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# The Regional Municipality of Durham Information Report

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From: Commissioner & Medical Officer of Health  
Report: #2025-INFO-70  
Date: September 12, 2025

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**Subject:**

Climate Change and Health Vulnerability Assessments; Air Quality Report

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**Recommendation:**

Receive for information

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**Report:**

**1. Purpose**

1.1 To provide an update on Durham Region Health Department's (DRHD's) Climate Change and Health Vulnerability Assessments (CCHVAs).

**2. Background**

2.1 DRHD is mandated to conduct health vulnerability assessments under the [Ontario Public Health Standards: Requirements for Programs, Services and Accountability](#) (OPHS).

2.2 The [Healthy Environments and Climate Change Guideline](#) of the OPHS requires DRHD to assess health impacts related to climate change.

2.3 DRHD is completing the following seven reports in a special CCHVA series called Understanding the Local Health Impacts of Climate Change:

- a. A [background primer on climate change and health](#) in Durham Region, which was released on August 12, 2024, followed by six CCHVAs on:
  - [Extreme heat](#) (released September 23, 2024)
  - [Solar UV radiation](#) (released February 6, 2025)
  - [Vector-borne disease \(VBD\)](#) (released June 2025)
  - Air quality
  - Extreme weather

- Food and water impacts

2.4 The report series aims to:

- a. Improve understanding of the links between climate change and health,
- b. Assess the risks of local climate hazards and associated health impacts,
- c. Prioritize health equity and priority populations, and
- d. Establish a baseline for future analysis.

2.5 The air quality CCHVA entitled [Climate Change and Health in Durham Region: Assessing the Impact of Poor Air Quality](#) was released on September 4, 2025.

2.6 Reviews and feedback on the report were provided by the Mississaugas of Scugog Island First Nation (MSIFN) and the Regional Sustainability staff of Community Growth & Economic Development Department.

2.7 The report, along with an executive summary are available at [durham.ca/ClimateAndHealth](http://durham.ca/ClimateAndHealth)

### 3. Report Highlights

3.1 The report explores current and future health impacts of air pollution in Durham Region.

3.2 It establishes an equity-focused framework for assessing and addressing factors of air pollution vulnerability based on exposure, sensitivity, and adaptive capacity.

3.3 It provides a knowledge base to support strategies to prepare and protect residents, particularly those most exposed and sensitive to air pollution.

3.4 Key findings of the report:

- a. Despite a decline in per capita transportation emissions in Durham Region since 2015, overall exposure to air pollution is expected to increase due to climate change-driven factors:
  - Rising temperatures due to climate change can increase traffic-related air pollutants.
  - Warmer, more humid seasons are extending the aeroallergen season leading to higher pollen counts.
  - Rising temperatures caused by climate change leads to more stagnant air, which allows air pollution to linger for longer periods.
- b. Outdoor air pollutants contribute to increased rates of premature deaths, respiratory and heart diseases, hospitalizations, and mental health effects; straining health systems, especially when coinciding with extreme heat events.

- Outdoor air pollution is a leading cause of premature death in Canada.
  - Durham Region's air pollution-related premature death rate is below the provincial average but above the national average.
  - Traffic pollution contributes to increased rates of respiratory diseases, lung cancer, heart attacks, strokes, hypertension, and thousands of premature deaths annually in the Greater Toronto-Hamilton area.
  - Aeroallergens increase respiratory and allergy symptoms, leading to more emergency visits, hospitalizations and reduced quality of life.
  - Wildfire smoke can travel long distances and cause headaches, eye, nose and throat irritation, and exacerbate heart and lung conditions. It is also associated with negative mental health impacts, increased hospitalizations, and premature deaths.
  - Poor air quality events that coincide with other climate hazards such as extreme heat, strain and can overwhelm health systems.
- c. Despite a decline in per capita transportation emissions in Durham Region from 2015 to 2023, traffic remains the leading source of air pollution, with exposure varying by location and disproportionately impacting outdoor workers and those residing near busy roads or with limited greenspace.
- Traffic is Ontario's leading air pollutant; 11.5 per cent of Durham residents live near major roads, which is below the provincial average of 28 per cent.
  - Exposure to traffic pollution is highest in southern urban areas like Pickering, while rural areas, except Scugog, see lower levels; priority populations near major roads face elevated health risks.
  - Unequal access to greenspace reflects disparities in air pollution exposure across neighborhoods.
  - Outdoor workers in Durham typically face greater air pollution exposure.
- d. Older adults, children, Indigenous Peoples, pregnant individuals, and those with pre-existing health conditions, are more susceptible to severe illness from poor air quality and there is evidence of a social gradient of air pollution-related health impacts.
- Poor air quality days are associated with increased emergency department visits and hospitalizations, especially among older adults and children.
  - Evidence suggests that health and social inequalities play a greater role in air pollution-related deaths than simply differences in exposure, highlighting the need to address these disparities alongside efforts to reduce air pollution to prevent unequal health impacts.
  - Processes of colonization in Canada has led to ongoing health inequities among Indigenous Peoples, resulting in higher risks from air pollution. Given the disproportionate exposure risks among First

Nations, Inuit, and Métis Peoples, it is essential to include Indigenous knowledge and perspectives in air pollution assessments and planning.

e. Local strengths to protect Durham Region residents from air pollution include:

- Public awareness & health promotion: High local awareness of the health risks of air pollution and DRHD's air quality alerts help residents respond to pollution risks.
- Sustainable transit & mobility: Active transportation, public transit initiatives, and growing adoption of electric vehicles reduce emissions and improve air quality.
- Natural air quality buffers: Extensive greenspaces, forests, and tree-planting programs contribute to air pollution reduction and public health benefits.

f. Local actions to increase awareness and prevention of air pollution exposure include:

- Addressing social and health inequalities with an emphasis on Priority Neighbourhoods.
- Assessing air pollution exposure at finer geographic scales to identify priority areas and needs.
- Identifying and addressing greenspace inequality.
- Planning for additional climate hazards that may accompany poor air quality events.
- Promoting health protection strategies before and during aeroallergen season.
- Continuing to monitor the evolution of health protection guidance and interventions for wildfire smoke events.
- Collaborating with the Mississaugas of Scugog Island First Nation and other Rights-holding First Nations on identified priorities to protect air quality.

#### 4. Previous Reports

4.1 Report [2024-INFO-49](#) provided an update on DRHD's CCHVAs and highlighted the release of the first report which was a background primer entitled: [Understanding the Local Health Impacts of Climate Change](#).

4.2 Report [2024-INFO-58](#) highlighted the release of [Climate Change and Health in Durham Region: Assessing the Impact of Extreme Heat](#).

4.3 Report [2025-INFO-13](#) highlighted the release of [Climate Change and Health in Durham Region: Assessing the Impact of Solar Ultraviolet Radiation](#).

- 4.4 Report [2025-INFO-52](#) highlighted the release of [Climate Change and Health in Durham Region: Assessing the Impact of Vector-borne Disease](#).

## 5. Relationship to Strategic Plan

- 5.1 This report aligns with/addresses the following Strategic Directions and Pathways in Durham Region's 2025-2035 Strategic Plan:

a. Healthy People, Caring Communities

- H1. Implement preventive strategies to support community health, including food security.
- H4. Support the development of healthy children and youth, including access to affordable and quality childcare.
- H7. Prepare for and respond to local health emergencies in partnership with the community.

b. Strong Relationships

- S2. Build and strengthen respectful relationships with First Nations, Inuit, Métis, and urban Indigenous communities.
- S3. Collaborate across local area municipalities, with agencies, non-profits, and community partners to deliver co-ordinated and efficient services.

## 6. Next Steps

- 6.1 The air quality report will be shared and promoted to municipal and community partners. The communication plan includes a news release and social media messages to build public awareness of air pollution as one of the six climate hazards of concern for communities, as well as the link between air pollution exposure and health.
- 6.2 The remaining reports of the CCHVA series will be completed, published and promoted in sequence.
- 6.3 The next report entitled, Climate Change and Health in Durham Region: Assessing the Impact of Extreme Weather, is expected in the winter.
- 6.4 The report development process will continue to integrate the review and feedback of the Mississaugas of Scugog Island First Nation and Regional Sustainability staff.

## 7. Conclusion

- 7.1 The CCHVA report series is intended to help decision-makers better understand the health risks that Durham Region residents will face in the coming years.

7.2 It will help guide equity-focused adaptation plans to protect residents, especially those who are most affected and least protected.

7.3 The CCHVA report series will help support municipalities, community organizations and residents respond to the growing impacts of climate change.

Respectfully submitted,

Original signed by

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R.J. Kyle, BSc, MD, MHSc, CCFP, FRCPC, FACPM  
Commissioner & Medical Officer of Health