

Town of Kingfield

Comprehensive Wastewater Rate and Budget Analysis

Prepared for: Town Selectboard and Rate Payers

Review Period: Initial Proposals vs. Updated May 2026 Budget Structure

1. Executive Summary & Policy Overview

Over the past fiscal cycles, a dedicated committee, the Selectboard, and the Maine Rural Water Association (MRWA) spent a significant amount of time determining a fair, long-term billing format.

Core Billing Methodologies

- **Commercial Properties:** Billed using a hybrid structure consisting of a base flat fee combined with a variable volumetric cost per 1,000 gallons of actual water used.
- **Residential Properties:** Billed using the Equivalent Dwelling Unit (EDU) framework.

The Regulatory Framework for Residential EDUs

To ensure systemic fairness, the board uses engineering data and Department of Environmental Protection (DEP) licensing records dating back to the system's installation in the early 1980s.

- **The "Design Flow" Rule:** Per DEP guidelines, wastewater billing must reflect the maximum potential discharge flow a structure can reasonably expect to produce on any day of operation, rather than its day-to-day fluctuations.
- **The "Bedroom" Definition:** Under state codes for older structures, a room qualifies as a bedroom if it has an entrance door, space for a bed, a heating/cooling source, and access to natural light and air.
- **Structural Intent:** Built-in closets are not legally required. Many older homes utilize floor space for dressers or bureaus instead. Vacant rooms or home offices are billed based on their structural capacity because they can easily be converted back into bedrooms.

2. Fiscal Deficit and Rate Adjustments

The updated May 2026 framework handles a **\$32,500.00 funding gap** created by structural revenue adjustments. To maintain a balanced system, the board removed a \$20,000.00 roll-forward subsidy and enacted a planned step-down of Tax Increment Financing (TIF) revenue, which decreased TIF funding by \$12,500.00.

Compounding these adjustments, the town suffered commercial revenue losses, including **\$2,584.00** lost from the sale of 368/369 Main Street to Hammond Lumber Company, and the reclassification of the Kim Roberts apartments from commercial to residential units.

The total average water usage over the three-year tracking period (2023–2025) is **5,871,469.30 gallons**, establishing a usage breakdown of **53% Commercial** and **47% Residential**.

3. Comprehensive Rate Model Comparison

The table below contrasts the initial rate proposal against the adopted May 2026 budget requirements.

Budget Metric	Initial Rate Proposal	Updated May 2026 Plan	Actual Change
Total System Target	\$140,000.00	\$183,350.00	+\$43,350.00
Outside Subsidies (TIF/Roll-Forward)	Fully Included	Removed / Phased Out	-\$32,500.00
Projected Revenue Collected	\$143,074.80	\$183,499.65	+\$40,424.85
System Net Margin	+\$3,074.80 (Surplus)	+\$149.65 (Surplus)	-\$2,925.15
Usage Share Split (Comm. / Res.)	54% / 46%	53% / 47%	1% Residential Shift
Residential Funding Target	\$64,400.00	\$86,174.50	+\$21,774.50
Residential Base Rate (per EDU)	\$75.00 / quarter	\$96.00 / quarter	+\$21.00 / quarter
Commercial Funding Target	\$75,600.00	\$97,175.50	+\$21,575.50
Commercial Volumetric Rate (per 1k Gal)	\$6.00 / quarter	\$3.10 / quarter	-\$2.90 / 1k Gallons*

Commercial Flat Base Rate	\$0.00 / quarter	\$250.00 / quarter	+\$250.00 / quarter
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**Note: Although the volumetric rate dropped from \$6.00 to \$3.10, the introduction of the mandatory \$250.00 quarterly commercial base fee increased overall commercial contributions to cover the budget gap.*

Commercial Bill Impact Example (at 5,000 Gallons)

- **Old Quarterly Billing:** \$257.50
- **New Quarterly Billing: \$265.50** (An increase of \$8.00 per quarter or \$32.00 annually)

4. Property Case Study: High Street Site

To show how these policies translate to individual accounts, this section tracks a local property on High Street. The site was originally designed with a 4-bedroom capacity, resulting in an official DEP rating of **2.5 EDUs** (equivalent to a maximum capacity of 450 gallons per day).

High Street Property Financial Trajectory (2.5 EDUs)

[Initial Proposal] \$187.50 / Quarter --> \$750.00 / Year

[May 2026 Adopted Plan] \$240.00 / Quarter --> \$960.00 / Year

Net Cost Increase: +\$52.50 / Quarter --> +\$210.00 / Year

5. Alternative Scenario: Shifting to a 54% / 46% Usage Split

If the Selectboard updates its metrics to return to the previous allocation of **54% Commercial and 46% Residential** while keeping the \$183,350.00 baseline budget, the financial burden shifts as follows:

1. **Revised Targets:** The commercial funding goal rises to **\$99,009.00** (+\$1,833.50), while the residential pool drops to **\$84,341.00** (-\$1,833.50).
2. **Residential Rate Relief:** The standard quarterly EDU cost falls from \$96.00 to **\$93.92**, yielding an annual savings of **\$8.32 per EDU**.
3. **Commercial Volumetric Adjustment:** Commercial users would absorb a minor increase of roughly **+\$0.06 per 1,000 gallons**.
4. **Impact on 2.5 EDU Property:** The High Street property quarterly bill drops from \$240.00 to **\$234.80**, generating a savings of **\$5.20 per quarter** (\$20.80 saved annually).

6. System Math Formulas

To verify the system's equity, the billing models use distinct linear formulas for each customer class to calculate quarterly revenue.

Residential Rate Formula (EDU Model)

Residential billing is based on a fixed unit price multiplied by the total number of Equivalent Dwelling Units (EDUs) in the town system.

$$R_{\text{Quarterly Residential Revenue}} = R_{\text{EDU}} \times \sum \text{EDUs}$$

Where:

- R_{EDU} = The quarterly rate charged per single EDU (\$96.00 in the updated budget).
- $\sum \text{EDUs}$ = The total sum of all residential EDUs connected to the system.

High Street Property Application (2.5 EDUs)

$$R_{\text{Quarterly Bill}} = \$96.00 \times 2.5 = \$240.00$$

$$R_{\text{Annual Bill}} = \$240.00 \times 4 = \$960.00$$

Commercial Rate Formula (Hybrid Model)

Commercial billing uses a multi-part linear pricing model that adds a fixed base operational fee to a variable consumption fee.

$$R_{\text{Quarterly Commercial Revenue}} = (B \times N_{\text{comm}}) + \left(V \times \frac{G_{\text{quarter}}}{1,000} \right)$$

Where:

- B = Base flat rate per quarter (\$250.00).
- N_{comm} = Total number of active commercial accounts.
- V = Volumetric rate per 1,000 gallons (\$3.10).
- G_{quarter} = Total commercial gallons consumed in that quarter.

Sample Commercial Account Application (5,000 Gallons)

$$R_{\text{Quarterly Bill}} = \$250.00 + \left(\$3.10 \times \frac{5,000}{1,000} \right)$$

$$R_{\text{Quarterly Bill}} = \$250.00 + \left(\$3.10 \times 5 \right) = \$250.00 + \$15.50 = \$265.50$$

Usage Share and Budget Allocation Formulas

To split the total required town budget (Y) between the two classes, the town calculates a three-year rolling average of water consumption to find the allocation percentages.

$$\text{Total System Gallons } (G_{\text{total}}) = G_{\text{res}} + G_{\text{comm}}$$

$$\text{Residential Share } (P_{\text{res}}) = \frac{G_{\text{res}}}{G_{\text{total}}} \times 100$$

$$\text{Commercial Share } (P_{\text{comm}}) = \frac{G_{\text{comm}}}{G_{\text{total}}} \times 100$$

Targeted Revenue Target Formulas

$$\text{Residential Target} = Y \times P_{\text{res}}$$

$$\text{Commercial Target} = Y \times P_{\text{comm}}$$

May 2026 Budget Baseline (Rounded Share Figures)

- Total Budget Required (Y) = \$183,350.00
- Residential Target = \$183,350.00 × 0.47 = \$86,174.50
- Commercial Target = \$183,350.00 × 0.53 = \$97,175.50