

2013 FARMLAND FORUM

THE FARM ECONOMY & RURAL RESILIENCE :
coping with climate change & rising energy prices





2013 Farmland Forum

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February 15, 2013, Arboretum Centre, University of Guelph

About the Forum

Climate change, increasing frequency and severity in storms, and rising energy prices are on the minds of rural communities and the agricultural sector across Ontario and around the world. The Ontario Farmland Trust and the University of Guelph have been working together to address these issues and answer questions such as “How are farmers and rural communities responding to these challenges?” and “How closely tied are a thriving farm economy, land stewardship and rural resilience?”

To begin answering some of these questions, the Farmland Trust partnered with the University of Guelph’s School of Environmental Design & Rural Development to deliver the 2013 Farmland Forum. The event brought together 120 farmers, municipal elected officials, planners, provincial policy-makers and land conservation advocates from across Ontario to discuss and share different responses to the uncertainty posed by climate change and future energy prices.

The conversation was two-fold, with the morning focused on impacts of climate change and energy security on the farm economy, and the afternoon focused on planning for resiliency from a broader rural community perspective. Examples of practical, on-farm innovations were profiled, as well as community-led initiatives that are inspiring leadership and engagement in planning a sustainable future for rural Ontario.

Speakers and panel discussions sparked lively discussion among forum participants and enabled information-sharing among individuals and groups with diverse interests. Summaries of these discussions, forum presentations, and panel dialogue are included in these proceedings.

This forum was presented in partnership with:

UNIVERSITY
of GUELPH

SCHOOL OF ENVIRONMENTAL DESIGN
AND RURAL DEVELOPMENT

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Forum Program and Presentations

Click on hyperlinks below to view complete PowerPoint presentations from the forum.

WELCOME & OPENING REMARKS

[Norman Ragetlie](#) Chair, Ontario Farmland Trust

KEY NOTE *IT BEGINS WITH THE LAND*

[Jon Scholl](#) President, American Farmland Trust

PANEL *FARM PERSPECTIVES ON CLIMATE CHANGE & RISING ENERGY PRICES*

Grant Martin	Sunholm Farms, Huron County, 2012 Dairy Farm Sustainability Award Winner
Kevin Eisses	Hewitt Creek Farms, Simcoe County Past President Innovative Farmers Association of Ontario
Don MacIver	Mayor, Amaranth Township, Former Environment Canada Climate Researcher
Ted Cowan	Farm Energy Policy Researcher, Ontario Federation of Agriculture
Jon Scholl	President, American Farmland Trust

LOCAL FOOD INITIATIVES AT THE UNIVERSITY OF GUELPH

Mark Kenny Purchasing Co-ordinator, Hospitality Services (University of Guelph)

PLENARY *BUILDING COMMUNITY RESILIENCY IN RURAL ONTARIO*

[Susanna Reid](#) Planner, Huron County Planning & Development

PANEL *RURAL COMMUNITY PERSPECTIVES ON CLIMATE CHANGE & RISING ENERGY PRICES*

Chris White	Warden, Wellington County, Past Chair, Rural Ontario Municipal Association
Emanuele Lapierre-Fortin	Development Advisor, Miska Cooperative, Quebec
Sally Ludwig	Co-founder & Volunteer, Transition Guelph
Eric Marr	Researcher, University of Guelph
Susanna Reid	Planner, Huron County Planning & Development

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Keynote: It Begins with the Land

Jon Scholl, President of the American Farmland Trust

The American Farmland Trust's mission is to protect farmland, promote sound farming practices, and maintain farm viability across the U.S. Working with the American Farmland Trust (AFT) since 2008, and formerly with the U.S. Environmental Protection Agency and the Illinois Farm Bureau, Jon Scholl is regularly in dialogue with federal, state and local governments to improve planning, policy and land conservation programs in the U.S. Over the past number of years, climate change has become a driving motivation of AFT's conservation work. It has been important for the public and government to see AFT's leadership in addressing climate change by promoting good farm stewardship and demonstrating these linkages. By building resiliency into our farmland, we in turn build resiliency for our communities that depend on that land for their livelihood and local food production.

The recent increase in severity and frequency of extreme weather patterns has affected the way that U.S. farmers are planning for the future, and has made them more open to changing their land management practices to conserve soil moisture and protect soil from erosion. During July and August 2012, for example, the U.S. experienced one of the most extensive droughts in 60 years, resulting in a harvest that amounted to only 74% of the predicted corn crop (Cruthfield, U.S. Drought 2012: Farm and Food Impacts, 2013).

In response to these concerns, AFT is working to save land by the acre and soil by the inch. Acres are protected by working with government and the agricultural community to develop and promote permanent farmland preservation programs, typically using farm conservation easements. Saving farmland by the inch is achieved by promoting farm practices that prevent soil erosion, such as conservation tillage.

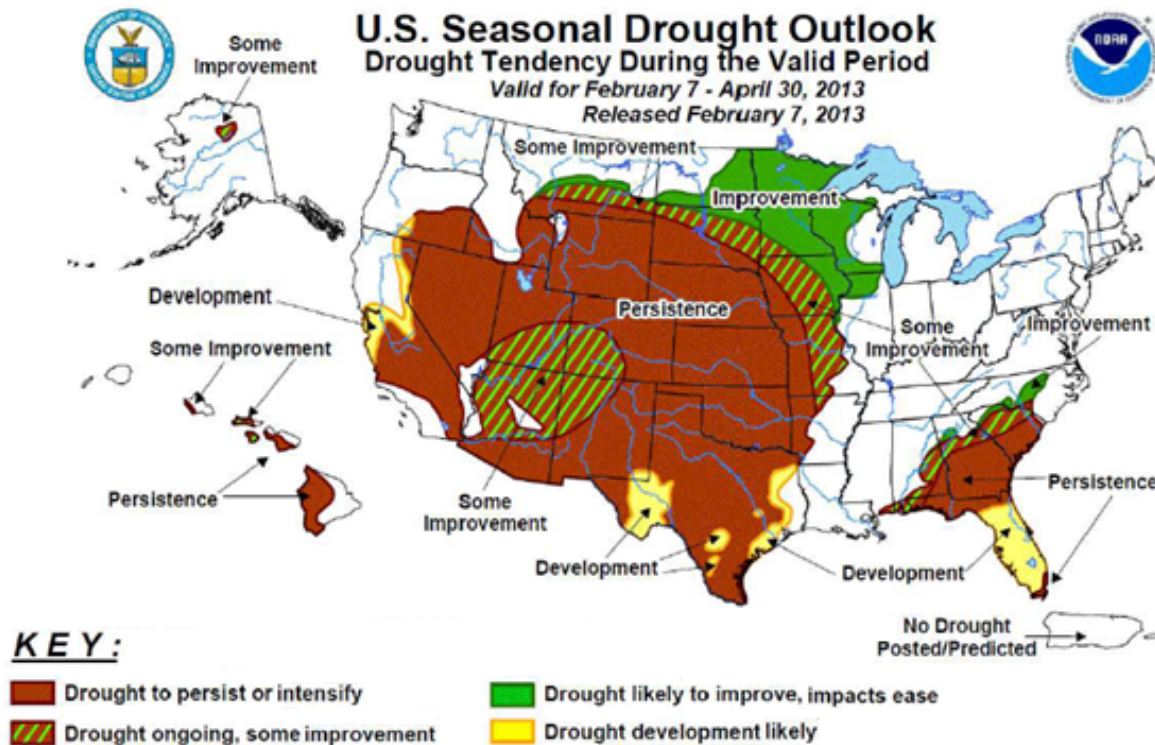
Key topics of Jon's presentation included:

Water Availability

Water availability is changing and generally decreasing in the U.S. It is expected by 2050 that the fraction of counties in the U.S. that are at a high or extremely high risk of outstripping their water supplies will triple (U.S. Geological Survey, 2012). The cost of water has made some farmers choose to quit farming and sell their water rights because it is more profitable. As was seen in the summer of 2012, the area facing droughts is expanding and affecting the productivity of farms. This will continue to become more severe and a high priority concern in the agricultural sector.

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Water Availability (continued)



Depicts some large-scale trends based on subjectively derived probabilities guided by short and long-range statistical and dynamical forecasts. Short-term events—such as individual storms—cannot be accurately forecasted more than a few days in advance. Use caution for applications—such as crops—that can be affected by such events. “Ongoing” drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

Climate Change

By 2057-2059, it is predicted that the eastern U.S. will see a 3 degree Celsius temperature rise, 35 percent increase in precipitation and an increase in the duration of heat waves from 4 to 6 days. (University of Tennessee, Study of Eastern U.S. 2012).

The debate around climate change has shifted in the US from questioning the existence of it, to debating how it should be dealt with. As climate change forces farmers to change their production practices and crop insurance claims become more common, these issues have become more significant in agricultural circles. While more research is still required, there have been several environmental bills and one USDA report on how agriculture can adapt. Although there are obvious challenges for the agricultural sector ahead, agriculture can also be part of climate change solutions. For example, if agriculture widely implemented greenhouse gas mitigation/reduction strategies, we could achieve a 9-26% reduction in nitrous oxide and a 15-56% reduction in methane. There are many things farmers can do as everyday stewards of the land to mitigate the impacts of climate change and build resiliency into farming systems. It begins with the land: preserving the land and implementing good farm stewardship practices.

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Fewer Resources

One of AFT's goals is to enact Federal, State and local programs and policies that support farmland conservation and engage agriculture in climate change mitigation and adaptation, among other objectives. The current economic climate in the U.S., however, makes acquiring ongoing funding for such initiatives more and more difficult. Farm Bill payments for conservation have remained stable or grown in the past 10 years, but like all other areas of government, conservation programs will likely face fewer resources in the coming years. Farmers and groups like AFT must continue to promote agriculture as a solution-provider and promote the many opportunities to address climate change and energy challenges within the farm sector. Jon says we must see agriculture as North America's greatest resource.



Panel: Farm Perspectives on Climate Change & Rising Energy Prices

This panel discussed how the agricultural sector is currently responding to climate change and rising energy prices. The panel was moderated by Dr. Wayne Caldwell from the University of Guelph and included the following participants:

- ▶ TED COWAN
Farm Energy Policy Researcher, Ontario Federation of Agriculture
- ▶ KEVIN EISSES
Hewitt Creek Farms - 3rd generation farmer, Innovative Farmers Association of Ontario, and Past President of Simcoe County
- ▶ GRANT MARTIN
Sunholm Farms, 2012 Dairy Farm Sustainability Award Winner
- ▶ DON MACIVER
Mayor of Amaranth Township, Former Environment Canada Climate Researcher
- ▶ JON SCHOLL
President, American Farmland Trust

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The following panel questions were posed:

- (1) **How has awareness of climate change and rising energy prices changed your outlook on long-term planning and risk management?**
- (2) **What innovations do you see in response to the challenges posed by climate change and rising energy prices?**
- (3) **How does agriculture play a role in adaptation and contribute to building rural resilience?**

Key responses to the panel questions are summarized below.

Climate change and rising energy prices have been the defining topic of this generation, yet we continue to struggle with shifting cultural norms to reflect this. Perhaps ahead of the general public, farmers have been proactive in taking steps to change their long-term planning and risk management in light of this awareness. This includes many changes in farm soil and crop management practices, and embracing new technologies that improve fuel efficiency and give farmers more data for managing soil moisture, crop stress, etc. at a more detailed level between and within fields throughout the growing season.

Examples of changing farm practices include:

- ▶ Reducing fuel use and soil disturbance by taking fewer trips with farm equipment across fields
- ▶ Practicing soil conservation through reduced-tillage, no-till, and planting cover crops
- ▶ Careful placement of fertilizer (minimal use and application directly alongside roots where the plants will use it)
- ▶ Grazing livestock and managing pasture systems (let the cows harvest their own feed and fertilize the fields)
- ▶ Investing in tile drainage to remove excess soil moisture
- ▶ Experimenting with new crops and new field management practices with on-farm trials
- ▶ Planting trees for windbreaks and living snow fences

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The agricultural sector has long been resilient and adaptable to a variable climate, weather patterns and energy prices, largely out of necessity. This has resulted in creativity and constant innovation on the farm.

Some principles/goals discussed by the panel for application at the farm level:

- ▶ Being energy self-reliant/secure
- ▶ Protecting your water sources
- ▶ Protecting your soil from erosion
- ▶ Using natural systems to improve farming systems (treed windbreaks to reduce soil erosion)
- ▶ Being aware of new developments in seed technology and farm equipment
- ▶ Increasing soil biodiversity and soil organic matter, and keeping soil covered (making soils risk-proof in the face of intense weather)
- ▶ Diversifying types of crops grown to lower financial risk of one crop's failure
- ▶ Sharing knowledge and ideas within the farm community to learn from each other's experiences, including the economics of different farm/soil management options

Ontario agriculture may also have the opportunity to contribute to climate change mitigation by sequestering carbon in farming soils. More incentives may be needed to encourage farming practices that maximize sequestration. This would be worth pursuing more aggressively through more research, programming and farm trials.



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Plenary: Building Community Resiliency in Rural Ontario

Susanna Reid, Planner, Huron County Planning and Development

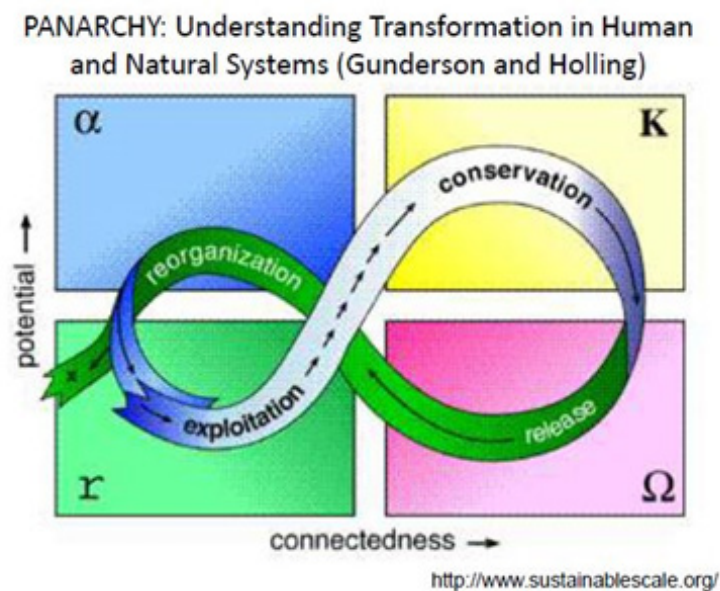
In August 2011 a powerful tornado came through the Town of Goderich, the main population center within Huron County. This tornado hit the key employment and activity areas of the town, including the historic downtown, and caused widespread destruction. From this experience and the overwhelming response to this devastating event from within the outside the community, Susanna Reid shared her unique insight into the necessity of community resilience.

Key topics of Susanna's presentation included:

Looking at Resiliency at the Community Level

Resiliency is described as the ability to withstand and quickly recover from stress. The concept of resiliency crosses many sectors. Growing out of environmental studies and psychology, it is based on systems theory.

This diagram represents how change is dynamic and non-linear. While the process itself is cyclical, the timing of the shifts is usually unpredictable.



Work done on resilience by Nassim Taleb (*Antifragile: Things that Gain from Disorder*, 2012) categorizes systems as “fragile”, “resilient”, and “anti-fragile”. Fragile systems are those which break with they are stressed (eg. recovery of low income housing impacted by the Goderich tornado). Resilient systems can withstand some stress, and will recover quickly when damaged (eg. most business properties that sustained damage). Anti-fragile systems that get stronger and better when they're stressed (eg. the main square in Goderich that will be improved beyond what it was because of the tornado).

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A case study of community resiliency and response to the Goderich tornado

This incident was used to represent the impact that unexpected events have on communities. This tornado was categorized as F3 (with F5 being the strongest category) and appeared with only fifteen minute's notice. In 4 seconds it traveled 19 kilometers and took a path through the most important employment areas in the town and many neighbourhoods within the downtown core. In response, a number of resources were available including: the natural gas companies, the Ontario Provincial Police, insurance companies and government funding programs. There was so much community support that managing the resources and generosity of people was an important challenge, as well as considering how to mobilize a response at the community level.

The success of the recovery from this tornado disaster was largely due to the outpouring of support from individuals and local organizations that are community-minded and were quick to respond to help with addressing peoples' needs and support the clean up and rebuilding efforts. Resilience was also seen in the willingness among community members to convene and look to the future, actively planning to rebuild in a way that makes a stronger, more-connected and vibrant community.

Words of advice for community resilience:

- ▶ Good leadership and visioning is important in redeveloping public spaces
- ▶ Collective action is necessary; take things slowly and engage the public
- ▶ Building resiliency is a creative exercise
- ▶ Recognize and evaluate the systems that are currently stressed
- ▶ Build partnerships around community projects
- ▶ Remembering to consider how livelihoods are made in the community
- ▶ Recognize contributions and celebrate accomplishments



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Panel: Rural Community Perspectives on Climate Change & Rising Energy Prices

This panel centered on the topics of how the rural communities are currently responding to climate change and rising energy prices, and what innovations these communities could use in the future. Topics included transportation, alternative forms of energy, partnerships, and the value of diversity. The panel was moderated by Dr. Wayne Caldwell (University of Guelph) and included the following participants:

- ▶ CHRIS WHITE
Warden, Wellington County; Past Chair, Rural Ontario Municipal Association
- ▶ EMANUELE LAPIERRE-FORTIN
Development Advisor, Miska Cooperation
- ▶ SALLY LUDWIG
Co-founder, Transition Guelph
- ▶ ERIC MARR
Researcher, University of Guelph
- ▶ SUSANNA REID
Planner, Huron County Planning and Development

The following panel questions were posed:

- (1) **How has awareness of climate change and rising energy prices changed your outlook on long-term planning and risk management?**
- (2) **What innovations do you see in response to the challenges posed by climate change and rising energy prices?**
- (3) **What needs to be done to help build rural resilience?**

Key responses to each of the panel questions are summarized on the next page.

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As community organizers, researchers and municipal leaders, the panellists agreed that an awareness of climate change and rising energy prices has changed how they approach long-term planning and risk management. Risks posed by climate change and changing energy prices require community preparedness and resiliency.

There is still much public education needed about the scientific data that indicates our climate is changing, locally and globally. There is a need to build awareness of why this is important and how things are changing or are expected to change in our communities because of these external factors of climate and energy prices. People often feel powerless or unsure of how to respond, so it is important to talk about solutions, how we prepare for such future uncertainties and how we each contribute to creating resilient lifestyles and communities.

In part, because of concerns about these issues, individuals are coming together to support the local food movement, the creation of community gardens, planting trees and conserving water and energy. Such initiatives are often being led by grassroots groups or collaboratives. The Eden Mills 'Going Carbon Neutral' project, for example, was launched in 2007 with the goal becoming the first village in North America to achieve carbon neutrality. The small community of 350 near Guelph is now a model of proactive community engagement and well on the way to meeting its goal.

Transition Guelph was another group profiled through the forum panel. Though more urban in nature, it is part of a global Transition Towns network that endeavours to "create richer, more vibrant communities through the re-localization of services and resources that are needed to survive and thrive in a world of depleting fossil fuels, global warming, and increasing instability in the world economy." Transition Guelph encourages community members to get involved and help create a sustainable future for the community. They offer an annual Resilience Festival and many other workshops and learning events, as well as smaller working groups on topics such as community energy production and conservation, and urban food production. In many cases there is a desire to bring rural skills and knowledge into the city.

Rural municipalities, historically having the primary function of maintaining roads, are now facing additional expectations and demands, and beginning to realize they may have an important role to play in helping their communities address challenges like planning for climate change. They are severely restricted in the services they can provide in many cases, however, because of limited tax revenue. The emphasis is always on delivering services most efficiently and cost-effectively as possible. Sustainability Plans and Official Plans (eg. include downtown revitalization) can be tools that help municipalities incorporate planning for climate change.

Transportation is perhaps the largest challenge for rural communities in terms of dealing with rising energy prices. As fuel prices increase, countryside living may become less accessible to Ontarians who have to rely on personal vehicles for mobility. Municipalities cannot afford to provide public transit options to sparsely populated areas. Active transportation (eg. G2G rail trail connecting Goderich and Guelph) and work-from-home or "tele-commuting," however, provide some options for rural residents.

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Partnerships are key to supporting on-the-ground action that addressing climate change, as well as other community objectives like economic development and conservation.

Examples from Huron County presented on the panel:

- ▶ A 'Farm to Table' local food map - supports tourism and value-added farm businesses
- ▶ A payment for ecological goods and services pilot project - compensating farmers for good land stewardship
- ▶ Rural storm water monitoring with the local conservation authority to understanding the impacts of climate change

The University of Guelph School of Environment Design & Rural Development's 2013 publication, "[Peak Oil and Climate Change: A Rural Community Guide](#)", profiles several of the case studies presented by forum panelists, as well as further ideas about building resilience and first steps toward community action on issues related to transportation, service delivery, agriculture and food, water, etc.



Closing Remarks

Throughout the forum, it became clear that there are a number of challenges arising from climate change and rising energy prices that the agricultural sector and rural communities are facing. It is encouraging to learn, however, that there are many great initiatives happening on farms and in rural communities across Ontario that are addressing these challenges. We are discovering and pursuing new opportunities for research, innovation, community engagement, education and partnerships.

Agriculture is seen as holding great potential as a solution-provider and contributing substantially to building resiliency to the uncertainty introduced by rising energy prices and climate change. It is important to protect our farmland resources, steward the land to capture carbon and preserve the soil, and localize food production to sustain our communities.

Each of us has a role to play in building resilience, whether it is at the farm level by implementing crop trials and different tillage practices, or at the community level by bringing community members together and working with local governments to identify vulnerable social or natural systems and plan for increasing the ability to respond to future stresses and uncertainty.

There are lots of exciting initiatives happening in Ontario in response to climate change and rising energy prices, and it is through dialogue at events like the 2013 Farmland Forum that we can learn from each other, find new ways to work together, and build partnerships. Amidst the big challenges posed by climate change and rising energy prices, there is certainly reason for hope and optimism in rural Ontario as we all work together to build a more resilient and sustainable future.

For more, check out this new 2013 resource from the University of Guelph School of Environment Design & Rural Development: "[Peak Oil and Climate Change: A Rural Community Guide.](#)"

List of Forum Participants

Non-Government Representation

American Farmland Trust
Brockton Environmental Advisory Committee
Bruce County Local Food Project
Cambium Inc. Consulting
Christian Farmers Federation of Ontario
Climate Action Niagara
ClimateActionWR
Farms.com
FarmStart
Friends of the Greenbelt Foundation
Grand River Conservation Authority
Green Feet
Grey Bruce Sustainability Network
GTA Agricultural Action Committee
Gumboot Gourmet
Hamilton-Halton Watershed Stewardship Program
Hewitt Creek Farms
Huron County Federation of Agriculture
Land over Landings
Miska Cooperative
National Farmers Union
Ontario Alternative Land Use Services
Ontario Farmer
Ontario Federation of Agriculture
Preservation of Agricultural Lands Society
Rideau Valley Conservation Authority
Royal LePage
Rural Ontario Institute
Sunholm Farms
Sustain Ontario
Toronto and Region Conservation Authority
Transition Guelph
University of Guelph
University of Waterloo
Upper Thames River Conservation Authority
Walton Development and Management
Wellington Stewardship Council
Wellington Federation of Agriculture

Municipal Representation

Amaranth Township
Bradford West Gwillimbury
City of Hamilton
Clearview Township
County of Perth
Durham Region
Haldimand County
Halton Region
Huron County
Municipality of Central Elgin
Municipality of Chatham-Kent
Municipality of Grey Highlands
Niagara Region
Norfolk County
Peel Region
Tiny Township
Town of Caledon
Township of Centre Wellington
Township of East Zorra-Tavistock
Township of North Huron
Township of Rideau Lakes
Township of South-West Oxford
Township of Warwick
Township of Wainfleet
Wellington County

Provincial Representation

Ontario Ministry of Agriculture & Food
Ontario Ministry of Municipal Affairs & Housing
Ontario Ministry of the Environment
Ontario Ministry of Transportation