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York Region

Keeping our water safe

Through partnerships and innovation, One Water makes the best possible use of water from every source to sustain healthy people, healthy communities and a healthy environment

One Water Vision for York Region

YORK REGION ONE 2017 ACTION PLAN WATER

CONTENTS

CHAPTER ONE

WHY ONE WATER MAKES SENSE FOR YORK REGION

How can York Region sustainably meet the water needs of a growing population? Through One Water. It's an emerging new concept that reduces the burden on water sources and infrastructure. One Water encourages greater conservation and the use of natural processes to manage water. It also finds valuable new sources of water in rainfall, snow melt and the safe reuse of treated wastewater.

I. Why One Water makes sense for York Region

One Water is key to achieving Vision 2051

The emerging concept of One Water is critical to achieving York Region's Vision 2051, which foresees water conservation and reuse as fundamental elements of the Region's water system.

York Region needs a One Water approach because it must meet the water demands of growth while achieving both financial and environmental sustainability.

One Water offers numerous ways to reduce the burden on water resources and built infrastructure by managing water in a more integrated way. These include expanding on current efforts to conserve water, relying more on natural processes to enhance or replace built infrastructure, and capturing the value of reusing water.

Above all, One Water emphasizes more innovative thinking about water in all settings. This opens the door to exciting advances as it is embraced around the world.

York Region has been working to achieve the goals of One Water for several years through conservation programs and other efforts. Now it is formally building a One Water approach into its planning.

The Water and Wastewater Master Plan is York Region's strategy for ensuring water and wastewater systems meet both current and future demands while providing a safe, reliable and cost-effective service to the Region's communities. A living document that is updated every five years, it builds upon previous Water and Wastewater Master Plans, completed and ongoing environmental assessments, and other studies.

In the most recent update of the Water and Wastewater Master Plan, in 2016, One Water emerged as a key strategic component. The plan acknowledged that York Region must embrace One Water if it is to reach the sustainable future described in Vision 2051.

The reasons are clear. York Region is the only large municipality in the Greater Toronto and Hamilton Area that lacks direct access to the water of Lake Ontario. Under the provincial growth plan, it must prepare for a population expected to reach 1.8 million by 2041, an increase of more than 50 per cent from today's population. This growth will further urbanize its southern communities, which rely on other municipalities for their water. It will also bring major increases in the population of northern communities located in the Lake Simcoe watershed, which is under specific provincial protection.

The scope of this challenge becomes even greater against the context in which future growth will take place:

- The Region faces many competing infrastructure demands, calling for highly cost-efficient and innovative approaches to every investment.
- A changing climate is bringing more extreme storms, with potential to overwhelm, damage or destroy our existing water and wastewater assets, which warrants more effective investment to protect them and maintain vital water and wastewater services to the public.
- Regulatory standards are becoming more stringent and public expectations about environmental protection and human health issues such as water quality and pharmaceuticals in wastewater are rising.

- There is no comprehensive regulatory framework as yet for water reuse, a key aspect of One Water.

To serve growth sustainably against this complex backdrop, the updated Water and Wastewater Master Plan built on existing infrastructure plans and recommended moving ahead on the Lake Simcoe Servicing Strategy.

The Water and Wastewater Master Plan also introduced the concept of One Water. It called for creation of a One Water Action Plan to bring together existing programs that support One Water and identify new actions to enhance and broaden One Water's benefits. This document responds to that direction.

This Action Plan aims to turn One Water into a day-to-day reality by changing the way water users and providers think about water, and leveraging that new way of thinking to create and apply innovative solutions. Early steps will include gathering information, building capacity and starting to create a One Water culture. The ultimate goal is to reduce the environmental and financial impacts of water and wastewater systems while continuing to safely serve growing communities.

Like the Water and Wastewater Master Plan, the One Water Action Plan is a living document. It will be monitored on an ongoing basis, reported on annually and updated every five years in step with the Water and Wastewater Master Plan. By carefully tracking progress on One Water initiatives, it will help to better position the next Water and Wastewater Master Plan update, reflecting what has been achieved through the One Water Action Plan as well as what can be achieved.

The balance of this document:

- Explains in more detail the One Water concept and its value to York Region;
- Outlines the One Water vision for York Region and related goals
- Discusses the next steps in implementing the Action Plan.

Developing the One Water approach

This document reflects a wide range of input and research, and has grown out of a long-standing Regional commitment to more fully integrate water management.

As part of the Water and Wastewater Master Plan update, the Region held two internal workshops to explore One Water ideas. In October 2015 a further workshop took place with staff of local municipalities to identify opportunities to collaborate on One Water.

As well, the One Water approach benefited from input from the public captured at Public Consultation Centres as part of the Water and Wastewater Master Plan update. Feedback from stakeholders through updating the Long Term Water Conservation Strategy and Inflow and Infiltration Reduction Strategy was also incorporated.

In addition, a workshop in March 2017 brought together staff from across the Region with an interest in achieving the benefits of One Water. Major work products of this workshop and the earlier one with local municipalities included the vision statement, goals and actions.

The Action Plan has also been informed by plans and initiatives in other jurisdictions and the thinking of water sector associations, as well as a review of the research literature.

The need to work together

An important aspect of acting on One Water will be continuing to build partnerships and collaboration. This was a clear and consistent message in all the One Water workshops and engagement, and from the achievements of other jurisdictions.

A One Water approach considers the water cycle as an integrated system. Many benefits are realized when the barriers traditionally separating water, wastewater, stormwater, and reuse are broken down.

Blueprint for One Water,
Water Research Foundation

Water moves and flows in response to forces and influences that range in scale from the global to the boundaries of the lot on which a single house is built. As a result, no one entity can possibly hold by itself as the key to creating or acting on a One Water approach.

Instead, efforts must include everyone who touches water resources, from nations and governments at all levels through to individual businesses and households. We must recognize the need to work together as true partners to value, respect and preserve water as our most precious of resources – not just for today, but for generations to come.

CHAPTER TWO

ONE WATER AND ITS VALUE FOR YORK REGION

Water is essential to all life on earth, but its supply is finite and under increasing pressure. Leading jurisdictions around the globe are moving to safeguard this precious resource through One Water initiatives. Their work is providing York Region with ideas, approaches and tools to save money, reduce reliance on water sources outside its boundaries and enhance the natural environment. These efforts will involve key partners like local municipalities and conservation authorities.

II. One Water and its value for York Region

One Water: Local action towards a global solution

The message of One Water is that the careful use of water is critical to the survival of this planet. Water is essential to all life on earth, but its supply is finite. Global population growth and the spread of industrialization are putting all water resources under increasing pressure. Added to that are the challenges of climate change, aging infrastructure, limited resources, and increasing pollution of the bodies of water that receive wastewater and runoff.

In response, One Water – which the Water Research Foundation calls "the future of the water industry" – is advancing efforts around the world to more fully recognize the value of water from all sources and integrate both thinking and action. This reduces pressure on water resources and brings social, environmental and economic benefits.

Some key One Water terms

Water reuse is a central element of One Water approaches. It refers to using treated wastewater for a beneficial purpose. Similar terms are wastewater reuse and water recycling.

The process of treating wastewater before reusing it is called **water reclamation**. Reclaimed water is used in several ways, including irrigation.

Water reuse has significantly increased the supply available to many water-stressed communities.

One Water can also leverage alternative water sources such as **greywater** – water from bathroom sinks, showers, bathtubs, clothes washers and laundry sinks – and stormwater, the runoff from rainfall or snow. These can supplement scarce water supplies instead of being treated as waste and can be used, with treatment where needed, for irrigation, toilet flushing, washing and cooling.

Greywater can help make water supply more reliable and extend the capacity of wastewater systems in growing cities. Harvesting stormwater offers many benefits, including reducing demand for high-quality drinking water supply, saving energy, preventing pollution runoff, and reducing the impacts of urban development on waterways.

Conservation means using less of a resource. In One Water approaches this generally means using less water as well as reducing the energy used in water management. Typically, the energy used to provide water and wastewater services to end users accounts for close to half its cost.

One Water initiatives can vary widely in both scope and scale, as the following examples show:

- Consultation with stakeholders is helping to get input on how to set minimum quality requirements for reused water in the European Union, as one of several actions to promote further uptake of water reuse among member states.
- Los Angeles' comprehensive One Water LA 2040 Plan includes such actions as increasing cooperation among city departments and partners, improving watershed health by reducing impervious cover and decreasing pollutants, increasing stormwater capture and potable water conservation, expanding water reuse, increasing climate resilience and building community advocacy for sustainable water.
- Seattle Public Utilities has created a division tasked with ensuring that all customers receive equitable services and that their One Water approach balances impacts to rate payers with community and environmental needs.
- Singapore, a city state surrounded by seawater, takes a holistic approach, viewing all water as reusable. Its "Our Water, Our Future" strategy also aims to collect virtually "every drop of rainwater" that falls within its borders. Conservation and innovation are other key strategic components.
- The Bay Area Regional Water Supply Reliability Partnership brings together the largest water agencies in the San Francisco area – collectively serving the needs of over 5.6 million people – to connect their water systems and allow them to develop and share water resources more efficiently, as well as better ensuring supply in the case of earthquake or other disruption.
- A U.S. blue ribbon commission is identifying new business models for decentralized non-potable water systems – that is, systems that allow water to be treated and reused on site – and craft supporting model state guidelines and policies. The panel's work grows from the efforts of the San Francisco Public Utilities Commission, which has spearheaded development of local programs to manage onsite water reuse.
- Philadelphia's 25-year Green City, Clean Waters Program plan is expected to save US$4.8 billion by investing in green infrastructure compared to traditional "gray" infrastructure. It is funding stormwater improvement programs through a variety of tools, including stormwater fees. Developers who put in place green infrastructure get a credit to reduce their fee.
- The state of Victoria in Australia is moving to establish itself as a world leader integrated in water cycle management, including working to change urban thinking around the uses of rainwater, stormwater and recycled water.
- In an Australian town, stormwater runoff from the roofs in new housing developments is collected and routed through pipes to be added to other raw water for treatment as drinking water.

As the list suggests, initiatives may include legislative frameworks, actual physical connection of water systems, informal partnerships, land use planning requirements, financial incentives and public education campaigns. They may take place at the major city or multi-city level, cross national borders, be put in place by a state or province, or be highly local.

Recognizing the challenge of creating an effective plan from this wide diversity, the Water Resource Foundation, which identifies its mission as working to advance the science of water in all portions of the water cycle, has prepared a One Water blueprint for water providers. It is available at http://www.waterrf.org/PublicReportLibrary/4660.pdf.

The blueprint acknowledges that different entities will see One Water differently, depending on their varying roles, needs and opportunities. One Water approaches can also be applied at different scales, which in the case of Ontario includes provincial, county or regional, and local municipality. Watersheds, which in Ontario are the mandate of conservation authorities, are another dimension of scale. Despite all these differences, however, the foundation notes that every One Water approach shares similar elements, such as encouraging and/or requiring greater water system integration, conservation, water reuse and green infrastructure.

In drawing up the plan, potential One Water activities for the Region were focused by recognizing that other partners, including local municipalities and conservation authorities, also have roles and responsibilities in managing water resources. This recognition will help ensure the most effective use of resources in achieving goals.

United Nations makes wastewater the theme of 2017 World Water Day

"Why waste water?" That's the question the United Nations posed in making wastewater the theme of World Water Day for 2017. Instead, it suggested, countries around the globe need to recognize the huge potential benefits to be gained from the safe reuse of wastewater.

The UN selected wastewater as its 2017 theme because, it noted, much of the world's wastewater is simply released back into the environment. As a result, it is grossly undervalued as a potentially affordable and sustainable source of water, energy, nutrients and other recoverable materials. To address this, the UN said, wastewater must be seen as a valuable resource, not a burden to be disposed of.

"Instead of wasting wastewater," the UN announcement added, "we need to reduce and reuse it. In our homes, we can reuse greywater on our gardens .... In our cities, we can treat and reuse wastewater for green spaces. In industry and agriculture, we can treat and recycle discharge for things like cooling systems and irrigation." The York Region One Water Action Plan supports these and other potential uses.

The UN released a report entitled Wastewater: An untapped resource on March 22, World Water Day, to expand on the announcement. The report noted that improved management of wastewater globally was essential to achieving the United Nations' 2030 Agenda for Sustainable Development, which includes the goal of substantially increasing water recycling and safe reuse.

Challenges in servicing growth in York Region

The Region's most important water and wastewater role is to provide safe and reliable services to approximately 1.2 million residents.

This involves supplying drinking water to local municipalities that in turn deliver it to retail customers through their own local systems, and collecting and conveying wastewater from municipal systems to treatment plants. For more than 45 years, York Region has successfully met this role and served the needs of a population that has grown from 180,000 in 1971 to approximately 1.2 million in 2016.

Most Regional water and wastewater responsibilities are carried out by the Region's Environmental Services department. The Region's Transportation Services department is responsible for managing stormwater runoff on Regional roads, which may include operating stormwater retention systems.

Providing water and wastewater services across the Region involves significant geographic challenges, which are outlined in detail in the Water and Wastewater Master Plan. Specifically, as noted, York Region does not border Lake Ontario, a major source of drinking water for southern Ontario. As well, its northern reaches lie in the Lake Huron watershed via Lake Simcoe, while its southern areas lie in the Lake Ontario watershed.

The Region's geography intersects with important Regional, provincial and federal policies and international agreements. Taken as a whole, this path restricts development in certain areas, limits the volume of water the Region can transfer from the Lake Ontario to the Lake Huron watershed, and puts increasingly tight limits on the amount of phosphorus that may be discharged in treated wastewater, especially into Lake Simcoe. While these statutes and regulations reflect the Region's specific situation, the Region is also subject to broader statutory requirements around water management and land use planning.

Providing water and wastewater services involves large capital outlays, which must generally be made in anticipation of population growth. As a result, the Region must borrow funds against the charges it will levy on future development. This creates a fiscal challenge because of provincial policies on how much a municipality may borrow. Operating water and wastewater services is also becoming more costly as regulatory standards become more stringent and energy costs rise.

The One Water approach provides ways of investing more cost-effectively in infrastructure, often while enhancing environmental and other benefits, reducing operating costs and/or generating revenues by marketing reclaimed water. An important part of the Action Plan is to explore these opportunities.

One Water Cycle

One Water ties into other Regional plans

The York Region Official Plan is the policy framework outlining how the Region will accommodate future growth and development while meeting the needs of existing residents and businesses.

It sets out directions and policies that guide economic, environmental and community planning decisions.

The Water and Wastewater Master Plan is the strategy that puts the official plan into action. Integrating social, environmental and financial sustainability principles is the Region's way of ensuring that its people and businesses continue to benefit from safe, reliable and affordable water and wastewater services.

The investments outlined in the Water and Wastewater Master Plan feed into important Regional initiatives. Central among these is the development charge bylaw, which sets out the Regional fees levied on new residential and non-residential developments to help pay for a portion of infrastructure needs related to growth. It is updated every five years. Other Regional documents that rely on the Water and Wastewater Master Plan include the Region's budgets and long-term capital plans.

The Water and Wastewater Master Plan also draws on the Region's water and wastewater asset management plans and, when finalized, feeds back into them to be refined and updated.

The updated Water and Wastewater Master Plan identified a key concern. In Amendment 2 to the Growth Plan for the Greater Golden Horseshoe, 2013, the province directed York Region to plan its infrastructure to serve a population of 1.8 million people and 900,000 jobs by 2041, an increase of about 50 per cent from current population and employment levels.

The southernmost communities in the Region, the City of Markham, Town of Richmond Hill and City of Vaughan, are expected to absorb about two-thirds of the growth. In the northern areas of the Region, growth is expected to have a major impact on the Town of East Gwillimbury and, to a lesser extent, the Town of Newmarket.

The updated plan noted that the expected growth would strain existing water and wastewater systems and require new infrastructure and servicing strategies. In response, the Water and Wastewater Master Plan set out two key objectives:

- Develop a cost-effective, resilient water and wastewater infrastructure plan to service future growth to 2041 and beyond; and
- Develop an integrated, long-term strategy to provide sustainable water and wastewater services.

To meet these objectives, the Water and Wastewater Master Plan updated plans for maintaining and upgrading existing infrastructure. It also set out the reasons for selecting the new Lake Simcoe Servicing Strategy for northern parts of the Region. The proposed strategy would support expected growth in parts of East Gwillimbury and Newmarket by supplying drinking water from both Lake Simcoe and Lake Ontario. Wastewater service to support growth would be provided by a proposed water reclamation centre in East Gwillimbury as part of the recommended Upper York Sewage Solutions.

At the national [U.S.] scale, it is estimated that up to 3.8 billion kWh and $270 million can potentially be saved annually by replacing landscape irrigation and other outdoor water uses through rainwater harvesting alone, and up to 14 billion kWh and $950 million in combination with gray-water reuse.

Blueprint for One Water,
Water Research Foundation

The One Water concept will achieve the second objective, an integrated long-term strategy, by bringing together and building on existing initiatives and plans. It will also encourage new ideas to position York Region to achieve greater social, environmental and economic benefits from One Water in future.

Aboriginal peoples regard Western water management approaches as limited, and science and technology, alone, as being unable to address the challenges faced by global, regional, and local communities in relation to water. From an Aboriginal point of view, alternative perspectives are required...

"Traditional Knowledge: Considerations for Protecting Water in Ontario"

International Indigenous Policy Journal

Building on the Water and Wastewater Master Plan, the Region began developing a plan One Water: Process Improvement and Optimization for Water and Wastewater, mainly for its own facilities, as a step in adopting a One Water approach. The ideas and approaches that it outlines touch on many key areas of water and wastewater operation, including protecting source water, drinking water treatment and transmission, and wastewater collection and conveyance. It sets out challenges, ideas and suggestions for improvement generated by York Region water and wastewater staff.

This is one step toward embedding One Water in the Region's culture, and several of the suggestions appear as actions in this plan.

At an overarching level, One Water will need to be considered on myriad levels within Regional government, including community planning, environmental protection, infrastructure planning and management, budgeting and financial planning, and a range of other public services the Region is involved in providing.

Working in partnership as One Water evolves

The full value of One Water can be unlocked only through partnerships.

For the Region, key partners include the entities with which it shares responsibility for water resources, in particular the nine local municipalities that make up the Region, the two conservation authorities that operate within its boundaries, regional municipal partners that co-share infrastructure, and the Indigenous people who live within and near the Region.

The local municipalities develop their own official plans and secondary plans in alignment with the Region's vision, policies and plans within the local context. In the area of water management, they purchase water and wastewater services from the Region and deliver these to their residents and businesses through their own systems. They also have responsibility for managing stormwater.

Conservation authorities operate at the level of the watershed, including wetlands, flood plains and valley lands as well as waterways. Their responsibilities include flood and erosion protection, water quality and quantity, environmental land use planning and ecosystem regeneration. They work in partnership with government, farmers and other landowners and organizations, and had a key role recently in developing source water protection plans under provincial legislation. York Region works with two conservation authorities because it straddles two watersheds: in the north, the Lake Simcoe Region Conservation Authority and in the south, the Toronto and Region Conservation Authority.

York Region's three neighbouring municipalities, Durham, Toronto and Peel are York's key partners in water supply and wastewater treatment. York and Durham co-own the Duffin Creek Water Pollution Control Plant which treats about 90 per cent of the Region's wastewater. York secures 60 per cent of its water supply capacity from Toronto and 30 per cent from Peel. York also sends approximately 5 per cent of its wastewater for treatment to Peel. This is made possible through partnership in jointly investing infrastructure and sharing the cost of maintaining the infrastructure.

Indigenous peoples, including the Anishnaabek, have lived for millennia in the area that now encompasses York Region. They relied on its waterways and lakes for travel and food, and many who remain in the area continue traditional water-related practices and activities. Indigenous peoples have called on governments to work with them to implement the Water Declaration of the Anishinaabek,

Mushkegowuk, and Onkwehone, drawn up in 2008, to protect water resources.

The infrastructure optimization plan identifies many additional potential partners, including water associations and advocacy groups, research institutions and foundations, municipalities with which York Region shares a watershed, cities like Philadelphia that are One Water pioneers, and private sector companies in the water sector offering relevant expertise and/or products.

A key action in this plan will be to identify which partners to focus on and how best to engage them both initially and as One Water evolves.

Bringing plans together for One Water

Like many jurisdictions, York Region is already acting on initiatives that tie into a One Water approach, such as long-term planning for sustainability, conservation, climate change adaptation and mitigation, asset management and green infrastructure.

These include such initiatives as:

- The Long-Term Water Conservation Strategy, which aims to reduce average residential water demand to 150 liters per person per day by 2051; and
- The Inflow and Infiltration Reduction Strategy, which works towards reducing inflow and infiltration by 40 million litres a day by 2031.

The Region's partners are undertaking many activities with similar goals.

The Water Research Foundation blueprint notes that a One Water approach should integrate all relevant plans to build greater efficiency. This integration may lead to a variety of end products, such as:

- A comprehensive One Water Action Plan under which other initiatives fall;
- A framework guiding collaboration among separate entities with related water resource mandates;
- A document describing how to leverage existing plans;
- A list of water resource management initiatives ranked by priority.

This Action Plan views One Water as the focal point needed to achieve collaboration among all partners to bring about closer integration. One Water will also serve as a hub for monitoring and gathering information from across the Region on activities relating to One Water, and will develop a balanced scorecard approach to measuring their environmental, social and economic impacts.

CHAPTER THREE

ONE WATER VISION, GOALS AND ACTIONS

The Action Plan is the means by which York Region will achieve its One Water vision and goals. Elements of the plan include promoting and explaining One Water's value, bringing together existing ideas and activities and inspiring new ones, working to match each source of water to its best possible use, and using One Water to reduce the costs and other impacts of building and operating water and wastewater systems.

III. One Water Vision for York Region

Through partnerships and innovation, One Water makes the best possible use of water from every source to sustain healthy people, healthy communities and a healthy environment.

This is set out as a vision for all of York Region: that is, a vision for the communities, residents, lands and waters that lie within the Region's boundaries. York Region as a municipality is only one of many partners who will be involved in delivering it.


York Region

Bringing together York Region's One Water goals

At a March 2017 workshop, participants from many areas of Regional government were asked what they hoped the plan would achieve. Their answers included:

- Enhancing water system sustainability, collaboration and technology
- Driving efficiencies, addressing climate change and reducing reliance on other municipalities
- Building synergy by integrating services, programs and thinking
- Better recognizing that what happens to water ends up in wastewater
- Encouraging regulatory partners to get on board
- Embedding One Water thinking into the Region's culture
- Improving drinking water and wastewater outcomes beyond the Region's own systems
- Making new development more sustainable
- Bringing stormwater assets more to the forefront
- Taking steps now to inform the next update to the Water and Wastewater Master Plan
- Measuring One Water's effectiveness with solid metrics

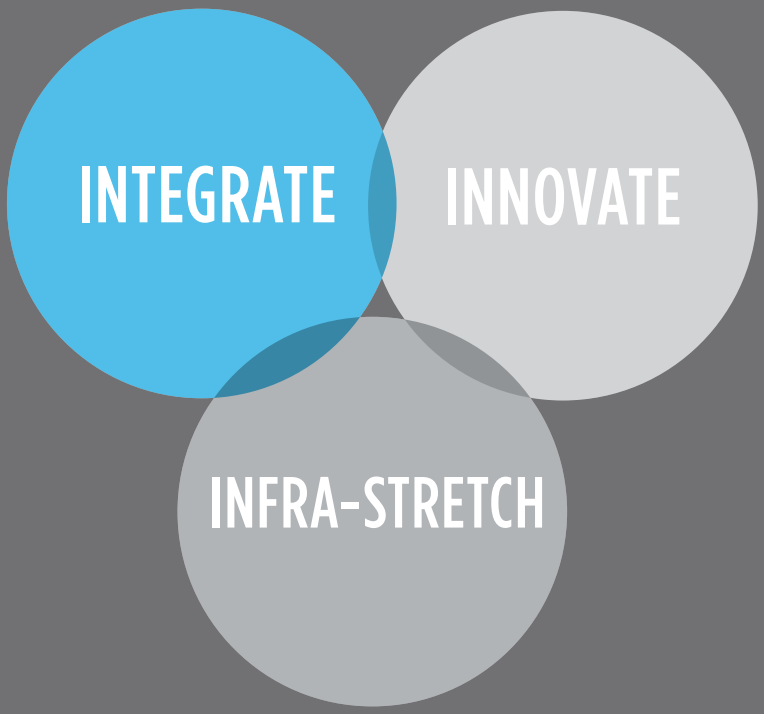
One Water goals and actions

There are three high-level goals for the One Water Action Plan, falling under the broad headings of Integrate, Innovate and Infra-stretch. This action plan sets out strategies to achieve each goal, and under each strategy the specific actions intended to advance it. As the diagram suggests, however, the three goals often overlap. As a result, some actions may support two or even three goals and where possible these linkages have been identified in the text.

To measure progress clearly and consistently, the plan will include key metrics. Some of these metrics are already in use, while others – especially for new activities and goals – will need to be developed.

Actions are categorized within three distinct time horizons for completion. For more information on those action items please contact York Region.

Regular reviews of this plan will take place in concert with the Water and Wastewater Master Plan updates to help ensure that the right actions happen at the right time as the One Water concept evolves.



GOAL 1: INTEGRATE

Work together to integrate plans and practices, create a One Water culture and share knowledge and information

All forms of water, including stormwater and wastewater, are ultimately connected in a complex, living system. To better manage and protect that system, people must work together to share and connect their plans, practices, knowledge, and information and build a common commitment to One Water. Within Regional government, this goal also involves embedding One Water into the culture, key plans and performance reporting, and aligning financial resources with the goals.

The following strategies support Goal 1:

- **Coordinate One Water initiatives**
- **Embed One Water in the culture**
- **Collect, create and share knowledge/information**
- **Measure and use results to drive constant improvement**

Coordinate One Water initiatives

Many existing York Region programs, policies and groups touch on One Water concerns. Critical first steps are to identify these and better understand how they can help advance One Water. In the longer term, leveraging connections internally and with key partners will allow York Region to advance broader One Water initiatives effectively.

Embed One Water in the culture

The actions set out here focus mainly on the organizational culture within the York Region corporation. Embedding One Water in the culture is not just about sharing knowledge and ideas across areas of expertise, it is also about ensuring One Water strategies and goals align with and are reflected in corporate planning, budgeting and reporting processes, that financial disincentives are addressed and that incentives for One Water projects are provided.

Create, collect and share data and knowledge

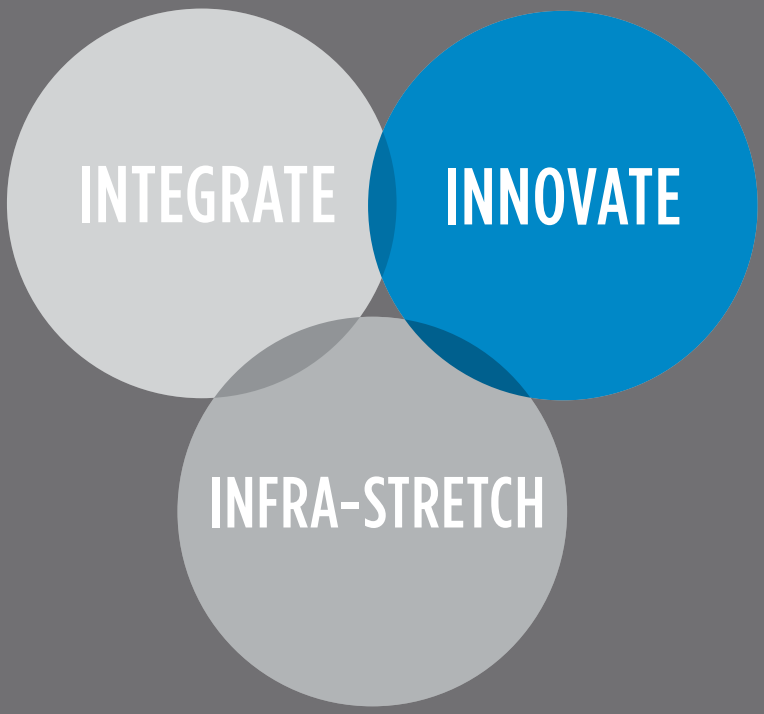
A key part of achieving goals nimbly and cost-effectively will be gathering and sharing data from across Regional government and ensuring that parameters and terms all have the same meanings. This will allow the Region and its partners to better leverage information, use resources more effectively, eliminate overlaps and communicate more clearly. Ultimately, the One Water function could also track research and best practices elsewhere.

Measure and use results to drive improvement

One Water sets an ambitious path that involves multiple partners and aims to achieve improvements across economic, environmental and social spheres. With so much complexity, it will be critical to make sure results are measured and the information used to constantly fine-tune One Water and keep it on track to meet long-term aspirations.

High-level long-term outcomes of the Integrate goal:

1. Staff within Regional government and external partners share a valuable inventory of One Water initiatives, data and knowledge.
2. One Water proposals are robustly tested before moving forward.
3. Financial and non-financial costs and benefits of initiatives are better understood and aligned with One Water goals.
4. One Water is woven into the culture, strategic plans and other planning documents in addition to the Water and Wastewater Master Plan, and progress is reported regularly.



GOAL 2: INNOVATE

Inspire and use innovation to meet One Water goals

Innovation refers not just to developing or adopting new products, it also means looking for new ways of doing things that achieve more with the same or fewer resources. Much of the innovation around One Water follows from recognizing the costs and waste involved in present ways of handling water, and the opportunities that follow from better matching water sources and water uses.

The following strategies support Goal 2:

- **Promote the benefits of One Water**
- **Match the water source to the end use**
- **Nurture innovation internally and externally**

Promote the benefits of One Water

Many One Water ideas are new in Ontario, so the concept needs to be promoted with the public and other stakeholders.

Match the water source to the end use

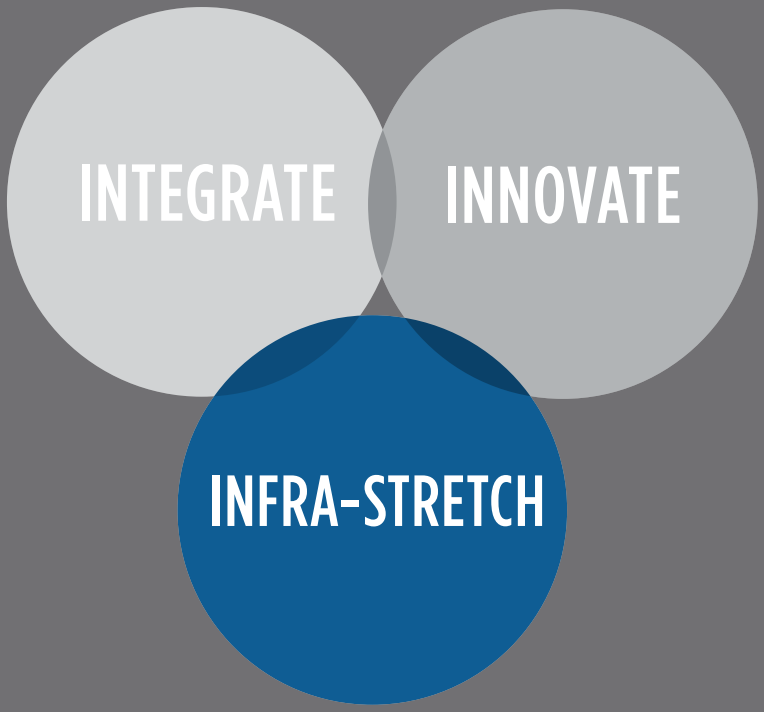
It is very expensive to treat water to the level required for human consumption, and not all uses need this. One Water aims to better match the water source to the end use. Currently unused or underused water sources include greywater, stormwater and potable water that is run through systems to keep the water fresh. Non-drinking-water uses include irrigation, commercial car washes, industrial process water and fire-fighting. Marketing the right water for the right use can reduce costs and/or generate revenues. It can also have significant environmental, social and other benefits.

Nurture innovation internally and externally

New One Water approaches are constantly being developed as water services and others recognize the approach's vast untapped potential. Encouraging greater openness to new ideas will help advance One Water in York Region and spur new, more cost-effective ways of doing things.

High-level long-term outcomes of the Innovate goal:

1. Public and other key stakeholders support One Water for York Region.
2. Industry understands and uses new ways of leveraging various water sources, and building codes and official plans support these innovations.
3. York Region One Water approaches benefit from best-in-class ideas, practices and technologies.
4. York Region and its partners are invited to share their leading-edge ideas and experiences with other practitioners.
5. The availability of water from the right source at the right price is a driver of economic growth.



GOAL 3: INFRA-STRETCH

Use One Water approach to make infrastructure more resilient, reliable and cost-effective

Infra-stretching means maximizing the useful capacity and useful life of built infrastructure to minimize and/or defer capital investment.

This goal focuses on the physical water and wastewater assets owned by York Region, as well as on green infrastructure that can or could directly support it. The One Water approach can reduce the costs and other impacts of delivering and operating these assets, either directly or through encouraging new approaches to development that ease the pressure on public infrastructure.

The following strategies support Goal 3:

- **Build One Water into key York Region infrastructure and related plans**
- **Leverage the infra-stretching potential of development**

Build One Water into key infrastructure and related plans

One Water can help to reduce risks related to the capacity, energy consumption, operating performance, safety and water quality of the Region's assets. Reducing these risks in turn contributes to achieving the goals of the Region's climate change and energy management strategies.

Leverage the infra-stretching potential of development

Embedding sustainable development concepts into the built environment, especially new development, eases the burden on public infrastructure and reduces demand for services.

High-level long-term outcomes of the "Infra-Stretch" goal:

1. Plans for asset management, risk management and climate change action reflect One Water approaches, and as a result asset performance is more reliable and risk-related incidents and concerns are less likely to occur.
2. One Water approaches achieve these improvements at the same or lower net lifecycle cost than traditional approaches.
3. New development includes many green features that reduce the costs of delivering water and wastewater services and prolong the life and quality of public assets.

Next steps

While the implementation of the One Water Action Plan will be led by the Infrastructure Asset Management branch of the Environmental Services department, the successful delivery of One Water initiatives will be a department-wide effort.

Regular reviews of this action plan in concert with future Water and Wastewater Master Plan updates will ensure that the plan remains current & meaningful as the One Water concept evolves.

CHAPTER FOUR
CONCLUSION

This plan starts York Region on the journey to a One Water future: a future in which we all give water its full value and look constantly for new ways to save and protect it. Along this journey, we can expect the challenges of increasing population, extreme weather, new pathogens and pollutants to grow. As we embrace One Water principles, this plan will give us the knowledge and tools to manage those threats to water safety and security. More than that, it will put York Region at the forefront of understanding how One Water can help people, businesses and communities thrive.

IV. Conclusion

This One Water Action Plan is intended to provide guidance in making the most effective investments in new ideas and approaches as the One Water concept evolves.

This plan recognizes that some aspects of the concept are relatively new in Ontario, where a very large share of the population has access to the Great Lakes for their drinking water. It therefore lays out prudent first steps to build greater understanding of all aspects of One Water and develop in-depth knowledge of its potential benefits, particularly for York Region. It aims to open the Region and its partners to thinking about water in new ways that better reflect its finite supply.

One Water will unquestionably grow in importance over the next decades. Increasing population, growing demand on water resources, the extreme weather impacts of climate change, new threats to water: all of these factors are already in play, and over time they will inevitably heighten concerns about long-term water safety and security. This One Water Action Plan will position York Region and its partners to manage those challenges as they grow in significance.

One Water does more than manage threats. It recognizes that we are currently using drinking water for a wide range of end uses that do not need such a costly and environmentally challenging level of treatment. With planning and forethought, water can be collected for non-drinking-water uses from a number of currently untapped sources. With the right level of care, water that goes through municipal systems can be safely reused for many of the same purposes. These elements of One Water allow the matching of each source of water to its best end use.

One Water will bring benefits across a range of domains. It can reduce the financial and environmental burden of delivering and operating water and wastewater systems. It can also contribute to infrastructure assets that are more resilient and in better condition, and reduce risks related to their capacity and reliability. Above all, it will support thriving and healthy businesses, households and communities across the Region.

YORK REGION

ONE WATER 2017 ACTION PLAN

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Accessible formats or communications supports are available upon request.