



2017 Watershed Planning Activity and Results Summary

Goal 1: PROTECT OUR WATER SUPPLY

Background: Story Behind the Baseline

Goal: Reduce risks to Calgary's water supply and ensuring reliable, secure, high quality water supply for Water Services customers.

Risks: Regional growth and impacts from land development results in pressures on Calgary's water supply and water quality. The region is prone to drought and future water supply limited because of climate change impacts and the provincial closure of the South Saskatchewan River Basin to new water licenses.

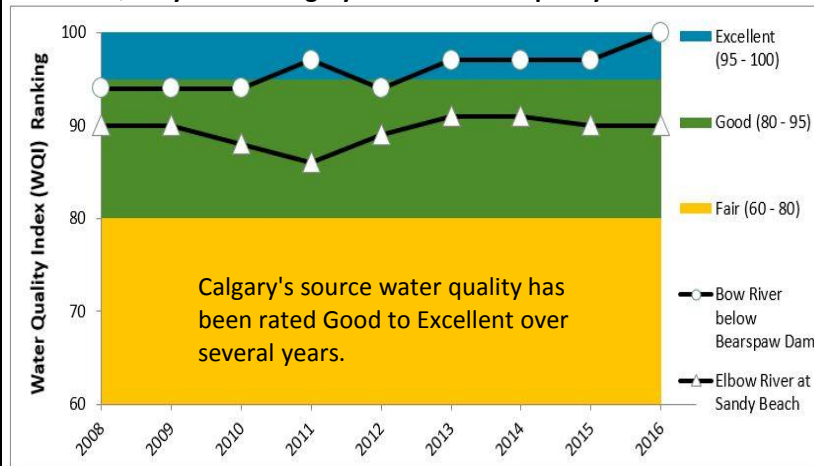
2018 Planned Actions - Highlights

- Advance water resource plans through the Water Supply Management Framework: finalize the Source Water Protection Plan, initiate Drought Vulnerability and Risk Assessment, and advance the Water Utility's climate resilience program.
- Work with the Calgary Metropolitan Region Board to ensure future regional water servicing aligns with The City's Water Supply Management Framework.
- Advocate for implementation of the Bow River Working Group recommendations to manage drought and flood: quick wins and major infrastructure.
- Review The City's practices on lead service connection management to expand the strategy to meet new Federal guidelines on lead in drinking water anticipated for 2018.

What We Did: 2017 Highlights

- Initiated a Water Supply Management Framework to build greater synergies among water efficiency, source watershed protection, drought management, climate change, and regional servicing.
- Development of a Source Water Protection Plan is underway, based on mitigating risks to Calgary's source watershed.
- Key climate adaptation priorities were identified for the Utility with actions to be included in the next business planning cycle.
- An internal drought advisory in the hot and dry summer/fall required increased watershed monitoring and maximizing water storage.
- Participated in the Provincial Bow River Working Group project which recommended flood and drought mitigation solutions.
- Prepared for more stringent Health Canada guidelines anticipated on lead in drinking water.

Water Quality Index - Calgary's source water quality



Strategic Alignment

H3: Manage the interrelationships between flood protection, water quality and quantity, and land use.

H4: Work with our regional partners & the GOA on an integrated approach to the watershed.

H6: Continue to build public awareness & understanding of our shared responsibility to conserve & protect the environment.



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Goal 2: USE WATER WISELY

Background: Story Behind the Baseline

Goal: The Water Efficiency Plan (WEP) calls for the same amount of water to be withdrawn from the river in 2033 as was taken out in 2003.

Risks: Population growth in the Calgary region increases water demands on the rivers and Calgary's treatment plants. Establishment of the Calgary Metropolitan Region Board will require The City to adapt regional service delivery, strategies and infrastructure in the future.

What We Did: 2017 Highlights

- Annual water withdrawn from the rivers was 8 per cent higher than in 2016 due to the dry, hot summer and fall, but was still well below the 2003 benchmark despite a population growth of approximately 30 per cent since 2003.
- Overall water use is on track to meet the 2033 target at 378 litres per capita per day (lpcd) for all customer types. Residential water demand was 224 lpcd.
- Calgary's highest total water use in a single day occurred July 7 and remained below the current capacity of Calgary's water treatment plants.
- New water efficiency programming is underway for the industrial, commercial and landscape sectors while residential programming continues to be redesigned.
- Continued to identify and fix watermain leaks, saving 6.5 million litres per day in 2017.

2018 Planned Actions - Highlights

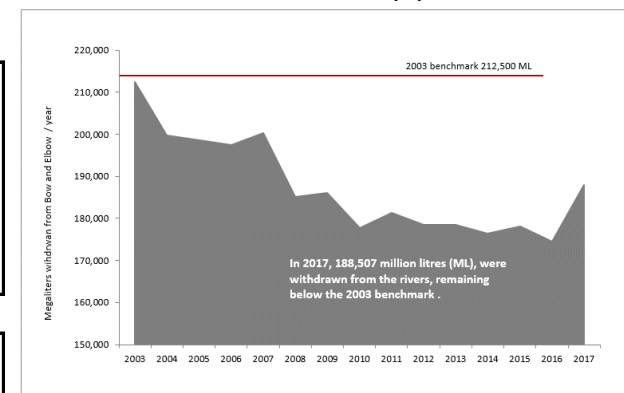
- Continue to build understanding of the Industrial, Commercial, and Institutional sector water profile, values, and preferences to inform water conservation programming.
- Design and develop education, outreach and communications programming to reduce outdoor water use to address peak day demand.
- Align water efficiency programming, demand forecasting and infrastructure planning.
- Continue to provide education and outreach to customers about the Water Utility, leaks and high-water consumption, outdoor water use, and conservation.

Strategic Alignment

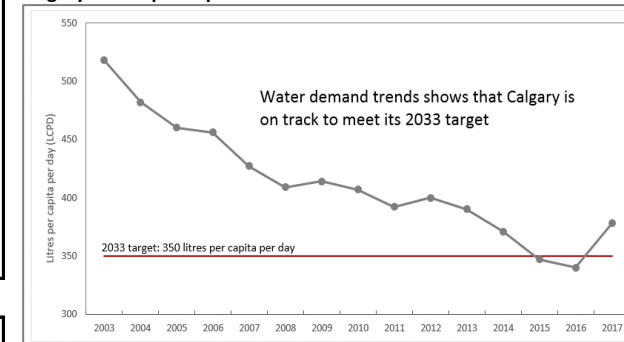
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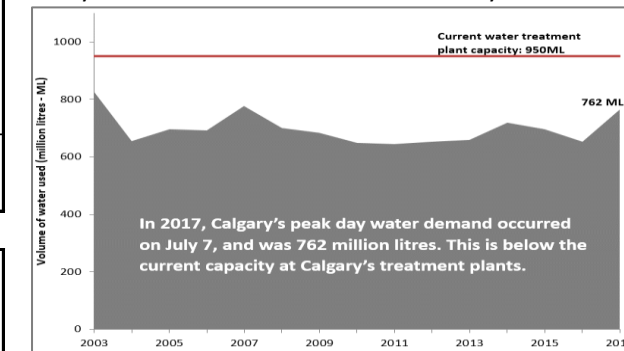
Annual water withdrawal from rivers and population



Calgary's total per capita water demand trend



Peak day demand: Maximum volume of water used in one day





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Goal 3: KEEP OUR RIVERS HEALTHY

Background: Story Behind the Baseline

Goal: The City's Total Loading Management Plan and Stormwater Management Strategy aim to reduce pollutants from entering the Bow River. The City's Riparian Action Program aims to improve the health of areas near rivers, and minimize further loss of riparian areas.

Risks: Pollutants in waterways can impact water quality and river health, and cause maintenance and infrastructure upgrade issues.

What We Did: 2017 Highlights

- Major upgrades to the Bonnybrook Wastewater Treatment Plant continued, including the biosolids facility, digester upgrades, and a flood protection berm.
- Sediment and Phosphorus pollutant loadings from stormwater and wastewater remained below provincial objectives.
- The Bowmont East Stormwater Quality Retrofit pond was completed, which will reduce sediment load to the Bow River.
- Continued to advance the Riparian Action Program, with seventeen bioengineering and riparian planting projects underway or completed in 2017. Riparian health monitoring indicates city-wide improvement.
- Developed a set of indicators to inform a comprehensive watershed health index.

2018 Planned Actions - Highlights

- Advance the Riparian Action Program: riparian restoration, integrate riparian maps in land use planning, continue outreach.
- Update The City's Stormwater Management Strategy and targets.
- Negotiate Approval to Operate 2018-2028. Continue wastewater treatment plant upgrades, and advance the Wastewater Loading Management Program.
- Complete storm pond modifications in 2 communities, and plan 3 more in 2018.
- Plan the next phase of watershed health index reporting, and report new indicators in the 2018 MDP monitoring report.

Strategic Alignment

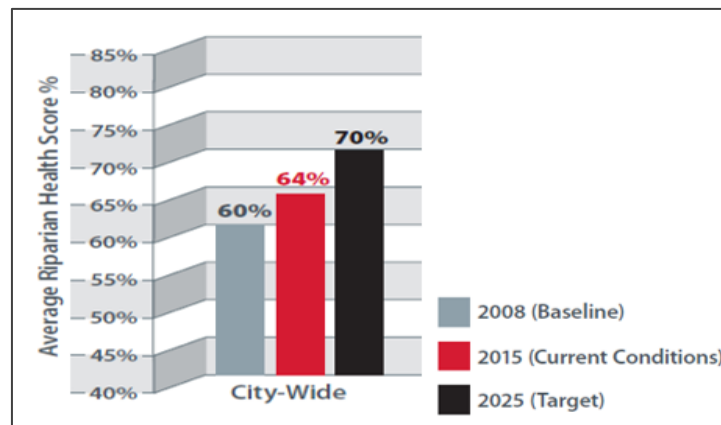
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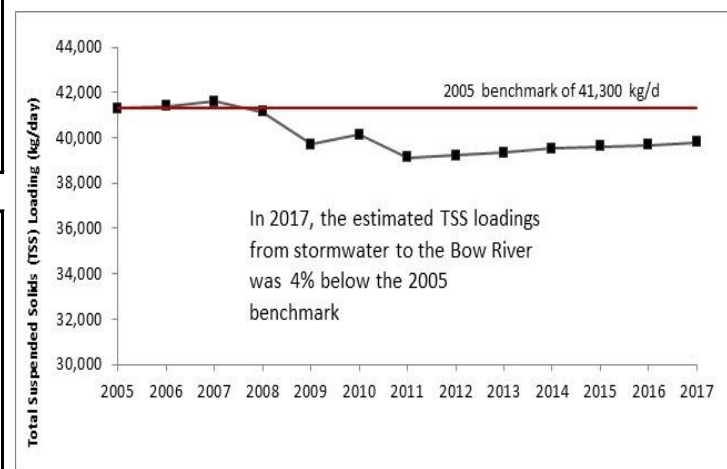
H6: Continue to build public awareness & understanding of our shared responsibility to conserve & protect the environment.

H10: Lead by example & manage regulatory risks to protect public health & the environment.

City-wide riparian health scores



Total Suspended Solids (TSS) to the Bow River from stormwater





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Goal 4: BUILD RESILIENCY TO FLOODING

Background: Story Behind the Baseline

Goal: Implement the long-term Flood Mitigation and Resilience Strategy. Advance strategies to accelerate the Community Drainage Improvement (CDI) Program aimed at reducing risk of localized flooding in communities.

Risks: Another major flood in Calgary is likely to occur, and would cause significant disruption to critical systems and services, Calgarians, businesses, and cause damage to public and private property. The costs of local flooding will continue until infrastructure upgrades are installed. These costs may hinder redevelopment in the affected communities.

What We Did: 2017 Highlights

- Council approved the Flood Mitigation Measures Assessment, Implementation Plan and budget for specific projects. The approach includes combination of local, upstream, and non-structural mitigation measures to continue improving flood resiliency for Calgary.
- Applied for \$81M for flood mitigation projects through the Alberta Community Resiliency Program.
- As of 2017, 15 of the Flood Expert Panel recommendations are complete and 12 are in progress.
- Mitigation complete or is ongoing has reduced exposure to river flood damage by about 30%.
- The Community Drainage Improvement Program is on track, delivering planning, design and construction activities as scheduled in 2017.

2018 Planned Actions

- Continue to build resiliency to flooding - deliver implementation of key flood mitigation investments, advocate for upstream mitigation, pursue flood policy review, and advance Expert Panel recommendations.
- Advance the Community Drainage Improvement program of stormwater infrastructure upgrades in communities experiencing local flooding including: examining overall program prioritization, initiating new and completing projects underway, and pursuing funding sources for projects.

Strategic Alignment

H3: Manage the interrelationships between flood protection, water quality & quantity, and land use.

N5: Systematically invest in established neighbourhoods as they evolve to accommodate changing community needs.

H3.2 Continue to strengthen the strategy and actions for the Drainage line of service to improve its overall performance and condition.

N2: Build resiliency to flooding.

Progress on the 27 Expert Panel recommendations

