



## Watershed Management Planning Update 2015 Summary PROTECT OUR WATER SUPPLY

### Background: Story Behind the Baseline

**Goal:** Ensuring reliable, secure, high quality water supply for Calgary's customers.

**Risks:** History shows that our region is prone to drought while rapid growth continues to place upward pressure on water resources in the Bow River watershed. Future municipal and regional development also poses risks of degrading water quality upstream of The City's raw water intakes. Our future water supply is further restricted because of climate change and the provincial closure of the South Saskatchewan River Basin to new water licences.

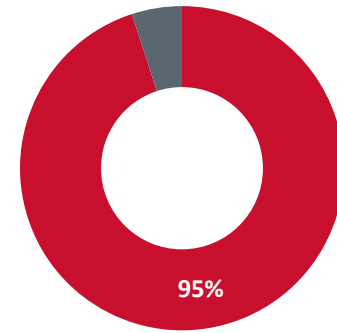
### What We Did: 2015 Highlights

- A strategy to protect water supply, including target setting and program planning are in development.
- Ongoing watershed monitoring, analysis and research inform and improve water treatment operations and watershed planning.
- In 2015, Administration's Director-led Water Oversight Committee monitored and coordinated cross-department preparedness and oversaw communication initiatives to prepare citizens for the flood and drought season.

### Proposed Actions for 2016

- The Drought Management Plan is currently being updated and refined based on management responses during the dry summer of 2015. A review and update of the Plan will consider engagement, alignment to other water supply planning strategies and the best available water supply monitoring and forecasting data.
- A source water risk assessment and characterization project is underway, which will assess risks in the Bow and Elbow watersheds upstream of The City of Calgary's water treatment plant intakes. Preliminary results indicate that wildfire and further urban and commercial development upstream of The City are risks that will need to be addressed through appropriate mitigation strategies.
- The City will initiate the Source Water Protection Plan once the source water risks have been characterized and confirmed.
- A strategy to monitor emerging substances of concern, including pharmaceuticals is underway. Actions toward the strategy will ensure that resources are directed toward key questions of interest for the Utilities, Calgarians, and other stakeholders.

Citizens who are satisfied with the quality of drinking water



1% change since 2014

### Strategic Alignment

<b>N2:</b> Build resiliency to flooding	<b>H3:</b> Manage the interrelationships between flood protection, water quality and quantity, and land use.	<b>H4:</b> Work with our regional partners & the GOA on an integrated approach to the watershed.	<b>H6:</b> Continue to build public awareness & understanding of our shared responsibility to conserve & protect the environment.
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## Watershed Management Planning Update 2015 Summary

### USE WATER WISELY

#### Background: Story Behind the Baseline

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

**Risks:** Since Calgary's population continues to grow and place more demands on the river, this means that water conservation actions are needed to reduce per capita consumption.

#### What We Did: 2015 Highlights

- The Plan is on track. Assessments are underway to review targets and efficiency programs.
- River water withdrawals were 178,114 million litres (ML), continuing to remain below the 2003 level of 212,500 ML.
- Overall water use was 369 litres per capita (lpcd), which is on track to meet the target of 350 lpcd by 2033. Of the overall water use, single family residential demand was estimated to be 218 lpcd. Peak day, the highest water using day of the year, remained below the target of 950 ML at 713 ML. However, projections show this will be exceeded prior to 2033.
- Ongoing customer engagement, adoption of water efficiency technology and continuous improvement in City operations.

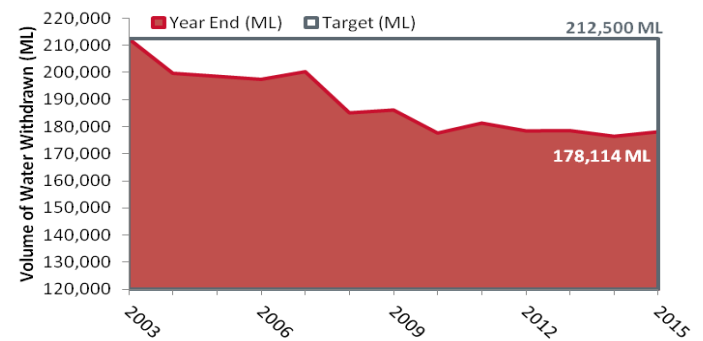
#### Proposed Actions for 2016

- A Water Efficiency Plan program review indicated new programs must target high-water users in both the residential and industrial, commercial and institutional customer sectors and will focus on reducing peak day demand. The residential toilet rebate program will be phased out in August 2016 as toilet selection and availability in the marketplace has shifted to the lowest water using toilets.
- Continued alignment of water efficiency programming, demand forecasting and infrastructure planning is necessary. The timing of water treatment plant upgrades will be monitored relative to peak day demand analysis and forecasting.

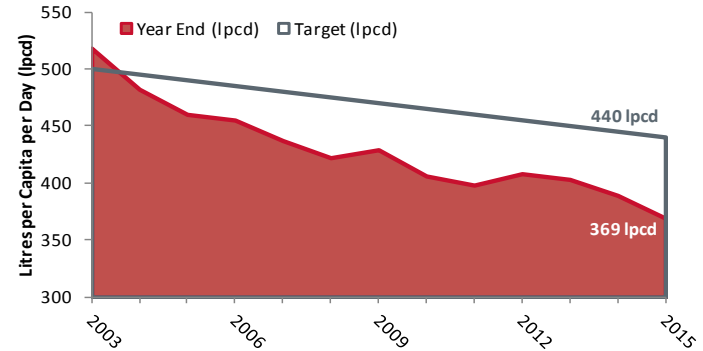
#### Strategic Alignment

<b>H3:</b> Manage the interrelationships between flood protection, water quality & quantity, and land use.	<b>H6:</b> Continue to build public awareness and understanding of our shared responsibility to conserve and protect the environment.
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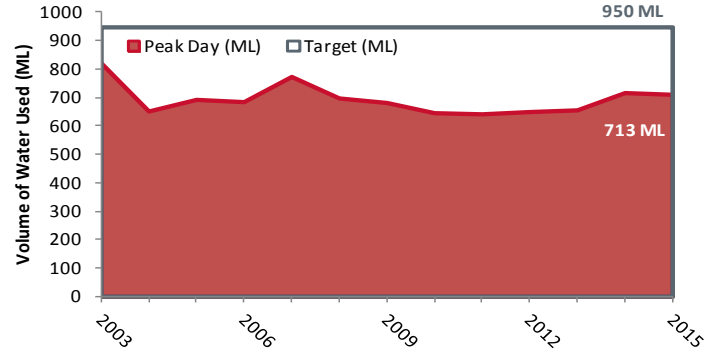
#### Annual River Water Withdrawals (megalitres)



#### Calgary's Overall Water Use Per Day (lpcd)



#### Peak Day Water Demand (megalitres)





## Watershed Management Planning Update 2015 Summary KEEP OUR RIVERS CLEAN

### Background: Story Behind the Baseline

**Goal:** The Stormwater Management Strategy aims to reduce the rates and volumes of stormwater runoff, control sediment loads, and develop sustainable stormwater management solutions. The Strategy's goal is to keep total suspended solids entering the river at 2005 levels. Water quality protection is guided by The City's regulatory Wastewater Approval to Operate.

**Risks:** Calgary's growing population and development increases the rates and volumes of stormwater runoff impacting river health. High organic loadings received at the treatment plants requires investment in new infrastructure.

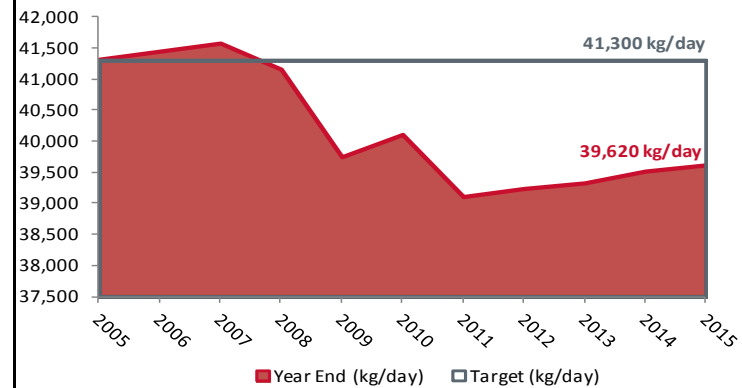
### What We Did: 2015 Highlights

- Reviewing goals and targets based on new evaluations and assessments. Program and implementation planning to be defined and coordinated.
- A pond condition assessment program was established.
- Riparian activities in 2015 included: riparian health assessments, restoration of the Inglewood Northfield site, increased bioengineering installations, vegetative maintenance, and restoration planting. Provincial funding was granted to address flood impacted riparian sites.
- A number of low impact development infrastructure practices (rain garden, soil cell and permeable pavement) have been installed providing an opportunity to better understand local installation.
- Significant infrastructure investments at the Bonnybrook WWTP over the next 10 years will ensure that our treatment plant remains compliant even as Calgary continues to grow.
- The Bow River Water Quality Model upgrade was completed, supporting the Total Loading Management Plan required for the 2018 Approval to Operate.

### Proposed Actions for 2016

- Continue to work with the Province for the 2018 Wastewater Approval to Operate.
- Continue infrastructure investments to ensure wastewater treatment plant discharges remain compliant as Calgary grows.
- Develop target, indicators, and program and implementation plans to manage high strength wastewater received at the wastewater plants.
- Pond assessments will prioritize pond maintenance, repairs and sediment removal.
- Review the Municipal Development Plan target for protecting aquatic ecosystems to ensure it is the appropriate measure to assess progress.
- Low impact development practices will be integrated within a program to innovatively manage stormwater at the community or catchment scale.
- Continue to work with Bow Basin Council, the Nose Creek Watershed Partnership and the Elbow River Watershed Partnership to ensure regional watershed protection.

### Total suspended solids loading from stormwater to the river



### Strategic Alignment

N2: Build resiliency to flooding.	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.	H10: Lead by example & manage regulatory risks to protect public health & the environment.
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**Watershed Management Planning Update 2015 Summary**  
**BUILD RESILIENCY TO FLOODING**  
**COMMUNITY DRAINAGE IMPROVEMENT (CDI) PROGRAM**

**Background: Story Behind the Baseline**

**Goal:** The City is investing in stormwater infrastructure upgrades to bring established communities that are experiencing local flooding to modern standards and levels of service. The goal is to reduce the economic, social and environmental impacts of local flooding on the affected citizens and communities.

**Risks:** The costs of local flooding will continue until infrastructure upgrades are installed. These costs are also a barrier to redevelopment and densification efforts in the affected communities.

**What We Did: 2015 Highlights**

- The infrastructure upgrades for the community of Rosemount were installed.
- The construction costs for the Rosemount upgrades were significantly lower than estimated, resulting in savings of \$1.1 million.
- The Westgate infrastructure upgrades for the community of Christy Park, and Optimist Park, were in the detailed design stage.
- A review of the conceptual design for the Westgate upgrades identified a more cost effective solution with savings of \$9.5 million.
- The cost savings realized for the Rosemount and Westgate upgrades were redirected to advance work on the upgrades for the communities of Woodlands, Woodbine, Cedarbrae and Braeside.
- The upgrades to Pump Station #2 in the community of Sunnyside were in the detailed design stage.

**Proposed Actions for 2016**

- The infrastructure upgrades for the community of Haysboro (Projects D and N) will be installed in 2016.
- The Westgate infrastructure upgrades will be installed in 2016.
- The upgrades to Pump Station #2 in the community of Sunnyside will be completed in 2016.
- The detailed design of the infrastructure upgrades for the communities of Woodlands and Woodbine (Project D) will continue in 2016. Construction is anticipated to be complete in 2018.
- The detailed design of the infrastructure upgrades for the communities of Cedarbrae and Braeside (Project A) will continue in 2016. Construction is anticipated to be complete in 2018.
- The infrastructure upgrades for 14 Street NW, part of the upgrades identified in the North West Inner-City CDI Study, will enter the design phase.

**Strategic Alignment**

N2: Build resiliency to flooding.	N5: Systematically invest in established neighbourhoods as they evolve to accommodate changing community needs.	H3: Manage the interrelationships between flood protection, water quality and quantity, and land use.
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