

DRAFT FOR DISCUSSION



PLANNING ISSUE #7: GREEN INFRASTRUCTURE

DISCUSSION, DIRECTIONS + RECOMMENDATIONS FOR
REVISIONS TO THE OFFICIAL PLAN

MIDLAND OFFICIAL PLAN REVIEW

The Planning Partnership
Municipal Planning Services
Plan B Natural Heritage
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Purpose

This report examines the policy implications of green infrastructure, such as water, wastewater and stormwater management, as well as emerging stormwater management (SWM) strategies. These strategies include reducing the amount of paved surfaces to reduce run-off flows, and using green infrastructure/natural corridors and Low Impact Development (LID) methods to increase infiltration in vegetated areas and SWM ponds. In particular, this green infrastructure report will explore strategies to more comprehensively integrate servicing/infrastructure policies and land use policies. This will ensure that future infrastructure investment occurs where and when required to support planned development.

Places to Grow defines community infrastructure as lands, buildings, and structures that support the quality of life for people and communities by providing public services for health, education, recreation, socio-cultural activities, security and safety, and affordable housing. The Town of Midland has made it a priority to create a high quality of life for its residents, which includes the provision of sustainable community infrastructure.

Major storm events are increasing as a result of climate change. The Provincial Policy Statement now requires planning authorities to support energy conservation and climate change adaptation through land use and development patterns and standards.

This report will also review and summarize the relevant policies in Provincial planning, the Ontario Climate Change Action Plan, the Simcoe County Official Plan, the 2015 Waterworks Master Plan Update, the Source Protection Plan Implementation, the 2009 Severn Sound Sustainability Plan and the existing Town Official Plan.

How this report is laid out

This report, and all “planning issue” reports for this phase of the Midland Official Plan Review (OPR), are structured to provide a clear understanding of the policy background and basis for the various matters to be addressed in the OPR.

The reports begin with the policy background consisting of the relevant definitions in a grey inset box, and the applicable Provincial, County and municipal policies and reports in a blue inset box. The policy background is followed by the public comments received on each planning issue. These sections then feed into a discussion of the issues, through which guiding Directions are identified, and the consultant recommendations for the OPR based on these Directions.

Policy Background

Definitions

CLIMATE CHANGE is a change in the typical or average weather (temperature, rainfall, snow, or wind patterns) of a region or city lasting for a long period of time. Climate change is also a change in Earth's overall climate. This could be a change in Earth's average temperature, or a change in Earth's typical precipitation patterns.

CLIMATE ACTION PLAN (CAP) is a set of strategies intended to guide efforts for climate change mitigation (i.e. reduction in emissions of greenhouse gases).

LOW IMPACT DEVELOPMENT (LID) is a stormwater management strategy and design approach that seeks to manage urban runoff and stormwater pollution. LID emphasizes conservation and use of on-site natural features to protect water quality by implementing infiltrating, filtering, storing, evaporating, and detaining runoff close to its source.

Provincial Policies

Policy Reference - Provincial Policy Statement (2014): Section 1.0 (Building Strong Healthy Communities); Section 1.6 (Infrastructure and Public Service Facilities); Section 1.8 (Energy Conservation, Air Quality and Climate Change); and Section 3.1 (Natural Hazards).

- Under the PPS, the Province requires that impacts of climate change be considered in different areas including land use, air quality and natural hazards. Healthy, liveable and safe communities are achieved by “promoting development and land use patterns that conserve biodiversity and consider the impacts of a changing climate” (Section 1.1.1h).
- The PPS states under Section 1.6.1 that “Infrastructure, electricity generation facilities and transmission and distribution systems, and public service facilities shall be provided in a coordinated, efficient and cost-effective manner that considers impacts from climate change while accommodating projected needs” and that they be coordinated and integrated with land use planning.

- The PPS states further under Section 1.6.2 that “Planning authorities should promote green infrastructure to complement infrastructure.”
- The PPS also states that municipal sewage services and municipal water services are the preferred form of servicing for settlement areas and that individual on-site sewage and water services may only be used for infilling and minor rounding out of existing development within settlement areas (Sections 1.6.6.2 & 1.6.6.4).
- Under the PPS “Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and climate change adaptation through land use and development patterns” (Section 1.8).
- Further, “Planning authorities shall consider the potential impacts of climate change that may increase the risk associated with natural hazards” (Section 3.1.3).

Ontario Climate Change Action Plan

Policy Reference – Climate Change Action Plan, June 2016

- The Province is committed to reducing greenhouse gas pollution to fight climate change, through the recently finalized cap and trade program and incentives for the use of clean technology, with the ultimate goal of cutting greenhouse gas pollution to 80 percent below 1990 levels by 2050.
- The Plan outlines key actions the Province will take to combat climate change, create jobs in clean technology and construction, increase consumer choice and generate opportunities for investment.
- Reducing greenhouse gas pollution generated by transportation and buildings are key components of the Plan, with the Province encouraging the use of zero-emission vehicles, transit, energy efficient buildings and small-scale green energy systems on buildings.
- The Plan also acknowledges the need to protect and support low-income households, vulnerable communities and renters through initiatives such as establishing a green bank and reinvesting proceeds from the cap and trade program to help households and businesses save on their energy costs.
- Further, the Plan states that the Province will work in partnership with First Nations and Metis communities to address climate change and to building capacity to participate in the economic opportunities that may arise.
- In particular, one of the identified Action Areas is Land-use Planning: Support low-carbon communities, through which the Plan outlines how community form and design can have a profound impact on the emission of greenhouse gases:

- The Province proposes a number of changes to the *Municipal Act* and the *Planning Act* to strengthen climate change mitigation policies in municipal documents, including setting green development standards and requiring climate change mitigation and adaptation policies in Official Plans
- The Province intends to provide funding for Community Energy Plans and Climate Action Plans with greenhouse gas pollution inventories as well as energy mapping initiatives
- The Province will provide tools for municipalities to pilot congestion management plans and “low emission zones” and provide grants for Transportation Demand Management Plans

Growth Plan Policies

Policy Reference - Growth Plan, Office Consolidation, June 2013: Section 3.2.5 (Water and Wastewater Systems); and Section 4.2.4 (A Culture of Conservation).

- A guiding principle of the Growth Plan is to “Protect, conserve, enhance and wisely use the valuable natural resources of land, air and water for current and future generations.”
- The Growth Plan states that the construction of new, or expansion of existing, municipal or private communal water and wastewater systems should only be considered where water conservation and water demand management are being implemented and where the services are to serve growth in a manner that supports achievement of intensification and density targets (Section 3.2.5.4).
- The Growth Plan encourages municipalities to “implement and support innovative stormwater management actions as part of redevelopment and intensification” (Section 3.2.5.8.).
- Under Section 4.2.4 A Culture of Conservation the Growth Plan outlines that municipalities will develop policies to implement conservation objectives related to: water conservation; energy conservation; air quality protection; integrated waste management; cultural heritage conservation.

County Policies

Policy Reference - Simcoe County Official Plan, Modified as per Approval August 31st, 2015 (Updated March 10, 2016): Section 4.5 (Resource Conservation); and Section 4.7 (Infrastructure: Sewage and Water Services).

- Under the Air Quality Section of the OP, Policy 4.5.45 states that,

“This Plan promotes improved air quality through land use development patterns that promote compact and mixed use development, transit usage where appropriate, alternative transportation and active transportation systems, and forest management and reforestation efforts as a means of fostering maintenance and improvement of air quality. The County will work in co-operation with the appropriate agencies to assist in the maintenance and improvement of air quality in the County.”
- The County promotes energy conservation through development patterns that:
 - “a) Promote compact, mixed use development
 - b) Promote Active Transportation and the use of transit
 - c) Maximize, where appropriate, the use and production of alternative energy systems or renewable energy systems, such as solar, wind, biomass or geothermal energy
 - d) Maximize the use of existing natural areas and newly planted vegetation to reduce the urban heat island effect” (Policy 4.5.46)
- The County also promotes renewable energy systems and alternative energy systems, where feasible (Policy 4.5.47).
- In Section 4.7.8 the County Official Plan encourages local municipalities to undertake comprehensive master servicing plans for development within settlement areas. Local municipal growth management strategies shall consider the ability to provide full municipal or private communal services as a key element in directing and/or focusing development for long-term growth and development.
- In addition, the County Official Plan states that development, redevelopment and intensification for settlement area uses should generally be directed to locations with full municipal sewage and water services and private communal sewage and water services or to adjacent locations where the services can be efficiently extended to those forms of development through an approved EA (Policy 4.7.17).

Existing Midland OP Policies

Policy Reference - Town of Midland Official Plan (2002): Section 4.8 (Pollution Abatement); and Section 7.6 (Stormwater Management).

- The Official Plan does not include policies related to climate change, energy conservation, or green infrastructure.
- Under Section 4.8 Pollution Abatement, the Town OP notes that it is an imperative that measures be taken to reduce pollution and that development conform with the standards of the Provincial Government regarding air, noise, and water pollution (Policy 4.8.1 & 4.8.2).
- Section 7.6 of the OP, outlines stormwater management objectives:
 - b) To employ appropriate environmental management policies considering both the upstream and downstream characteristics of the watershed
 - c) To provide provisional guidance for the choice of best stormwater management practices in order to control flooding, erosion, sedimentation and water quality in any natural or manmade waterway
 - d) To encourage and promote the appropriate integration of natural waterways, ponds and valleys, to enhance and develop functional corridors for wildlife habitat, open space and parkland
 - e) To protect and enhance, through stormwater management techniques and design, the water quality, environmental, aesthetic and recreational potential of waterways and water bodies

Previous Plans and Studies

Source Protection Plan Implementation

The *Clean Water Act* was given Royal Assent in 2006, and among other things, established responsibilities for various levels of government to protect drinking water resources. One of these responsibilities included the preparation of Risk Assessment Reports and Source Protection Plans on a regional watershed basis. The Town of Midland is located in the Severn Sound watershed, which is located in the Southern Georgian Bay, Lake Simcoe Protection Region. The Source Protection Plan for the South Georgian Bay Lake Simcoe Protection Region was approved on January 26, 2015 and formally came into effect on July 1, 2015.

The Source Protection Plan identified that the Town's water system is comprised of a series of production wells in five well fields. One of the principles of source protection

planning is to identify vulnerable areas, such as “wellhead protection areas” as a measure to prevent contamination to a public water supply, potentially caused by one of 21 threats identified under the *Clean Water Act*, such as the handling and storage of road salt.

In anticipation of the approval of the Source Protection Plan, the Town initiated the preparation of Official Plan and Zoning By-law Amendments during the summer of 2014. The draft Official Plan Amendment spatially identified the following five categories of wellhead protection areas:

- Wellhead Protection Area A (WHPA-A), which identifies a 100 metre radius surrounding a well.
- Wellhead Protection Area B (WHPA-B), which identifies a 2-year travel time for groundwater to enter a well.
- Wellhead Protection Area C1 (WHPA-C1), which identifies a 10-year travel time for groundwater to enter a well.
- Wellhead Protection Area D (WHPA-D), which identifies a 25-year travel time for groundwater to enter a well.
- Wellhead Protection Area E (WHPA-E), which identifies the vulnerable area for groundwater supplies which are under the direct influence of surface water and is calculated on the basis of a two-hour travel time taken for surface water to reach a well.

In addition, the draft Official Plan Amendment identified two wellhead protection areas based on quantity concerns related to increased demand and ground cover (infiltration):

- Well Head Protection Area Q1, which is the cone of influence around a municipal well. The cone of influence is estimated by calculating the level of drawdown in an aquifer under existing land use and future pumping rates.
- Well Head Protection Area Q2, which is the WHPA-Q1 and any area where a future reduction in recharge would significantly impact that area.

The proposed amendment also incorporated a series of policies designed to protect the above-mentioned wellhead protection areas through the use of abatement measures, technical requirements for development applications, best practices, restriction, and prohibitions. In particular, a hydrogeological study is required to demonstrate that the existing water balance can be maintained through the use of best management practices to compensate for any predicted loss of recharge from new major development within the WHPA Q2 area.

Public meetings on the proposed amendments were held on October 1, 2014 and Council adopted Official Plan Amendment #6 and Zoning By-law Amendment 2014-84 on November 24, 2014. The amendment is still awaiting final approval from the County of Simcoe.

2015 Midland Waterworks Master Plan Update

The purpose of the Midland Waterworks Master Plan Update was to build upon the existing Draft Midland Waterworks Master Plan Phase 1 & 2 Report by identifying servicing alternatives, developing a strategy to efficiently support current system capabilities, managing system deficiencies, and addressing future water servicing demands based on projected growth to 2031, phased in 5 year increments.

The Midland Waterworks Master Plan Update addressed specific recommendations outlined in the Draft Midland Waterworks Master Plan Phase 1 & 2 Report. Specific objectives of the current master plan update address water servicing issues regarding:

- Pressure zone delineation
- Location and capacity of future water supply and storage facilities
- Distribution system requirements for the future water system
- Phased, prioritized strategy for water system upgrade and expansion over an 18 year study period in accordance with the general future system recommendations

The preferred servicing strategy for the Town of Midland involves all of the following alternative solutions:

Alternative 1.4A: Construct a single high capacity well facility

Alternative 2.3B: Relocate Existing Montreal Street Standpipe to West pressure zone

Alternative 2.4A: Construct New Storage Facility in the East pressure zone

Alternative 3.3: Install new pumps at Lescaut booster station

Alternative 4.2: Apply planned Lescaut boundary realignment

Alternative 5.3: Connect area south of Little Lake to existing West pressure zone

Alternative 6.3B: Provide East-West booster redundancy (South of Little Lake)

Alternative 7.2: Provide System Redundancy North-South with watermain on William Street

Alternative 8.2: Provide system redundancy north of Vindin St. (WM twinning)

When combined, the above listed alternative solutions produce a short-term and long-term strategy that effectively utilizes and builds upon the existing network to maintain and improve service and security for the Town of Midland water system.

2009 Severn Sound Sustainability Plan

The Severn Sound Sustainability Plan provides a framework for its partner agencies to ensure that environmental, social, cultural and economic issues are managed, and that action plans are in place, that can be monitored for effectiveness over time within the Severn Sound Watershed. The land within the watershed includes the jurisdictions of nine municipalities; the Town of Midland lies wholly within the watershed. The Plan includes 15 goals under the three pillars of environmental sustainability, community well-being and economic prosperity, which are accompanied by more detailed strategies. These goals include reducing the consumption of natural resources, and designing efficient public facilities in harmony with natural systems.

Public Comments

- Policies for a Climate Change Plan and Emergency Plan are needed to start preparing residents and the Town's infrastructure to handle future major storm events.
- Policies for planting native trees and plants, managing water run-off, and policies for putting hydro lines underground to reduce storm damage.
- The Town can use stormwater management methods such as bioswales, permeable pavements, green streets, green parking, green roofs, increasing tree canopy and natural ponds. Restricting pesticide use in the Town to prevent stormwater contamination. Large culverts underground as catch basins for stormwater.

Discussion

Green infrastructure

- Overall, Section 7 “Engineering Standards” of the existing Official Plan requires a substantial update in order to conform to Provincial and County planning frameworks as well as the recent 2015 Midland Waterworks Master Plan Update and Source Protection Plan recommendations. New planning and engineering concepts need to be considered and incorporated, particularly related to climate change, energy conservation and green infrastructure.
- Provincial planning frameworks direct planning authorities to consider and implement:
 - Green infrastructure to complement infrastructure;
 - The potential impacts of climate change that may increase the risk associated with natural hazards;

- Innovative stormwater management actions as part of redevelopment and intensification; and
 - Policies to implement conservation objectives related to water conservation, energy conservation, air quality protection and integrated waste management.
- Promote innovative residential and public building designs that contribute to energy reduction and natural resource conservation, green roofs, synergies between buildings and site management practices. This should include the introduction of low impact development (LID) policies that promote and incorporate innovative and appropriate LID opportunities and best practices.
 - The Official Plan should include policies to refer to, or implement, the Town's Approved Landscape Species List (2015).
 - The Town should consider Urban Forest System policies that speak to the benefits of the urban forest such as reduction in air pollution, urban heat island effect, energy savings, habitat for urban wildlife, biodiversity, and opportunities for recreation and physical activity.

Climate change adaptation

- Provincial and County planning frameworks require the Town to support energy conservation and climate change adaptation through land use and development patterns and standards. Healthy, liveable and safe communities are achieved by “promoting development and land use patterns that conserve biodiversity and consider the impacts of a changing climate.”
- With respect to this issue more specifically, Provincial and County planning frameworks state that “Infrastructure, electricity generation facilities and transmission and distribution systems, and public service facilities shall be provided in a coordinated, efficient and cost-effective manner that considers impacts from climate change while accommodating projected needs.”
- The consultation process identified the following **Guiding Principle**:
 - Ensure long-term sustainability, reduce greenhouse gas emissions and reduce demands on energy, water and waste systems.
- The Town should therefore introduce policies to prepare for potential impacts of climate change. Consider a climate change framework under the following headings:
 - Energy Conservation
 - Water Use and Management

- Material Resources and Solid Waste Management
 - Stormwater Management
 - Air Quality
 - Urban Forest System
 - Green Buildings and Green Sites
- The Town should introduce policies to encourage the preparation of a Town-wide Climate Change Adaptation Plan and/or Storm Management Plan(s).
 - It will be important to minimize air quality and climate change impacts associated with new growth through complete communities, active transportation, a reduced parking strategy, separation of sensitive land uses, etc. Policies should also be introduced that promote energy conservation in new developments.
 - The OP should include policies that promote waste diversion from landfills and strategies for a higher diversion rate in recycling.

Stemming from these discussion points are two **Directions** which frame the policy recommendations below.

Directions:

1. Green infrastructure and other innovation standards should be integrated throughout the Town.
2. The Town must ensure that climate change adaptation and environmental damage prevention measures are implemented.

Directions + Recommendations

Direction #1: Green infrastructure and other innovation standards should be integrated throughout the Town.

It is recommended that:

- a) Section 7 “Engineering Services” be revised to incorporate the relevant conclusions and recommendations of the **2015 Midland Waterworks Master Plan Update**.
- b) The following stormwater management objectives be implemented in Section 7 “Engineering Services”:
 - Employ appropriate environmental management policies considering both the **upstream and downstream characteristics of the watershed**;

- Provide provisional guidance for the choice of **best stormwater management practices** in order to control flooding, erosion, sedimentation and water quality in any natural or manmade waterway;
- Encourage and promote the appropriate **integration of natural waterways, ponds and valleys**, to enhance and develop functional corridors for wildlife habitat, open space and parkland;
- Protect and enhance, through stormwater management techniques and design, the **water quality, environmental, aesthetic and recreational potential** of waterways and water bodies; and
- Require the application of **best management practices** in stormwater management and introduce **Low Impact Development policies**.

c) Section 4 "Amenity and Design" be amended to include more specific policies that:

- Introduce policies to refer to, or implement, the Town's **Approved Landscape Species List (2015)**; and
- Promote **innovative residential and public building designs** that incorporate green or white roofs, sustainable site management practices and requirements for the achievement of green building targets such as LEED Gold or Platinum.

Direction #2: The Town must ensure that climate change adaptation and environmental damage prevention measures are implemented.

It is recommended that:

- a) Section 7 "Engineering Services" be revised to incorporate the **Source Protection Plan recommendations (OPA 6)**.
- b) Policies are introduced to encourage the preparation of a **Town-wide Climate Change Adaptation Plan**, in response to Ontario's recently released Climate Change Action Plan. Policies would also encourage the preparation of sustainable neighbourhood action plans for stable residential neighbourhoods.
- c) The Town consider the inclusion of **climate change adaptation policies which would apply to all capital works projects**, including those within existing neighbourhoods.
- d) Policies are introduced that promote **waste diversion** from landfills and strategies for a higher diversion rate in recycling.
- e) Section 4 "Amenity and Design" is amended to introduce general policies to **prepare for potential impacts of climate change** under the following headings:
 - Energy Conservation;

- Water Use and Management;
- Material Resources and Solid Waste Management;
- Stormwater Management;
- Air Quality; and
- Urban Forest System.

These changes to the existing Official Plan are considered modest, although the overall effect is to raise to profile of sustainability as a key element of planning throughout the new Official Plan.