



Water

Master Plan

City of Regina



REGINA
Infinite Horizons

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Executive Summary

In 2013, City Council approved the *Design Regina: The Official Community Plan Bylaw No. 2013-48* (OCP), providing high-level policy direction to guide growth and change in the community. The Water Master Plan (WMP) is a comprehensive Water service planning document designed to support the OCP Community Priorities of “achieve long term financial viability”, “promote conservation, stewardship and environmental sustainability” and “foster economic prosperity”. The WMP sets out the long-term plans and strategies for providing water service and delivers more detailed direction on nine OCP Policy Goals related to Financial Policy, Growth Plan, Environment Policy and Infrastructure Policy outlined in Sections B1, B2, B3, C2, D2, and D4 of the OCP.

Clean and safe water is essential to the health and well-being of the community. The City of Regina (City) is committed to providing potable water to customers and planning for a sustainable water service and system. The goals of Regina’s Water and Sewer Utility (Utility) are set out in seven Service Categories that collectively reflect the regulatory, social, economic and environmental outcomes for water, wastewater and drainage service delivery. The goals and actions of the WMP are structured around these Service Categories and based on the guiding principles used as part of a consistent approach for all Utility services and assets, along with the concept of integrated water resource planning.

The Service Categories provide a holistic view of the water service provided to Utility customers. Along with the associated Level of Service (LOS) and cost of delivering service, they enable the assessment of the sustainability of Regina’s water service. The WMP identifies 11 goals and 64 planned actions to achieve the outcomes for Regina’s water service delivery. The Service Categories identified for the water service align with the direction of the OCP, support the Community Priorities and move toward sustainable water service delivery.

The WMP sets out the actions and a 25-year capital upgrade plan to maintain or improve LOS, reduce risk and vulnerabilities and accommodate growth that contribute significantly to achieving the vision of the OCP.

The WMP will guide the way the organization plans, constructs, operates and maintains the system for the delivery of water service to customers now and in the future; however, it is not a commitment for future investment. This policy direction will

help inform decisions made by Council as part of the defined budget process and over the course of their ongoing deliberations. Investments will be reviewed each year through the City's annual budget process and only when Council adopts the budget will investments be approved.

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City of Regina Policy

Title	Water Master Plan
Policy Tracking #	2018-3-TU
Version	Approved by City Council, October 29, 2018-CR 18-100
Link to the Official Community Plan	<p>This master plan provides further policy direction on the following Official Community Plan Goals:</p> <ul style="list-style-type: none"> • Financial Principles (B1) <ul style="list-style-type: none"> ○ Use a consistent approach to funding the operation of the City of Regina. • Sustainable Services and Amenities (B2) <ul style="list-style-type: none"> ○ Ensure that City of Regina services and amenities are financially sustainable. • Financial Planning (B3) <ul style="list-style-type: none"> ○ Ensure the sustainability of the City by understanding and planning for the full cost of capital investments, programs and services in advance of development approval and capital procurement. • Water Protection (D2 3) <ul style="list-style-type: none"> ○ Maintain the integrity of Regina’s aquifers, surface and groundwater resources. • Efficient Servicing (C2) <ul style="list-style-type: none"> ○ Maximize the efficient use of existing and new infrastructure. • Safe and Efficient Infrastructure (D4 1) <ul style="list-style-type: none"> ○ Meet regulatory requirements and industry best practices for design, construction and operation of infrastructure. • Asset Management and Service Levels (D4 2) <ul style="list-style-type: none"> ○ Ensure infrastructure decisions result in long-term sustainability. • Planned Infrastructure for Growth (D4 3) <ul style="list-style-type: none"> ○ The infrastructure needed for growth will be planned from a long-term perspective. • Conservation and Environment (D4 4) <ul style="list-style-type: none"> ○ Design infrastructure that conserves resources and minimizes impacts on the environment.

Service Level Definition	This master plan provides further policy direction on the following City of Regina services: <ul style="list-style-type: none">• Potable Water
Policy Owner	Director of Water Works
Next Scheduled Review	The Water Master Plan is scheduled for review every five years.

Introduction

Purpose

Clean and safe water is essential to the health and well-being of the community. The City is committed to providing potable water to customers and planning for a sustainable water service that supports growth and addresses challenges related to climate change, environmental conditions, aging and deteriorating infrastructure and funding constraints. The Water Master Plan (WMP) is an overall assessment of Regina’s water service and system.

The City defines a master plan as a long-term plan of up to 25 years that describes city-wide outcomes for a service or group of services with a strong link to the *Design Regina: The Official Community Plan Bylaw No. 2013-48 (OCP)*. The WMP describes the growth and renewal plans for infrastructure that support water service delivery to maintain or improve Level of Service (LOS) while minimizing risk. It considers the regulatory, social, economic and environmental outcomes expected of the water

service in evaluating problems and opportunities and proposing investment in the system. It is not a commitment for future investment, but will help inform decisions made by the Administration and Council, especially during rate reviews and annual business plan and budget processes.



Scope

The WMP is a comprehensive water service planning document to guide the way the City plans, constructs, operates and maintains the system based on an understanding of current conditions and future demands. The WMP sets out the long-term plans and strategies for providing water service and contributes strongly to the following OCP Policy Goals:

OCP Financial Policies

Goal 1 – Financial Principles

Use a consistent approach to funding the operation of the City of Regina.

Goal 2 – Sustainable Services and Amenities

Ensure that City of Regina services and amenities are financially sustainable.

Goal 3 – Financial Planning

Ensure the sustainability of the city by understanding and planning for the full cost of capital investments, programs and services in advance of development approval and capital procurement.

OCP Growth Plan

Goal 2 – Efficient Servicing

Maximize the efficient use of existing and new infrastructure.

OCP Environment

Goal 3 – Water Protection

Maintain the integrity of Regina’s aquifers, surface and groundwater resources.

OCP Infrastructure

Goal 1 – Safe and Efficient Infrastructure

Meet regulatory requirement and industry best practices for design, construction and operation of infrastructure.

Goal 2 – Asset Management and Service Levels

Ensure infrastructure decisions result in long-term sustainability.

Goal 3 – Planned Infrastructure for Growth

The infrastructure needed for growth will be planned from a long-term perspective.

Goal 4 – Conservation and Environment

Design infrastructure that conserves resources and minimizes impact on the environment.

The City plays a key role in achieving these OCP goals by delivering water service to more than 220,000 customers in and around Regina through a diverse system of assets. Assets that support this service delivery include:

- Buffalo Pound Lake (provincial asset)
- Buffalo Pound Water Treatment Plant (BPWTP; jointly owned with the City of Moose Jaw)
- five storage reservoirs
- three pump stations
- more than 1,700 km of pipes and building service connections
- more than 5,700 hydrants
- nearly 73,000 water meters
- eight groundwater wells

Process and Engagement

Water Security Agency (WSA), the provincial water regulator, was consulted and engaged in the development of the WMP and the review of the recommended plan. The Regina and Region Homebuilders' Association was also engaged through a presentation of the WMP process and recommended plan.

Role of the Municipality

The City provides water service as a public utility service in accordance with Section 17 of *The Cities Act*. The City established the Water & Sewer Utility (the Utility) to fund capital and operating requirements that support delivery of water, wastewater and stormwater services to Regina residents. Section 22.4 of *The Cities Regulations* requires Council to adopt a capital investment strategy that includes the method used for determining capital plans respecting the waterworks. The capital requirements (investment strategy) are determined based on studies and assessments, including the WMP, using an asset management approach that takes into account the infrastructure needs of the Utility to deliver water service and meet the service goals.

Guiding Principles

The WMP adheres to the Financial Principles of OCP related to the benefits model by ensuring that the costs of the water service are paid through user fees by customers who directly benefit from the service.

The WMP also incorporated the following Guiding Principles that have been used for several years as part of a consistent approach for all Utility services. They should continue to be integrated into all water service planning and operations.

Regulatory Compliant - The WMP recognizes the City's first commitment is to comply with legislation, regulatory and statutory requirements.

Customer-Focused and Risk-Based - Decisions about water service delivery will be informed by understanding current performance (LOS) and the associated cost of managing assets and maintaining LOS. The WMP will consider the risks involved with meeting LOS objectives, using root cause analysis and proactive management strategies where beneficial.

System-Focused and Whole Life Perspective - Service delivery must be assessed system-wide by the WMP. The WMP will consider the 'big picture' of service delivery, including the impact of managing the system throughout all stages of the asset life cycle.

Innovative and Forward-Looking & Sustainable - The WMP will foster an innovative approach to delivering LOS objectives so they may be met in an effective and sustainable way. Due regard will be given for the long-term stewardship of assets, including resilience to climate change and environmental change, so the water service will be delivered in a sustainable manner.

Needs-Driven and Robust, Repeatable & Defensible Decision Making - Utility rate recommendations will be informed by the City's asset management approach, including LOS and capital investment plan from the WMP. Decisions and actions resulting from the WMP will incorporate a formal, consistent and repeatable approach.

Current Reality

Regina is located within the natural environment in ways unique among larger Canadian cities. Regina receives its source water from Buffalo Pound Lake, located 56 kilometers away. The source water comes from rainfall and snowmelt from the Rocky Mountains, through the South Saskatchewan River and eventually diverted to Buffalo Pound Lake. Both the distance of source water and its dependence on natural processes (e.g. rainfall) present challenges to water service delivery. The water treatment, transmission to the city, storage and distribution to users encompasses the Water service.



Water is treated near the Buffalo Pound Lake by the Buffalo Pound Water Treatment Plant (BPWTP). As of 2016, the BPWTP became a non-profit corporation legally known as the Buffalo Pound Water Treatment Corporation. The City of Regina and the City of Moose Jaw jointly own the plant, with Regina owning 73 per cent and Moose Jaw owning 27 per cent. The Buffalo Pound Board of Directors governs the plant on behalf of both cities. Using the revised evaluation criteria, the BPWTP

generally meets current demand except during some very high peak demand periods in summer. However, assuming no additional demand management strategies to manage peak water use are implemented, the City anticipates water supply needs will surpass the plant capacity by 2025 leading to upgrade of the BPWTP.

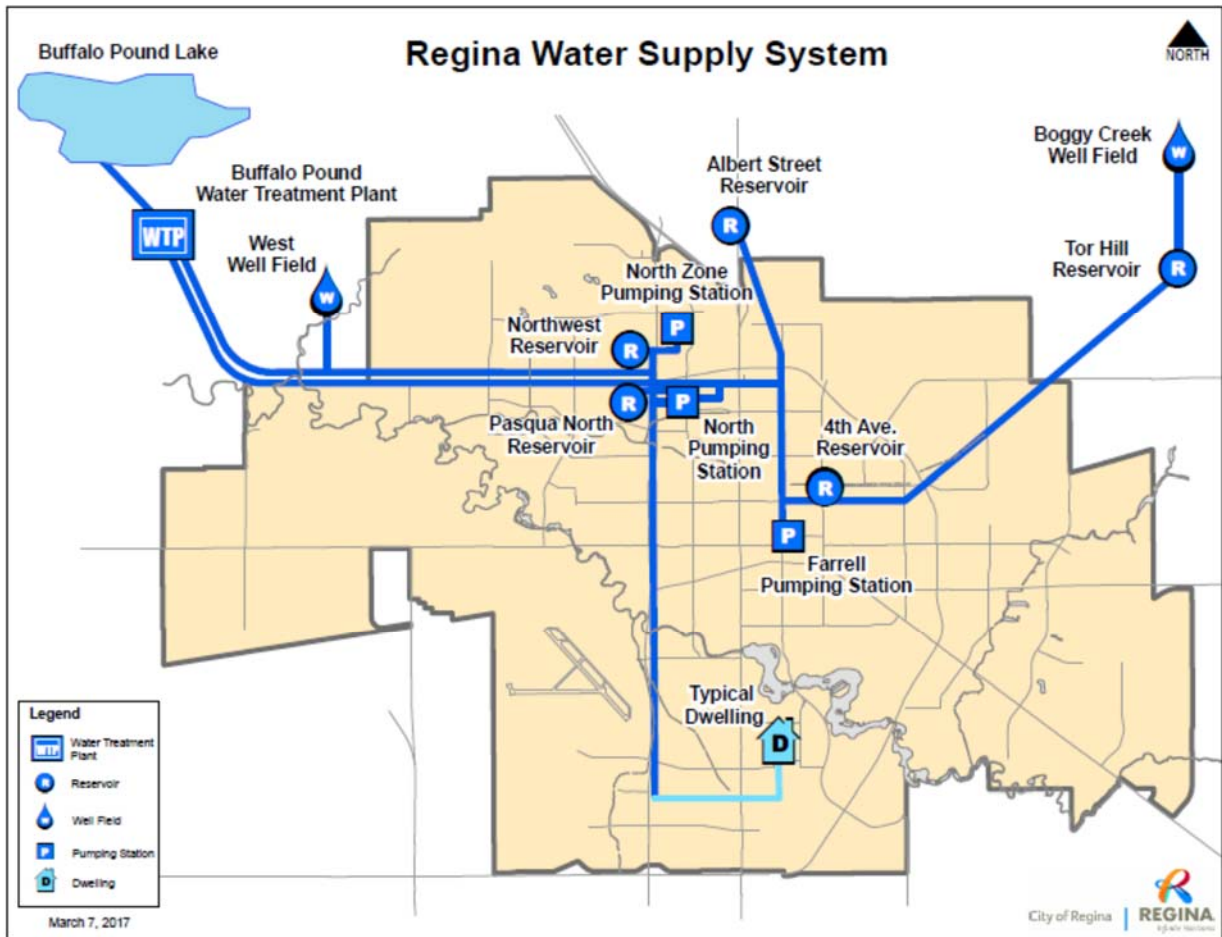


Figure 1: Regina’s Water System

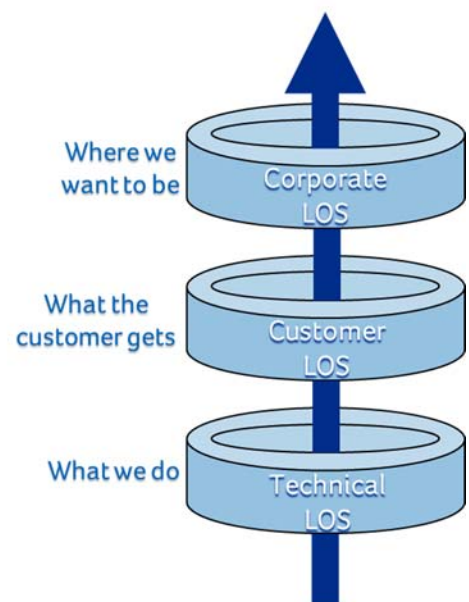
From BPWTP, two transmission lines transport water to the city. Water is stored in five reservoirs to maintain supply at key locations in the community. From the reservoirs, three pumping stations distribute the water through a combination of large and small diameter pipes, totaling 1,155 km, to individual service connections (See Figure 1). Water is delivered to customer’s taps through service connections with meters to measure the amount of water use. Metering not only helps customers

understand their use, but can be also be used to influence customer behavior; for example, by encouraging conservation through pricing and education.

The City provides water service to residential, institutional, commercial and industrial customers in Regina, as well as extra-municipal customers in surrounding areas. Within Regina, the City provides safe, reliable water service available with minimal interruption to customers. For water service to surrounding areas, the City enters into separate extra-municipal agreements which outlines the terms and conditions relating to the quantity, quality and availability of service delivery.

The purpose of these assets is to support the delivery of water service to our customers; therefore, realizing the most value from these assets requires an understanding of the LOS they provide and the cost of delivering service.

Levels of Service (LOS) reflect the regulatory, social, environmental and economic outcomes that the City agrees to deliver to water customers. As shown, LOS are defined and connected at three levels: Corporate, Customer and Technical (asset and operational). LOS assess performance by tracking measures over time considering corporate objectives related to water service delivery, what customers receive for water service and what the City does to provide water service to customers. LOS are also used to assess risks, identify needs and prioritize investment. They establish high level business drivers and inform decisions about directing resources to maintain or enhance LOS over the long term.



Proposed measures for water service at the customer level were developed in 2012 from internal stakeholder input, then tracked and aggregated to observe any trends. Current performance of the Water service shows stable trends except for regulatory, which has decreasing LOS. This decline is due to two non-compliance events in 2015. The first event was related to use of the ground water wells during the BPWTP water outage due to unique environmental conditions at Buffalo Pound Lake. The second event was associated with exceeding the regulatory limits for trihalomethane levels in drinking water due to changes in source water quality.

Water service delivery to Regina customers was also assessed through limited focus group surveys from Viewpoints Research in 2012. Customers felt clean and safe drinking water was paramount. Overall, the focus groups were satisfied with the reliability of the service but some complaints were expressed about odour/taste issues and excessive chlorine levels. Also, some participants had complaints about interruptions to service, while others found service disruptions and repairs were addressed in a punctual manner. Results from both the LOS trends and the customer survey indicate the water service is generally adequate in most areas, but still has room for improvement.

Many factors can influence service delivery, impacting the LOS measures. Growth influences service delivery by placing additional demands on the water system through new development and intensification. With climate change, extreme weather events can be expected, which could compromise the source water at Buffalo Pound Lake. New regulation, as well as the availability of funding or changes in



political/public expectations for improved environmental stewardship efforts, may place additional demand on service delivery. Also, other changes in expectations from customers can influence the way service is delivered; the targets and goals of service delivery will need to adapt through time. These influencers on the water system can present risks to service delivery.

Risks to the water system are both at the strategic level and asset level. Strategic risks can include:

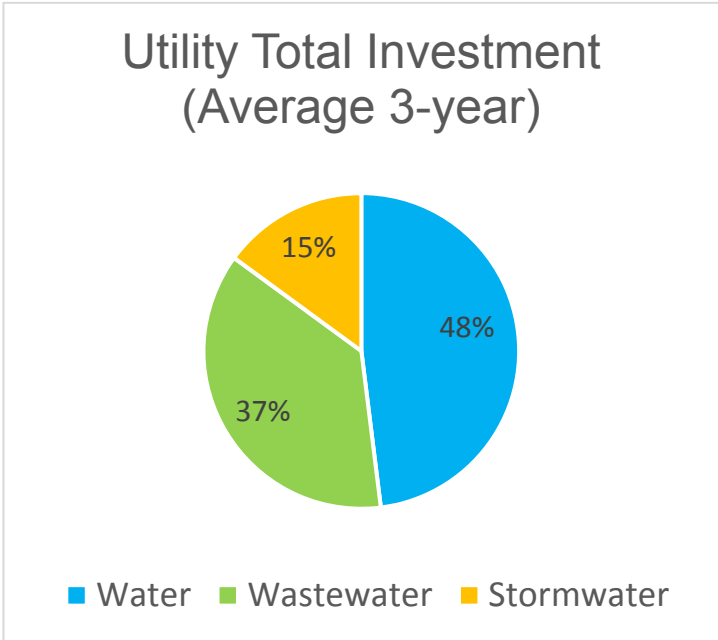
- funding shortfalls
- unforeseen weather events
- water supply shortfalls
- poor quality asset data
- non-compliance with regulation
- deteriorating infrastructure
- decreased water consumption

These are not risks pertaining to a specific asset, but can affect service delivery as a whole. Specific asset risks are identified for failure of the critical infrastructure (such as BPWTP, pumping stations, reservoirs, or transmission lines), storage shortfalls and failure of the distribution system. Mitigating measures are in place to reduce the likelihood and severity of these system and asset risks. Some of these measures include planning strategic and local capital projects, refining operational tasks and procedures, building a critical spares inventory and developing an emergency response plan. Although much work has been done to mitigate risks, there are still opportunities to improve.

The Water service is vital to the health and well-being of residents, as well as for irrigation, commercial and industrial use. The current state of these assets has been described in terms of the level of service they provide and risks at both the strategic and asset level. It has been found that the service is generally meeting LOS, but still has room to improve. Further analyses and planning can allow for a robust water system that meets the needs of customers.

How we invest

The City invests steadily in the water, wastewater and stormwater systems that support service delivery. As shown in Figure 2, for 2016-18 the average total Utility investment is more than \$100 million/year with the majority invested in the water service.



Utility Service	Average total investment/year
Water	\$48.2M
Wastewater	\$37.1M
Stormwater	\$15.0M
Total	\$100.3M

Figure 2: Utility total yearly average Investment
 Note: Includes investment funded by external sources, primarily Servicing Agreement Fees (SAFs). Investment includes treatment, Water Works operating activities and support.

To fund capital and operating expenditures, the Utility is set to operate on a full cost recovery basis using user rates and charges. In 2018, the water rate increase of two per cent funded operating costs and most of the planned water capital investment needs.

The Utility plans for current and future requirements over a 25-year horizon using an investment planning approach to define the right level of investment to deliver sustainable services, while maintaining long-term financial viability. Investments in Utility services are made on the basis of providing the greatest benefits to stakeholders within four investment drivers as follows:

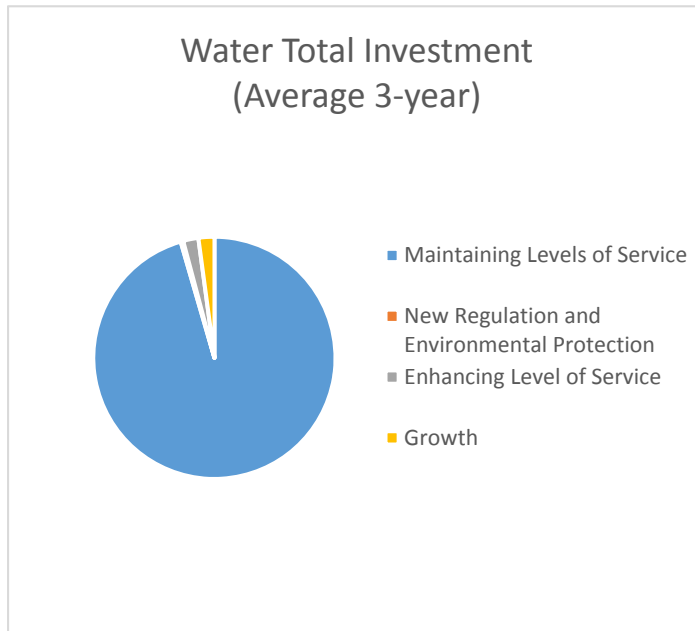
1. **Maintaining LOS** – Reduce risk to maintain current LOS to customers. This takes a risk-based approach to asset failure and considers the lifecycle of assets.
2. **New Regulations and Improved Environmental Protection** – Increased demand to comply with new regulatory requirements or higher level of

environmental protection. This driver also considers whether the project is intended to deliver improved environmental stewardship in terms of sustainable reductions on day-to-day environmental impacts in terms of air, land, water, waste, etc.

3. **Enhancing LOS** – Increased demand due to a permanent improvement in the LOS to customers. This considers the delivery of sustained and tangible improvement to the LOS, improving resiliency, or improving staff working environment. This driver also considers whether the project improves service to meet current standards, policies or level of service.
4. **Growth** – Increased demand due to increased population or industry. This considers increasing capacity to accommodate projected growth and future demands.

Currently, the majority of investments are directed towards maintaining LOS with relatively smaller investments going towards enhancing LOS. Figure 3 shows the three-year average investment. Of the \$48.2 million invested in the Water service, \$46 million went towards maintaining LOS. This demonstrates commitments to reduce risk and move towards a reliable service that meets current regulatory, safety and service objectives is paramount. Meeting the demands of growth and improvements to service delivery are still considered, but generally don't require the same level of investment.

Operating expenditures provide for treated water from BPWTP as well as ongoing operational procedures related to system monitoring and routine maintenance. The following chart includes costs related to treated water, Water Works operating activities and support that contribute to maintaining LOS.



Water service	Average total investment
Maintaining LOS	\$46.0M
New Regulation & Environmental Protection	\$0.2M
Enhancing LOS	\$1.0M
Growth	\$1.0M
Total	\$48.2M

Figure 3: Water total Investment

Note: Includes investment funded by external sources, primarily SAFs. Investment includes treatment, Water Works operating activities and support contributing to maintaining LOS.

Assumptions

The WMP is based on the following assumptions:

- Water service requirements incorporate growth in population projections (300K and 500K population) and development phasing plan (300K) as set out in the OCP.
- Financial resources available to fund the water service does not include potential future grant funding.
- Growth-related water infrastructure is paid for through external sources as set out in the SAF policy.

Future Vision

Vision

The City aims to provide utility services to the community that are both sustainable and affordable. The WMP sets out the actions and 25-year capital upgrade plan to meet LOS that reflect regulatory, environmental, operational and economic outcomes, reduce risk and accommodate growth to achieve the vision of OCP for the City.

The concept of integrated water resources planning and the Utility Service Categories as described below, along with the Guiding Principles reflect the vision for Regina's water service delivery and system.

Integrated Water Resource Planning

Provincial water resources are designated by watershed boundaries. Regina's utility services draw on water resources of two regional watersheds: Upper Qu'Appelle River Watershed and Wascana Creek Watershed. As previously discussed, Regina's source water is Buffalo Pound Lake, located in the Upper Qu'Appelle River Watershed. Wascana Creek, located within the Wascana Creek Watershed, is a seasonal stream that originates east of Regina and flows into the Qu'Appelle River system near Lumsden. It serves as the receiving stream for treated wastewater and stormwater runoff from Regina. These conditions mean the City, as a utility service provider, contributes significantly to the sustainable stewardship of the surrounding watersheds. It also means the requirements and costs for water and wastewater are impacted by Regina's location within these watersheds. Sustainable stewardship considers managing the water, wastewater and stormwater systems in an integrated, holistic manner.

Traditionally, municipalities managed water under three general umbrellas - water, wastewater and drainage. These represent the three service areas under Regina's Water and Sewer Utility:

- **Water System** - Includes the water supply, pumping and distribution to provide potable drinking water for residential, institutional, commercial and industrial customers, as well as for fire protection and greenspace management.
- **Wastewater System** - the collection system gathers wastewater from residential, institutional, commercial and industrial customers to be treated at

the wastewater treatment system. This treated water is then released to Wascana Creek.

- **Stormwater System** - collects water from rainfall and snowmelt to be discharged to the Wascana and Pilot Butte creeks.



To contribute to the sustainable stewardship of the watersheds and effectively manage water as a resource, all three services and systems (water, wastewater and stormwater) should be managed as an integrated system. Understanding the interactions of the three systems will help reduce future upgrade costs and provide a more sustainable service. This means considering the interactions between services including:

- **Water and Stormwater** - With Buffalo Pound Lake located a considerable distance away from Regina, water conservation is imperative. Innovative stormwater management considers runoff as a resource, rather than just a nuisance to be disposed and presents an opportunity to use runoff as a supplemental water source that lowers water consumption and peak demand. This approach also lowers peak flows from stormwater runoff in Regina to minimize erosion of receiving streams and support sustainable stewardship of the creeks.

- **Wastewater and Stormwater** - Stormwater can enter the wastewater collection system through a variety of mechanisms, collectively known as inflow and infiltration (i&i). When it rains or snows, stormwater runoff can enter wastewater pipes through manholes, cross-connections and leaks in the wastewater collection system. This can result in basement flooding and in extreme situations, bypasses to the receiving waters and poses a risk to health and safety as well as property.
- **Water and Wastewater/Stormwater** – Water is distributed through pressurized pipes underground. On occasion these pipes can develop leaks and allow drinking water to escape. This water can enter a nearby wastewater collection system and be transported to the Wastewater Treatment Plant (WWTP), or the leaked water can enter the stormwater system which could result in chlorinated water entering Wascana Creek. This results in lost revenue for the leaking water and a potential increase in expenditure on collecting and transporting the leaked water in either the wastewater or stormwater system. By implementing leak minimization strategies, the Utility can reduce cost and further protect the surrounding environment.

Goals

The goals of Regina’s Water and Sewer Utility are set out in seven Service Categories that collectively reflect the regulatory, social, economic and environmental outcomes (LOS) for water, wastewater and stormwater service delivery as follows:

1. **Reliable Service** aims to provide ongoing reliable service of a suitable quality and capacity.
2. **Regulatory Compliance** serves to protect customer interests by meeting or exceeding our regulatory obligations.
3. **Environmental Stewardship** is about acting in the best interest of our customers and the environment.
4. **Service Delivery Support** focuses on providing a prompt response to customer service appointments while minimizing the length of any service disruptions.
5. **Customer Service** fosters communication to customer inquiries and collecting on utility billings in an efficient, accurate and timely manner.
6. **Servicing Development** focuses on providing access to service when and where it’s needed.
7. **Financial Sustainability** aims to recover the full cost of service delivery.

The Customer Service and Financial Sustainability Service Categories are Utility-wide outcomes that cross over the three services. The other five Service Categories are consistent across water, wastewater and stormwater, but with goals specific to each Utility service.

The WMP is based on the seven Utility Service Categories that guide the development and evaluation of policies, service goals, LOS and strategies for the water service and system. Collectively, the Service Categories and associated LOS, along with the cost of delivering service, enable the assessment of the sustainability of Regina's water service. The Service Categories identified for the water service align with the direction of the OCP, support the Community Priorities and move toward sustainable water service delivery.



Policy Direction

The following section provides the water service goals and rationale for each of the seven Utility Service Categories described earlier. Key actions, timeframes and resources associated with these goals are outlined in Appendix A.





Reliable Service aims to provide ongoing reliable service of a suitable quality and capacity.

SERVICE CATEGORY #1: RELIABLE SERVICE

The following policies and actions support the Financial, Environment and Infrastructure Policies in the OCP and contribute to the Community Priority to “Achieve Long-Term Financial Viability”.

Water service and infrastructure are vital to the health and well-being of residents, the community and the environment. Reliable service delivery is the hallmark of any water utility and is assessed by the pressure, quantity and quality of water provided for use, as well as the availability of water with limited interruption. The City remains committed to providing reliable, high-quality water service to customers in the city and surrounding areas.

The policies within “Reliable Service” focus on maintaining service levels related to the quantity, quality and availability of the water service to customers in the most cost effective manner.

Goal 1: Provide water at adequate pressure and in sufficient quality and quantity to satisfy the requirements for domestic and commercial use and for fire protection.

Rationale

Focusing on maintaining satisfactory pressure, quantity and quality of drinking water to customers while enhancing service delivery as needed will be important for the City to continue providing reliable water service to customers.

Goal 2: Ensure water will be available with only minimal local disruptions for system maintenance and rare large-scale disruptions due to unforeseen circumstance.

Rationale

It is important to develop a strategy to maintain system infrastructure and build resilience in service delivery that will ensure water is available for customers to use and for fire protection, including during emergency events.



Regulatory Compliance serves to protect customer interests by meeting or exceeding our regulatory obligations.

SERVICE CATEGORY #2: REGULATORY COMPLIANCE

The following policies and actions support the Infrastructure Policies in the OCP and contribute to the Community Priority to “Foster Economic Prosperity”.

Water service and infrastructure delivers safe and clean drinking water to residents in Regina and some surrounding areas providing a core service which supports customer’s quality of life and standard of living. Water Security Agency (WSA) regulates water supply and distribution in Saskatchewan through *The Waterworks and Sewage Works Regulations*, in line with the *Guidelines for Canadian Drinking Water Quality*. Permits for the construction and operation of water systems require specific standards to protect human health, ensure consistent water quality, and minimize impacts to the natural environment. The City holds an operating permit outlining requirements for water quality, operator certification, routine facility inspections, testing and reporting.

The policies within “Regulatory Compliance” address legal requirements of constructing water works and of providing water that is safe to consume and use.

Goal 3: Provide water that meets Provincial water quality standards and objectives.

Rationale

Complying with Regina’s Permit to Operate will ensure only safe clean drinking water is supplied to customers. Securing Permits for Construction will ensure water supply is available and allocated.



Environmental Stewardship is about acting in the best interest of our customers and the environment.

SERVICE CATEGORY #3: ENVIRONMENTAL STEWARDSHIP

The following policies and actions support the Infrastructure and Environment Policies in the OCP and contribute to the Community Priority to “Promote Conservation, Stewardship and Environmental Sustainability”.

Water is a precious resource that is often taken for granted. Regina’s source water is drawn from Buffalo Pound Lake, which receives water from Lake Diefenbaker via the Upper Qu’Appelle River system. The City, along with all communities within these watersheds, has a role to play in the conservation of water, protection of our source water and stewardship of water resources in the region.

It takes energy to supply and distribute water to customers. Through ongoing infrastructure maintenance and renewal and by complying with regulatory requirement, water service operations are becoming more energy efficient to reduce GHG emissions and support improved environmental stewardship.

The policies within “Environmental Stewardship” promote water and energy efficiency as well as best practices for environmental design to preserve water as earth’s most precious resource.

Goal 4: Enhance water efficiency.

Rationale

Efficient use of water and energy reduces water waste and GHG emissions, and supports improved water resource management.

Goal 5: Support environmental conservation and sustainable water management.

Rationale

Conservation of water contributes to improved environmental management. Incorporating environmental design standards into water projects and operations supports environmental sustainability for future generations. Continued collaboration between the City and watershed groups supports sound water management and source water protection practices.



Service Delivery Support focuses on providing a prompt response to customer service appointments while minimizing the length of any service disruptions.

SERVICE CATEGORY #4: SERVICE DELIVERY SUPPORT

The following policies and actions support the Financial and Infrastructure Policies in the OCP and contribute to the Community Priority to “Achieve Long Term Financial Viability”.

Effective and efficient customer support is important for continued delivery of water to our customers, particularly when there is a disruption to service. The City is committed to fostering customers’ trust and confidence in water service delivery by ensuring the resources are available to meet customers’ needs for timely and responsive service delivery.

The policies within “Customer Service Delivery” support effective and efficient service related interactions with customers and timely return to service when disruption occurs.

Goal 6: Be responsive to service requests.

Rationale

Being responsive to service appointments with customers is central to providing good service to our water customers.

Goal 7: Minimize length of service disruption.

Rationale

Being responsive to service disruptions through timely restoration of water service is key to providing good service delivery to our water customers.



Customer Service fosters communication to customer inquiries and collecting on utility billings in an efficient, accurate and timely manner.

SERVICE CATEGORY #5: CUSTOMER SERVICE

The following policies and actions support the Financial Policies in the OCP and contribute to the Community Priority to “Achieve Long Term Financial Viability”.

Good customer service is central to the delivery of water to our customers. The City is committed to delivering consistent customer service and fostering positive relationships with Utility customers by providing timely response to inquiries and efficient, accurate billing services. In line with the benefits model referred to in *Design Regina*, customers pay for water service through user fees.

The policies within “Customer Service” support good customer communication and service experiences as well as reliable Utility billing services.

Goal 8: Be responsive to customer inquiries and needs.

Rationale

Being responsive to Utility customer inquiries is important to providing good customer service.

Goal 9: Produce and collect on utility billings in an efficient, accurate and timely manner.

Rationale

Reliable, accurate utility billing services will encourage customer’s awareness of their water use and fees for the water services. In addition, ensuring revenues are collected to fund ongoing water service planning and operation.



Servicing Development focuses on providing access to service when and where it's needed.

SERVICE CATEGORY #6: SERVICING DEVELOPMENT

The following policies and actions support the Growth Plan, Financial Policies and Infrastructure Policies in the OCP and contribute to the Community Priority to “Achieve Long-Term Financial Viability”.

Water service and infrastructure are required in growth areas to provide a fundamental core service to Regina’s new neighbourhoods. The majority of this infrastructure is funded and built by the development community with some system-wide assets built by the city. Taking a long-term view, there is a need to plan water infrastructure for growth considering the interaction with the existing system. The benefit of optimizing use of the existing infrastructure must be balanced with the requirements and impacts on existing service delivery. Taking an integrated approach when planning water infrastructure balances the requirements for growth with the impact on existing areas.

The policies within “Servicing Development” address accessibility of the water service for growth areas in a safe and effective way while considering the entire system, current design standards and future costs.

Goal 10: Accommodate growth and redevelopment within planning policy by providing water service.

Rationale

Expansion of the water system will be needed to service new neighbourhoods as well as upgrades to the existing system to manage the increased water demand from new customers. The future operating costs of new infrastructure will be considered as well as potential to optimize use of existing infrastructure to decrease the overall cost of ownership.



Financial Sustainability aims to recover the full cost of service delivery.

SERVICE CATEGORY #7: FINANCIAL SUSTAINABILITY

The following policies and actions support the Financial Policies in the OCP and contribute to the Community Priority to “Achieve Long Term Financial Viability”.

The financial sustainability of the water service is about making sure the City collects sufficient Utility revenues from water user fees to recover the full costs of providing water infrastructure and service that achieve the service goals and future demand requirements as described in the preceding six Service Categories. Utility rates will be established considering revenue requirements over the 25-year planning horizon, affordability and inter-generational equity. In addition, water rates and structure can encourage conservation of water as a precious resource. The City is committed to ensuring the water service is financially sustainable now and in the future and that customers pay for water service through user fees in accordance with the benefits model referred to in the OCP.

The policies within “Financial Sustainability” support the full cost recovery, user-pay basis to providing water service to customers.

Goal 11: Ensure water service is financially sustainable.

Rationale

Provide water service to residential and business customers on a full-cost recovery, user-pay basis in line with the financial principles outlined in the OCP. Future rate recommendations will be sustainable and move towards achieving inter-generational equity.

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Implementation Plan

To move the City towards achieving the goals and policies of this plan, the following section outlines the strategy to guide implementation over time and ultimately realize the plan. More detailed strategies will be developed to advance specific elements of the plan based on the timing and context detailed in this section.

Master Plan Ownership

Delivery of water service to customers requires collaboration across and within various teams, both internal and external, involved in planning, constructing, operating and maintaining the water system and associated service activities. Collectively, these teams are responsible for implementing the plan.

Water Works led the development of the WMP and will continue to lead the implementation of many of the plan policies and actions. The Planning & Development Division manages new growth areas and will lead the implementation of policies and actions to service development.



Water Works also leads the development of the Utility capital investment planning process to prioritize investment in water, wastewater and drainage services. The capital planning process with financial analysis which includes using the 25-year Utility model, forms the basis of budget recommendations to Council. Water Works will continue to lead this work. The WMP and the Utility capital investment plan are not a commitment for future investment. This policy direction will help inform decisions that are made by Council as part of the defined budget process and over the course of their ongoing deliberations.

Investments will be reviewed each year through the City's annual budget process where Administration's proposed budgets are vetted through a public consultation process. Only when Council adopts the budget will investments be approved.

Implementation Phasing

The WMP goals are intended to be realized over the next 25 years through staged implementation of the policies and actions outlined in this document; however, the WMP is not a commitment for future investment. It is also important to note that several factors, including changing operating conditions, risks, financial capacity, and the pace of growth, will influence the implementation of planned actions and capital investments. Planned actions will require further development through the implementation phases and capital investment forecasts will continue to be adjusted annually through the Utility investment planning process to reflect additional information on risks, LOS and cost. The planned actions, timeframes and investment to maintain current LOS and address future demand are identified in Appendix A and summarized below.

Planned Actions, Timeframe and Resources

The planned actions help the City make informed decisions about the water system and infrastructure that support service delivery to customers. Efforts that support maintaining current LOS include ongoing operating and infrastructure renewal works. Operational procedures provide for the routine monitoring, operating and maintenance needs to keep delivering reliable water service to customers on a daily basis. Infrastructure renewal involves the repair, replacement and improvement of assets to support ongoing reliable water service delivery to customers over time.

Most operational activities will be maintained at current levels in the short term but may be refined as a result of continuous improvement efforts. Water infrastructure renewal work that supports maintaining the current LOS includes:

- proactive monitoring
- assessment and renewal of critical system assets such as supply mains, pump stations and reservoirs
- renewal of distribution watermains, hydrants, valves, service connections and water meters

Also included are renewal of emergency and control systems, as well as operations and customer billing systems and equipment. Maintaining the current LOS also involves system upgrades, including projects and programs such as reservoir aeration, flow meter chambers, leak detection, and hydrant nozzle replacement (see Appendix B for a more detailed project list from the Proposed Water Capital Plan 2019-2023).

Efforts that address future demand include system infrastructure upgrades to support growth, new regulatory requirements, greater environmental protection and improved LOS. In general, satisfying increased demand requires additional operating efforts going forward.

Projects to support growth include planning and building additional system infrastructure to provide adequate water pressure, quantity and quality to new development areas in the near term. Proposed projects include the Eastern Pressure Solution and several distribution trunk mains. Also included are works to support improved system resilience and to reduce vulnerabilities due in part to climate change impacts. Proposed projects include additional groundwater capacity and the fire and security vulnerability upgrades. Environmental stewardship is also enhanced through projects that support maintaining current LOS including ongoing infrastructure renewal and replacement, as well as those needed to meet regulatory requirements.

Implementation Investment Summary

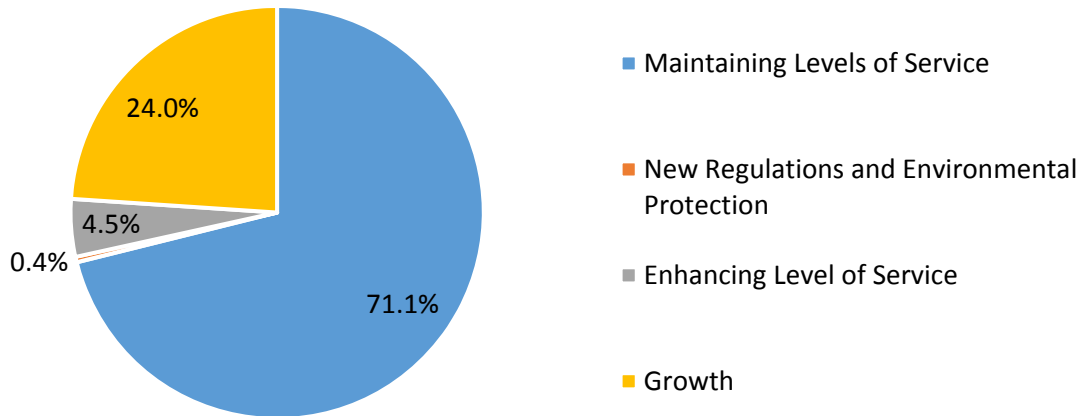
The investment strategy for the water service is developed in the Utility investment planning process. The approach starts with the development of business cases to describe service needs and propose solutions, including those identified in the WMP. The submissions are reviewed and evaluated consistently to identify the benefits of investment and to prioritize projects and programs within the 10-year plan that

support water, wastewater and stormwater service goals, aligned with corporate and LOS objectives. Investments in the remainder of 25-year plan are less defined; however, it is expected that the majority of the need is defined through long-term planning and asset renewal. Preliminary funding constraints are applied to the proposed plan and the residual risk of unfunded or deferred projects and programs are assessed. Scenarios are also developed to finance the plan with varying rates, debt issuance and reserve balances using the 25-year Utility Model. Together, the prioritized plan and financing scenarios form the recommended investment plan and budget to Council.

The WMP sets out the capital investment needed to meet LOS that reflect regulatory, operational and economic outcomes, reduce risk and accommodate growth to achieve the vision of the OCP. Financing scenarios with a mix of rate increases and debt were evaluated with the Utility Model to assess financial sustainability in line with the WMP goals and principles. As identified in Appendix C, financial analysis of the proposed 25-year water capital plan using the Utility Model, indicates that low to moderate rate increases along with some debt issuance will be needed to fund the full plan. In general, operating expenditures are expected to increase, primarily due to new infrastructure added to the system. The WMP outlines the water capital investment plan; however, it is not a commitment for future investment and is subject to annual budget deliberations by Council.

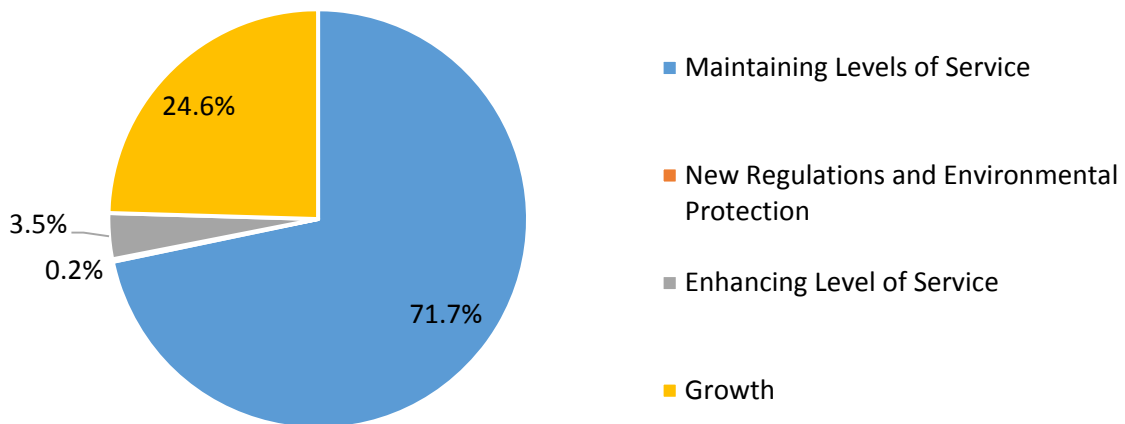
The following charts show the proposed 10-year (short to mid-term) and total 25-year (long-term) capital investment profile, illustrating that the majority of investment is focused on maintaining LOS through renewal, replacement and upgrade of infrastructure that supports current service delivery to customers. Of the total investment needed to maintain LOS, approximately five per cent provides for water meters and consumption reading infrastructure that supports billing for water and wastewater services. Capital and operating expenditures to maintain current LOS and increased demand are provided by water user fees, with the exception of most growth-related capital investment which is funded by external sources through SAF.

10 Year Water Capital Investment Plan



Note: The majority of overall capital investment is funded by water rates with most growth-related projects funded by SAFs.

25 Year Water Capital Investment Plan



Note: The majority of overall capital investment is funded by water rates with most growth-related projects funded by SAFs.

Monitoring and Evaluation

Water service delivery is dynamic by nature and subject to changing conditions. The WMP will continue to be reviewed and updated on a regular basis as follows:

- Review and progress reporting to Public Works & Infrastructure Committee on the status of implementing planned actions and strategies.
- Full review of the WMP every five years to Council to ensure it is effective at meeting LOS, reducing risk and accommodating growth.

An important part of plan implementation is to monitor and report progress on the effectiveness of policies and actions to achieve goals. Tracking key performance measures and trends over time will inform updates to the strategies and actions of the plan. The performance measures should be reviewed every five years during the full WMP review.

Some measures will require additional data collection and some may be adjusted based on resource availability and data management requirements. The following table sets out the measures in line with the defined Service Categories.

Reliable Service <ul style="list-style-type: none">• Number of logged aesthetic quality inquiries• Number of logged low pressure inquiries• Days of service restriction• Number of unplanned service outages• Number of days water is out of service due to hydrant repairs
Regulatory Compliance <ul style="list-style-type: none">• Number of non-compliance events that result in abatement actions from the Regulator
Environmental Stewardship <ul style="list-style-type: none">• Per cent of water lost in the system (non-revenue water)• Per capita consumption of water• Electricity consumed to treat and deliver water• Number of active water management installations, incorporating conscious environmentally-friendly design

Service Delivery Support

- Per cent of customer appointments attended on time
- Average length of service disruptions

Customer Service

- Per cent compliance with the Corporate Customer Service Standards providing contact to those who request it within 48 hours
- Number of properties with at least one estimated meter read within the year
- Number of properties (accounts) with at least one billing adjustment within the year
- Customer debt outstanding to Utility

Servicing Development

- Number of properties (development requests) rejected for utility water servicing

Financial Sustainability

- Per cent of capital investment funding shortfall over 10 years
- Per cent water charge of household income

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Appendix A:

Planned Actions, Timeframes and Resources

Planned Actions, Timeframes and Resources

The following symbols are used to outline the resources required.

Capital:

\$ <\$500 000

\$\$ \$500 001 to \$2 000 000

\$\$\$ >\$2 000 000

Operating:

\$ <\$100 000

\$\$ \$100 001 to \$500 000

\$\$\$ >\$500 000

Int Internal costs only

Policies and Recommended Actions		Timeframe	Initial Resources (subsequent annual maintenance costs are not reflected)		
			Level of Effort	Capital	Operating
Service Category #1: Reliable Service					
Goal 1: Provide water at adequate pressure and in sufficient quality and quantity to satisfy the requirements for domestic and commercial use and for fire protection.					
Rationale: Focusing on maintaining satisfactory pressure, quantity and quality of drinking water to customers while enhancing service delivery as needed will be important for the City to continue providing reliable water service to customers.					
Risk of not doing: LOS for water quality and capacity will not be met.					
1.1	Adopt the revised evaluation criteria (including LOS and design criteria) for Regina's water supply and distribution system.	Short			
1.1.1	Continue to define and collect data to build out the evaluation criteria (including LOS) related to water system performance and objectives, as well as develop and refine associated systems and processes for data collection as required, to better understand current performance and inform decision making.	Short, Medium	Med	Int	Int
1.1.2	Continue to collect data and undertake analyses (including water system modeling and monitoring) related to water system performance (pressure, fire	Short, Medium, Long	Low	Int	Int

	flow, quality of water), to inform decisions on the timing and prioritization of system improvements.				
1.1.3	Provide revised design criteria as input for update to the City of Regina's Development Standards Manual (2010).	Short	Low	Int	Int
1.1.4	Review and update evaluation criteria at least every five years to reflect changing conditions and identify any required adjustments to the planned system improvements.	Medium, Long	Low	\$, Int	Int
1.2	Implement and monitor the recommended water infrastructure plan, including new infrastructure for growth areas where synergies can be realized, required to meet LOS and reduce risks related to service delivery (See Goal 10).	Short, Medium, Long			
1.2.1	Continue to develop and implement an asset management strategy for water infrastructure and service using a risk-based approach as part of continuous improvement.	Short, Medium	Low	\$	Int
1.2.1.1	Continue to invest in the effective and efficient preservation and improvement of Regina's water supply and distribution system.	Short, Medium, Long	Med	\$\$\$	Int
1.2.1.2	Continue to review and refine operational and maintenance procedures in line with best practices as part of continuous improvement.	Short, Medium, Long	Low	Int	Int
1.2.1.3	Continue to develop a risk assessment and management strategy for supporting water service delivery, including strategic risks and those associated with assets, particularly critical infrastructure, in the existing system.	Short, Medium, Long	Med	\$	Int
1.2.1.4	Continue to assess the performance of assets to support water service delivery to maintain LOS and develop performance forecasts.	Short, Medium, Long	Med	\$\$	Int
1.2.1.5	Develop a life cycle management strategy for system assets that support water service delivery.	Short	Low	Int	Int
1.2.1.5.1	Develop and apply a whole life cost approach to ensure the full costs of the assets from acquisition to disposal are included and service is provided at the lowest overall cost of ownership (See Goal 10).	Short	Low	\$, Int	Int
1.2.1.6	Assess new and innovative technology and methods for constructing and renewing water infrastructure (See Goal 5).	Short, Medium, Long	Low	\$, Int	Int
1.2.1.7	Identify opportunities to coordinate water projects with other infrastructure projects, including those required to support growth areas where synergies can be realized.	Short, Medium, Long	Med	Int	Int
1.2.1.8	Continue to explore opportunities to optimize use of the system taking into account system-wide effects by assessing residual capacity and use of existing infrastructure (See Goal 10).	Short, Medium, Long	Med	\$, Int	Int

Service Category #2: Reliable Service

Goal 2: Ensure water will be available with only minimal local disruptions for system maintenance and rare large-scale disruptions due to unforeseen catastrophe.

Rationale: It is important to develop a strategy to maintain system infrastructure and build resilience in service delivery that will ensure water is available to customers and for fire protection, including during emergency events.					
Risk of not doing: Water system is more vulnerable and water may not be as available for use.					
2.1	Implement and monitor the recommended water infrastructure plan, including code and condition assessments and new infrastructure for growth areas where synergies can be realized, required to strengthen system resilience and ensure water is available for use with limited disruption (See Goals 1 and 10).	Short, Medium, Long			
2.1.1	Implement the strategy for emergency water supply.	Short, Medium	Med	\$\$\$	Int
2.1.1.1	Maintain existing groundwater well fields as emergency water source to provide limited supplemental water to the system.	Short	Low	\$\$	Int
2.1.1.2	Plan and implement expansion of the groundwater well fields as the City grows to provide additional emergency water supply up to the maximum groundwater allocation set out in the Water Rights Licenses (issued and maintained by the WSA).	Medium, Long	Med	\$\$\$	Int
2.2	Continue to review and refine the Water Quality and Supply Emergency Plan in line with industry emergency response planning standards and best practices as part of continuous improvement.	Short, Medium, Long	Low	Int	Int
Service Category #2: Regulatory Compliance					
Goal 3: Provide water that meets Provincial water quality standards and objectives.					
Rationale: Complying with Regina's Permit to Operate will ensure only safe clean drinking water is supplied to customers. Securing Permits for Construction will ensure water supply is available and allocated.					
Risk of not doing: Water service is not meeting regulatory requirements; may lead to fines or other action.					
3.1	Ensure design, construction and operation of Regina's water supply and distribution system complies with relevant legislative and regulatory requirements.	Short, Medium, Long			
3.1.1	Obtain all necessary permits and ensure adherence to conditions.	Short, Medium, Long	Med	Int	Int
3.1.2	Continue to work with the WSA to ensure operating permit requirements are met, including addressing additional monitoring, reporting and water quality requirements when the groundwater well fields are used as an emergency water source.	Short, Medium, Long	Low	Int	Int
3.1.3	Work with the WSA to monitor potential changes in water quality regulations in the future.	Short, Medium, Long	Low	Int	Int
Service Category #3: Environmental Stewardship					
Goal 4: Enhance water efficiency.					
Rationale: Efficient use of water and energy reduces water waste and GHG emissions, and supports improved water resource management.					

Risk of Not Doing: Water continues to be lost in the system and targeted energy efficiency improvements will not advance.					
4.1	Monitor and evaluate the efficiency of water and energy use including reductions realized through implementing the water infrastructure plan, including water infrastructure renewal, replacement and upgrade.	Short, Medium, Long			
4.1.1	Evaluate the feasibility of developing and implementing a water loss management program.	Short	Low	\$	Int
4.1.1.1	Evaluate consumption patterns, high water users and water lost in the system.	Short, Medium, Long	Low	\$	Int
4.1.2	Continue to evaluate current energy consumption and examine opportunities to conserve energy and reduce GHG emissions from water operations.	Short, Medium, Long	Low	\$	Int
Service Category #3: Environmental Stewardship					
Goal 5: Support environmental conservation and sustainable water management.					
Rationale: Conservation of water contributes to improved environmental management. Incorporating environmental design standards into water projects and operations supports environmental sustainability for future generations. Continued collaboration between the City and watershed groups supports sound water management and source water protection practices.					
Risk of Not Doing: Water conservation by users may be limited and targeted enhancement of environmental protection through design will be limited.					
5.1	Develop and implement a new water conservation program and bylaws in consultation with stakeholders.	Short, Medium, Long			
5.1.1	Evaluate current water conservation practices and update water conservation targets. Review revenue impact and adjust rate policy as needed.	Short, Medium, Long	Low	Int	Int
5.1.2	Review and implement a water conservation awareness campaign.	Medium	Low	Int	Int
5.1.2.1	Update and enhance water conservation information available to the public.	Short, Medium, Long	Low	Int	Int
5.1.2.2	Work with schools and local landscaping businesses to support water conservation awareness and education.	Medium	Low	Int	Int
5.1.2.3	Investigate usage of low flow fixtures and evaluate the need for further promotion to the public.	Medium	Low	Int	Int
5.1.2.4	Encourage customers to investigate for water leaks around their home.	Short, Medium, Long	Low	Int	Int
5.1.3	Explore the development and implementation of water restriction tiers to ban non-essential usage during a water shortage or emergency.	Medium	Low	Int	Int
5.1.4	Explore the adoption of a mandatory outdoor watering schedule into bylaw.	Medium	Low	Int	Int
5.2	Implement the application of environmental design standards and best practices into water projects and operations, where feasible (See Goal 1).	Short, Medium, Long	Low	\$	Int

5.3	Continue to collaborate with the province and watershed associations to support source water protection.	Short, Medium, Long			
5.3.1	Continue City participation in the Wascana Upper Qu'Appelle Watersheds Association Taking Responsibility (WUQWATR) to support source water protection including watershed and aquifer planning implementation as appropriate.	Short, Medium, Long	Low	Int	Int
5.3.2	Continue to support the implementation of key priority action items in the local watersheds Source Water Protection Plan.	Short, Medium, Long	Low	Int	Int
Service Category #4: Service Delivery Support					
Goal 6: Be responsive to service requests.					
Rationale: Being responsive to service appointments with customers is central to providing good service to our water customers.					
Risk of Not Doing: Customer service appointments will be ad hoc.					
6.1	Continue to develop and maintain systems and processes as well as explore new technology to support effective, efficient and responsive customer service practices.	Short, Medium, Long			
6.1.1	Continue to implement upgrades to customer information systems used for service bookings to support reliability of service bookings with customers.	Short, Medium, Long	Low	\$	Int
6.1.2	Continue to review and refine customer service procedures in line with best practices as part of continuous improvement.	Short, Medium, Long	Low	Int	Int
Service Category #4: Service Delivery Support					
Goal 7: Minimize length of service disruption.					
Rationale: Being responsive to service disruptions through timely restoration of water service is key to providing good service delivery to our water customers.					
Risk of Not Doing: Customer communications during service disruption will be ad hoc.					
7.1	Develop and maintain systems and processes to support effective and efficient customer service and communications, internally and externally, during water service disruptions.	Short, Medium, Long			
7.1.1	Continue to review and refine service request processes and systems used for identifying water service outages.	Short	Low	Int	Int
7.1.2	Develop and implement process to track and report response times to service disruption.	Short	Low	Int	Int
Service Category #5: Customer Service					
Goal 8: Be responsive to customer inquiries and needs.					
Rationale: Being responsive to Utility customer inquiries is important to providing good customer service.					
Risk of Not Doing: Customer service and satisfaction are low.					
8.1	Continue to ensure Corporate Customer Service Standards are maintained to promote good customer service interactions.	Short, Medium, Long			

8.1.1	Continue to review and refine customer service procedures in line with best practices as part of continuous improvement.	Short, Medium, Long	Low	Int	Int
Service Category #5: Customer Service					
Goal 9: Produce and collect on utility billings in an efficient, accurate and timely manner.					
Rationale: Reliable, accurate utility billing services will encourage customer's awareness of their water use and fees for the water services. In addition ensuring revenues are collected to fund ongoing water service planning and operation.					
Risk of Not Doing: Utility billings and revenue collection will be less reliable.					
9.1	Continue to develop and maintain systems and processes to charge for and collect on billings to Utility customers for the water services provided, as well as explore new technology to support effective, efficient and responsive customer service practices.	Short, Medium, Long			
9.1.1	Continue to evaluate the feasibility and timing of the Water Meters and AMR Replacement project and investigate new technology such as Advanced Metering Infrastructure (AMI) to improve system operation and customer service, as well as water conservation and data analytics.	Short, Medium	High	\$\$\$	\$
9.1.2	Continue to implement upgrades to customer information systems used for generating utility bills to customers.	Short, Medium, Long	Low	\$	Int
9.1.3	Continue to review and refine customer service and operational procedures in line with best practices as part of continuous improvement.	Short, Medium, Long	Low	Int	Int
Service Category #6: Servicing Development					
Goal 10: Accommodate growth and redevelopment within planning policy by providing water service.					
Rationale: Expansion of the water system will be needed to service new neighbourhoods as well as upgrades to the existing system to manage the increased water demand from new customers. The future operating costs of new infrastructure will be considered as well as the potential to optimize use of existing infrastructure to decrease the overall cost of ownership.					
Risk of not doing: Water system capacity will not meet increased demand.					
10.1	Implement and monitor the recommended water infrastructure plan, including improvements to the existing system where synergies can be realized, required to support growth areas (See Goal 1).	Short, Medium, Long			
10.1.1	Undertake preliminary study for the design and construction of system infrastructure to provide sufficient water supply, pressure and fire flow to new development areas and address the impacts on the existing system.	Short, Medium	High	\$\$\$	\$\$
10.1.1.1	Support potential access to water service by regional communities through strategically locating water infrastructure, where feasible and aligned with the OCP.	Short, Medium	Low	Int	Int
10.1.2	Initiate review of water supply pumping capacity at BPWTP.	Medium	Low	\$\$\$	Int.
10.1.3	Develop and apply a whole life cost approach to ensure the full costs of the assets from acquisition to	Short	Low	Int	Int

	disposal are included and service is provided at the lowest overall cost of ownership.				
10.1.4	Continue to explore opportunities to optimize use of the system taking into account system-wide effects by assessing residual capacity and use of existing infrastructure (See Goal 1).	Short, Medium, Long	Med	\$, Int	Int
Service Category #7: Financial Sustainability					
Goal 11: Ensure water service is financially sustainable.					
Rationale: Provide water service to residential and business customers on a full-cost recovery, user-pay basis in line with the financial principles outlined in Design Regina. Future rate recommendations will be sustainable and move towards achieving inter-generational equity.					
Risk of Not Doing: Water service is insufficiently financed and customers pay less than it costs to provide the water service.					
11.1	Continue to undertake capital investment planning and financial analysis for the water service and develop holistic service-based costing to better understand the full cost of providing the Water Service.	Short, Medium, Long			
11.1.1	Develop and implement systems and processes to track cost of service (including operating costs) aligned with LOS, to ensure water service is provided on a full-cost recovery basis.	Short, Medium	Low	\$, Int	Int
11.1.2	Continue to improve the Utility investment planning and financial analysis in line with best practices as part of continuous improvement.	Short, Medium, Long	Low	Int	Int
11.1.3	Adopt the principle of inter-generational equity to establish future rate increases for users who benefit from the capital improvements.	Short	Low	Int	Int

* All proposed actions will require staff time and resources

Appendix B:

City of Regina Proposed Water Capital Plan 2019-2023

Proposed Water Capital Plan

Project Program Name	2019	2020	2021	2022	2023	Total
Corporate ITS Infrastructure – Utility Portion	325	325	325	325	325	1625
Trench Settlement Remediation	300	300	300	300	300	1500
Chlorine Booster Stations	2000	2000	0	0	0	4000
Variable Frequency Drive Installation for Buffalo Pound WTP Pumps	0	200	1300	0	0	1500
Hydrant Nozzle Replacement	120	120	120	120	120	600
Reservoir Aeration	0	0	0	0	0	0
Fire and Security Vulnerability Upgrade - Monitoring	400	400	400	0	0	1200
Supply Line Assessment and Rehabilitation	500	500	500	950	950	3400
Transfer Pumping and Capacity Review	0	0	0	0	0	0
Water Meter Installations	500	500	500	500	500	2500
Water Control System Upgrades	64	0	0	0	0	64
Water Pumping Stations Upgrades and Equipment Replacement	1000	200	250	1625	1625	4700
Lead Service Connection Management Program - Corrosion Control	125	405	305	0	0	835
Leak Detection Program	100	100	100	100	100	500
Capacity Increase for North East Pumping Station	0	0	0	0	4000	4000
Reservoir Radio Upgrade	15	0	0	0	0	15
Water Meters and AMR Replacement	1300	11800	18900	9700	0	41700
Reservoir Assessment and Rehabilitation	250	2500	250	2500	250	5750
Flow Meter Chambers for Transmission Piping	1500	1500	0	0	0	3000
Large Diameter Assessment and Rehabilitation	2800	2800	2800	2800	2800	14000
Utility Billing System Upgrade and Maintenance	150	240	100	240	100	830
Additional Ground Water Capacity	0	0	200	500	4800	5500
Utility Billing Equipment Replacement Program	40	20	20	40	20	140
Future Equipment Purchase	0	250	250	250	250	1000
Additional Supply Line Assessment and Rehabilitation	0	5000	5000	5000	5000	20000
Water Infrastructure Renewal	16235	16235	16235	16235	16235	81175
Total	27724	45395	47855	41185	37375	199534

Excludes SAF funded projects

Appendix C:

City of Regina Preliminary 25-year Water Capital Plan

City of Regina Preliminary 25-year Water Capital Plan

Investment Driver	2019-2023	2024-2028	2029-2033	2034-2038	2039-2043
Maintaining LOS Projects and programs include: - Water Infrastructure Renewal -Supply Line Assessment and Rehabilitation	\$184M	\$147M	\$131M	\$134M	\$149M
New Regulations and Environmental Protection Projects and programs include: - Chlorine Booster Stations	\$2M	0	0	0	0
Enhancing LOS Projects and programs include: - Additional Ground Water Capacity	\$11M	\$10M	\$5M	\$5M	\$5M
Growth Projects and programs include: - Eastern Pressure Solution	\$60M	\$53M	\$3M	\$30M	\$110M
Total	\$257M	\$210M	\$139M	\$169M	\$264M

Includes SAF funded projects