BRIEFING NOTE

Subject: Air Quality Policy Recommendations for Outdoor Workers
Date: 5th April 2024
Prepared for: General Manager of Community Development at City of Camrose
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Issue:

Wildfire smoke is estimated to claim roughly 339,000 lives per year internationally as it contains hazardous air pollutants such as carbon monoxide and nitrogen oxides.[1] With the world already seeing the effects of climate change and more frequent occurrences of wildfire smoke, many Albertan cities have been looking for ways to adapt to and minimize the risks of severe wildfire smoke exposure. This is especially the case for health risks faced by vulnerable groups such as outdoor workers. These workers spend the majority of their time outdoors performing strenuous activities that increase their risk of negative health impacts.

Background:

Wildfire smoke is a complex blend of gasses and particles, which poses a significant environmental health hazard. Its composition varies based on the materials burned and fire conditions. The health impacts of inhaling this smoke are substantial, particularly aggravating respiratory and cardiovascular conditions. Particulate matter is any small molecule found in air, $PM_{2.5}$, would be a molecule with a diameter of 2.5 μm or less. This is a health concern as the small particles can travel deep into the lungs, and can cause symptoms like eye, nose, and throat irritation, headaches, and respiratory difficulties.[2]

Current Status:

In recent years, Camrose has experienced various periods of poor air quality due to an increase of pollutant matter resulting from wildfire smoke. Based on the historical data recorded by the The World Air Quality Index Project,[3] records of the average daily air quality in the City of Camrose suggest that there is a dramatic increase in the days where the city experienced poor air quality comparing the summer of 2021 to the summer of 2023. In 2021 from May 1st to September 31st there were approximately 29 days which recorded a poor to unhealthy air quality in terms of $PM_{2.5}$. While 5 days were categorized as unhealthy to hazardous. In 2023 from May 1st to September 31st there were approximately 79 days of poor to unhealthy air quality (a 172% increase), and 18 days were unhealthy to hazardous air quality days (a 260% increase).

Recommendations:

Based on the current issue and recent research, the following recommendations are to benefit and support the outdoor workers for the City of Camrose. Recommendations are listed based on the order they should be implemented.

- **Follow AQHI** – Follow recommendations by the AQHI, monitor air quality on a regular basis.[4]
- **Communications** – Supervisors of outdoor workers should be informed when the AQHI is high and be given recommendations for how to best protect their workers.
- **Reduce Activity**–When AQHI is 7-10. Increase the amount of breaks indoors and limit physically demanding work.
- **Stay Hydrated** – Ensure workers have frequent water breaks as smoke exposure can lead to dehydration.
- **Move Indoors** – When AQHI is above a 10, move any non-essential outdoor workers (workers who are not pertinent to keeping the public safe) into clean air environments until the AQHI drops below a 10.[5]
    - Utilize current infrastructure such as the Camrose Recreation Centre as clean air shelters for workers to take breaks from the smoke.
- **Personal Protective Equipment** – For work that must continue outdoors when the AQHI is above a 10, workers should be supplied with particulate filtering facepiece respirators to protect from harmful particles.
    - Recommended PPE includes N99, N100, R95, P95, P99, and P100 masks.[6]

[1] Interpreting and responding to wildfire smoke in western Canada
[2] Guidance for Cleaner Air Spaces during Wildfire Smoke Events
[3] ACA Camrose Air Pollution
[4] About the Air Quality Health Index
[5] Wildfire smoke OHS information for employers and workers
[6] NIOSH-Approved Particulate Filtering Facepiece Respirators