

# Oxford County Local Climate Hazard Assessment

*Supporting resilient services and infrastructure*

Prepared by:



With funding from:



In collaboration with:

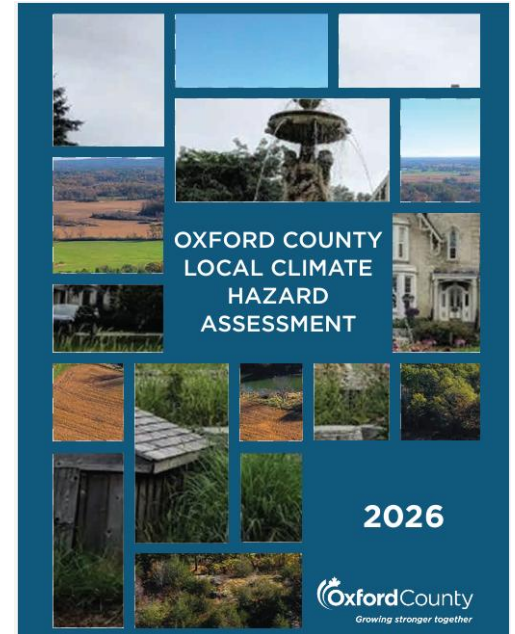


## Purpose

- Provides a high-level overview of weather-related hazards
- Identifies where systems may be more sensitive using available data
- Establishes a local baseline to support future planning
- **This is an initial scan to guide more detailed assessment over time**

## What This Assessment Is Not

- Not a detailed risk or engineering assessment
- Not site-specific or asset-level analysis
- **It is intentionally high level and does not assess all impacts across sectors**



## Why Municipalities Conduct Hazard Assessments

Municipal hazard assessments are considered **best practice** for responsible governance and long-term planning. They provide the foundation to support **informed decision-making** over time. They can help municipalities to:



- Better understand potential service disruptions



- Support emergency planning and preparedness efforts



- Inform infrastructure and asset management discussions



- Identify areas for further study or early consideration



- Strengthen eligibility for additional/future provincial and federal funding



# Made-in-Oxford Assessment

This assessment focused on local conditions, data, and experience across Oxford County.

## The analysis included:



- Review of historical weather events and emergency responses



- Analysis of local climate and weather trends



- Identification of vulnerable populations and communities



- Assessment of impacts across natural systems, agriculture, infrastructure, people, and business and economy



## Documenting Hazards

Oxford County already experiences several types of weather-related hazards, including:



Heavy Rain &  
Flooding



Extreme Heat



Severe Storms &  
Wind Events



Freeze-thaw Events



Winter Ice Storms &  
Events

This assessment examines how these hazards may affect the built and natural environment, people, infrastructure and services over time.



# Top 3 Hazards for Oxford County



## Extreme Heat

- More heat alerts
- Health & energy impacts



## Heavy Rain & Flooding

- Local flooding
- Roads & drainage issues



## Freeze-Thaw Cycles

- Road damage
- Infrastructure stress



## Natural Systems

- Wetlands, forests, and watercourses provide flood regulation, water filtration, and habitat
- Heavier rainfall, dry periods, and temperature changes can affect water quality, vegetation, and habitat conditions
- Fragmented natural features may be more sensitive to these pressures
- As a result, these systems may be less effective at providing services such as water management and habitat support



## Food and Agriculture Systems

- Agriculture is a dominant land use and key economic driver in Oxford County
- Wet conditions, dry periods, and extreme heat can affect crop yields, livestock, and field operations
- Seasonal variability can influence planting, harvest timing, and production stability
- As a result, agricultural productivity and operations may be more variable under these conditions



## Infrastructure

- Roads, water systems, buildings, and utilities support essential services across the County
- Heavy rainfall, heat, storms, and freeze-thaw conditions can increase wear, damage, and service disruption
- Infrastructure systems are interconnected, meaning impacts can extend across multiple services
- As a result, service reliability and asset performance may be affected under these conditions



## People and Communities

- Weather events affect health, safety, and access to services across the community
- Heat, flooding, storms, and air quality can affect physical and mental health
- Impacts vary across the population based on age, health, income, and housing conditions
- As a result, some populations may be more affected by these conditions than others



## Business and Economy

- The local economy includes manufacturing, agriculture, services, and trades
- Extreme weather can affect operations, supply chains, and transportation
- Heat and service disruptions can influence labour productivity and operating conditions
- As a result, business operations and economic activity may be affected under these conditions



# Social Vulnerability & Adaptive Capacity

This assessment used Statistics Canada social indicators to understand how community conditions may influence how people experience extreme weather events.

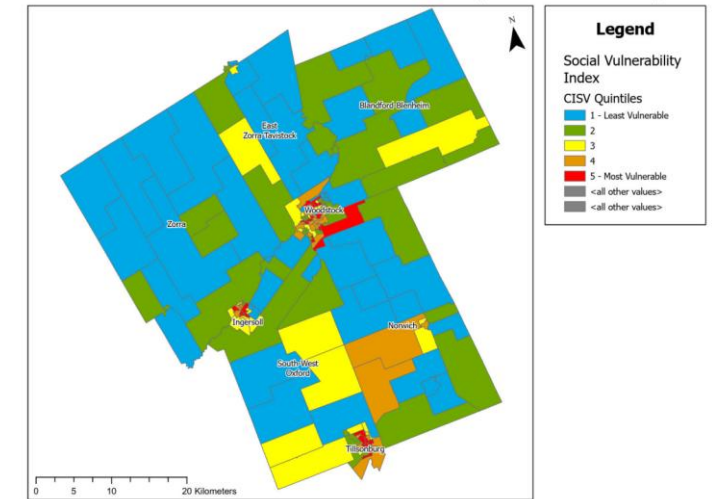
These indicators look at factors such as:

- income and housing stability
- age and mobility
- employment and access to services
- language and social supports

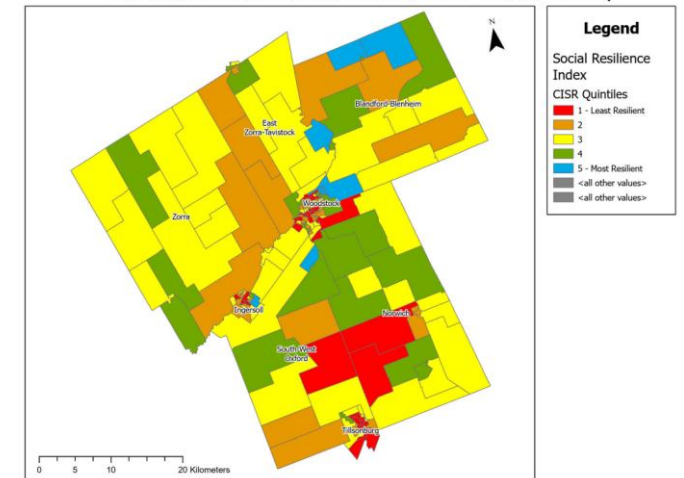
Extreme heat, flooding, severe storms, power outages, and other hazards are often felt most acutely by populations who already face social, economic, health, or housing-related challenges.

These conditions can influence how easily households can **prepare for, respond to, and recover from disruptive events.**

Canadian Index of Social Vulnerability in Oxford County



Canadian Index of Social Resilience in Oxford County



\*Note: The colours do not represent climate risk. They show relative social conditions across the County.



## Social Vulnerability & Adaptive Capacity - Continued

- **Higher social vulnerability** tends to cluster in settlement areas and town centres where socio-economic and demographic factors are more concentrated.
- **Some rural pockets also show higher vulnerability**, often influenced by age distribution or distance from services.
- **Lower social resilience appears in some settlement areas and southern parts of the County**, indicating reduced adaptive capacity.
- **Higher resilience is observed in many rural and stable residential areas**, reflecting housing stability and stronger community supports.
- **Red areas** indicate places where some households may face greater challenges preparing for or recovering from disruptions.



## How Systems Are Connected

- Weather-related impacts are often interconnected across systems.
- Impacts to one system can create ripple effects in others
  - For example, heavy rainfall can affect natural systems, infrastructure, and access to services
- Disruptions to infrastructure can affect businesses, transportation, and daily needs
- Impacts to people and communities can influence workforce, health services, and local economy

**This highlights the importance of considering systems together, not in isolation**



## What the Assessment Provides Oxford County

This assessment provides a **foundation for future planning.**

It helps the County:

- Build a shared understanding of key hazards across systems
- Identify where further analysis or detailed study may be needed
- Support future integration of hazard considerations into planning and decision-making
- Support future funding applications, such as GMF
- Align with best practice among other municipalities across Canada

Ultimately, the goal is a **resilient community and reliable services.**



# Questions