



Lawn Maintenance

By naturalizing our parks we can cut down on lawn mowing expenses, reduce carbon emissions and encourage carbon absorption.

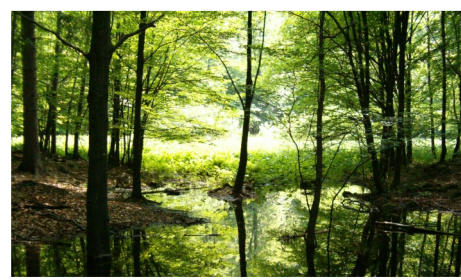


Urban Flooding

Flooding in urban area can be reduced through putting natural infrastructure upstream of the problem areas.



Gorrie Park



Wroxeter 2013

CLIMATE TRENDS & IMPACTS in the Maitland Valley Watershed

Despite the massive effort working to cast doubt on climate change, there is no denying that we are seeing a rapid shift in climate patterns and that 'weird weather' is becoming the new norm. It will continue to have significant impacts on our businesses, our communities and our day-to-day lives. This report draws on local weather data and climate research to assess the potential impacts of climate change on the Maitland Valley watershed, and highlights ways that we can address these risks.

FURTHER READING ONLINE

skepticalscience.com | Explaining climate change science and rebutting global warming misinformation

thinkprogress.org/climate/issue | An insider's view of climate science, policy, and politics—by Joe Romm

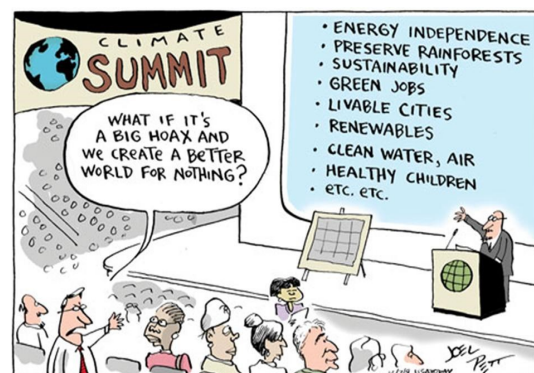
desmogblog.com | Clearing the PR Pollution That Clouds Climate Science

yearsoflivingdangerously.com | A television series on climate change, produced by James Cameron

nca2014.globalchange.gov | The US National Climate Assessment Report



www.footprintstoforests.com



In every deliberation, we must consider the impact on the seventh generation... even if it requires having skin as thick as the bark of a pine.

Great Law of the Iroquois

The eyes of the future are looking back at us and praying for us to see beyond our own time.

Terry Tempest Williams

Carbon Footprint Initiative:

Ideal Supply
Trillium Mutual Insurance Co.
Municipality of North Perth
Molesworth Farm Supply
J.H. Keeso & Sons Ltd.
DuPont Pioneer Wingham
Maitland Conservation



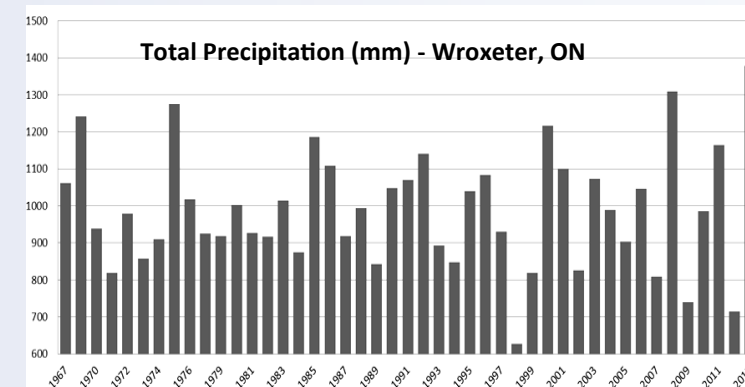
This report was compiled by Maitland Conservation.

For more information on this report or on ways that you can be a part of the solution, please contact Phil Beard at: pbeard@mvca.on.ca or 519-335-3557

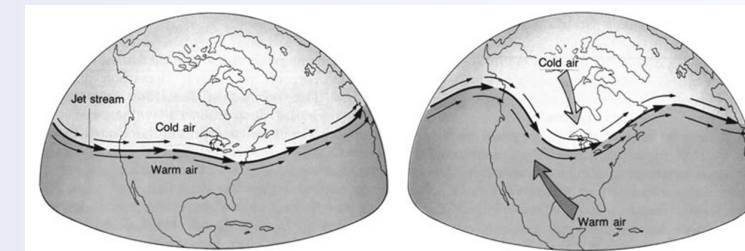
Between 1968 and 2002, average surface temperatures increased by 1.3°C in the Great Lakes region, and this is projected to increase by another 1.8°C by 2050. While this might not sound like cause for alarm, the difference between our current average temperature and that in the last ice age is only 5°C. A seemingly small change in temperature has massive impacts on the jet stream and on climate patterns.

The balance of the jet stream is weakening and causing weather systems to move further north or south than usual, and then to 'get stuck.' This creates long stretches of either hot or cold, rainy or dry weather, such as the drought in 2012 and the flooding in 2013. We will also see more extreme and untimely weather, like summer weather here in March 2012 or the polar vortex in January 2014.

Climate trends are changing precisely according to climate models, except that scientists never expected it to happen so quickly. Climate change is speeding up, so we need to think fast. There is so much that governments, businesses and individuals can do to both adapt to and mitigate climate change so please, read on!



This graph above illustrates the extreme variability of rainfall in recent years. 2013 was the wettest year in 40 years and 2012 was the driest in 35!



When the pole vs. equator temperature differential is optimal, the jet stream keeps the climate in balance. It is much like a tug of war, in which both teams are equally matched. But we are now seeing a 'lazy' jet stream that disrupts 'normal' and moves weather patterns further north or south than usual. Just like the diagram suggests, while we had consistently cool temperatures in the summer of 2014, the rest of Canada was scorching!

Source: J. Namias, NOAA

Why are temperatures rising?

We now know that the burning of fossil fuels over the past 150 years is causing a greenhouse effect by trapping the sun's heat close to the planet. Through burning carbon sources, we continue to release billions of tonnes of CO₂ a year. Atmospheric CO₂ levels are now 400 parts per million (ppm) and are still rising by 2ppm/year. Ice core samples show that, historically, carbon levels have been directly correlated to global temperatures, and many climate scientists state that we need to reduce CO₂ levels to below 350 ppm.

What does this mean for my community?

There are 15 towns in the watershed that have a total of \$176 million dollars worth of development located within a floodplain. Current stormwater and drainage systems are outdated and were designed for less intense storms than we are experiencing. Increased danger of flooding, heat waves, cold snaps and power outages may also leave many of our community members in a vulnerable situation if precautions aren't taken. Climate change also impacts insurance premiums, property values, food prices and municipal taxes.

What weird weather can we expect?

On average, summers will become drier and hotter, with more intense winds and more precipitation in the spring and the fall. Shorter, more intense thunderstorms will increase potential for flash flooding, soil erosion and damage to infrastructure. Ice coverage on the Great Lakes has declined by 71% between 1973 and 2010 and this means more winter lake evaporation, leading to more snow squalls. Less winter days below freezing also mean more frequent freeze-thaw cycles, ice storms and winter flooding.

ADAPTING AND MITIGATING

We can stop CO₂ levels from rising further by moving away from the burning of fossil fuels. Also, forests and green plants, soils that are rich in organic matter and bodies of water actually *absorb* carbon and so our best bet at mitigating climate change is to plant trees, shrubs and other plants to invest in natural infrastructure.

Individual businesses can prepare themselves in the short-term for weird weather by keeping emergency supplies and having alternative sources of power on hand.

Adapting to climate change for the long-term

means addressing weather risks by improving stormwater management and planting trees as windbreaks and snow fences.

We can all become part of the solution by reducing our carbon footprint' through decreased fossil fuel consumption and by offsetting it through planting natural infrastructure to remove CO₂.

With some forward thinking, we can save ourselves and our future generations unnecessary suffering. We can pay now to prevent future damage or we can pay later to cleanup after these weather disasters.

Climate change is already here; we need to make changes now!

Benmiller

Climate Change: Mitigation and Adaptation in the Maitland Watershed

NATURAL INFRASTRUCTURE



Bluewater Beach, Goderich

Gully Erosion

This is caused by high flows of water on bare soil. It threatens 2000 acres and 80 million dollars worth of property in the area. Rural stormwater management systems, like those put in the Kelly subdivision (right) in the 80's have controlled gully erosion.



Kelly Subdivision



Maitland River at Benmiller 2012

Wetlands

To the left, the dry Maitland River in 2012. Wetlands can store the runoff during rain events for dry spells. They also absorb CO₂.



Scott Project, Belgrave



Benmiller

Windbreaks and Shelterbelts

Increased heat also increases the potential for strong winds that can do damage to offices, homes and crops. Rows of trees help to slow down the wind and also have a moderating effect on the climate.



Garvey-Glenn Project, Dungannon



Ripley

Stormwater Management

Runoff from intense storms have the potential to wash out roads, take away topsoil. Berms, wetlands and grassed waterways slow down the water and spread it out so it can soak in to the ground.



Garvey-Glenn Project, Dungannon



Living Snow Fences

Drifting snow on the road costs municipalities a lot to plow and reduced visibility causes motor accidents. With increased snow squalls in the forecast, we would do well to plant living snow fences back from the roads about 400 feet.

