

Detail of Proposed Changes to the Off-site Levy Calculations

The purpose of this attachment is to provide the technical details and calculations of the proposed amendments discussed in the cover report. Details of the methodology to establish the off-site levies can be found in the 2015 Background Report and Background Report Addendum.

Through the New Community Growth Strategy 2018 process, the infrastructure summarized in Table 1 was identified as levy-eligible infrastructure required for the 14 approved communities that was not currently in the 2016 Off-site Levy Bylaw.

Table 1: Summary of Capital Infrastructure to be added to the Off-site Levy to Support the New Community Growth Strategy 2018

Infrastructure	Total Capital Costs (\$M) 2019-2022	Developer Portion in the Off-site Levy (\$M)
Transportation Total	\$8.5	\$5.1
Water Distribution	\$98.2	\$92.7
Wastewater Collection	\$29.1	\$29.1
Drainage System	\$24.0	\$24.0
Utilities Total	\$151.3	\$145.8

Timing of the Amendments to the 2016 Bylaw

An escalation rate is applied every year to the levy rates on January 1, as per Section 6(7) of the 2016 Bylaw. For the Water Resources rates, the escalation rate is 3.3 per cent, per year. For the Transportation rates, the escalation rate is the percentage equal to the average Statistics Canada Non-Residential Construction Price Index ("NRCPI") for Calgary for the previous four published quarters. The Q3 2018 non-residential construction price index is unknown at this time and will not be available until mid-December 2018.

The proposed amendments, and the resulting 2018 levy rates, will come into effect on 2018 December 31. These amended 2018 levy rates will then be subject to the annual increases applied on 2019 January 1. The 2019 rates shown for the Transportation levy are estimates based on current projection of the NRCPI. The 2019 rates for the Water Resources levies are the rates that will be in effect after the 3.3 per cent escalation rate is applied to the amended 2018 rates on 2019 January 1.

Transportation Levy Infrastructure

To support the approved East Stoney ASP development, it was identified that the 80 Avenue NE/Stoney Trail overpass is required. This is the only required levy-eligible transportation infrastructure project identified in the New Community Growth Strategy 2018 not included in the 2016 Bylaw. The overpass is estimated at a total cost of \$8.5 million, of which \$5.1 million is attributable to greenfield growth.

The Transportation Off-Site Levy calculation is (GF = greenfield):

$$\text{Levy Rate} = \frac{\text{GF Area Reduction}(\%) \times [(\text{GF Costs}(\$) \times \text{GF Benefit}(\%)) + (\text{Established Costs}(\$) \times \text{GF Benefit}(\%))]}{60 \text{ year GF Developable Area (Ha)}}$$

In the 2015 Background Report, in 2016 dollars, approximately \$2.6 billion of levy-eligible greenfield capital infrastructure ("GF Costs") was identified over the 60 year period. The New Community Growth Strategy 2018 adds \$8.5 million, in 2016 dollars, to this total. No further

changes are required to incorporate this infrastructure into the levy rate. Table 2 shows the amended levy rate, incorporating the 80 Avenue NE/Stoney Trail overpass:

Table 2: Transportation Levy Update

2018 Levy (2M2016 Bylaw) per hectare	Proposed Amended 2018 Levy per hectare	Projected 2019 Levy (2M2016 Bylaw) per hectare	Projected Amended 2019 Levy per hectare	Projected Difference per hectare (2019)
\$133,558	\$133,740	\$135,535*	\$135,720*	+\$185

*2019 levy rate is estimated and subject to change once NRCPI rates are confirmed in Q4 2018.

Utilities Levies Infrastructure

Through the New Communities Growth Strategy 2018, approximately \$151 million in required levy-eligible utility infrastructure was identified for the 14 new communities. This infrastructure affects three of the four Utility levy categories:

1. Water Levy;
2. Sanitary Sewer Levy; and
3. Storm Sewer Levies.

Water Resources generally funds the utility infrastructure projects through debt. The off-site levies cover the principal and interest payments over the timeframe of the calculation, details of which can be found in Sections 6.2 and 6.3 of the 2015 Background Report. The water levy, sanitary sewer levy and storm sewer levies are all calculated using the following formula:

$$\text{Levy Rate} = \frac{\text{Cost Base Present Value}}{\text{Greenfield Developable Land Forecast (X Years)}}$$

Levy Timeframe

For the 2016 Bylaw, the levy timeframe ("X Years") was the remaining period of the Water Infrastructure Investment Plan 2015-2024 (WIIP), or 9 years (2016-2024). The timeframe for the levy calculations has been adjusted from 9 years (2016-2024) to 6 years (2019-2024). An end date of 2024 aligns with the current WIIP (2015-2024) and approved program for capital investment by Water Resources.

Cost Base Present Value

The Cost Base Present Value is the present value of the principal and interest payments for the infrastructure projects over a certain timeframe (X years). For these levy amendments, the forecasted principal and interest payments were projected over the new levy timeframe of 2019-2024, in accordance with timelines identified in the New Community Growth Strategy 2018, and added to the original principal and interest forecast to calculate the amended Cost Base Present Value. For consistency, the amendments use the same interest rates used to calculate the original Cost Base Present Value in 2016.

Greenfield Developable Land Forecast

The Greenfield Developable Land Forecast for the water and sanitary sewer levies remains unchanged from the 2016 Bylaw, at 401 hectares per year until 2024.

The total growth forecast for the storm sewer levies is also 401 hectares per year until 2024. However, unlike the other levies, the storm sewer capital costs and growth forecasts are divided between the six watershed catchments that are outlined in the 2015 Background Report. The

capital costs benefitting growth in each catchment is paid for only by growth in that catchment. The original distribution of growth from the 2016 Bylaw was based on known and projected approvals at that time. However, the approval of the 14 new communities in the New Community Growth Strategy 2018 had a material impact on the forecasted growth pattern, as some areas would be moving forward that were not contemplated in 2015. Administration determined an adjustment to the distribution of growth across the watershed catchments was required to reflect the impact of the New Community Growth Strategy 2018. The growth distribution forecast was updated to reflect that some growth would be redistributed between the watershed catchments.

Table 3 shows the amended water, sanitary sewer, and storm sewer levy rates:

Table 3: Utilities Levy Update

	2018 Levy (2M2016 Bylaw) per hectare	Proposed 2018 Levy per hectare	2019 Levy (2M2016 Bylaw) per hectare	Proposed 2019 Levy per hectare	Difference per hectare (2019)
Water levy	\$34,494	\$43,413	\$35,632	\$44,845	+\$9,213
Sanitary sewer levy	\$47,431	\$50,127	\$48,996	\$51,781	+\$2,785
Storm sewer levies					
<i>Bow River</i>	\$7,452	\$8,340	\$7,698	\$8,615	+\$917
<i>Elbow River</i>	\$0	\$0	\$0	\$0	\$0
<i>Fish Creek</i>	\$0	\$21,511	\$0	\$22,221	+\$22,221
<i>Nose Creek</i>	\$12,085	\$16,868	\$12,484	\$17,425	+\$4,941
<i>Pine Creek</i>	\$17,940	\$18,943	\$18,532	\$19,569	+\$1,037
<i>Shepard</i>	\$45,569	\$44,110	\$47,073	\$45,565	(\$1,508)

Summary of Levy Impacts

Incorporating the proposed amendments, the overall impacts by watershed catchments are identified in Table 4:

Table 4: Overall Change in Levies by Watershed Catchments

Watershed Catchment	2018 Levy (2M2016 Bylaw) per hectare	Amended 2018 Levy per hectare	Projected 2019 Levy (2M2016 Bylaw) per hectare*	Projected amended 2019 Levy per hectare*	% Change (2019)*
Bow River	\$438,281	\$450,966	\$448,912	\$462,012	2.9%
Elbow River	\$430,829	\$442,626	\$441,215	\$453,397	2.8%
Fish Creek	\$430,829	\$464,137	\$441,215	\$475,619	7.8%
Nose Creek	\$442,914	\$459,494	\$453,698	\$470,822	3.8%
Pine Creek	\$448,769	\$461,569	\$459,747	\$472,966	2.9%
Shepard	\$476,398	\$486,735	\$488,287	\$498,962	2.2%

*2019 levy rate is estimated and subject to change once NRCPI rates are confirmed in Q4 2018.