

## Preparing for Climate Change (Adaptation)

The goal of preparing for climate change is to increase community resilience by adapting current services, practices, and infrastructure to with-stand current and future climate-related risks.

Community resilience includes, but is not limited to:

- The ability to provide services and continue municipal operations (business continuance)
- Protection for the built and transportation infrastructure of the community to allow municipal and private activities to continue uninterrupted (asset protection)
- Protection, and improvement of 'green' or natural ecological infrastructure (natural capital)
- The ability for residents, businesses, and stakeholders to support one another in times of need (social capital)

### Adaptation Toolkit for Cities

Natural Resources Canada has identified a number of climate adaptation activities that municipalities can undertake to reduce the negative impacts of climate change and/or take advantage of new opportunities that may be presented. They note that proactive planning efforts (including adopting policies that support climate change mitigation and adaptation) can result in lower long-term costs and be more effective than reactive efforts (i.e. adaptations that occur following major storm events drought impacts have already been realized). Adaptation planning themes include business continuity planning, proactive development and planning standards, responsive storm water design standards, new operating practices and service levels for core municipal infrastructure development and maintenance, appropriate adaptation of park operations to meet eco-system pressures resulting from climate change, and enhanced community support to build social capital.

Proactive planning for climate change includes the adoption of supportive policies that ensure adaptive measures are included from the most broad policies (i.e. the Official Community Plan) to the most specific (e.g. identifying how utility and park lands are acquired, developed and managed; including climate change considerations into the planning, design and maintenance of infrastructure projects to avoid placing these systems at a greater risk of being impacted; adjusting budgets to reflect climate change risks; etc.).

### Toronto

The City of Toronto identified projects and programs to increase that community's level of preparedness for and resiliency to the implications of climate change.

The comprehensive climate adaptation strategy currently being developed for Toronto involves the following principles:

1. Create the internal mechanisms and processes for the development of a comprehensive, multi-year adaptation process;
2. Engage the public, business and other stakeholder groups;
3. Incorporate climate change adaptation into city policies and high level plans;
4. Use best available science to analyze how climate is changing locally and what the future is likely to bring;
5. Use this analysis to identify Toronto's vulnerabilities to climate change;
6. Conduct a risk assessment to identify priority impacts requiring adaptation action;
7. Identify and assess adaptation options to reduce the risk;
8. Develop and implement climate change adaptation strategies; and
9. Monitor climate change, evaluate the effectiveness of adaptation initiatives in protecting the City from continuing changes, and adjust strategies when necessary.

Initiatives identified through proactive planning efforts in Toronto so far include:

- Improved alert systems and weather response plans.
- Changes to storm water management under a Wet Weather Flow Master Plan and changes to design standards for development that reduce heat and runoff (e.g. green parking lots).
- Changes to sewage treatment systems and protection against basement flooding and spills to receiving water bodies.
- Expanded electrical generating capacity and diversity of supply available from distributed generation.
- Improved electricity transmission and distribution systems including redundancy and moving above-ground distribution lines underground.
- Improved transit and multi-modal transportation systems.
- Waterfront improvements to reduce erosion and improve resilience to flooding.
- Adoption of building policies and incentives to increase the prevalence of green roofs that reduce heat and runoff.
- Increased tree planting to double the size of the urban forest.
- Increased green space protection and enhancement.
- The City's role in housing and homelessness was reviewed with the implications of extreme weather in mind.

Mitigating climate change is also a focus of effort for the City of Toronto and a variety of programs and incentives that set energy efficiency, water consumption, and heat island effect performance targets for the design, construction, and operations of the built environment.

### Saskatoon

The City of Saskatoon has been focussing on the mitigation of risks through an Enterprise Risk Management approach, including work on the following initiatives that serve to improve adaptability to climate change impacts:

- Improved alert systems including use of Service Alerts and NotifyNow.

- Creation of an Emergency Measures Organization (EMO) office that works with civic and key community stakeholders on weather response planning.
- Completion of a study of the vulnerabilities storm water sewer system and initiation of storm water management planning based on study results.
- Creation of a new Storm Water Utility to generate sustainable funding for infrastructure required to protect against flooding in the community.
- Increased capacity for the storage of drinking water.
- Increased sewage treatment capacity to ensure the system continues to function in wet weather conditions without spilling to the river.
- Improved weather response plans for the urban forest.
- Introduction of the Wetlands Policy to increase the use and functionality of natural or naturalized areas as 'green infrastructure'.
- Planning for improved transit and multi-modal transportation systems through Growing Forward.

The City of Saskatoon is also working on energy efficiency and green energy initiatives to help mitigate the impact the corporation has on climate change. A new Performance Target has been established to ensure civic operations continue to focus on reducing greenhouse gas emissions, striving to achieve a target of emissions that are 30% below 2006 levels.