

York Region Planning and Economic Development

Climate Data Use

York Region Case Study

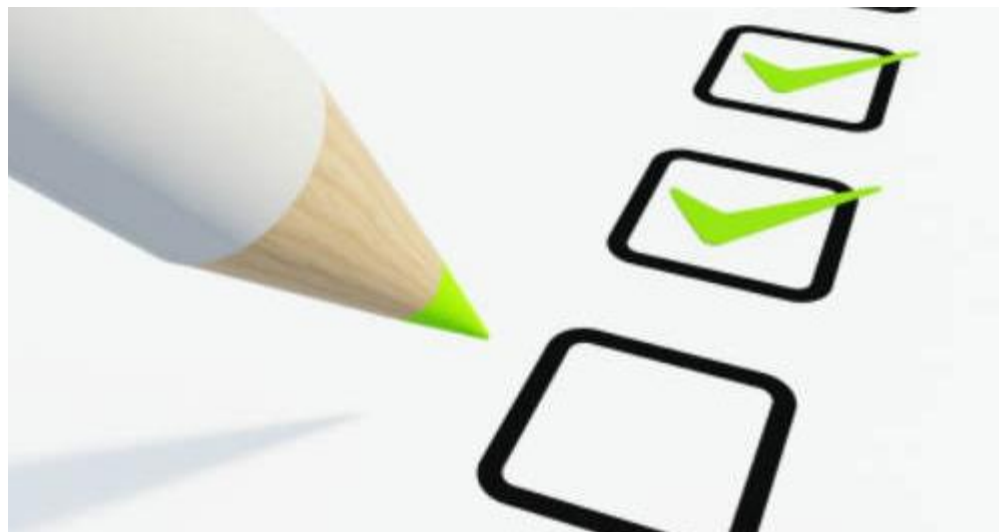


Presented to:
Climate Data Training Session

Presentation date: April 26, 2017

Presentation Agenda

- Land Use Planning and Climate Change
- York Region's Climate Journey
- Climate Risks and Vulnerability Framework
- Climate Data
- Lessons Learned
- Next Steps



The Planning Hierarchy



Climate Change in the PPS



New policy considerations include:

- supporting **energy conservation**, **reduced greenhouse gas emissions** and **climate change adaptation**
- promoting **active transportation** and focussing **freight-intensive land uses** to areas well served by major highways/facilities
- promoting design and orientation which:
 - considers **mitigating effects of vegetation**
 - maximizes **energy efficiency and conservation** and opportunities for use of **renewable and alternative energy systems**
- **maximizing vegetation within settlement areas, where feasible**

Climate Change in Provincial Plans

- Climate change policies required
- Move towards net-zero communities
- Municipalities implement targets and performance measures
- Green infrastructure encouraged
- Natural areas help reduce the impacts



York Region Context



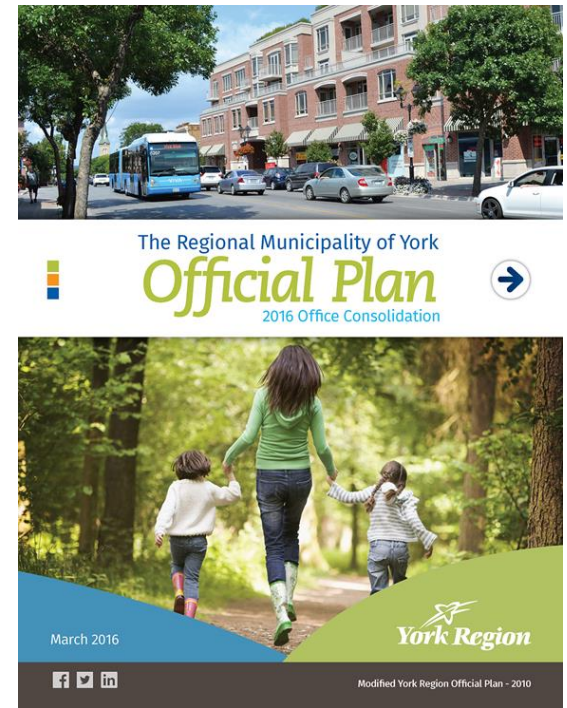
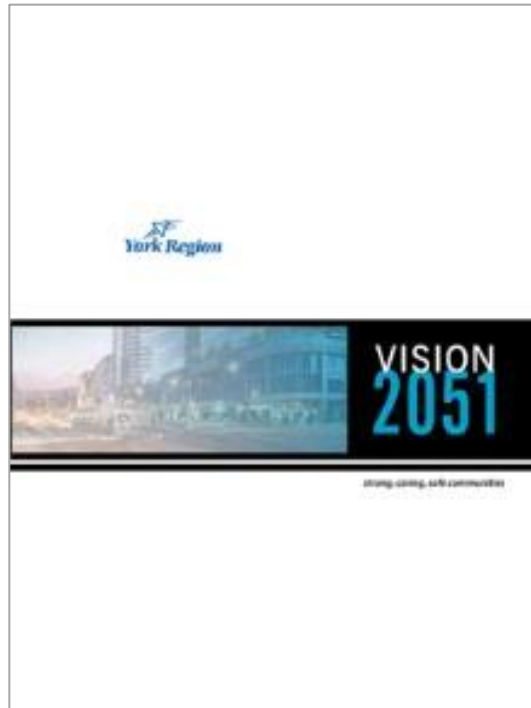
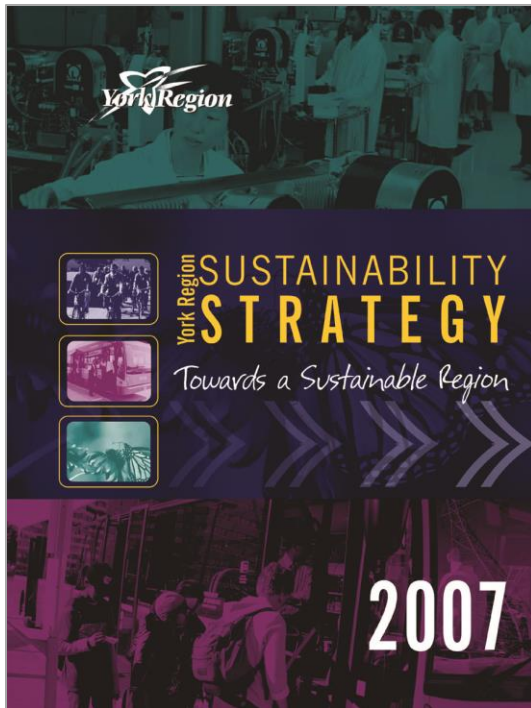
Currently, York Region is home to over 1.2 million people.

York Region in an upper-tier or regional government and includes nine local municipalities:

- | | |
|--------------------------|--------------------------------|
| Town of Aurora | Town of Newmarket |
| Town of East Gwillimbury | Town of Richmond Hill |
| Town of Georgina | City of Vaughan |
| Township of King | Town of Whitchurch-Stouffville |
| City of Markham | |



Climate Change in Strategic Documents



Official Plan Policy Areas

The York Region Official Plan contains 8 chapters. Chapter 1 is an introduction to the Official Plan. Subject specific policies are contained in chapters 2 to 7. Chapter 8 addresses how policies will be implemented.



Chapter 2 – Sustainable Natural Environment

Regional Greenlands System • Natural Heritage Features • Water Systems



Chapter 3 - Healthy Communities

Human Health and Wellbeing • Air Quality and Climate Change • Cultural Heritage • Housing



Chapter 4 - Economic Vitality

Supporting the York Region Economic Strategy • City Building • Protecting Employment Lands

Official Plan Policy Areas Con't

The York Region Official Plan also includes a number of maps. These maps identify land use types, agricultural areas, natural heritage systems and transportation and transit networks.



Chapter 5 – An Urbanizing Region

Forecasting and Phasing Growth • Sustainable Cities • Centres and Corridors • Complete Communities



Chapter 6 – Agricultural and Rural Areas

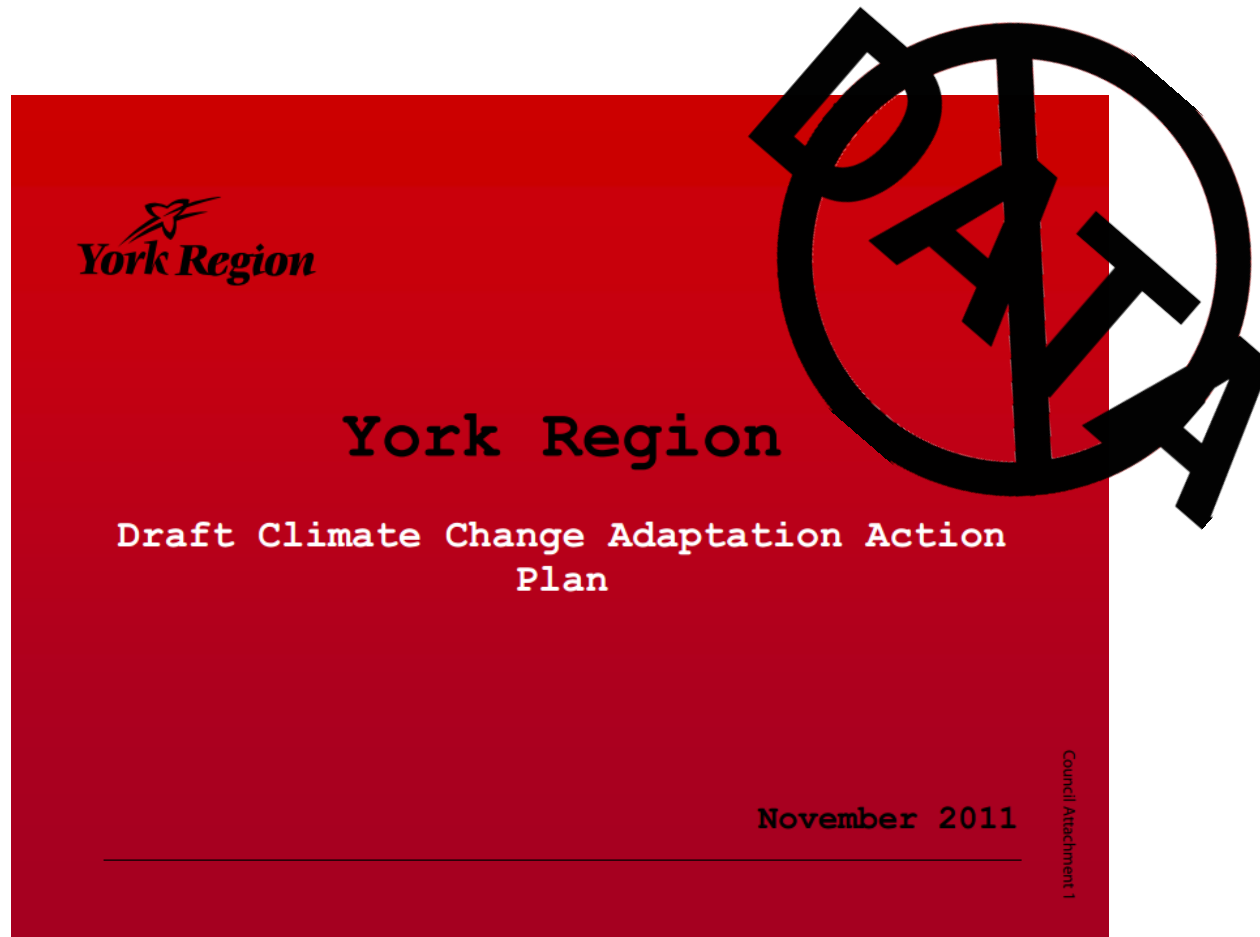
Greenbelt and Oak Ridges Moraine • Rural and Agricultural Areas • Mineral Aggregate Resources



Chapter 7 – Servicing our Population

Transportation • Water and Wastewater • Source Water Protection • Energy

York Region Climate Change Action Plan, 2011



Municipal Climate Change Working Group



Vulnerability and Risk Assessment Framework

Historical and Future Climate Trends in York Region

Summary Report



Prepared for:

Prepared By:



ONTARIO
CLIMATE CONSORTIUM

— GLISA —

GREAT LAKES INTEGRATED SCIENCES + ASSESSMENTS



2050s Business-as-usual (RCP8.5)

- Minimum temperatures are anticipated to increase the most
- Annual precipitation is expected to increase (magnitude and frequency)
- Extreme heat days anticipated to increase
- 30 days longer and drier growing season

Vulnerability and Risk Assessment Framework

Welcome to the Environmental Risk Assessment Tool

Welcome to the Environmental Risk Assessment Tool
The Environmental Risk Assessment Tool (ERAT) is a multi-purpose tool that supports

assessments of
operations. The
multiple assess
The ERAT is a s
management t
storage and re
attach support
historical cost
emergency pla
application to
then print a va

Climate Driver	Component	Reference	Information	CLIMATE THRESHOLDS				COMPONENT VULNERABILITY		IMPACT	IMPACT LEVEL / IMPACT ESTIMATE
				Seasonality	Intensity	Frequency	Duration	Vulnerability Factor	Vulnerability Factor Category		
Extreme Precipitation	Roadway Infrastructure										
Extreme Precipitation	Roadway Infrastructure										
Extreme Precipitation	Roadway Infrastructure										



testing 1 : Transportation Services , 2010 , Period 1

About This Assessment

Assess Risk

Create Reports


1. Establish the Context

2. Risk Identification

3. Risk Analysis

4. Risk Treatment

3. Risk Analysis



Step 3. Risk Analysis

3.1 Estimate Consequence and Likelihood

3.2 Calculate Risk Rating

Physical Assets/Critical Services

IAMP-P-E-C-HM-Hot Mix
 IAMP-P-E-F-AG-HM-Hot Mix
 IAMP-P-E-F-DS-HM-Hot Mix
 IAMP-P-E-R-RC-Reinforced Concrete
 IAMP-P-E-R-PC-Plain Concrete
 IAMP-P-MMA-C-HM-Hot Mix
 IAMP-P-MMA-F-AG-HM-Hot Mix
 IAMP-P-MMA-F-DS-HM-Hot Mix
 IAMP-P-MMA-R-RC-Reinforced Concrete
 IAMP-P-MMA-R-PC-Plain Concrete

Risk Source

Weather, Extreme Cold, Official
 Weather, Extreme Heat, Official
 Weather, Extreme Rain, Official
 Weather, Extreme Snow, Official
 Weather, Extreme Wind, Official
 Weather, Freeze / Thaw, Official

Sort by: ☒ Max. Risk ☐ Asset/Service and Risk Scenario ☐ Time Horizon

Asset/Service	Risk scenario	Time Horiz	Assets	Cost / time	Environment	Logistics	People	Processes	Max.
IAMP-P-MMA-C-HM-Hot Mix	Weather, Extreme Rain, Official: Sink Holes, Road closure, Increase in Capital Budget,	2040-2050	Extreme	Extreme	Medium	Extreme	Extreme	Extreme	Extreme
IAMP-P-MMA-C-HM-Hot Mix	Weather, Extreme Rain, Official: Pot Holes, Road accidents, Increase Frequency of Maintenance,	2040-2050	Extreme	Extreme	Medium	High	High	Extreme	Extreme
IAMP-P-MMA-C-HM-Hot Mix	Weather, Extreme Rain, Official: Sink Holes, Road closure, Increase in Capital Budget,	2010-2020	High	High	Medium	High	High	High	High
IAMP-P-MMA-C-HM-Hot Mix	Weather, Extreme Heat, Official: Pavement softening, Road closure, Increase in emissions due	2040-2050	Medium	Medium	Medium	Medium	Medium	High	High
IAMP-P-MMA-C-HM-Hot Mix	Weather, Extreme Rain, Official: Pot Holes, Road accidents, Increase Frequency of Maintenance,	2010-2020	High	Medium	Low	Medium	Medium	Medium	High
IAMP-P-MMA-F-AG-HM-Hot Mix	Weather, Extreme Heat, Official: severe shoving, safety of road reduced, Vehicle/Bicycle Collision,	2040-2050	Low	Low	Low	Low	Medium	Low	Medium
IAMP-P-MMA-C-HM-Hot Mix	Weather, Extreme Heat, Official: Pavement softening, Road closure, Increase in emissions due	2010-2020	Low	Low	Low	Low	Low	Low	Low
IAMP-P-MMA-F-AG-HM-Hot Mix	Weather, Extreme Heat, Official: severe shoving, safety of road reduced, Vehicle/Bicycle Collision,	2010-2020	Low	Low	Low	Low	Low	Low	Low

Climate Data and how it was used

CLIMATE DATA

consists of pieces of information (data points) about the climate, such as **PRECIPITATION & TEMPERATURE**, often expressed as **TRENDS, AVERAGES, & EXTREMES.**

HISTORIC CLIMATE DATA EXAMPLES

AMOUNT OF DAILY PRECIPITATION



MAXIMUM DAILY WIND SPEED



AVERAGE DAILY TEMPERATURE



FUTURE CLIMATE PROJECTIONS EXAMPLES

AMOUNT OF MONTHLY PRECIPITATION



AVERAGE MONTHLY TEMPERATURE





Literature Review

Observed climate events



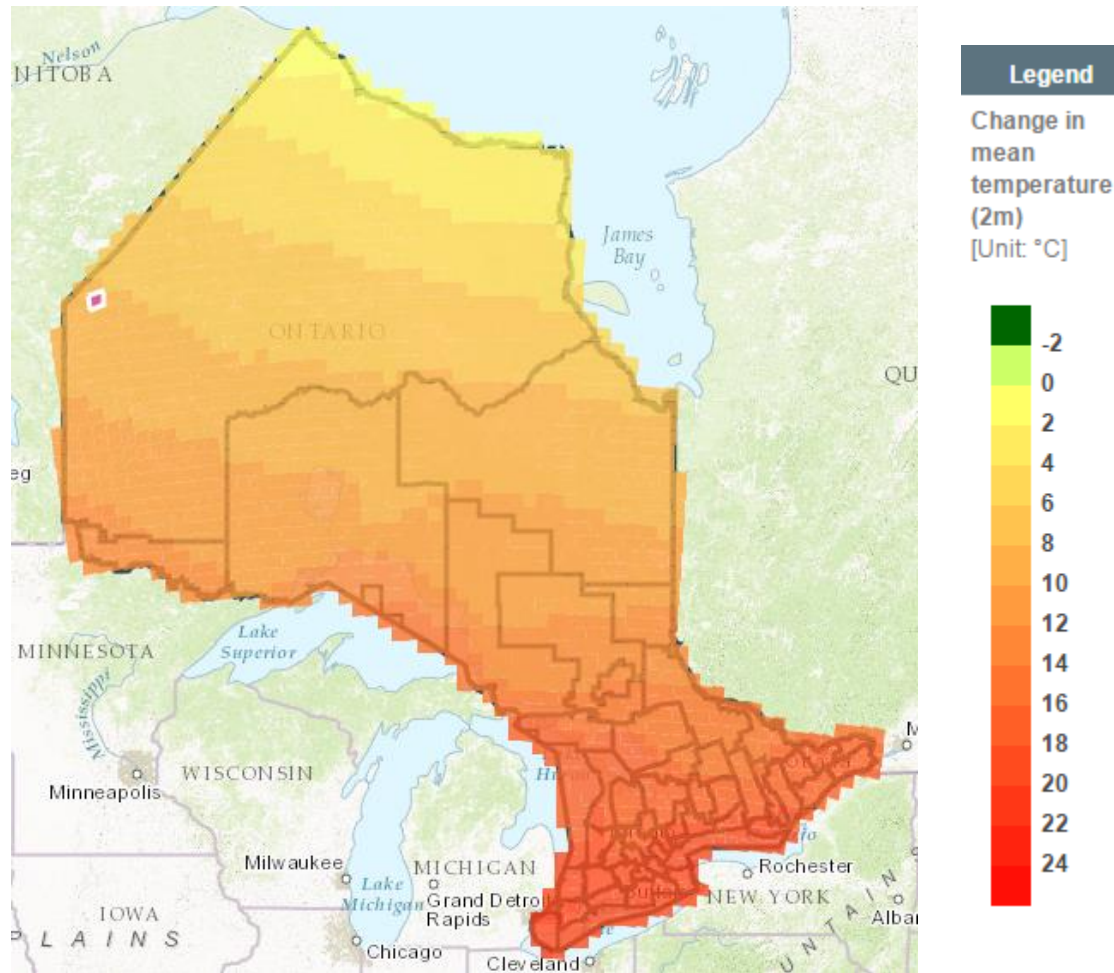


Historic climate information





Regional climate models



How Data was used



Identify and
Confirm
Climate
Indicators

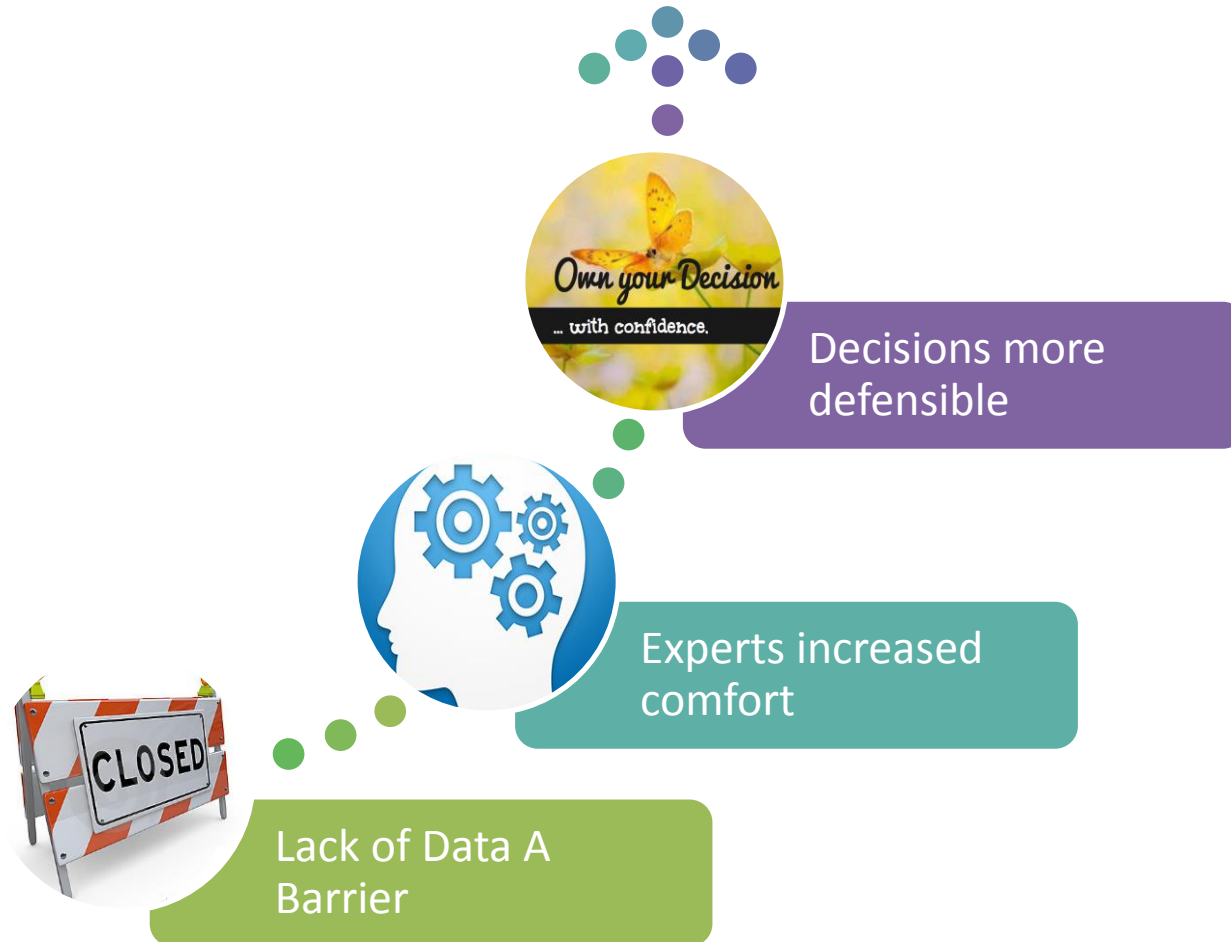


Future
Trends in
identified
Climate
Categories



Populate the
Vulnerability
and Risk
Database

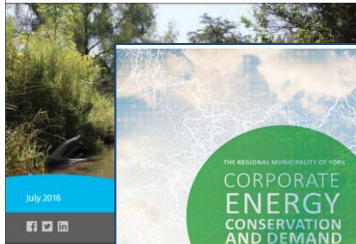
Lessons learned



Next steps



The Regional Municipality of York
Water and Wastewater →
Master Plan

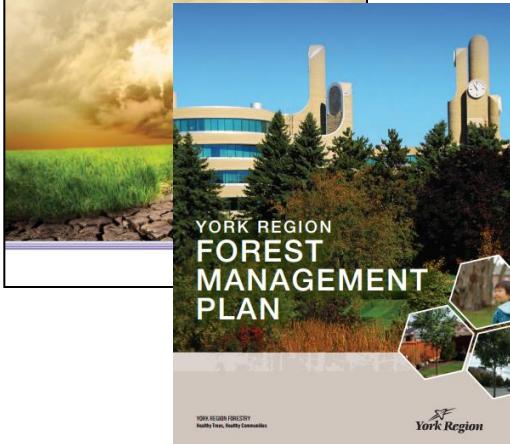


THE REGIONAL MUNICIPALITY OF YORK
**CORPORATE
ENERGY
CONSERVATION
AND DEMAND
MANAGEMENT PLAN
UPDATE 2016**



**ONTARIO CLIMATE CHANGE
AND HEALTH TOOLKIT**

Technical Document Workbook Report



**YORK REGION
FOREST
MANAGEMENT
PLAN**

YORK REGION FORESTRY
Healthy Trees. Healthy Communities.

York Region



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Urban Heat Island

Assessing Urban Heat Island in York Region

Partnership between:

- Health Canada
- York Region Public Health
- GIS
- Long Range Planning

