

Off-site Levies (OSL) Escalation and Discount Rates Industry Consultation

December 4, 2025

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Agenda

1. Introduction
2. Escalation Rate Methodology
3. Discount Rate Methodology
4. Annual Rate Increases
5. Discussion and Feedback

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Escalation and Discount Rates in the OSL Financial Model

Escalation Rates

Escalation rates account for inflation and rising construction costs over time.

Discount Rates

Discount rates adjust future costs and revenues to present values, reflecting the time value of money.

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2024 OSL Rate Financial Model Example

Recreation OSL Financial Rate Model

Recreation Levy Rate	$ 52,510	End Value (CELL AU74):	-

How to calculate the levy rate: Once all variables have been set, the levy rate can be recalculated by running Excel's *Goal Seek* function (*Data --> What-If Analysis --> Goal Seek*) to calculate the levy rate in cell F3 by setting cell AU73 to 0 by changing the levy rate in cell F3. The model applies the value in cell F3 to the land absorption in row 60, to ensure that contributions from Development Agreements (in row 34) plus earned investment income offset total spending and ensure that the ending balance is zero (cell AU42), i.e., all revenues and spending have balanced.
Variables impacting this calculation include: annual expenditures, land absorption rate, payment schedule (cells I36 to I39), and the escalation and discount rates (cells E56 and E57).

Project name	Capital cost	Benefit type	Benefit %	Unlevied cost	Previoulsy levied/City share of cost	Year projected project built	3	4	5	6	7	8
							2026	2027	2028	2029	2030	2031
							-	-	-	-	-	-
Recreation Centre - 1	$131,161,756	Greenfield	44%	$57,711,173	$73,450,584	7	-	-	-	-	73,822,925	-
Recreation Centre - 2	$131,161,756	Greenfield	44%	$57,711,173	$73,450,584	7	-	-	-	-	73,822,925	-
Recreation Centre - 3	$131,161,756	Greenfield	44%	$57,711,173	$73,450,584	10	-	-	-	-	-	-
Recreation Centre - 4	$131,161,756	Greenfield	44%	$57,711,173	$73,450,584	16	-	-	-	-	-	-
Recreation Centre - 5	$131,161,756	Greenfield	44%	$57,711,173	$73,450,584	20	-	-	-	-	-	-
Recreation Centre - 6	$131,161,756	Greenfield	44%	$57,711,173	$73,450,584	24	-	-	-	-	-	-
Recreation Centre - 7	$131,161,756	Greenfield	44%	$57,711,173	$73,450,584	30	-	-	-	-	-	-
Recreation Centre - 8	$117,082,329	Greenfield	44%	$51,516,225	$65,566,104	35	-	-	-	-	-	-
							-	-	-	-	-	-
							-	-	-	-	-	-
							-	-	-	-	-	-
	$1,035,214,624			**$455,494,435**	**$579,720,190**							
					Future value of unlevied cost	**$924,084,399**	-	-	-	-	147,645,849	-
					Discounted value of unlevied cost	**$402,573,037**	-	-	-	-	110,032,903	-

Rates used to calculate future value and present value of unlevied cost:		
Table: Escalation and Discount rates.	Escalation rate	3.58%
Source: City Treasury, March 2023	Discount rate	4.29%

Section 2: Land absorption and yearly cash flows

Hectares that sign development agreements (DAs)	**321**	**321**	**318**	**316**	**313**	**311**
Cumulative hectares	957	1,278	1,596	1,912	2,226	2,537

	Year	Unlevied hectares
Unlevied hectares at Jan 1, 2023	**Subtotal**	**9,359.0**
Forecast hectares in executed DAs	2023	290.0
Denominator: Unlevied hectares at Jan 1, 2024	**Subtotal**	**9,069.0**
Forecast hectares in executed DAs	2024	309.0
Forecast hectares in executed DAs	2025	327.0
Forecast hectares in executed DAs	4.4	321.0
Hectares in executed development agreements from 2023 to 2027 are per Corporate Economics Fall 2022 forecast. The remaining 7,791 hectares of unlevied land are assumed to be absorbed in a slowly decreasing trend, with approximately 2.54 hectares fewer per year. This starts from 318.5 hectares in 2028 and finishes with 197.6 hectares in 2076.	2028 - 2055	Declining

Yearly cash-flow analysis ($):							
Contributions from signed DAs, $		942,166,521	18,333,045	19,119,533	19,783,280	20,468,789	21,176,705	21,907,690
Beginning account balance, $			-	-	16,573,714	35,576,329	55,828,843	(73,059,306)
Levy payment schedule after a DA is signed.	Year 0	0%	-	-	-	-	-	-
	Year 1	0%	-	-	-	-	-	-
	Year 2	0%	-	-	-	-	-	-
	Year 3	100%	-	16,225,673	17,907,488	18,333,045	19,119,533	19,783,280
Investment income (interest expense), $		(18,082,122)	-	348,041	1,095,128	1,919,468	(361,832)	(2,709,893)
Future value of cash inflows, $		924,084,400						
Ending account balance, $			-	16,573,714	35,576,329	55,828,843	(73,059,306)	(55,985,919)

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Escalation: Current Methodology

Methodology Overview

Uses historical Calgary's Non-Residential Building Construction Price Index (**NRBCPI**) data from 1981 to 2024, smoothed into 5-year averages to reduce volatility.

2024 Bylaw used 3.58% as the Escalation Rate

Advantages

Simple, stable, and conservative method that aligns with long-term funding horizons and enhances planning.

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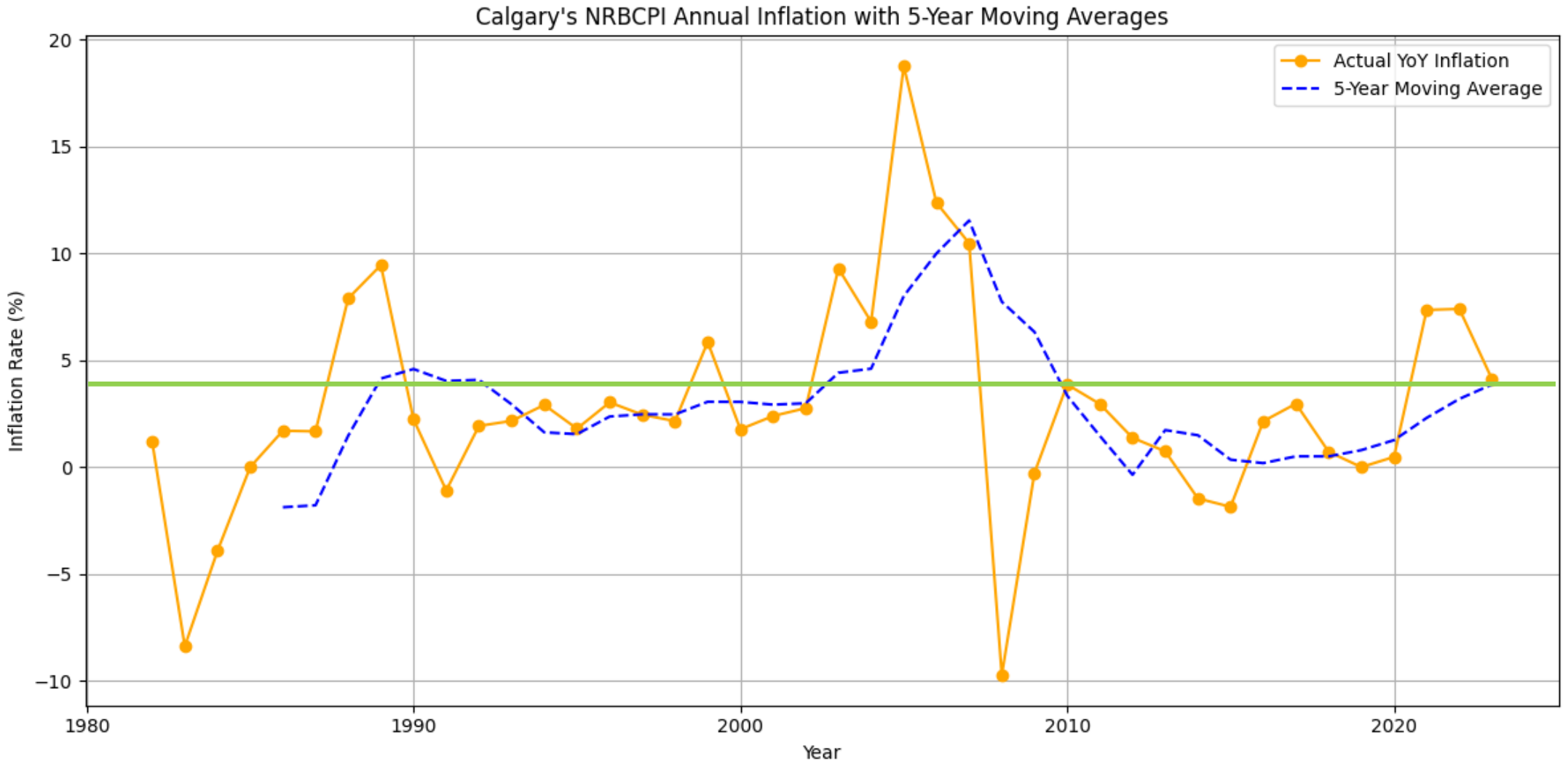
Current Escalation Rate Methodology

The escalation rate estimates how much construction costs go up each year.

- **Data Source:** Historical **NRBCPI** data for Calgary (1981–2024) provided 44 data points.
- **Inflation Smoothing:** Inflation was smoothed into 5-year averages, resulting in 39 years of data.
- **Outlier Exclusion:** The 5 highest inflation years (2006–2010 hyper-inflation) were excluded.
- **Calculations:** Average inflation and annual volatility were calculated from the remaining data. Including a 90% confidence level.

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Calgary's Annual NRBCPI inflation rates (1981-2024) with 5-year moving averages



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Scenarios: Escalation Rate Forecast

If 2025 NRBCPI =	Input Update Forecasted Escalation Rate
1%	4.56%
2%	4.58%
3%	4.60%
5%	4.63%
7%	4.67%
10%	4.70%

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Escalation Rate Discussion

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Discount Rate - Current Methodology

Discount Rate Definition:

Interest rate used to determine the present value of future cash flows.

Uses City's Treasury expected yield on investments to reflect opportunity costs of infrastructure that is built today, but levies that are collected over many years as development occurs.

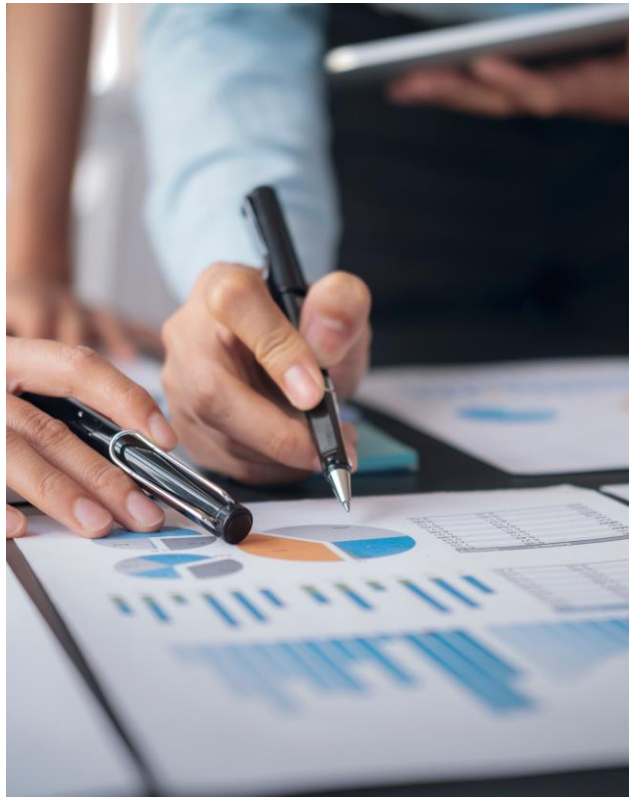
2024 Bylaw used 4.29% as Discount Rate (Based on 2023 rates)

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Discount Rate

- Discount Rate = City's Actual Investment Rate of Return.

Asset mix for off-site levy balances	%
Money market	0%
Short term fixed income	25%
Canadian fixed income	25%
Global fixed income	25%
Real assets	15%
Equity	10%
Total	100%



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Discount Rate Discussion

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Annual Increase – Non-Water Levies

Annual Levies Rates are adjusted each year on January 1 - Bylaw 1H2024 Section 6 (8)

For Non–Water Levies (Recreation, Police, Transportation, etc.):

- The financial model reflects a rate at a point in time. Since all levies are not charged at time 0, an annual adjustment is required.
- The annual adjustment uses the **Discount Rate.**
- The Discount Rate reflects the City's expected long-term rate of return on invested levy balances.
- This is based on a defined asset mix of fixed income, real assets, and equity.

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Annual Increase: Non-Water Levies

Example : $10M PV for an Infrastructure project to be built in 10 years.

Year 1: $1.0M → Year 10: $1.4M @ a 4% discount rate



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Annual Increase – Water Levies

Annual Levies Rates are adjusted each year on January 1 - Bylaw 1H2024 Section 6 (7)

For Water Levies (Stormwater, Wastewater, Water Treatment, etc.):

- The financial model reflects a rate at a point in time. Since all levies are not charged at time 0, an annual adjustment is required.
- The annual adjustment uses the **Escalation Rate.**
- Different than the Non-Water Levies, as the Water Levies use debt to fund the off-site levy infrastructure, the escalation rate is used for the annual increase.
- NOTE: Q3 NRBCPI data used as Q4 data release would be too late for calculation

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Annual Rate Adjustment Discussion

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Thank you

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