



# Off-site Levy Bylaw Review

## Water Resources Session #9

September 8, 2022



# Today's Agenda

1. Welcome, Introductions & Agenda Overview
2. Meeting Norms (Hybrid)
3. Treatment Methodology
4. Next Steps
5. Discussion



## Meeting Norms (Hybrid)

- **Presentations:** Hold questions until the end.
- **Tone:** Keep a positive tone. Discuss ideas on addressing issues.
- **Listen & Respect:** Every voice is an important voice. Everyone participates, no one dominates.
- **Sounds:** Mute your mic when you are not talking (online). Speak-up so that those online can hear (in-person).
- **Sights:** You are encouraged to turn on your camera (online) and face the camera (in-person).
- **Discussion:** If you would like to comment or have a question, please raise your hand (in-person and online). We will get you in order as best as we can.



# Formula – Treatment Plant Levy



**Capital Costs (\$)**

NPV of forecasted principal & interest costs

x



**Benefit (%)**



**Levy Rate per EP**

**Equivalent Population (EP)**



# Water vs Wastewater Treatment Levy

- The methodology to determine Current & Forecasted Future capacity and the Unit of Capacity is similar
- Water Treatment Plants are designed based on volume of water produced
  - Volume is converted to Equivalent Population (EP) for the levy
  - Consumption per EP is revised periodically to reflect water conservation efforts and consumption trends
- Wastewater Treatment Plants are designed based on loading
  - Volume is one of many factors considered in treatment plant design
  - EP ratings do not change due to conservation efforts



# Wastewater Treatment Levy

How is the treatment plant levy calculated?

1. Assess the Present Value of Current Costs (up to 2021) and Forecasted Costs (2022+) for Growth related projects
2. Assess how much treatment capacity was added in past projects, and how much capacity is forecasted to be built
3. Assess the Unit of Capacity (\$/EP) for Current and Forecasted projects
4. Assess the Available Capacity remaining
5. Assess the value of Available Capacity for Current and Forecasted Projects
6. Take an average of Current and Forecasted Unit of Capacity



# Wastewater Treatment Levy

Why are we showing the date for Current & Future Capacity as 2015?

- The Bonnybrook Plant D Expansion is under construction. Costs are shown for 2015+ so a Unit of Capacity can be calculated and compared
- Having the date as 2022 can be misleading, as not all the capacity has been built yet

Pine Creek WWTP was designed and built with expansion in mind

- 46.3% of overall Pine Creek WWTP construction costs were held back from the 2016 OSL levy to account for process equipment sized for the future
- 13.4% (\$86M in 2022 Dollars) will be added back in as a part of the Stage 2A expansion



# Wastewater Treatment Levy – 2022

All values are in 2022 Dollars

	Present Value Calgary Growth (*) Total Costs	Added Capacity for Calgary Growth	Unit of Capacity	Available Capacity	Value of Available Capacity	Average Unit Value of Available Capacity	Capacity Charge by Hectare
	(A)	(B)	(C) = (A) / (B)	(D)	(E) = (C) * (D)	(F) = (E) / (D)	(G) = (F) * 60 EP/Ha
Current Capacity (2004-2014)	\$343,680,491	242,500EP	1,417\$/EP	0EP	\$0		
Forecasted Future Capacity (2015+) Bonnybrook	\$607,212,369	321,479EP	1,889\$/EP	266,476EP	\$503,321,637		
Pine & Fish Creek	<u>\$387,865,147</u>	<u>180,023EP</u>	2,155\$/EP	<u>180,023EP</u>	<u>\$387,865,147</u>		
<b>Total</b>	<b>\$1,338,758,007</b>	744,002EP		446,499EP	<b>\$891,186,784</b>	<b>1,995\$/EP</b>	<b>119,700\$/Ha</b>
	<b>Step 1</b> Present Value of the Actual and Forecasted growth related costs for Calgary.	<b>Step 2</b> Total current and forecasted capacity built or to be built.	<b>Step 3</b> Determine the value of a unit of added capacity. Step 1 divided by Step 2.	<b>Step 4</b> Total available current capacity plus forecasted capacity to be built.	<b>Step 5</b> Determine the total value of available capacity. Step 3 multiplied by Step 4.	<b>Step 6</b> Determine the average value of a unit of available capacity. Step 5 divided by Step 4.	<b>Step 7</b> Determine the total offsite levy by hectare. Step 6 multiplied by a density of 60 EP/Ha.





# Wastewater Treatment Levy - 2016

Comparison to 2016 OSL Bylaw - all values are in 2015 Dollars

	<b>Present Value Calgary Growth (*) Total Costs</b>	<b>Added Capacity for Calgary Growth</b>	<b>Unit of Capacity</b>	<b>Available Capacity</b>	<b>Value of Available Capacity</b>	<b>Average Unit Value of Available Capacity</b>	<b>Capacity Charge by Hectare</b>
	<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) / (B)</b>	<b>(D)</b>	<b>(E) = (C) * (D)</b>	<b>(F) = (E) / (D)</b>	<b>(G) = (F) * 60 EP/Ha</b>
Current Capacity (2004-2014)	\$309,207,150	242,500EP	1,275\$/EP	30,830EP	\$39,308,250		
Forecasted Future Capacity (2015+) Bonnybrook	\$567,262,545	321,479EP	1,765\$/EP	321,479EP	\$567,262,545		
Pine & Fish Creek	<u>\$352,050,016</u>	<u>189,498EP</u>	1,858\$/EP	<u>189,498EP</u>	<u>\$352,050,016</u>		
<b>Total</b>	<b>\$1,228,519,711</b>	<b>753,477EP</b>		<b>541,807EP</b>	<b>\$958,620,811</b>	<b>1,769\$/EP</b>	<b>106,156\$/Ha</b>
	<b>Step 1</b> Present Value of the Actual and Forecasted growth related costs for Calgary.	<b>Step 2</b> Total current and forecasted capacity built or to be built.	<b>Step 3</b> Determine the value of a unit of added capacity. Step 1 divided by Step 2.	<b>Step 4</b> Total available current capacity plus forecasted capacity to be built.	<b>Step 5</b> Determine the total value of available capacity. Step 3 multiplied by Step 4.	<b>Step 6</b> Determine the average value of a unit of available capacity. Step 5 divided by Step 4.	<b>Step 7</b> Determine the total offsite levy by hectare. Step 6 multiplied by a density of 60 EP/Ha.



# Wastewater Treatment Levy & Projects

Rate Comparison	2022 Rates	Proposed Rate
Per Equivalent Population	2,149	1,995
Per Ha (Greenfield)	128,968	119,700

Project	2016 OSL Cost	Updated Cost	Comments
BB WWTP Blower Upgrades	\$23.1M	\$23.2M	Completed
BB WWTP 13.2&5kV System Expansion	\$44.5M	\$41.3M	Completed
Bonnybrook Capacity Upgrade	\$128M	\$118.2M	Completed
BBWWTP Plant D Expansion	\$552M	\$654M	Completion 2029
Power Management System	\$3.6M	\$4.7M	Completion 2022
Power Distribution Upgrades	\$2.6M	N/A	Scope merged with another project, not in OSL



# Wastewater Treatment Projects

Project	2016 OSL Cost	Updated Cost	Comments
600V System Upgrades	\$3.1M	\$14.9M	Completed
BB Struvite Recovery	\$20.2M	\$17.8M	Completion 2026
BB Dewatering Building	\$88.5M	\$90.0M	Completed
BB Centrate/ Supernatant Treatment	\$31.0M	\$29.3M	Completion 2027
FC WWTP Capacity Assessment	\$89.7M	\$1.0M	Completed, determined expansion to occur at Pine Creek WWTP
South Catchment Capacity Upgrade	\$316.2M	\$455M	Now identified as Pine Creek WWTP Expansion, Completion in 2030s
South Catchment Conveyance System Upgrades	New	\$0.55M	Completion 2025



## Next Steps

- Next session planned for October 6
- Two more sessions planned for October-November for Stormwater & Linear Infrastructure
- Finalize project costs, denominator & rates



# Questions & Answers

**Thank you for attending, we appreciate your time!**