RAFTELIS

Town of Black Mountain, North Carolina
Stormwater Rate Model
April 17, 2026

In 2024, the Town of Black Mountain (Town) engaged Raftelis as a sub to WK Dickson, an Ardurra Company, to evaluate a potential stormwater fee rate structure change as part Stormwater Master Plan. This analysis included determining an Equivalent Residential Unit (ERU), development of units of service based on measured impervious area, and calculation of rate ranges under a new rate structure alternative. Raftelis presented findings on the ERU analysis and rate structure alternatives including estimated units of service, to the Town in the September 2024 "Stormwater ERU Analysis" memorandum.

This memorandum addresses the stormwater financial planning and rate ranges associated with the potential new rate structure alternative. Included in this memorandum is a summary of the methodology Raftelis used to develop the Stormwater Rate Model and details the model's findings regarding projected financial performance and customer impacts.

Project Background

The Town of Black Mountain is in the process of developing a Stormwater Master Plan to define the capital investments necessary to sustain its desired level of service (LOS) related to their stormwater system and management. Recent regional weather events and a changing climate have underscored the importance of municipal preparedness and the need for robust stormwater infrastructure. Such investments are necessary to prevent unnecessary property damage and ensure public safety.

As the Town seeks to bolster its system's reliability, it must evaluate the fiscal impacts of increased revenue requirements on its residents. The goal of this analysis is to determine the sustainable funding levels required to achieve the Town's desired LOS and evaluate customer impacts associated with cost recovery through a standardized ERU-based fee should the Town decide to update their stormwater fee rate structure.

Inputs and Assumptions

Raftelis obtained necessary data from WK Dickson, an Ardurra Company, online resources, and internal documentation. Capital costs were derived from WK Dickson, an Ardurra Company's SWMP, Operations and maintenance (O&M) and debt service costs (DSC) were obtained through the Town's Adopted Budgets, and units of service information was sourced from Raftelis' September 2024 "Stormwater ERU Analysis." The total revenues generated under the current rate structure were captured from the Town's FY2024 Annual Comprehensive Financial Report.

As noted in the "Stormwater ERU Analysis" memorandum, two impervious area rate structure alternatives were discussed with Town staff, a flat rate residential rate structure where each residential property would be charged one ERU and all other properties would be charged in increments of ERUs based on measured impervious area, and a residential tiered rate structure where each residential property would be charged one of three flat rates based on estimated or measured impervious area and all other properties would be charged in multiples of ERUs based on measured impervious area. In these discussions, a simple and easy to maintain rate structure was a high priority for Town staff. As a result, a flat rate residential rate structure was

recommended for the Town and this is the rate structure used to determine the units of service in the rate model discussed in this memorandum.

Based on the above-described materials, Raftelis generated a stormwater rate model describing overall costs and revenue recovery through a 10-year planning period. Raftelis first computed the total revenue requirement resulting from the established capital and O&M costs, as well as any other costs expected to be incurred by the Town's stormwater fund. Raftelis then produced three alternative funding models designed around various CIP funding constraints.

O&M Costs

Raftelis developed the 10-year schedule of O&M costs by escalating costs from the Town's Adopted Budgets through FY2036. All O&M costs were categorized as Personnel-, Operating-, or Capital Outlay-related costs, and annual escalation factors for each category were assumed at 3%, 2%, and 4%, respectively. See Table 1 for annual O&M costs.

Table 1. Projected Annual O&M Expense for FY 2026 through FY 2036

Category	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Personnel	286,600	295,100	304,000	313,100	322,500	332,200	342,200	352,400	363,000	373,900	385,100
Operating	82,600	84,300	85,900	87,700	89,400	91,200	93,000	94,900	96,800	98,700	100,700
Capital Outlay	-	-	-	-	-	-	-	-	-	-	-
Total	***369,200***	***379,400***	***389,900***	***400,800***	***411,900***	***423,400***	***435,200***	***447,300***	***459,800***	***472,600***	***485,800***

Capital Costs

Raftelis developed a 10-year CIP from WK Dickson, an Ardurra Comapny's SWMP, with project timings derived from the provided prioritization scores and project phasing. Project spending was escalated using the Engineering News Record Construction Cost Index (ENR CCI, 3.1%). See Table 2 for baseline annual CIP needs for FY 2026 through FY 2036.

Table 2. Projected Annual CIP Expense for FY 2026 through FY 2036

Category	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Non-Escalated	-	1.54 M	3.39 M	3.74 M	3.88 M	3.67 M	3.74 M	3.70 M	3.95 M	3.80 M	3.78 M
Escalated	-	1.58 M	3.61 M	4.10 M	4.38 M	4.27 M	4.49 M	4.58 M	5.04 M	5.00 M	5.12 M
PayGo %	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Units of Service

Raftelis based units of service from its 2024 stormwater ERU analysis for the Town. This analysis suggested 3,516 residential ERUs and 5,811 non-residential ERUs. We applied annual growth rates of 0% for residential and 1% for non-residential ERUs to obtain projected ERUs during the planning period. See Table 3 for projected annual units of service for FY 2026 through FY 2036.

Table 3. Projected Units of Service for FY 2026 through FY 2036

Category	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Non-Escalated	3,516	3,516	3,516	3,516	3,516	3,516	3,516	3,516	3,516	3,516	3,516
Escalated	5,870	5,929	5,989	6,049	6,110	6,172	6,234	6,297	6,360	6,424	6,489
Total	***9,386***	***9,445***	***9,505***	***9,565***	***9,626***	***9,688***	***9,750***	***9,813***	***9,876***	***9,940***	***10,005***

Revenue Requirement

The overall revenue requirement represents the total revenues required to fully fund the stormwater utility each year. This incorporates all costs, including O&M, PayGo capital costs, debt service costs, transfers, and any other source of expense. To obtain the overall revenue requirement, Raftelis summed the projected operating costs, PayGo capital costs, existing debt service obligations, and any outward transfers. See Table 4 for the projected revenue requirement in each year of the planning period.

Table 4. Projected Revenue Requirement for FY 2026 through FY 2036

Category	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
O&M	369,200	379,400	389,900	400,800	411,900	423,400	435,200	447,300	459,800	472,600	485,800
PayGo CIP	-	1.58 M	3.61 M	4.10 M	4.38 M	4.27 M	4.49 M	4.58 M	5.04 M	5.00 M	5.12 M
Debt Service	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500
Transfers Out	-	-	-	-	-	-	-	-	-	-	-
Total	**0.38 M**	**1.97 M**	**4.01 M**	**4.51 M**	**4.81 M**	**4.70 M**	**4.94 M**	**5.04 M**	**5.51 M**	**5.48 M**	**5.62 M**

Rate Calculation and Customer Impacts

Using the overall revenue requirement and projected units of service, Raftelis estimated the necessary annual rates to fully fund the utility and its CIP within the 10-year planning period. In the model, rates are prohibited from going up in one year and down the next. Note that the rate calculation includes any other revenue sources, such as inbound transfers, grants, and investment earnings, before determining the necessary rate. See Table 5 for the proposed annual rates to fully fund the program within the 10-year planning period (this is the "Baseline CIP" scenario).

Table 5. Projected Monthly Per-ERU Rate for FY 2026 through FY 2036

Category	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Revenue Req.	$0.38 M	$1.97 M	$4.01 M	$4.51 M	$4.81 M	$4.70 M	$4.94 M	$5.04 M	$5.51 M	$5.48 M	$5.62 M
Units of Serv.	*9,386*	*9,445*	*9,505*	*9,565*	*9,626*	*9,688*	*9,750*	*9,813*	*9,876*	*9,940*	*10,005*
Monthly Rate (per ERU)	**-**	**$17.92**	**$36.17**	**$40.50**	**$42.92**	**$42.92**	**$43.50**	**$44.08**	**$47.92**	**$47.92**	**$48.25**

Alternative CIP Funding Scenarios

Acknowledging the Town likely cannot deliver the entire SWMP CIP within the 10-year planning period and recognizing that the projected rates are very high, Raftelis generated three additional CIP funding scenarios. As the CIP comprises the bulk of annualized revenue requirements, CIP funding scenarios heavily affect the severity of customer impacts. See below for a summary of each alternative scenario.

- **Scenario 1**: $1 million annual CIP spending. This scenario is intended to fund most high-priority projects over the 10-year planning period.
- **Scenario 2**: $3.5 million annual CIP spending. This scenario is intended to fund the top 70+ projects over the 10-year planning period.
- **Scenario 3**: $700 thousand to $1.5 million annual CIP spending. This scenario is intended to moderate rate impacts while funding most high-priority projects over the 10-year planning period.

See Table 6 for annual CIP expenditures under each scenario. See Table 7 for calculated rates under each scenario.

Table 6. Annual CIP Expense Scenario Comparison ($ Millions)

Category	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Scenario 1	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Scenario 2	-	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Scenario 3	-	0.70	0.77	0.84	0.92	1.01	1.10	1.20	1.30	1.42	1.55
Baseline CIP	-	1.58	3.61	4.10	4.38	4.27	4.49	4.58	5.04	5.00	5.12

Table 7. Projected Monthly Per-ERU Rates by Scenario

Category	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Scenario 1	-	$12.67	$12.67	$12.67	$12.67	$12.67	$12.75	$12.75	$12.75	$12.83	$12.83
Scenario 2	-	$35.33	$35.33	$35.33	$35.33	$35.33	$35.33	$35.33	$35.33	$35.33	$35.33
Scenario 3	-	$9.92	$10.58	$11.25	$12.00	$12.75	$13.58	$14.50	$15.42	$16.42	$17.58
Baseline CIP	-	$17.92	$36.17	$40.50	$42.92	$42.92	$43.50	$44.08	$47.92	$47.92	$48.25

Next Steps

To implement rates presented in this memorandum, the Town must first formally adopt the ERU based rate structure. This will require updates to the Town's stormwater fee ordinance to reflect the updated rate structure. The Town will need to present the proposed rate structure to Council for consideration and approval. Updated rates associated with the updated rate structure can be captured in the Town's rate schedule adopted annually with the Town's budget. Successful adoption will depend on clear communication of the need for rate adjustments, including the rationale for the rate structure change and the proposed rates and the relationship between level of service and required revenues.