



Climate Change Framework 2020



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Introduction

Purpose

The purpose of this Climate Change Framework is to focus Richmond Hill's climate change mandate and ensure a coordinated approach to taking climate action. It:

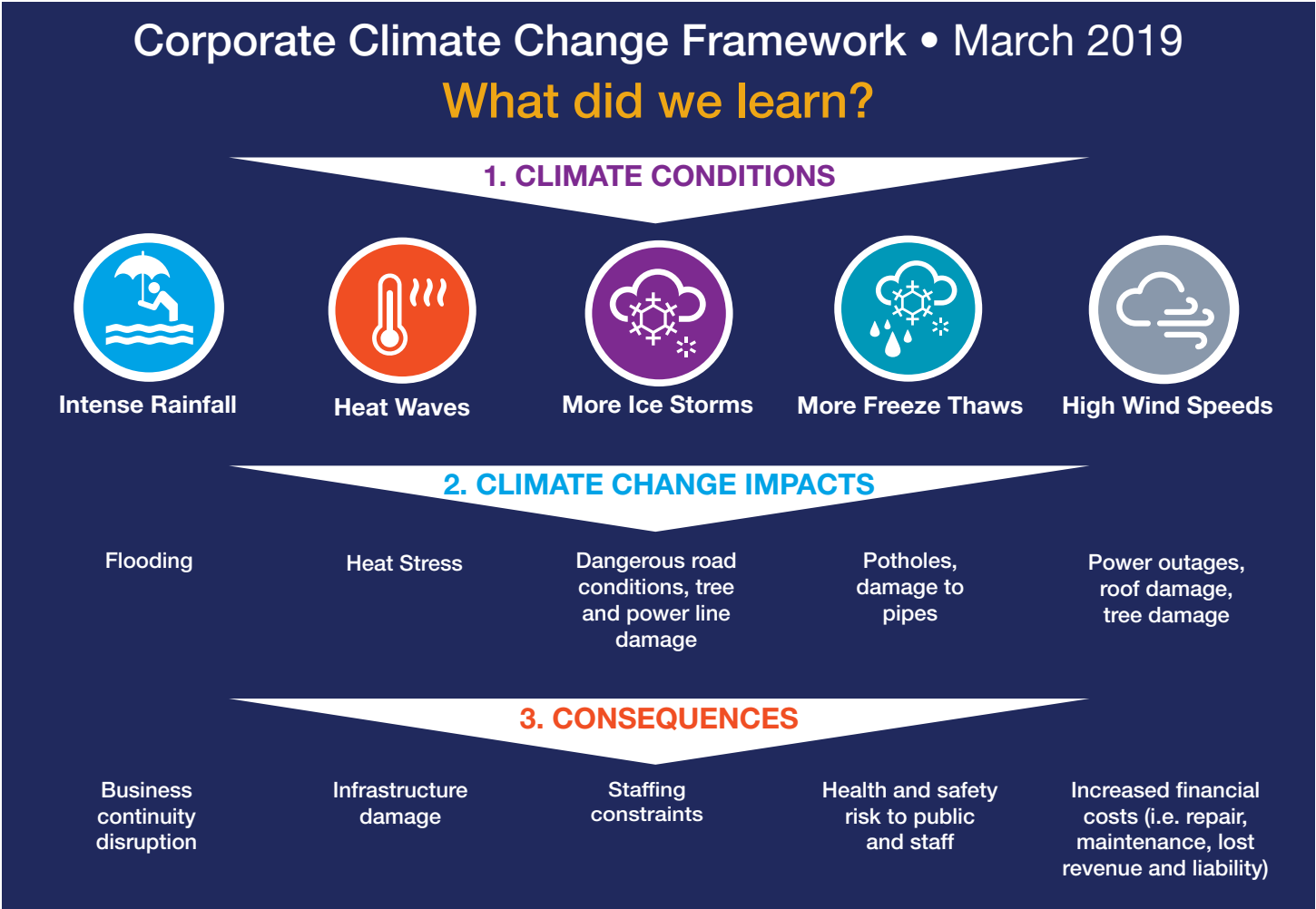
- outlines the City's official climate change priorities;
- recommends potential actions to address gaps and ensure coordination;
- sets out relevant legislative and regulatory obligations; and
- looks at whether and how actions in place and under development are addressing climate change.

Richmond Hill's Climate Change Framework outlines a coordinated approach for the City to improve resiliency.

The need for this plan is critical. While recognized as a global issue, climate change is increasingly affecting cities and towns around the world, including Canada. In fact, **Canada's Changing Climate Report**, released by the federal government in April 2019, indicates that this country is experiencing warming at twice the rate of the rest of the world. The provincial government's November 2018 Made-in-Ontario Environment Plan states that "climate change threatens... our homes, communities and businesses, infrastructure, our locally grown food and crops... as well as the health of ecosystems".



Richmond Hill Council’s support for addressing climate change is well established. While the City has made great strides in environmental protection, conservation and sustainability, a coordinated approach to tackling climate change is needed. The City is already feeling the impacts of climate change and trends that are emerging today are expected to be the norm by 2050. The trends and consequences are outlined in the following graphic:



Together, these factors put municipal infrastructure, residents – especially the most vulnerable – and the City’s natural environment at risk. **Appendix 1** outlines the process used to develop the Framework.



Richmond Hill Climate Change Vision and Mission

Vision

Richmond Hill will become a low-carbon, resilient community.

Mission

The City will be a leader in transitioning Richmond Hill to a low-carbon resilient future.

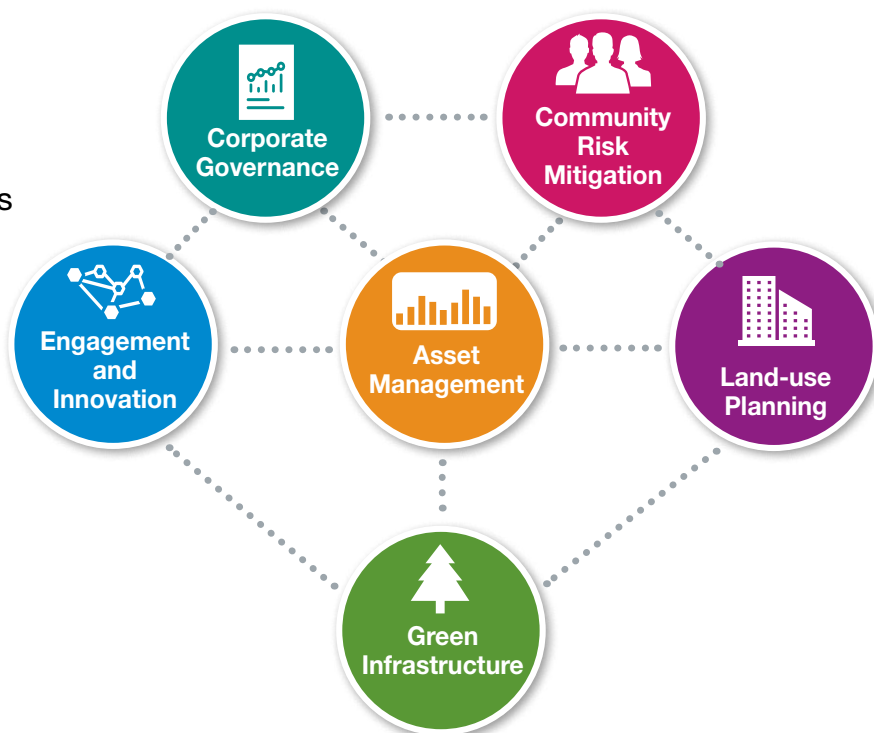
We will undertake this mission by:

- applying a **climate change lens** to City activities,
- creating **climate change action programs** and
- **fostering collaboration and innovation** by engaging with stakeholders within and beyond city government

To do this effectively, we will align goals with existing systems of activities and responsibilities.

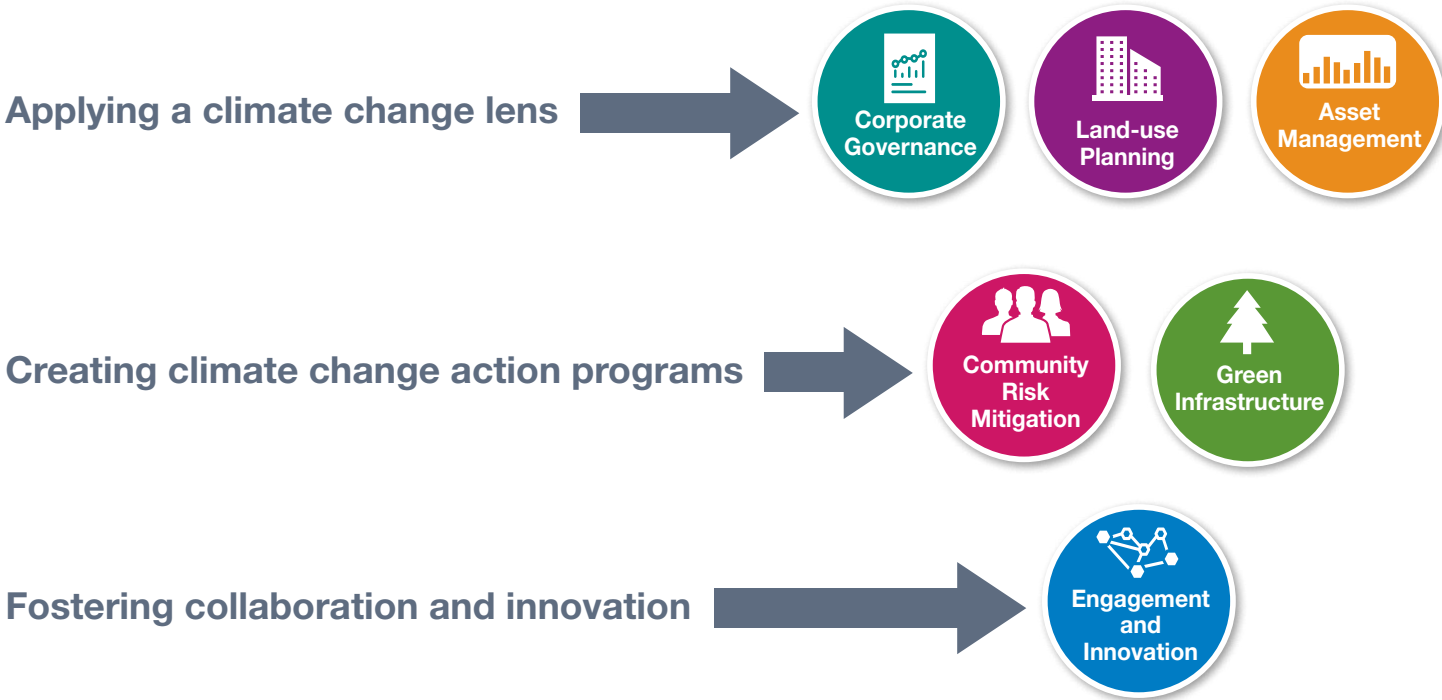
Aligning actions with existing systems

To make it easier for departments to embed climate change considerations into their plans and actions, this framework aligns with existing “systems” that underlie City business units. It categorizes major city functions into the following six systems:



This systems approach positions climate action not as another huge task or function on top of existing activities, but as a normal part of operations and programs. It also allows those involved in the systems to see how practical, on-the-ground climate actions can support the City, its businesses and its residents.

The seamless integration of systems is important for any successful organization. It is absolutely key for successful and meaningful climate action, since much of the related work is multi-departmental, multi-divisional, and multi-disciplinary. Getting the greatest value from this framework will depend on a commitment to integrating climate change thinking across the entire organization. The Mission and the systems combine to create the structure of the framework as shown the in the following diagram.



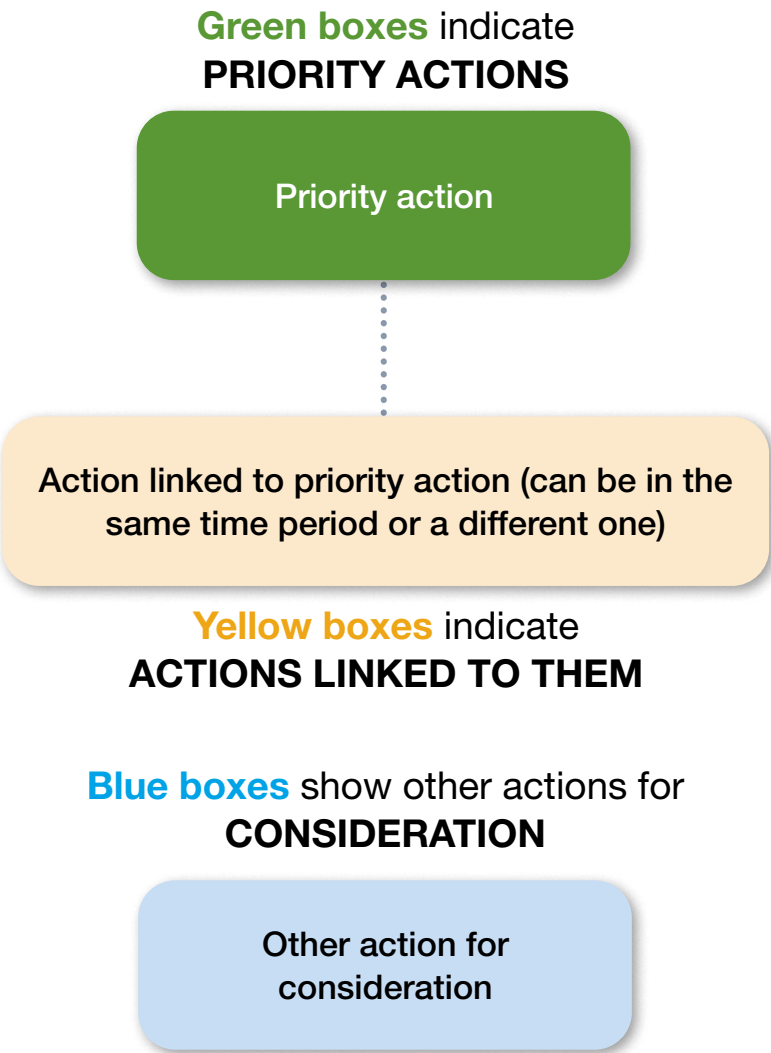
How this Framework is Structured

The following sections discuss each of the six systems and how they can address climate change. Each section:

- Sets out its climate change goal
- Gives an overview of the relevant system
- Describes opportunities to better address climate change
- Sets out potential priority actions and key supporting actions for implementation
- Offers additional climate change actions for consideration that were identified as less urgent than the priority actions

As well as offering specific suggestions for potential actions, this framework also notes several City plans, strategies and policies which are under development and can be leveraged to help address climate change. In addition, many major City documents are updated on a regular basis. As these updates happen, this framework should be helpful in identifying how they can reflect the City’s climate change thinking.

The table in each section lays out potential actions in the short, medium and long term.



Appendix 2 outlines the following for each system:

- **Legislative and regulatory requirements**
- **Existing and developing activities of the system that relate to climate change**
- **City plans, strategies and policies which are under development and can be leveraged to help address climate change**

How to use this document

Taking the actions outlined in this framework will help protect the City and its residents from the growing impacts of climate change. As a first effort to create a comprehensive climate change framework for the City, this is a living document that we can expect to evolve over time.

To maximize value from the framework and make best use of resources, fostering collaboration and coordination across the corporation will be important. While some potential actions can be carried out by a single department, in many cases more than one department will be involved. An important next step will be determining how best to facilitate implementation.





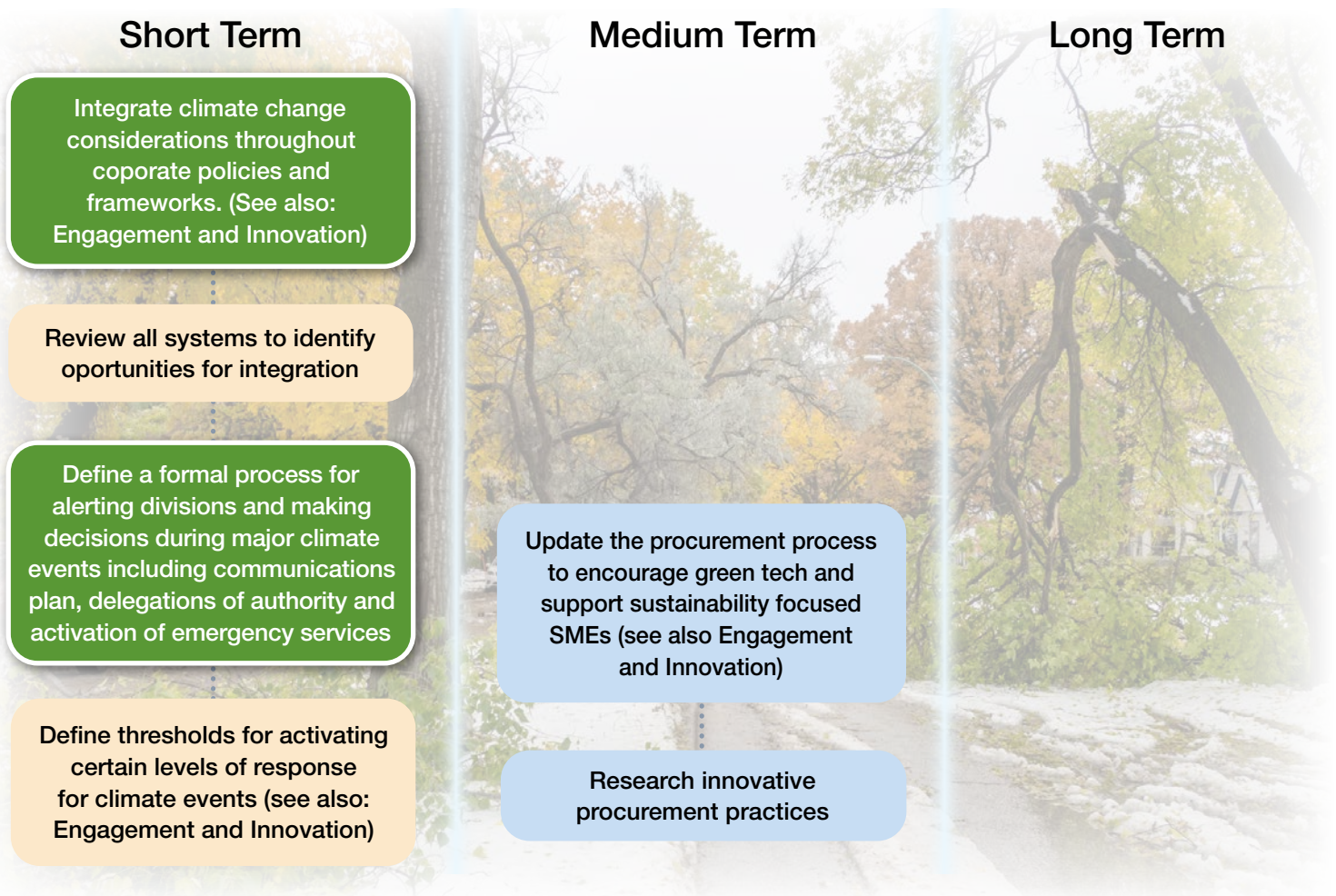
Corporate Governance

Goal: Apply Climate Change Lens to Corporate Decision-Making

Corporate Governance refers to guidance, policies and structures with a corporate-wide focus. Applying a climate change lens to corporate governance decisions will help embed climate change thinking and responses throughout the corporation.

Why do we need to apply a climate change lens to corporate decisions making?

While climate change is embedded and/or discussed in some corporate-wide documents and policies, a more integrated and comprehensive approach would allow us to respond to changing conditions and impacts more effectively and efficiently. In addition, more coordinated responses will be essential as climate-change emergencies become more frequent and severe. Finally, there may be opportunities to leverage procurement as a tool for innovation in technology, materials or service delivery best practices.





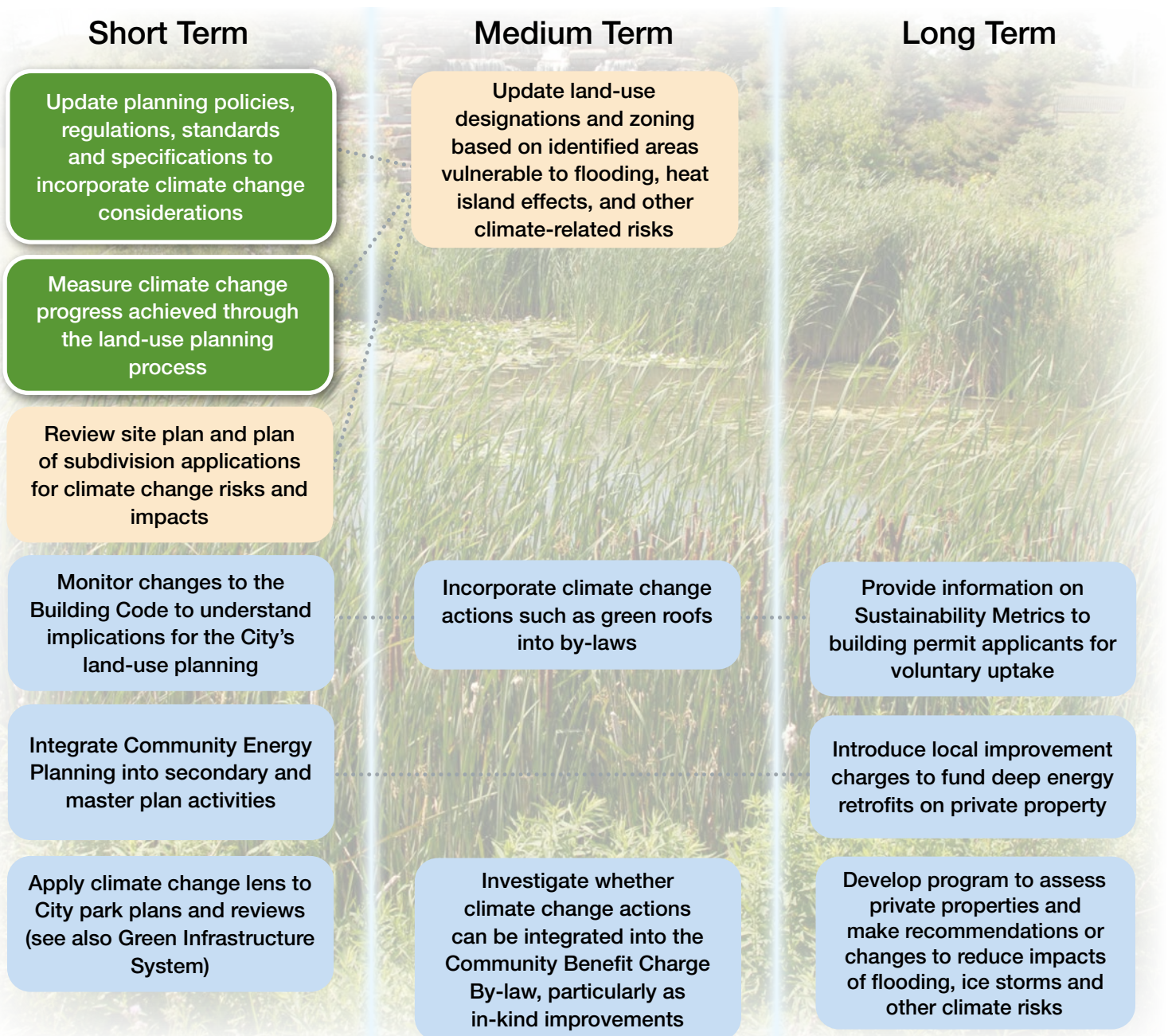
Land-Use Planning

Goal: Apply Climate Change Lens to Land Use Planning

Land-use planning activities include land-use policies, the development approvals system, building services, parks planning and development, transportation planning (including sustainable transportation), and programs to guide land uses on private property. Land-use planning is the main tool available for influencing on-the-ground changes to reduce greenhouse gases and increase the resiliency of private properties and assets.

Why do we need to apply a climate change lens to land-use planning?

The way we plan and design our built communities significantly impacts greenhouse gas (GHG) emissions and how vulnerable the city is to the impacts of climate change. The existing land-use planning framework could be better leveraged to combat climate change and reduce its impacts. New initiatives, such as the Community Energy and Emissions Plan, also offer ways of better aligning the City's activities with the need to address climate change.





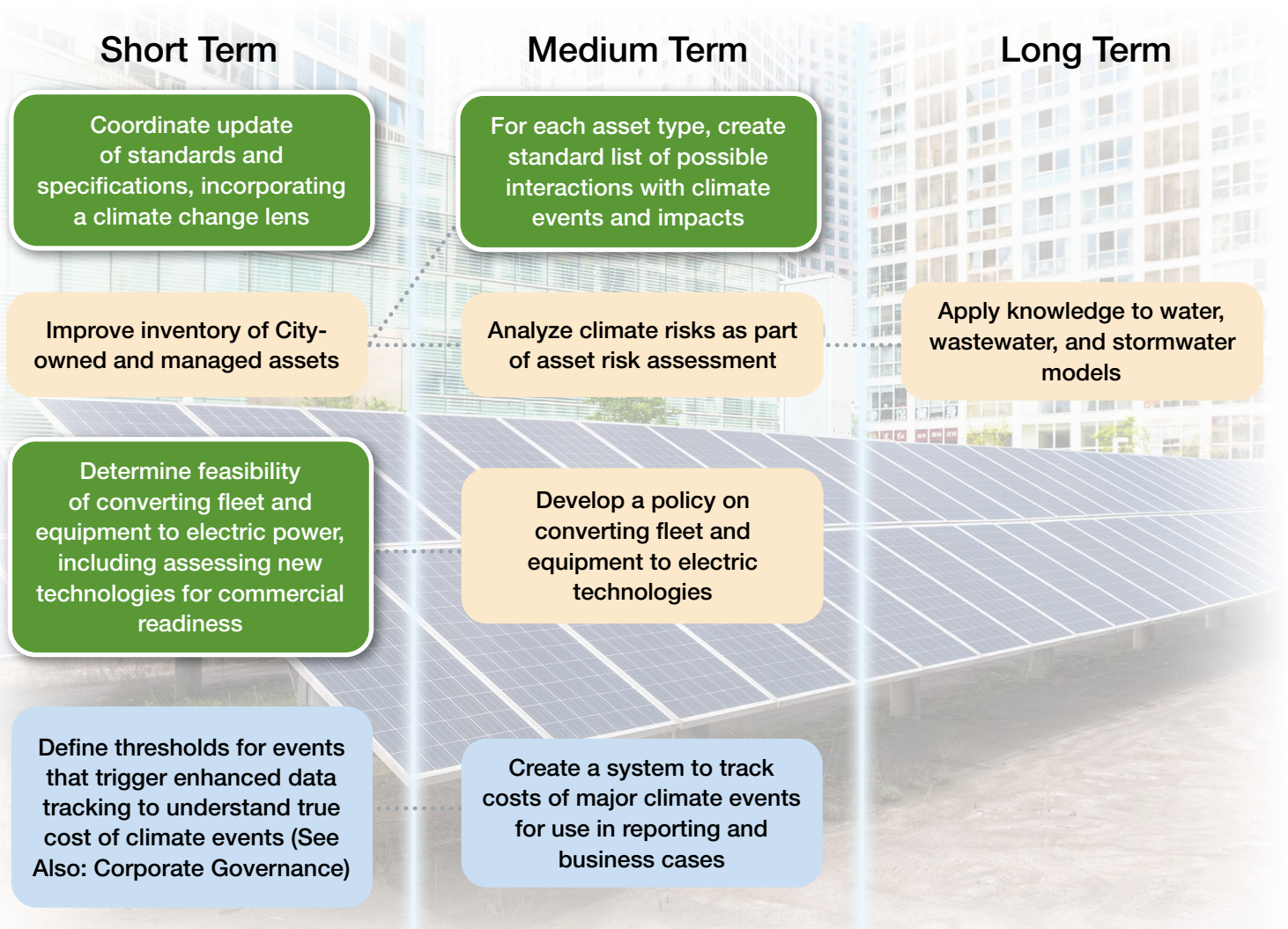
Asset Management

Goal: Apply Climate Change Lens to Asset Management

The Asset Management system includes all activities to manage the corporation's assets efficiently over their lifetimes. Incorporating climate change into this system will reduce greenhouse gas emissions and increase assets' resiliency while maintaining the City's financial sustainability.

Why do we need to apply a climate change lens to asset management?

Numerous asset management activities touch on climate change or have the potential to do so. Updating standards, gathering more information and working to coordinate activities across the corporation would improve effectiveness. The City should also move toward greater electrification of fleet and equipment and better energy efficiency of its buildings to reduce greenhouse gas emissions.





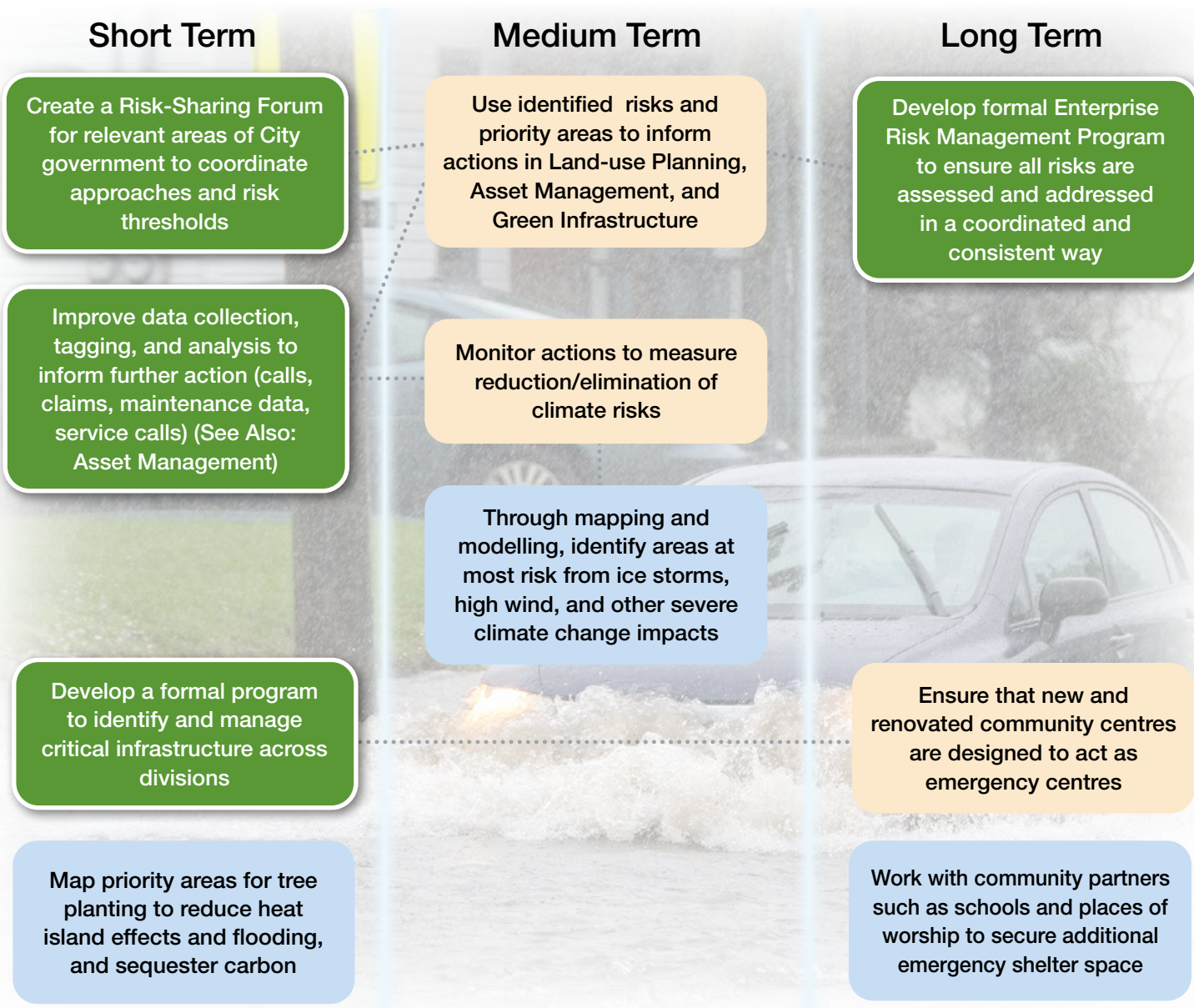
Community Risk Mitigation

Goal: Formalize a Coordinated Community Resilience Program/Plan

This system encompasses activities the City undertakes to reduce risks to the community, including fire prevention, emergency management, stormwater management, and critical infrastructure tracking. It identifies and maps climate risks and connects that information to other systems to reduce/mitigate the risks. Many day-to-day activities of this system, such as supporting green infrastructure, inherently contribute to reducing climate risk without necessarily being identified as having a climate change focus.

Why do we need to apply a climate change lens for risk mitigation?

Reducing and managing risks across the community touches on many areas of City government. Sharing information and knowledge and improving data collection will give us a better picture of climate change threats and how they can be managed, with the ultimate goal of an enterprise-wide risk management program. At an operational level, as climate change brings more severe weather, having access to enough emergency shelter space will become increasingly important.





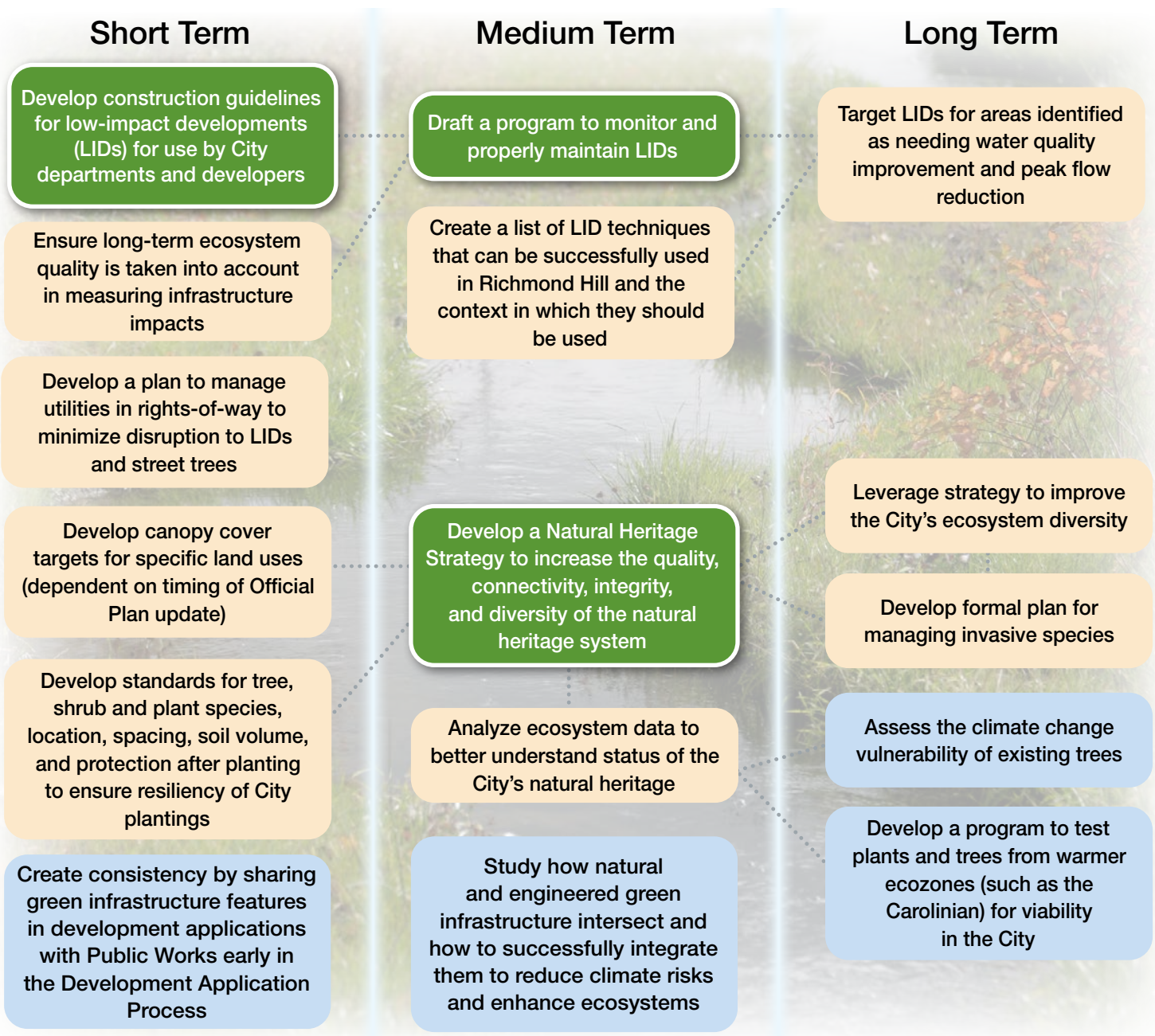
Natural and Engineered Green Infrastructure

Goal: Leverage Natural and Engineered Green Infrastructure to address climate change while increasing ecosystem quality, connectivity, integrity and diversity

Natural Green Infrastructure comprises natural heritage assets, such as trees and the City's greenway system. Engineered Green Infrastructure refers to low-impact infrastructure on City property such as landscaped swales and permeable paving. Both are key to mitigating and adapting to climate change.

Why do we need a green infrastructure program to address climate change?

Green infrastructure provides cost-effective ways to protect residents and the environment by reducing and preventing climate change impacts. Ongoing climate change impacts, however, can be hard on existing green infrastructure. Actions need to focus on preserving and enhancing green infrastructure and deriving greater benefit from it.





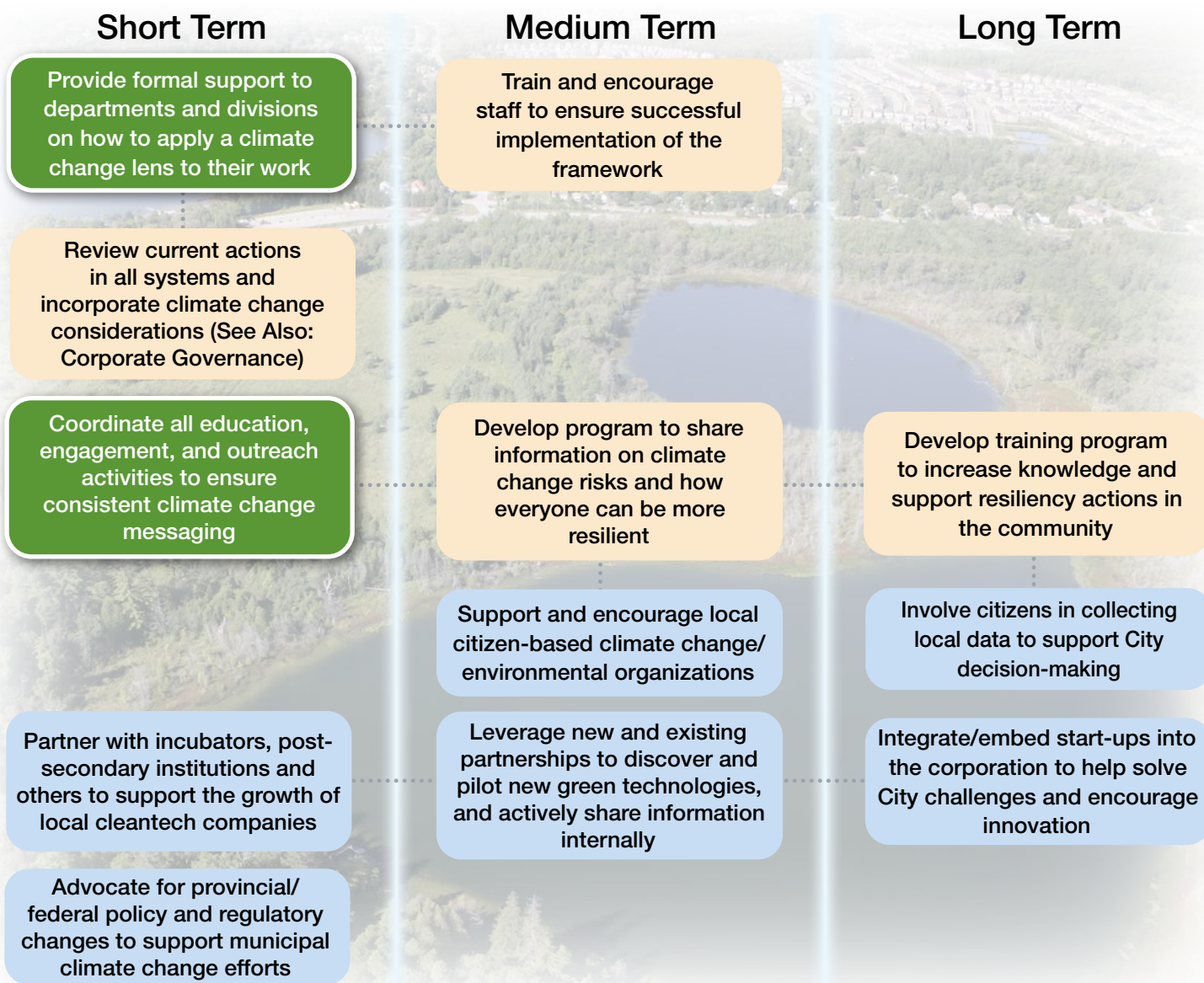
Engagement and Innovation

Goal: Engage the Corporation, Businesses, and the Community, Build Collaboration and Spark Innovation

Engagement and Innovation refers to education, building collaboration and sparking innovation. Education inside and outside the organization is key to building more widespread understanding of climate change impacts and empowering action. Innovation focuses on supporting cleantech companies and start-ups to create jobs and keep businesses in the City, and leveraging innovation within City government. Collaboration is fundamental because this system involves numerous stakeholders and crosses several disciplines.

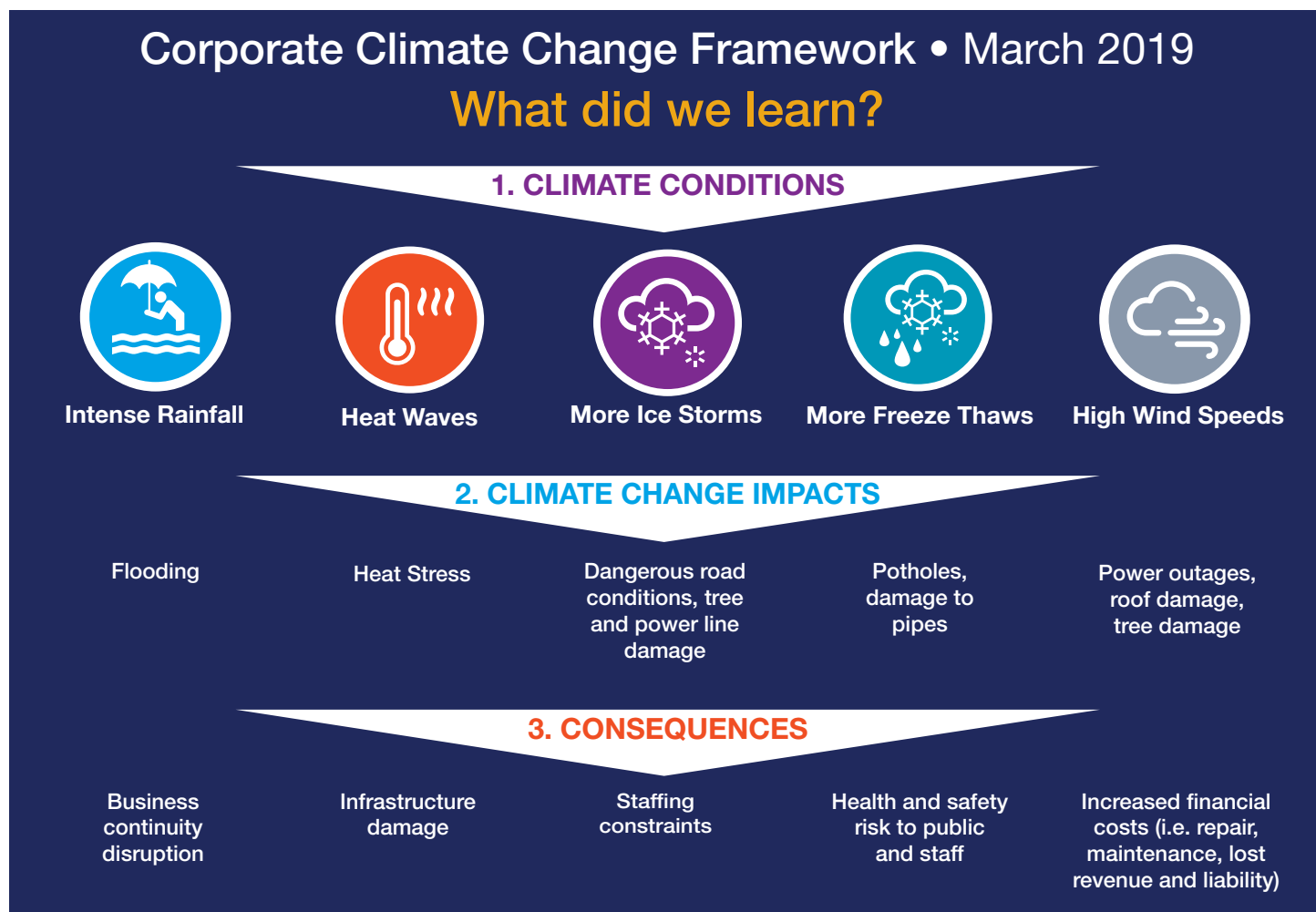
Why do we need engagement and innovation to tackle climate change?

Addressing climate change effectively will depend on engaging not just City staff, but residents, businesses and other partners. Activities in this area may include encouraging firms within the City and/or providing an incubator environment. Developing and promoting new “best in class” green products and approaches would be encouraged. The City should also advocate, where necessary, for regulatory or policy changes within senior governments to allow more flexible approaches to addressing climate change.



Appendix 1: How this framework was developed


In 2017, the City initiated a Corporate Climate Change Risk Scan. Staff from all departments took part in a series of workshops led by the Ontario Climate Consortium and coordinated by Richmond Hill's Sustainability section. This high-level scan identified and ranked 692 risks. The graphic below summarizes the major risks and potential consequences.



The highest risks were analyzed for their potential impact on the corporation, and ways they might be addressed were identified through further workshops with staff from relevant areas of the corporation.

Actions to adapt to climate change include efforts to reduce greenhouse gas emissions and sequester carbon dioxide and to empower the City, its residents and its businesses to build resiliency as climate change impacts grow.

The workshops also informed a **Vision** and **Mission** for climate change activities.



Appendix 2: Legislative Requirements and Existing Actions



Corporate Governance

Legislative and Regulatory Requirements:

- The provincial *Emergency Management and Civil Protection Act* requires municipalities and other infrastructure providers to take part in a province-wide Hazard Identification and Risk Assessment Program. Its purpose is to give municipal and provincial emergency management coordinators a baseline and common understanding of hazards, including those that come from climate events.
- Ontario's Critical Infrastructure Assurance Program, created under the same act, identifies and assesses Ontario's key facilities, systems and networks, and their inter-dependencies, and provides a strategy to assure their continuance during disruptions. The program covers critical infrastructure owned by municipalities, including Richmond Hill.

Climate change considerations in the current Corporate Governance system:

- The Strategic Plan sets out goals and plans to achieve the vision: "Richmond Hill, where people come together to build our community." Under the goal of "Wise Use of Resources," it commits to several initiatives that would reduce greenhouse gas emissions to help mitigate climate change.
 - The Corporate Priorities Document, which helps to turn the Strategic Plan into action, acknowledges climate change impacts and the need to build resiliency.
- The Environmental Policy includes our vision statement, mission and commitment to becoming a greener community. The next update, expected to be completed in 2022, will address climate change.
 - The Environment Strategy outlines our environmental challenges and opportunities, and describes how we can improve the sustainability of our community over the next 15 years. One of its commitments is to reduce vehicle use and traffic congestion and advocate for other levels of government to do the same in order to reduce greenhouse gases.
 - The Environmental Management System (ISO 14001) is an internationally recognized set of processes and practices aimed at reducing environmental impacts and improving environmental performance. When identifying and prioritizing actions to address each registered City division's impacts, ISO 14001 considers climate change risks.
- Financial management includes budgeting and financial reporting, as well as policies around the procurement of goods and services.
 - Richmond Hill's Electronic Bidding System allows vendors and consultants to submit bids electronically, reducing the use of paper and the production of greenhouse gases.

- Corporately coordinated research and monitoring of external grant opportunities is helpful in securing funding for climate change initiatives.
- A number of City initiatives are designed to respond to the impacts of severe weather, including events related to climate change:
 - The Emergency Response Plan uses an all-hazards approach and sets a plan of action to deploy resources to protect people, property, infrastructure and the environment, and restore essential services quickly and effectively in a major emergency. As well, a Memorandum of Understanding between the City and York Region allows for coordinating Red Cross services during an emergency.
 - Where City staff are involved in managing an emergency, Health and Safety Action Plans address their health and safety considerations.
 - Shelter Manual Standard Operating Procedures govern what happens when Community Centres are activated to become warming or cooling centres.

Under development

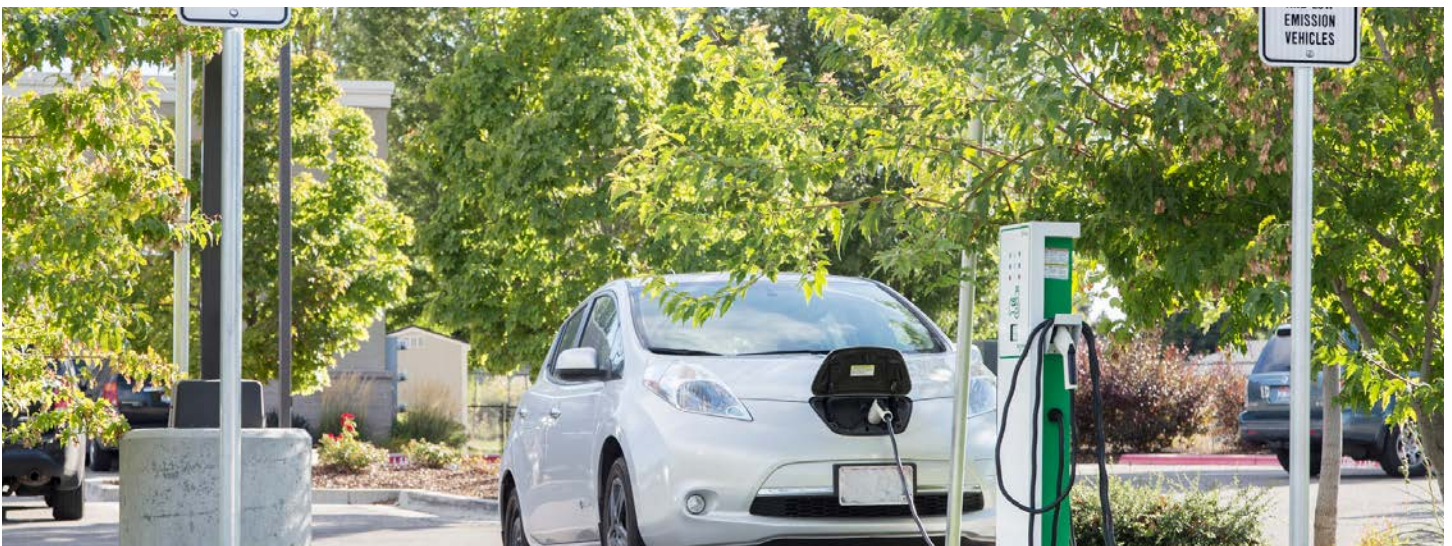
The proposed Business Continuity Plan would address disruptions to City operations and services. Climate change considerations should be incorporated into the plan.



Land-Use Planning

Legislative and Regulatory Requirements:

- The City's Official Plan must implement provincial land use planning legislation, plans and policies, such as the *Planning Act*, the Provincial Policy Statement, and the Growth Plan for the Greater Golden Horseshoe, and conform with the Regional Official Plan. Recent updates to provincial policies direct municipalities to consider climate change. This includes identifying and incorporating goals, objectives and actions to reduce greenhouse gas emissions and adapt to a changing climate. One way in which the province encourages municipalities to achieve this is by preparing a Community Energy and Emissions Plan.
- The Comprehensive Zoning By-Law, which is required by provincial legislation to be updated following an official plan review, can help identify and set standards that support sustainable design policies and promote development that is resilient to climate change.



Climate change considerations in the current Land-Use Planning system:

- The Official Plan and related documents on land use provide opportunities to reduce greenhouse gases and build resiliency:
 - The City's 2010 Official Plan includes a small sub-section of climate-change related policies (ss. 3.2.3.6-8) to encourage mitigation measures (for example, re-planting, water retention/recycling) through sustainable design, prepare for climate change impacts on infrastructure, and consider the effects on flood management and the Greenway System. An update to the Official Plan is currently underway and will consider additional policies to address mitigation and adaptation.
 - Sustainability Metrics are used through the site plan and plan of subdivision application processes to implement the Official Plan's sustainable development policies. They rank development proposals for servicing allocation based on their incorporation of mandatory and voluntary sustainable design features. The metrics are currently being updated to advance sustainability implementation in line with current best practices and applicable legislation.
 - The Richmond Hill Centre Secondary Plan looks at the feasibility of district energy in the City's designated Urban Growth Centre, which is the primary intensification area around the intersection of Yonge Street and Highway 7.
 - Public Realm Design Guidelines govern how spaces in the public realm (such as streetscapes) are to be designed and configured, including features that help support transit- and pedestrian-oriented development and energy efficiency.
 - The Parks Plan helps guide how the City will develop our parks and outdoor recreation facilities for the next 20 years. The City conducted extensive research and asked for the community's feedback to develop the Parks Plan to guide Richmond Hill's future parkland system.



Asset Management

Legislative and Regulatory Requirements:

- The Corporate Asset Management Policy and Plan, which are provincially mandated, govern the management, operation, and maintenance of City-owned assets. To meet regulatory requirements, the City must assess the state of its infrastructure, set asset investment priorities and determine long-term asset sustainability needs. This process will consider climate change risks.
- The goals of the provincially mandated Corporate Energy Plan are to conserve energy and reduce greenhouse gases at the corporate level.

Climate change considerations in the current Asset Management system:

- Capital planning and prioritization offer opportunities to consider climate change impacts:
 - The City's 10 Year Capital Program forecasts the capital budget for the next 10 years.
 - The annual Capital Budget is determined using a risk-based approach to ensure key priorities are met, and considers climate change impacts on asset lifecycle as well as on the environment.



- The Environmental Management System (ISO 14001) is an internationally recognized set of processes and practices aimed at reducing environmental impacts and improving environmental performance. The most recent version, in 2015, includes a new clause requiring organizations to consider the lifecycle impacts of the activities, products and services they provide. Proper asset management can reduce these impacts.
- Several policies and guidelines aim to reduce the environmental impacts of the City's assets and operations:
 - The LEED Silver or Alternative New Construction Standard requires all new City buildings greater than 500 square feet to be built to a minimum LEED silver or equivalent alternative standard.
 - External LED Lighting Design Standards apply to the City's external lighting.
 - An ongoing program helps ensure that the City's fleet vehicles are the right size for their function and rationalizes vehicle use to reduce cost and maximize efficiency. The fleet currently includes Hybrid Ford Escapes to reduce greenhouse gas emissions, and a study is underway to analyze the fleet and understand usage to identify further opportunities for optimization.
 - Electric carts and solar-powered battery chargers are used in significant destination parks to reduce greenhouse gas emissions.
 - Electric vehicle charging stations are provided at East Beaver Creek and the Central Operations Centre for use by staff and the public. As part of a past funding application, staff developed a preliminary proposed charging network across the City that can be updated for future opportunities.
 - The Salt Management Plan contains standards, procedures and recommendations for managing winter use of road salt with a view to protecting public safety and delivering service levels while minimizing the amount of salt entering the environment.
- Collecting and analyzing data can help to identify and address climate-related risks and opportunities:
 - A road condition survey assesses the condition of all roads in the City every year.
 - The City's Maximo system, which collects data on the condition of the City's assets, is being enhanced to improve maintenance activities.
 - The Salt Vulnerability Analysis and Salt Reduction Plan identifies areas in the City that are vulnerable to chlorides to help inform natural heritage protection policies, and also provides management options to reduce salt use specifically in the Lake Wilcox watershed.
 - The GIS Strategy coordinates and improves geographic information system (GIS) data and services in the City.
- Research and monitoring of external grant opportunities is helpful in securing funding for climate change initiatives.



- Under the Corporate Energy Plan, equipment that has reached end of life is replaced with more energy-efficient versions to optimize energy performance and reduce the City's carbon footprint.
- Smart City Initiatives are designed to leverage technology and data to improve efficiency and save or avoid costs. Examples include installing LED street lighting, replacing water meters, and monitoring road condition.

Under development

- The Water and Wastewater Modeling Project will map and model these systems across the City.
- The Stormwater Network Model Project will consider climate change by modeling predicted changes in precipitation and analyzing the impacts on the City-wide stormwater network.
- City-managed Low Impact Developments (LIDs) are being inventoried, and this project will also make recommendations for maintenance



Community Risk Mitigation

Legislative and Regulatory Requirements:

- The provincial *Emergency Management and Civil Protection Act* requires municipalities and other infrastructure providers to take part in a province-wide Hazard Identification and Risk Assessment Program. Its purpose is to give municipal and provincial emergency management coordinators a baseline and common understanding of hazards, including those that come from climate events.
- Ontario's Critical Infrastructure Assurance Program identifies and assesses Ontario's key facilities, systems and networks, and their inter-dependencies, and provides a strategy to assure their continuance during disruptions. The program covers critical infrastructure owned by municipalities, including Richmond Hill.

Climate change considerations in the current system:

- Several initiatives relate to managing disruptions in the case of emergency, such as severe storms or flooding:
 - Emergency Management Practice Exercises are carried out once a year, with participants running through scenarios as real-time practice in how to respond to a crisis.
 - During Emergency Preparedness Week, the City takes part in events to inform and educate residents.
 - In severe cold weather, especially coupled with a power failure, the City has a Run Water Program to remind home owners to run water to prevent pipes from freezing and damage.



- Built and natural infrastructure can play an important role in addressing climate change, and is also vulnerable to its impacts:
 - The City's 10 Year Capital Program forecasts the capital budget for the next 10 years, and the annual Capital Budget is determined using a risk-based approach to ensure most important priorities are met
 - The Environmental Management System (ISO 14001) is an internationally recognized set of processes and practices aimed at reducing environmental impacts and improving environmental performance. When identifying and prioritizing actions to address each registered division's impacts, ISO 14001 considers climate change risks.
 - Urban Forest Planting Guidelines provide guidance for planting trees in urban areas.
- With climate change bringing more ice storms, managing salt use on roads is important:
 - The city's Salt Management Plan contains standards, procedures and recommendations for applying salt with a view to protecting public safety and delivering services while minimizing the amount of salt entering the environment.
 - The Salt Vulnerability Analysis and Salt Reduction Plan identifies areas in the City that are vulnerable to chlorides to help inform natural heritage protection policies, and also provides management options to reduce salt use specifically in the Lake Wilcox watershed.

Under development

- The proposed Business Continuity Plan would address potential disruptions to City operations and services. Climate change considerations should be incorporated into the plan.
- The Stormwater Network Model Project is modelling and analyzing the City-wide stormwater network. Consideration for climate change will be incorporated in the project by modeling predicted changes to precipitation and analyzing the impact on City infrastructure.



Natural and Engineered Green Infrastructure

Legislative and Regulatory Requirements:

- Official Plan Update – The City's Official Plan must implement provincial land use planning legislation, plans and policies, such as the *Planning Act*, the Provincial Policy Statement (PPS), the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan, and the Growth Plan for the Greater Golden Horseshoe, as well as the Regional Official Plan (ROP). Recent updates to these policies direct municipalities to consider climate change. As part of the City's Official Plan (OP) conformity exercise, which is mandatory under the Planning Act, the OP must incorporate policies that identify goals, objectives and actions to mitigate greenhouse gas emissions and to provide for adaptation to a changing climate, including increasing resiliency. Accordingly, the Official Plan must include direction to protect and improve our natural environment to support biodiversity, connectivity, and our ecosystems.

Climate change considerations in the current Green Infrastructure system:

- The City encourages Natural Green Infrastructure on private and public land, which helps to capture carbon dioxide, a major greenhouse gas:
 - Sustainability Metrics are used through the site plan and plan of subdivision application processes to implement sustainable development policies. Development proposals are ranked for servicing allocation based on their incorporation of mandatory and voluntary sustainable design features. The metrics are currently being updated to consider mitigation of and adaptation to climate change impacts.
 - The Urban Forest Management Plan sets out actions to maintain and enhance Richmond Hill's urban tree canopy, which includes trees on private and public land, and explains the value of dedicated resources for these activities, which are highly cost-effective at reducing climate-change impacts
 - The Community Stewardship Program promotes healthier natural corridors and green space connections throughout Richmond Hill's greenway system by leveraging partnerships and engaging the public. It includes naturalization through tree planting, education and outreach, invasive species management, post-planting monitoring and stewardship.
 - The Healthy Yards Program aims to increase urban tree canopy and biodiversity. It gives residents, schools and other members of the community information on the care of lawns, trees and gardens, and every spring offers native trees, shrubs and wildflowers, backyard composters and rain barrels at an affordable cost.
 - Urban Forest Planting Guidelines provide guidance on planting trees in urban areas.
 - The City helps to fund a backyard planting program delivered by the environmental group LEAF that offers residents one-on-one consultation and tree-planting services for their properties. The program emphasizes getting the right tree in the right place so they can thrive and help to grow Richmond Hill's urban tree canopy.
 - The Capital Long-Term Woodlot Restoration Program aims to restore the ecological health of the City's greenway system. Woodlands are prioritized based on risk and ecological sensitivity with restoration efforts focusing on re-establishing quality woodlands that are resilient to future stresses and threats.

Under development:

- Low Impact Development Standards are being developed, including demonstrating the cost-effectiveness and environmental benefits compared to traditional approaches.
- City Low Impact Developments (LIDs) are being inventoried, and this project will also make recommendations for maintenance.
- The Stormwater Network Model Project is modelling and analyzing the City-wide stormwater network. Consideration for climate change will be incorporated in the project by modeling predicted changes to precipitation and analyzing the impact on City infrastructure.





Legislative and Regulatory Requirements:

- Public Outreach on Hazard Awareness/Emergency Preparedness (*Ontario's Emergency Management and Civil Protection Act, R.S.O. 1990*) – Outreach to the public to provide information and resources to prepare for and deal with emergency situations, including those resulting from extreme weather events.

Climate change considerations in the current Engagement and Innovation system:

- Several City programs and initiatives support better engagement and collaboration:
 - The internal Corporate Community Engagement Framework is designed to build staff capacity to lead effective engagement, provide a consistent and coordinated approach, and ensure feedback is collected and used to improve effectiveness.
 - The Environmental Education and Engagement Program helps residents understand environmental issues, what the City is doing, and what they can do to be better environmental stewards and reduce their carbon footprint.
 - The Heathy Yards Program aims to increase urban tree canopy and biodiversity. It gives residents, schools and other members of the community information on the care of lawns, trees and gardens, and every spring offers native trees, shrubs and wildflowers, backyard composters and rain barrels at an affordable cost.
 - A cross-departmental Pollinator Working Group supports pollinators and their habitat across the City to help mitigate climate-related and other stresses. This is in line with the City's adoption of the Bee City designation and Mayor's Monarch Pledge.
 - The Community Garden Program encourages residents and groups to plant food and pollinator gardens on allotments on public land, and provides support including start-up and some ongoing maintenance.
 - Waste Reduction Programs encourage residents to reduce the waste they produce in order to reduce greenhouse gas emissions. These programs include educational campaigns and diversion options, such as the Going Up Program that provides green bin collection in multi-residential buildings
- The City's Economic Development Strategy recognizes start-ups, entrepreneurship and creativity as being key to continued economic growth.
- Innovation within the City to address climate change can take many forms:
 - Smart City Initiatives are designed to leverage technology and data to improve efficiency and save or avoid costs, which generally means reducing carbon footprint as well. Examples include installing LED street lighting, replacing water meters, and monitoring road condition.
 - The Environmental Management System (ISO 14001) is an internationally recognized set of processes and practices aimed at reducing environmental impacts and improving environmental performance. When identifying and prioritizing actions to address each registered City division's impacts, ISO 14001 considers climate change risks as part of continual improvement.