1 Air Quality

1. Air Quality Management

Photo Credit: Big Valley Jamboree

The rising temperatures and heightened wildfire activity, as underscored by the findings of the Camrose Vulnerability and Risk Assessment (CVRA), there arises a pressing concern regarding air quality and its implications for outdoor events in Camrose. The CVRA's insights shed light on the link between climatic shifts, particularly hotter summers, and the exacerbation of wildfire occurrences, thereby prompting a necessary dialogue on how these environmental factors intersect with the safety and feasibility of outdoor gatherings in Camrose.

The method used to determine the national Air Quality Health Index (AQHI) draws from research carried out by Health Canada, utilizing health and air quality information gathered from prominent urban areas throughout Canada. This index serves as an indicator of the comparative risk posed by a combination of typical air pollutants known to have detrimental effects on human health.

As of right now, the City of Camrose does not have a set policy for managing outdoor gatherings in the event of poor air quality. This absence underscores the need for proactive measures and strategic planning to address the emerging concerns regarding air quality and its potential impact on public health and safety during outdoor events. Establishing these policies could serve to safeguard the well-being of event attendees and mitigate risks associated with poor air quality episodes.

Outdoor events play a pivotal role in fostering a sense of community and social cohesion. Ultimately, our policy is to strike a balance between preserving cherished events and safeguarding public health, ensuring that Camrosians can continue to enjoy the vibrancy of outdoor events in a safer environment.

> **“Wildfire smoke can be harmful to everyone’s health even at low concentrations. Everyone can take action to reduce their exposure to wildfire smoke - Environment Canada**

Link to the Air Quality Health Index: https://airquality.alberta.ca/map

Events Over 200 People:

1. **Outdoor Sport Tournaments Events (Camrose night classic)**
    a. When air quality is low risk (1-3) events will continue with no necessary precautions.
    b. When air quality is a moderate risk (4-6) events will continue. Some precautions need to be in place:
        i. Mandatory indoor breaks
        ii. Longer timeouts
        iii. Longer breaks between plays
        iv. Have 1 certified first aider per 50 people
        v. People with existing health conditions (asthma) should take precautions
    c. When air quality is high risk (7-10+).
        i. The tournament will be postponed or rescheduled until air quality is better
2. **Outdoor Festival Events (BVJ, Jaywalkers)**
    a. When air quality is low risk (1-3) events will continue with no necessary precautions.
    b. When air quality is a moderate risk (4-6) events will continue. Some precautions need to be in place:
        i. Encourage people to take indoor breaks
        ii. People with existing health conditions (asthma) should take precautions
    c. When air quality is high risk (7-9) event needs to be rescheduled or canceled unless you have these precautions in place
        i. Encourage all attendees and workers to wear N95 masks (Kodros et al., 2021)
        ii. People with existing health conditions (asthma) should take precautions
        iii. First aid trailers with trained first aid responders
        iv. Paramedics present with ambulances easy to access
    d. Air quality is very high risk (10 or greater).
        i. The event needs to be rescheduled or canceled

Events Under 200 People:

1. **Outdoor Events**
    a. When air quality is low risk (1-3) events will continue with no necessary precautions.
    b. When air quality is a moderate risk (4-6) events will continue. Some precautions need to be in place:
        i. Mandatory indoor breaks
        ii. People with existing health conditions (asthma) should take precautions
    c. When air quality is high risk (7-9), the event must be rescheduled unless you have these precautions in place.
        i. Encourage all attendees and workers to wear N95 masks (Kodros et al., 2021)
        ii. People with existing health conditions (asthma) should take precautions
        iii. Have 1 certified first aider per 25 people
    d. When air quality is very high risk (10 or greater)
        i. The event needs to be rescheduled or canceled
2. **Outdoor Sport Leagues**
    a. When air quality is low risk (1-3) events will continue with no necessary precautions.
    b. When air quality is a moderate risk (4-6) events will continue. Some precautions need to be in place:
        i. Mandatory indoor breaks
        ii. People with existing health conditions (asthma) should take precautions
        iii. Longer timeouts
        iv. Devote extra time for breaks (e.g. at the end of the 4th inning in baseball have a 10-minute indoor break)
        v. Have 1 certified first aider per 25 people
    c. When air quality is high risk (7-10+).
        i. The tournament will be postponed or rescheduled until air quality is better

2

Heat

Photo Credit: Big Valley Jamboree

2. Heat management

As the CRVA outlined Camrose summers are expected to increase in temperature every year as climate change affects the environment around us. If hotter days are expected to be the new normal Camrose policy will have to change to adapt to a warmer climate. The temperature increase will result in Alberta reaching new records for hottest days and longer lasting heat waves (Smoyer-Tomic et al, 2001).

As of right now Camrose policy is to cancel events after they reach a threshold of sustained temperatures over 31 degrees Celsius. With summers expected to reach this temperature more often, new methods must be created in order to ensure the safety of its citizens and event goers.

> **“Because summer is so short in Camrose we cannot delay every event that falls within a heat warning. What we can do is prepare for situations when they do.**

A summer without events in Camrose just wouldn’t be the same with many events becoming staples within the community. Jaywalkers, Big Valley Jamboree (BVJ), and outdoor sports are all crucial components of the Camrosian summer but policy around these events changes depending on size. Because of this we have identified events based on whether or not the attendance will surpass 200 people. The reasoning for this is that the policy affecting BVJ will not be the same as a little league baseball or soccer game. The recommendations put forward come from analysis of more southern Canadian cities like Montreal or Toronto whose policies are designed for hotter days.

Photo Credit: Big Valley Jamboree

Outdoor events over 200 people:

- Baseball Canada cup
- Spartan Races
- Jaywalkers
- Kick’n country parade
- Big Valley Jamboree

Events under 200 people:

- Soccer under the lights
- Farmers market
- Recreational league games
- pickleball leagues
- tennis leagues

Policy Recomendation’s for weather exceeding 31 degrees Celsius

- Mandatory Cooling stations (Widerynski et al, 2023)
- Generating a Heat response plan specific to the event (Smoyer-Tomic, 2001)
- Mandatory shaded areas for line-ups and crowds (Sambrook et al, 2023)
- Rehydration stations on site or areas to fill water (Sambrook et al, 2023)
- On-site medical staff equipped to deal with heat related illnesses, recomended 1 first aider per 50 people (Widerynski et al, 2023)

Policy recomendations for weather exceeding 31 degrees Celsius

- mandatory shading for athletes on the bench
- Longer time outs
- increased breaks and time for participants to get to air conditioned areas
- Coaches must bring water jugs for athletes to fill water bottles
- Increased information provided to leagues about proper hydration before events (Zein et al, 2020)

3

Wind

3. Wind management

In the coming decades as the climate in Camrose devlopes new normals, one area of change will be the frequency and intensity of high winds and tornadoes. These aspects of climate change were outlined in the CVRA as a major risk moving forwards and are certain to make an impact on outdoor festivals. The Camrose community has already witnessed the dangers associated with high winds at festivals firsthand in 2009 when a stage collapsed at BVJ. To ensure outdoor festivals can continue to operate safely as winds get progressively worse a strategic wind management plan is needed.

While there is certainly a threshold to when an outdoor event can safely operate in the presence of high winds, there are also steps that can be taken to boost an events tolerance to wind. By addressing the most significant risks associated with high winds events could continue to operate.

When strong winds are present, the biggest danger to outdoor festival atendees come from non-permanent structures (Bieda, 2022). These can include anything from tents to stages and any other temporary fixtures set up for an event. Non-permenant structures are easy to set up and take down making them invaluable to event organizers but they are also more vulnerable to high winds. When non-permenant structures collapse or are picked up by wind they can create dangerous situations. In order to minimize the risks of these structures, precautions can be taken to ensure participants are able to enjoy the events safely.

Recommended precautions should vary based on the size and nature of the event. The Beaufort scale should be used to quantify stages of recomendations as it provides visual cues and km/h measures of each stage.

> **If outdoor events take precautions to mitigate the risks associated with strong winds they will be able to continue to operate safely as Camrose's climate changes.**

Photo Credit: Big Valley Jamboree

The Beaufort Scale

FORCE (BEAUFORT SCALE)	WIND SPEED (KM/H)	DESCRIPTION	EFFECTS ON LAND
0	Less than 1	Calm	Smoke rises vertically
1	1 – 5	Light air	Direction of wind shown by smoke drift, but not wind vanes.
2	6 – 11	Light breeze	Wind felt on face. Leaves rustle. Ordinary vane moved by wind.
3	12 – 19	Gentle breeze	Leaves and small twigs in constant motion. Wind extends light flag.
4	20 – 28	Moderate breeze	Raises dust and loose paper. Small branches are moved.
5	29 – 38	Fresh breeze	Small trees with leaves begin to sway. Crested wavelets form on inland waters.
6	39 – 49	Strong breeze	Large branches in motion. Whistling heard in telephone wires. Umbrellas used with difficulty.
7	50 – 61	Near gale	Whole trees in motion. Inconvenience felt in walking against wind.
8	62 – 74	Gale	Breaks twigs off trees. Generally impedes progress. Walking into wind almost impossible.
9	75 – 88	Strong gale	Slight structural damage occurs, e.g. roofing shingles may become loose or blow off.
10	89 – 102	Storm	Trees uprooted. Considerable structural damage occurs.

Recomendations for Events Over 200 People:

Large Outdoor Festivals (BVJ, Jaywalkers)

<u>To increase wind tolerance event organizers should take the following precautions</u>

1. **Create a risk assessment for all temporary structures**
    a. A list of all temporary structures should be formed
    b. The tolerance of all structures should be evaluated using the Beaufort scale (Bieda, 2022)
2. **Educate event staff on risks associated with wind**
    a. Event staff should be comfortable monitoring the structures
    b. Staff should be provided with risk assessments
    c. Staff should be able to alert key team members of wind-related issues
3. **Plan precautionary measures for when a structure approaches its wind tolerance**
    a. Reinforce structures with additional anchoring
    b. Remove structures that could become airborne
    c. Limit access to areas of risk (stages, scaffolding, bleachers)
4. I**dentify a maximum threshold for the event**
    a. This will be determined by the safety rating (in terms of Beaufort scale) of key equipment (i.e. BVJ main stage)
    b. When a threshold is exceeded an action plan should be engaged.

<u>To Protect participants in the event of unsafe winds</u>

If the event is in progress:

1. **Identify protective areas to shelter participants**
    a. Low areas away from debris
    b. Stable buildings

If the event has yet to begin

1. **Cancel/postpone/delay the event**
    a. Await conditions that fall within an events wind tolerence

***Identifying the wind tolerannce of an event in terms of the beaufort scale is key to managing risks**

Recomendations for Events Under 200 People:

Smaller gatherings (recreational sports leagues, ect)

1. **Identify hazards associated with the activity**
    a. Dust becoming hazard
    b. Airborn objects
2. **Minimize the risk of any temporary structures**
    a. Reinforce all non-permenant structures
    b. In strong winds minimize use of these structure
3. **Evaluate the events wind tolerance**
    a. State where activity becomes impractical
    b. Level of wind where hazards could cause harm
4. **Create plans for alternative measures**
    a. Plans to rescendule
    b. Protocol for concluding the event in presence of high winds