</p>	

Traffic & Transportation	<p>To find the most up-to-date information about road closures and reroutes:</p> <ul style="list-style-type: none">■ Follow @VancouverPD on Twitter <p>To find the most up-to-date information about impacts to SkyTrain and buses:</p> <ul style="list-style-type: none">■ Follow @TransLink on Twitter■ Visit http://www.translink.ca/en/Schedules-and-Maps/Alerts.aspx
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