



TOGETHER, WE GROW – AGAIN!

Municipality of Thames Centre Official Plan Review

Discussion Paper: Climate Change Policies

April 2022

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Introduction

Climate change is predicted to result in more frequent and intense storm and weather events, increasing pressure on water resources, increasing smog and heat waves, and will impact all areas of life and the community (Government of Canada, 2015). This includes natural heritage features and systems, agricultural land, housing and employment. Climate change has become a global challenge that municipalities need to be prepared to face head-on.

The Thames Centre Official Plan (Thames Centre OP) is an important document that will help guide land-use planning in the Municipality to the year 2046. Because the Thames Centre OP provides planning strategies for the next 25 years, it is necessary to ensure that it lays out how the Municipality will prepare for and adapt to climate change and remain a resilient, vibrant and healthy community for future generations.

This discussion paper has been produced to provide a background of the current climate change policy to be considered during Thames Centre's Official Plan Review. This paper also highlights several topics of interest related to climate change policies in Thames Centre and concludes with recommended next steps for the Official Plan Review.

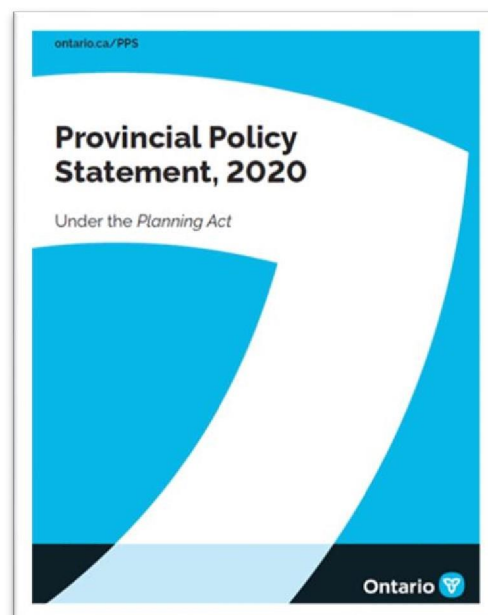
Policy Background

Climate change policies that will inform the Thames Centre OP come from the direction of the Province, the County, and the Municipality, through policy, plans, and other sources such as Conservation Authorities, the Thames Centre Strategic Plan, the Healthy Rural Communities Toolkit, and the Middlesex Cycling Strategy. This section will provide policy context in relation to climate change policies.

Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS), issued under the Planning Act, lays out the foundation for land use planning in Ontario with respect to matters of provincial interest. The policies that are set out in the PPS pertain to building strong healthy communities, the wise use and management of resources, and protecting public health and safety.

Under the Planning Act, the mitigation of greenhouse gas emissions and adaptation to a changing climate is listed as a matter of provincial interest. To implement that provincial interest, the PPS makes it clear that planning authorities must support energy conservation and energy efficiency, improved air quality, reduced greenhouse gas emissions, and prepare for the impacts of a changing climate with to respect water resource systems, natural hazards, air quality, infrastructure, and public service facilities, stormwater management, long-term economic prosperity, and energy conservation (MMAH, 2020).



Additionally, planning authorities must support energy conservation and efficiency. It is stated that communities that are strong, liveable, and healthy are resilient to climate change (MMAH, 2020, p.5). To prepare for the impacts, the PPS notes that supporting land use and development patterns which support promoting compact form, efficiently use land and resources, the use of active transportation and transit between residential, employment and institutional uses, encouraging intensification, minimizing negative impacts to air quality and climate change as well as promoting energy efficiency, and maximizing vegetation within settlement areas will be essential (MMAH, 2020, p. 22-23).

Conservation Authorities

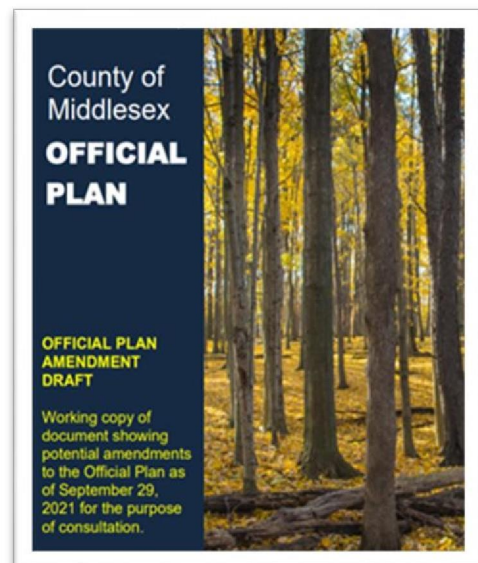
Conservation Authorities play an important role in local municipalities as they are local watershed management agencies who work towards ensuring that Ontario's land, water, and natural habitats are conserved, restored, and responsibly managed through programs and services that they provide. Conservation Authorities are also responsible for providing feedback on policy documents, such as official plans, as part of their duty to represent the provincial interest in natural hazards (Conservation Ontario, 2021). Furthermore, Conservation Authorities have a role in mitigation and adaptation measures for climate change (Conservation Ontario, n.d.) In terms of mitigating climate change impacts, Conservation Authorities offer different programs that help to mitigate greenhouse gases such as reforestation, carbon sequestration (such as restoring wetlands, etc.), low impact development, as well as partnering in opportunities to offset carbon (Conservation Ontario, n.d.). For climate change adaptation, Conservation Authorities offer programs that monitor and report watershed conditions, work with agencies, businesses and residents to put into action various green infrastructure, water quality, stormwater management strategies and practices among in addition to other adaptation programs offered (Conservation Ontario, n.d.).

Out of the five Conservation Authorities that have jurisdiction in the County, the Upper Thames River Conservation Authority (UTRCA) and the Kettle Creek Conservation Authority (KCCA) have jurisdiction in Thames Centre. It will be necessary to consult with the UTRCA and KCCA to ensure these agencies are satisfied with the proposed policies, in particular, the policies related to mitigating the potential risk to public health, safety, or property damage from natural hazards, including any possible risks generated from the impacts of climate change on natural hazards.

County of Middlesex Official Plan

The County of Middlesex, an upper-tier government, is made up of eight local municipalities, including Thames Centre. The County has an Official Plan that directs land use planning policy on a broad basis and is intended to set forth an upper-tier policy foundation to provide policy direction to local municipalities in the development of local Official Plans and Zoning By-laws (County of Middlesex, 2021).

The County is currently undergoing an Official Plan update to ensure that the policies within the Official Plan are consistent with the PPS. Through that process, the County is proposing policies regarding climate change. Proposed policies include that "local official plans will promote the creation of resilient communities. As such, development



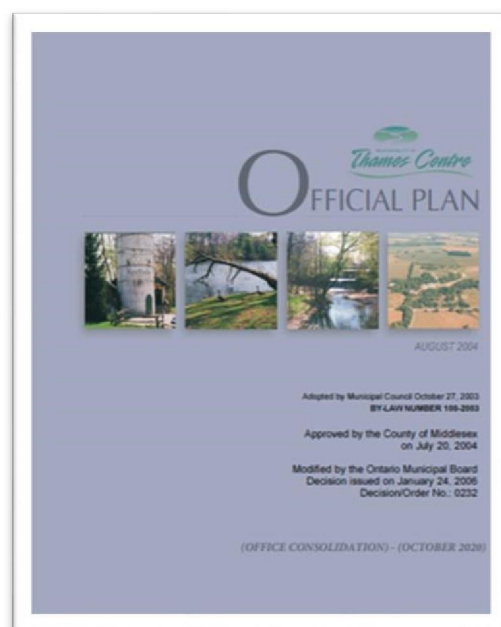
impacts that may result from a changing climate,” (County of Middlesex, 2021, p.2-11). Additionally, proposed County policies state that planning authorities must consider the impacts of a changing climate that has the potential to increase the risk associated with natural hazards (County of Middlesex, 2021, p.2-9). Lastly, proposed County policies also state that natural heritage features and areas... contribute to climate change mitigation...” (County of Middlesex, 2021, p.1-1). It will be necessary to ensure that the policies within the Thames Centre OP are in conformity with the County OP.

Thames Centre Official Plan

The Thames Centre OP currently does not address climate change although there is an opportunity to incorporate climate change policies within the existing policies. This includes incorporating climate change policies within natural heritage/ natural hazards policies, summation of issues and strategies, energy conservation and green renewable energy, transportation policies (specifically walking and cycling path), etc. in addition to considering a new section to the plan that sets forth municipal goals and policies regarding climate change.

Relevant Documents

The following are several documents that are relevant to the Thames Centre Official Plan Review regarding climate change policies however, the Official Plan Review is not limited to these documents.



Thames Centre Strategic Plan

The Thames Centre Strategic Plan for 2020 to 2024 outlines initiatives and objectives that the Municipality aims to achieve. The strategic plan helps to guide Council with decision-making and sets out the future direction for the Municipality. Further, the strategic plan sets forth the Municipality's vision, mission, core values, and strategic pillars, which consist of community development, infrastructure, and responsive leadership (Municipality of Thames Centre, 2020, p.3). For community development, goals include a tree planting program as well as a trails and cycling master plan. In terms of infrastructure, the strategic plan has a long-term goal of climate change initiatives such as waste management and energy-efficient opportunities. Additionally, sidewalks are to be updated where necessary and any opportunities for connection to support active transportation. For responsive leadership, an environmental sustainability focus is listed a long-term goal (Municipality of Thames Centre, 2020). It would be beneficial to ensure that the Thames Centre OP reflects the goals and priorities presented in the Strategic Plan to work towards strengthening the community and preparing for climate change.

Middlesex County Cycling Strategy

The County has developed a cycling strategy to help guide the planning, design, implementation, and operation of cycling infrastructure and programming. The guide explains various reasons for investing in cycling and lists the environment, including lowering greenhouse gas emissions and air pollution, water pollution from pollutants related to driving, as well as the protection of green space and natural environments. (Middlesex County & WSP, 2018, p.12). Active transportation will be addressed further in

this paper although this strategy would be beneficial to assist with revising the active transportation policies found within the Thames Centre OP.

Healthy Rural Communities Toolkit

The Healthy Rural Communities Toolkit was developed in collaboration with health units across Ontario, a project team from the University of Guelph, and an advisory committee to provide various planning and development strategies to assist with creating healthier rural communities (Caldwell et al, 2015). The toolkit brings a rural perspective and recognizes that rural communities are unique and have different challenges when it comes to the built environment and land use planning such as greater distances between uses and different infrastructure (Caldwell et al, 2015).

To assist rural municipalities with becoming healthier, thirteen key mechanisms for action were identified. These key mechanisms include a range of actions although, in relation to climate change, several action items can be explored as possible future steps including community design and land use planning, active transportation, water quality, air quality, nature, and climate change (Caldwell et al, 2015). The toolkit is a useful guide that could be used to inform policy for the Thames Centre Official Plan Review.



Topics of Interest

This section will explore topics of interest related to climate change policies, including new policies to be considered and the review of current policies to help inform the Official Plan Review. Many of these topics are interconnected and complement each other. Overall, they can help to create a more resilient community.

Active Transportation

Active transportation can have many benefits including reducing air pollution and greenhouse gas emissions, improving physical and mental health, tourism, and social equity (Caldwell et al, 2013, p.29 ; CIP, 2012 as cited in Caldwell et al, 2015, p.29; Middlesex County & WSP, 2018, p. 12; Greenbelt Foundation, 2020, p.26). Active transportation is defined as “any form of human-powered transportation” (Transport



Canada, 2011 as cited in Caldwell et al 2015, p. 5). The PPS states “a land-use pattern, density of mix of uses should be promoted that minimize the length and number of vehicle trips and support current and future use of transit and active transportation” (MMAH, 2020, p. 20).

Proposed County OP policy states “the County recognizes the important role transportation has in promoting opportunities for physical activity and cost-effective travel...” and encourages “an integrated transportation system that supports a variety of safe, sustainable and energy-efficient modes of transportation” (County of Middlesex, 2020p. 2-36, 2-39). Within the Thames Centre OP, it is stated that one purpose of the OP is to establish policies that support active transportation. It is also stated that “walking and cycling are recognized as active transportation modes that serve not only as popular recreational activities but also a means of purposeful transportation that is affordable and accessible for most of the population” (Municipality of Thames Centre, 2003, p.115). Sidewalks and bike lanes may not be feasible in many rural areas, however, wide paved shoulders, often found in rural areas, have the potential to be used for cycling (Caldwell et al, 2013). Furthermore, trail networks may be present in rural areas and may be used for active transportation purposes (Caldwell et al, 2015). It would be beneficial to expand on the current policies within the Thames Centre OP to describe the benefits of active transportation in relation to climate change and reducing greenhouse gas emissions.

Encouraging Compact Form in Settlement Areas

A common approach taken by municipalities to reduce car dependency and therefore reducing greenhouse gas emissions is through the implementation of compact form. In Thames Centre, there are settlement areas, in particular Dorchester and Thorndale, that can benefit from being more compact. In regards to encouraging compact form, the PPS states “planning authorities shall promote economic development and competitiveness by...encouraging compact, mixed-use development that incorporates compatible employment uses to support liveable and resilient communities..,”(MMAH, 2020, p.14). Proposed County OP policy states that “new development should proceed in an integrated and compact form and “settlement areas shall develop in a phased, compact manner that does not result in a strip pattern of development” (County of Middlesex, 2021, p. 2-30, 3-2). Proposed County OP policy also states that “Councils of local municipalities shall include... policies that promote the reduction of greenhouse gas emissions, improvement in air quality, promotion of compact form, use of green infrastructure and development that maximized energy efficiency and conservation including the use of alternative and renewable energy sources,” (County of Middlesex, 2021, p.2-27).

The Thames Centre OP states that one of the purposes of the plan is to “establish a land-use pattern that ensures sufficient lands have been identified in settlement areas and specific land use designations identified for development to accommodate a variety of housing and employment opportunities to meet current and future needs,” (Municipality of Thames Centre, 2003, p. 5). Furthermore, to “encourage the provision of a variety of housing types in a variety of designated locations,” (Municipality of Thames Centre, 2003, p. 5). Although the Thames Centre OP does not specifically state ‘compact’ development, densities are addressed. It is recommended that the Thames Centre OP includes a specific policy that states the Municipality encourages compact form in settlement areas in addition to the benefits that compact form can provide such as a reduction in greenhouse gas emissions.

Encouraging Sustainable Building Design Practices

As stated in the PPS, one of the ways planning authorities are to support energy conservation, air quality and climate change is to “promote design and orientation that maximizes energy efficiency and conservation, and considers the mitigating effects of vegetation and green infrastructure” (MMAH, 2020, p. 23). The Thames Centre OP includes policy regarding energy conservation and states “the Municipality shall promote energy conservation by encouraging developers to implement designs that attempt to minimize energy use. Such techniques including innovated building designs...shall be encouraged,” (Municipality of Thames Centre, 2003, p.29).

When it comes to encouraging sustainable building design practices, Leadership in Energy and Environmental Design (LEED) certification and net-zero building are both design types/ techniques that can be addressed in the Thames Centre OP. LEED certification refers to third-party verification that a building has been designed and built using strategies for achieving high performance in regards to location and transportation, sustainable site development, water savings, energy efficiency, materials selection as well as indoor environmental quality (Canada Green Building Council, 2021). Net-zero building refers to “buildings that use as much energy as they could produce using renewable energy” (Government of Canada, 2018). It would be beneficial to encourage or require new development to be LEED-certified and/or net-zero to ensure that it is sustainable. It is recommended that the Thames Centre OP includes and sets goals for sustainable building design such as LEED certification and net-zero buildings to help prepare for climate change

Encouraging the Use of Renewable Energy & Alternative Energy

The burning of fossil fuels, including coal, oil, and natural gas is responsible for approximately 70-90% of all the human emissions of carbon dioxide, a prominent greenhouse gas (Government of Canada, 2015). As such, it is important to use renewable energy when possible to lower greenhouse gas emissions that



Source: Canva.com

are produced. The PPS states that “planning authorities should provide opportunities for the development of energy supply including... renewable energy systems and alternative energy systems to accommodate current and projected needs,” (MMAH, 2020. p. 22). Proposed County OP policies includes a section regarding alternative and renewable energy systems and states that “the County shall encourage the development of alternative and renewable energy systems...These systems significantly reduce the amount of harmful emissions to

the environment... The County encourages the use of wind, water, biomass, methane, solar and geothermal energy,” (County of Middlesex, 2021, p.2-46). The Thames Centre OP includes policy regarding green renewable energy and states “the municipality supports the development of green or renewable energy systems and facilities...as production sources of electricity for the economic and environmental benefit of the Municipality and the Province,” (Municipality of Thames Centre, 2003, p.29). It would be beneficial to update the energy policies within the Thames Centre OP to state that the Municipality also encourages the use of renewable energy as it reduces the amount of greenhouse gas emissions in addition

to also stating a variety of types of renewable energy and alternative energy options such as solar, geothermal, biomass, etc.

Sustainable Stormwater Management Strategies

Future impacts of climate change include more frequent and intense extreme weather events such as heavy rain events and flooding (Government of Canada, 2015). The PPS includes states “planning for stormwater management shall... minimize erosion and changes in water balance, and prepare for the impacts of a changing climate through the effective management of stormwater, including the use of green infrastructure,” (MMAH, 2020, p.20). In addition to this, the PPS states that “planning for stormwater management shall also maximize the extent and function of vegetative and pervious surfaces... and promote stormwater management best practices, including stormwater attenuation and re-use, water conservation and efficiency, and low impact development,” (MMAH, 2020, p.20). Two strategies that can be used to manage stormwater are low impact development and green infrastructure.

Encouraging Low Impact Development

To mitigate flooding that may occur, low impact development (LID) can be used as a strategy to assist with stormwater management. LID is a way to manage stormwater by simulating the natural movement of water. There are many benefits to LID including conserving water and energy, improving water quality, and reducing urban flooding (Upper Thames River Conservation Authority, n.d.). Examples of LID features include constructed wetlands, rain gardens, and biofilters (Upper Thames River Conservation Authority, 2022). Stormwater management policies are included within the Thames Centre OP although LID is not mentioned. It would be beneficial to incorporate LID within the existing policies and describe how it can be used to mitigate negative impacts of climate change, in particular, flooding events.

Encouraging Green Infrastructure

Green infrastructure is defined as “natural vegetative systems and green technologies that collectively provide society with a multitude of environmental, social, and economic benefits” (Friends of the Greenbelt Foundation & Green Infrastructure Ontario Coalition, 2017, p.4). There is an opportunity for green infrastructure to contribute to the implementation of a variety of policy areas including climate action, water, health, agriculture, growth, and disaster risk management. Examples of green infrastructure include



green roofs, bioswales, filter strips, green walls, hedge rows, and tree canopy expansion (Friends of the Greenbelt Foundation & Green Infrastructure Ontario Coalition, 2017). Similar to LID, green infrastructure can help with stormwater management although it also has other applications such as improving water and air quality, becoming a habitat for wildlife and plants, and also improving human health. Green infrastructure can also help communities become more resilient to climate change since it can adapt to different fluctuations in the environment more than traditional infrastructure, also referred to as ‘grey’

infrastructure, such as storm sewers (Friends of the Greenbelt Foundation & Green Infrastructure Ontario Coalition, 2017). With all the benefits of green infrastructure, it is recommended that the Thames Centre OP includes green infrastructure policies within existing policies such as stormwater management policies, drains and wetlands.

Working Towards Creating Complete Rural Communities

A concept that incorporates many, if not all, of the topics as well provincial, county, and local policies that are mentioned above is the concept of complete communities. This is referring to communities that offer a variety of options for residents to live, work, play and move regardless of age, socioeconomic status, and abilities (Greenbelt Foundation, 2020b, p.1). Complete communities are better equipped to tackle the challenges brought on by climate change in addition to being economically successful, and healthier for residents since these communities allow residents to have easy access to a range of services, are attractive to employers and businesses, offer a variety of housing options within the same place, allows for the efficient use of services and infrastructure, supports active transportation, and preserves natural heritage features and agricultural lands (Greenbelt Foundation, 2020, p.9). The Thames Centre Strategic Plan states that a goal of the Municipality is to “have opportunities for all to live a vibrant, engage life, making the municipality an attractive place to enjoy life long vitality,” which aligns with the concept of complete communities (Municipality of Thames Centre, 2020, p.8).

Although rural areas function differently compared to urban areas in regards to having lower population densities, scattered populations, and expansive landscapes, there are opportunities for rural communities to work towards becoming complete communities (Greenbelt Foundation, 2020, p.10). The Greenbelt Foundation’s document Growing Close to Home: Creating Complete Rural Communities explains that in the past, historic settlement areas were examples of complete communities since they were usually compact, walkable, offered mixed-use development, housing options, workplaces, and services that met the everyday needs of residents (Greenbelt Foundation, 2020, p. 55). Today, these settlement areas, with a bit of investment, can take steps towards meeting most of the residents’ daily needs and providing many aspects of a complete community (Greenbelt Foundation, 2020, p.55). It is recommended that the Thames Centre OP includes policies regarding complete communities, such as encouraging the implementation of the aspects that make up complete communities (compact mixed-use development, active transportation, etc.) and including the creation of complete rural communities as a goal for the Municipality as a means of becoming more resilient to climate change.

Definitions

The PPS and the proposed County OP policies provide several definitions related to climate change that are new or have been revised. The definitions within the Thames Centre OP should be updated to be consistent with the definitions within the PPS and the draft County OP. This includes definitions such as green infrastructure, climate change, low impact development, complete communities, and renewable energy source.

Recommendations and Next Steps

This discussion paper has provided a background of the policies related to climate change to help inform the draft official plan policies for the Thames Centre OP. The various updates and revisions that should be considered include the following:

- It is recommended that the active transportation policies within the Thames Centre OP are updated to include the benefits of active transportation in relation to climate change and reducing greenhouse gas emissions.
- It is recommended that the Thames Centre OP includes a specific policy that states the Municipality encourages compact form in settlement areas in addition to the benefits that compact form can provide such as a reduction in greenhouse gas emissions.
- It is recommended that the Thames Centre OP includes policies regarding sustainable building design such as LEED certification and net-zero buildings to help prepare for climate change
- It is recommended that the Thames Centre OP includes updated energy policies including the different types such as solar, geothermal, biomass, etc., and the benefits regarding climate change.
- It is recommended that the Thames Centre OP includes policies regarding low impact development and green infrastructure as stormwater management strategies
- It is recommended that the Thames Centre OP includes policies and goals for complete rural communities within Thames Centre.
- It is recommended that the definitions within the Thames Centre OP are revised if necessary and include new definitions that are laid out in the PPS and within the proposed County OP.

The recommendations in this discussion paper should be confirmed with the County and Conservation Authorities to ensure the recommendations are considered appropriate.

Questions and comments for consideration can be submitted to mbancroft@thamescentre.on.ca.

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