



# Solid Waste Utility Cost-of-Service & Rate Study

## FINAL REPORT

September 2024

Prepared by





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# SOLID WASTE COST OF SERVICE & RATE STUDY

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## 1. INTRODUCTION

The Town of Front Royal (Town) provides weekly residential curbside refuse, single-stream (minus glass) recycling, yard waste; and on-call bulk collection to approximately 5,500 households. The Town also provides limited commercial dumpster collection, including collection of shared dumpsters in the downtown Main Street area. They also operate a yard waste and recycling drop-off site that accepts various recyclable materials from the community. Funding of solid waste services is primarily from the Solid Waste Management Fund, which relies on user fees to generate the revenue needed to operate the system.

The Town retained MSW Consultants to conduct a comprehensive rate study for solid waste operations and services. This primarily involved developing a financial model to capture relevant capital and operating expenses, along with customer counts, tonnage data, and other system parameters. The study also compared the Town's service levels and rates with other communities in the region and commented on the dynamics and cost of publicly provided and privately outsourced collection service. Based on these considerations, this report documents the recommended rate and fee structures to fund solid waste operations and capital improvement requirements.

Near the end of the study (June 26, 2024), the Town was informed by Warren County that the landfill would be implementing a \$40 per ton tip fee on all municipal waste and increasing the tip fee for commercial waste \$10 per ton, bringing it to \$79 per ton. The effective date on these charges was set to July 1, 2024. MSW Consultants incorporated these fees into the cost-of-service model and updated the rate recommendations.

This report briefly summarizes the Town's current system and associated cost of services. The report forecasts revenue needs for a ten-year timeframe and identifies rate options to fund the system going forward. Wherever applicable, findings are provided as "before" and "after" in reference to study findings before and after the changes in the Warren County Transfer Station tipping fees, effective July 1.

## 2. CURRENT SYSTEM DESCRIPTION

MSW Consultants requested and reviewed Town data and participated in multiple working meetings with the Town to fully understand the solid waste management system. The solid waste, recycling, green waste, and bulk waste collections operate as part of the Public Works Department. User fees are assessed monthly for collection services.

### 2.1 COLLECTION SERVICES

The Town collects the following material streams:

- **Residential Curbside** – The following services are provided to single-family residential customers:
  - **Refuse and Bulky** – Weekly collection of Town-issued 96-gallon roll carts is provided using semi-automated rearloading (RL) packer trucks. On-call bulky collection is provided by the same truck while on the refuse collection route.
  - **Recycling** – Recyclables other than glass can be placed out in any Rubbermaid-like container, cardboard box, etc. Similar to refuse and on the same collection day, the Town provides weekly single-stream recycling collection using RL trucks.
  - **Yard Waste** – Curbside yard waste is provided weekly on Wednesdays. Materials should be placed out in Rubbermaid-type bins or cardboard boxes, or biodegradable bags. Brush must be bundled and meet dimension and weight limitation requirements. Citizens can also take their yard waste materials to the Town Drop-off free of charge.

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- **Private Property** – Customers with medical impairment or other disabilities can provide a physician’s note and receive backdoor weekly services described above. Town collection crews retrieve, empty and return containers next to the dwelling for these customers. However, any customer can opt to pay an extra fee and receive backdoor service. Areas annexed into the Town after 1997 and residents living in majority duplex/townhouse areas are not eligible for backdoor collection.
- **Commercial Collection** – The Town provides refuse and recycling collection to a small number of government buildings and commercial/non-residential customers using eight cubic yard dumpsters and the same RL trucks used for residential collection.
- **Main Street Collection** - The Town also services several dumpsters shared by businesses and residents in the Main Street area.
- **Yard Waste and Recycling/White Goods Drop-off Site** – The Town provides a yard waste and recycling drop-off site for the community. The track loader and roll-off truck used to service the site are shared with other departments.

Table 2-1 summarizes the number of daily collection routes operated. It is important to note that daily routes are well balanced, which suggests that the system is well managed.

**Table 2-1 Daily Collection Routes**

Type of Service	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Residential Refuse	3.00	3.00	1.00	3.00	2.00	0.00	<b>12.00</b>
Residential Recycling	1.00	1.00	1.00	1.00	1.00	0.00	<b>5.00</b>
Residential Yard Waste	0.00	0.00	2.00	0.00	0.00	0.00	<b>2.00</b>
Residential Bulk Waste	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Commercial Garbage*	0.00	0.00	0.00	0.00	1.00	0.00	<b>1.00</b>
Main Street Garbage	0.25	0.00	0.25	0.00	0.25	0.00	<b>0.75</b>
<b>Total Weekly Routes</b>	<b>4.25</b>	<b>4.00</b>	<b>4.25</b>	<b>4.00</b>	<b>4.25</b>	<b>0.00</b>	<b>20.75</b>

\*Commercial Garbage is collected on Residential Refuse truck throughout the week. The equivalent of one full route is noted for the paid Disposal fee.

## 2.2 MATERIALS COLLECTED & MANAGED

MSW Consultants compiled the Town’s waste generation for use in projections. Table 2-2 summarizes the historical and projected tonnage amounts collected by the Town and delivered to regional facilities. Projections were reviewed by the Town and deemed to be reasonable for planning purposes.

**Table 2-2 Material Quantities (Tons) Collected**

Material Stream	Facility	Actual 2021	Actual 2022	Projected 2023	Projected 2024
Residential Refuse	Bentonville Transfer Station	6,060	5,828	5,892	5,908
Residential Recycling	Republic/Manassas/ Winchester Scrap/Freder	291	324	327	331
Residential Yard Waste	Farm (Town Drop-off)	98	94	95	96
Residential Bulk Waste	Bentonville Transfer Station				49
Commercial Refuse	Bentonville Transfer Station	394	381	385	227
Main Street Refuse	Bentonville Transfer Station				163
<b>Total</b>		<b>6,842</b>	<b>6,627</b>	<b>6,700</b>	<b>6,774</b>

# SOLID WASTE COST OF SERVICE & RATE STUDY

## 2.3 CURRENT RATES & CUSTOMER BASE

Rates for various collection services and associated customer categories are provided in this section.

- **Residential** – Residential service levels by customer category and current rates are provided in Table 2-3. The 2024 projected billing units column represents the current customer base projected forward for FY24 with a 1.1 percent growth rate.

**Table 2-3 Projected 2024 Residential Customer Counts & Current Rates**

Residential Service	2024 Billing Units	Current Rate
1x/wk Refuse 96-Gal, Recycling Bin, and Yard Waste (per Month)	5,280	\$14.10
1x/wk Refuse 32-Gal, Recycling Bin, and Yard Waste (per Month)	309	\$12.00
Entry onto Private Property Collection (per Month)	64	\$5.00
First On-Call Collection - 20 or Fewer Bags Plus 5 Pieces of Furniture (per Occurrence)	940	\$0.00
Second On-Call Collection - 20 or Fewer Bags + 5 Pieces of Furniture (per Occurrence)	33	\$25.00
Third+ On-Call Collection - 20 or Fewer Bags + 5 Pieces of Furniture (per Occurrence)	9	\$50.00
First Collection of Unbagged Items and/or More than 20 Bags (per Hour)	0	\$400.00
Second Collection of Unbagged Items and/or More than 20 Bags (per Hour)	0	\$600.00
Third+ Collection of Unbagged Items and/or More than 20 Bags (per Hour)	0	\$800.00

- **Commercial Dumpsters** - Commercial service levels by customer category and current rates are provided in Table 2-4. As shown, the commercial customer base is very small.

**Table 2-4 2024 Projected Commercial Customer Counts & Current Monthly Rates**

Commercial Service	2024 Billing Units	Current Rate
Commercial Dumpsters Disposal Tip Fee (per month)	17	\$58.00
8 CY 1x/wk	9	\$215.00
8 CY 2x/wk	8	\$300.00

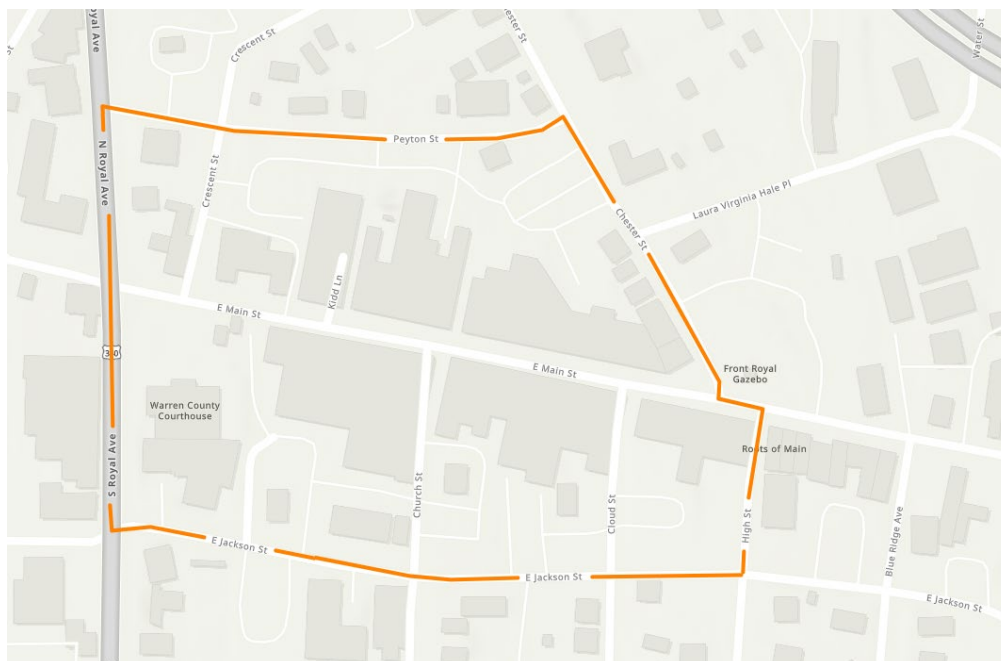
- **Main Street Dumpsters** – Verified customer counts currently in the Town’s utility billing system, along with current billing rates for the shared dumpsters in the Main Street downtown service area, are shown in Table 2-5. During the study, Town staff completed an audit of accounts in the Main Street area and identified a total of 142 active user accounts with other utility charges. However, as shown, there are only 77 currently paying for refuse. Main Street dumpsters are shared by users located within the area highlighted in Figure 2-1 The Town has been considering extending the service area on the south side of Main Street east another block to Blue Ridge Ave.

# SOLID WASTE COST OF SERVICE & RATE STUDY

Table 2-5 Main Street Accounts & Current Monthly Rates

Main Street Service	2024 Billing Units	Current Rate
Main Street Businesses	20	\$26.00
Main Street Residents	57	\$14.10
Total	77	

Figure 2-1 Main Street Service Area



MSW Consultants observes that the Town's over 5,500 household residential customer base is at a scale that supports a public curbside collection system. However, the Town's commercial customer base is quite small. The Town provides commercial service with the same trucks and crew that provide residential services which keeps the fixed expense of the commercial service reasonable.

## 3. BENCHMARKING & MARKET RESEARCH

### 3.1 BENCHMARKING

Benchmarking has been defined as the process of searching for best practices, innovative ideas, and effective procedures or policies, and then adapting these practices and ideas for the benefit of the organization. Combined with performance measurement, benchmarking enables a local government to see how its solid waste management system measures up to other municipalities with comparable customer bases and service levels.

It should be noted that while benchmarking is conceptually simple, in the realm of solid waste management there are myriad system characteristics that are likely to differ among different municipalities. For example, even if the customer base of two municipalities is the same, differences in underlying system characteristics may diminish the comparability of the two systems.



## SOLID WASTE COST OF SERVICE & RATE STUDY

MSW Consultants collaborated with Town staff to identify the communities to research for service comparisons. Table 3-1 provides the selected communities and demographic characteristics. Combined information is shown for three towns (New Market, Strasburg, and Woodstock) that were known to have a shared contract with a private hauling company.

**Table 3-1 Benchmark Communities**

<b>Demographics</b>	<b>Front Royal</b>	<b>Winchester, VA</b>	<b>New Market, Strasburg &amp; Woodstock, VA*</b>	<b>Culpeper, VA</b>	<b>Harrisonburg, VA</b>	<b>Warrenton, VA</b>
Population, 2020	15,011	28,120	15,062	20,066	51,810	10,054
Pop. pct. change, April 2010-April 2020	4.0%	7.3%	10.4%	22.5%	5.9%	4.6%
Land area in square mi.	10.27	9.2	9.9	7.3	17.3	4.4
Housing Total 2020	5,770	11,018	6,156	6,728	17,102	4,016

\*Shared contract with private collector. Combined census information.

These communities have a mix of publicly provided, privately contracted, and open (subscription) collection services. The service delivery strategy for each community is shown in Table 3-2. Note that the publicly provided and contracted services are exclusive, meaning the municipality is the only entity providing the service. However, open collection means that citizens and businesses can choose a service provider if the service is offered regionally, and consequently there may be multiple garbage trucks traversing these communities every day.

**Table 3-2 Service Provision in Benchmarked Communities**

<b>Collection</b>	<b>Front Royal</b>	<b>Winchester, VA</b>	<b>New Market, Strasburg &amp; Woodstock, VA*</b>	<b>Culpeper, VA</b>	<b>Harrisonburg, VA</b>	<b>Warrenton, VA</b>
<b>Single Family Residential</b>						
Refuse	Public	Public	Private	Public	Public	Public
Recycling	Public	Public	Open	Open	Open	Public
Yard Waste	Public	Public	Open	Open	Public	Public
Bulky Waste	Public	Public	Open	Open	Public	Public
<b>Multi-Family Housing</b>	Open	Public	Open	Open	Public	Public
<b>Commercial</b>	Open	Open	Open	Public	Public	Public

\*Shared contract with private collector.

The methods and program dynamics are shown in Table 3-3. Although there are similarities among some of the communities, overall, each program is somewhat different. This table highlights the difficulty in making apples-to-apples comparisons of municipal collection systems and rates.

# SOLID WASTE COST OF SERVICE & RATE STUDY

**Table 3-3 Service Details in Benchmark Communities**

	Front Royal	Winchester, VA	New Market, Strasburg, & Woodstock, VA	Culpeper, VA	Harrisonburg, VA	Warrenton, VA
<b>Refuse</b>						
Frequency	1x/wk	1x/wk	1x/wk	1x/wk	1x/wk	2x/wk
Collection Technology	Semi-Automated	Semi-Automated	Automated	Semi-Automated	Semi-Automated	Manual
<b>Recycling</b>						
Frequency	1x/wk	1x/wk	N/A	N/A	N/A	1x/wk
Single-Stream or Dual-Stream?	Single-Stream	Dual-Stream	N/A	N/A	N/A	Dual-Stream
Collection Technology	Semi-Automated	Manual	N/A	N/A	N/A	Manual
<b>Yard/Green Waste</b>						
Frequency	1x/wk	1x/wk	N/A	N/A	2x/mo	1x/wk
Seasonal	Yes; 10 months	Yes; 10 months	N/A	N/A	No	No
Collection Technology	Manual	Manual	N/A	N/A	Manual	Manual
Leaf Collection Separate	No	Yes	N/A	Yes	Yes	Yes
<b>Bulky Waste</b>						
Scheduled or On-Call	On-Call	On-Call	N/A	N/A	2x/mo	2x/yr

The rate structure for the Residential collection programs for each of the communities is shown in Table 3-4. All but one of the communities collects a monthly user fee, although the extremely low rate (\$2.50/month) that Culpeper collects most likely requires a significant subsidy from General Fund. It was beyond the scope of this research to validate the basis for reported rates.

**Table 3-4 Single-Family Service Rates in Benchmark Communities**

Single-Family Collection Rate Structure	Front Royal	Winchester, VA	New Market, Strasburg, & Woodstock, VA	Culpeper, VA	Harrisonburg, VA	Warrenton, VA
Trash Pickup - Price of first cart/can/bag	\$12.00/32-gal cart \$14.10/96-gal cart	\$8.00/35-g \$10.00/65-g \$12.00/95-g	\$17.20/96-g \$6.00/addtl cart*	\$2.50/95-g	\$24.00/96-g \$10/addtl cart	In Taxes
Recycling	Included	Included	N/A	N/A	Included	Included
Yard Waste	Included	Included	N/A	N/A	Included	Included
Bulky Waste	1st \$0, 2nd \$25, each additional \$50	Unknown	N/A	N/A	Included	Included

\*Towns pay \$43.20/ton at the Shenandoah County Landfill

## 3.2 MARKET RESEARCH

MSW Consultants inventoried local and regional facilities receiving waste and recycling and researched private haulers with an operational presence in Warren County. Twenty-three facilities were identified within 50 miles of Front Royal. Only four are recyclables processing facilities and Front Royal uses the nearest of these facilities, which is approximately 36 miles away. Seven private haulers were identified to provide various collection services within Warren County. Two are major national corporations and five are more local or regional.

# SOLID WASTE COST OF SERVICE & RATE STUDY

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There are certain circumstances that sometimes lead municipalities to privatize the collection of solid waste, such as insufficient staffing or equipment and limitations to hire/retain qualified personnel or acquire vehicles on a timely replacement schedule. If sufficient competition exists in a geographic region, writing a request for proposal and managing collection through a contracted service provider can be effective in relieving the municipality from these challenges. However, there is no inherent reason a private sector hauler can or will perform the same services for a lower cost than a public sector. In essence:

- Both hire from the same labor market
- Both purchase trucks from the same equipment vendors
- Both require skilled, heavy-duty vehicle maintenance support
- Both typically dispose and recycle at the same local and regional facilities, and
- The private sector has profit margin requirements and additional federal taxes on capital purchases.

A good comparison of a regional privatization is the shared collection contract that is used by New Market, Strasburg, and Woodstock in neighboring Shenandoah County, summarized in the Benchmarking results. The cost paid to WM per household refuse collection is higher than the full cost of Front Royal refuse collection, and the additional tip fee per ton paid to Shenandoah County exceeds the newly implemented Warren County tip fee.

In light of the available market data and input from the Town regarding its internal operations, MSW Consultants finds no compelling reason for the Town to pursue privatization at this time.

## 4. COST-OF-SERVICE ANALYSIS

### 4.1 METHODOLOGY

The cost-of-service and rate study process consists of three primary components:

- **Revenue Sufficiency Analysis** – In this step, the existing revenue stream for the solid waste operations is assessed to determine if it can meet the projected financial requirements of the system (including operating expenses, capital improvements, and vehicle replacement) during the forecast period.
- **Cost-of-Service Analysis** – The second step involves development of suitable methodologies to allocate system revenue requirements to the various customer classes that are responsible for funding the cost of services they are receiving and compiling the number of customers receiving each service.
- **Rate Design** – Finally, solid waste utility best management practices dictate that customer-specific rates and charges must be designed which provide sufficient revenue, as identified in the Revenue Sufficiency Analysis, to recover costs in a manner consistent with the overall solid waste management system policies and goals. The development of rates should, for the most part, be consistent with general rate-making principles as recognized in industry and related literature. In general, rates designed should:
  - Generate a stable revenue stream which, when combined with other sources of funds, is sufficient to meet the financial requirements and goals of the Town.
  - Be easy to understand by customers.
  - Be easy to administer by the Town.
  - Minimize customer impact (i.e., avoid major shocks due to large or frequent changes).

### 4.2 COST-OF-SERVICE ANALYSIS

The following steps were taken to complete the revenue sufficiency projection and estimate the cost-of-service for the collection system and facility operation.

# SOLID WASTE COST OF SERVICE & RATE STUDY

- **Overview of Program Financial Management** – Historical revenue and expenses for the solid waste operation are provided in Table 4-1. The Adopted 2025 revenue includes rate increases that were anticipated for July 1, 2024, but as of the writing of this report have not been implemented due to the Main Street revenue recovery analysis and then the need to incorporate the inclusion of the Warren County tip fees which were not included in the Adopted 2025 expenses in the analysis and recommended rate increases.

**Table 4-1 Historical Revenue & Expenses**

	Actual 2022	Actual 2023	Adopted 2024	Adopted 2025
Revenue	\$1,204,628	\$1,268,212	\$1,190,790	\$1,356,610
Expenses	\$1,245,694	\$1,005,606	\$1,190,790	\$1,356,610
Surplus (Deficit)	-\$41,066	\$262,606	\$0	\$0

- **Financial Data** – Multiple financial reports were gathered to integrate into the customized cost of service model developed for this project.
  - **Reserve Policy and Beginning Balance:** Table 4-2 displays the estimated reserve balance as of June 30, 2023, and annual operating reserve target used in the study. The Town defined its unrestricted reserve target as the equivalent of three months of operating expenses, or approximately \$400,000 for 2025.

**Table 4-2 Estimated Basis of Operating Reserve Starting Balance**

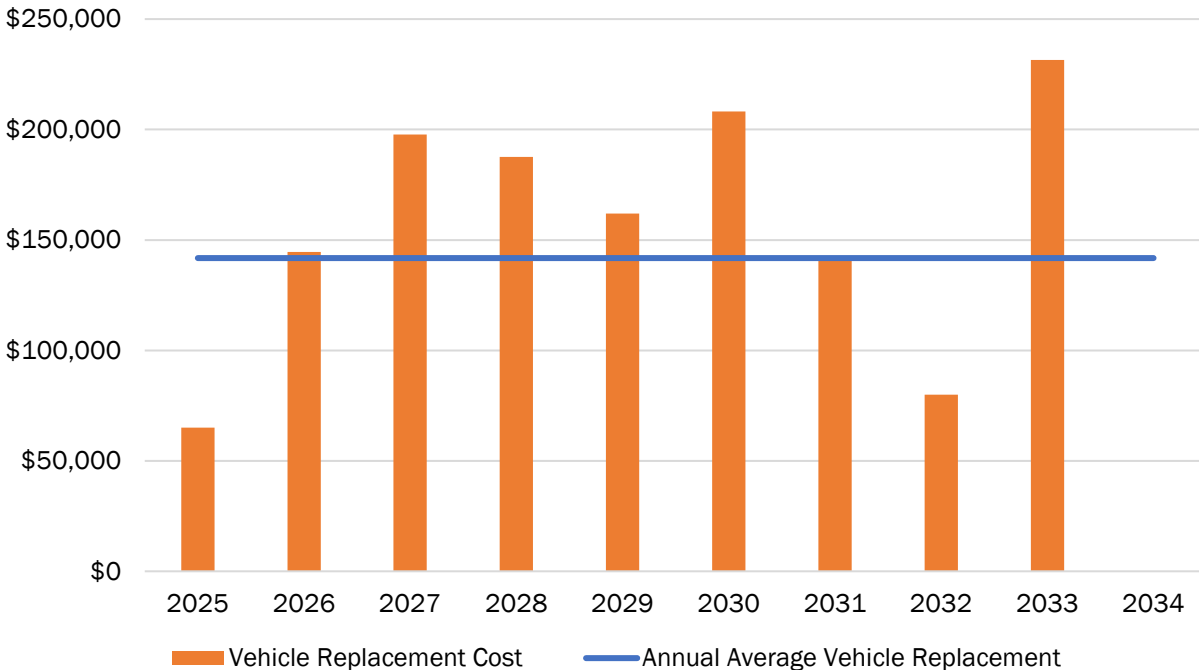
Unrestricted Net Position	\$954,413 <sup>[1]</sup>
Target Reserve for FY25 per Policy	\$402,339

<sup>[1]</sup> Annual Comprehensive Financial Report as of June 30, 2023

- **Capital Improvement Plan:** The Town reported capital improvements of \$30,000 per year for Dumpster Replacements.
- **Vehicle/Equipment Replacement Plan:** Figure 4-1 summarizes the vehicle/equipment replacement schedule, showing the annual projected replacement capital cost. As shown, the 10-year average vehicle replacement cost is about \$141,800 annually, although the actual amount of capital needed on an annual basis varies from \$0 to \$231,500. This is utilizing a 15-year replacement schedule per the Town's preference and guidance, as well as setting aside capital for three years and procuring the vehicle in the third year. Although 15 years is a longer period than typical in the industry, rearloader trucks are less mechanized than automated sideloaders and frontloaders, and the Town delivers to a transfer station rather than a landfill which would be much rougher on the vehicles. The Town also has a history of effectively maintaining these fleet vehicles. MSW Consultants has incorporated a 15-year life based on Town input and these circumstances.

## SOLID WASTE COST OF SERVICE & RATE STUDY

Figure 4-1 Vehicle & Major Equipment Replacement Plan



- **System Net Revenue Requirements** – Table 4-3 provides the projected annual revenue requirement for the operation of solid waste management services and facilities. The Adjusted Annual Revenue Need column allocates Management and Administration costs across the operating lines of business so that these expenses can be recovered through the appropriate funding mechanism.

Table 4-3 Test Year Annual Revenue Requirement By Service

Cost Center	Before		After	
	Annual Revenue Need	Adjusted Annual Revenue Need	Annual Revenue Need	Adjusted Annual Revenue Need
Management & Admin	\$242,504		\$266,795	
Collection	\$1,027,503	\$1,241,646	\$1,273,238	\$1,513,862
Residential Refuse	\$601,333	\$736,610	\$829,421	\$997,253
Residential Recycling	\$225,143	\$275,791	\$228,218	\$274,398
Residential Yard Waste	\$54,816	\$67,148	\$54,727	\$65,801
Main Street Refuse	\$70,616	\$86,502	\$76,792	\$92,331
Commercial Refuse	\$75,595	\$75,595	\$84,080	\$84,080
Facilities	\$136,077	\$164,437	\$138,479	\$164,649
Drop-Off Site	\$136,077	\$164,437	\$138,479	\$164,649
<b>Total</b>	<b>\$1,406,084</b>	<b>\$1,406,084</b>	<b>\$1,678,511</b>	<b>\$1,678,511</b>

- **System Surplus or Deficit** – Table 4-4 shows the projected system deficit for 2025 by operational function. The projected rate revenue is based on current rates applied to projected billing determinants as a “test year.” As shown, the total system deficit is about \$650,000, or approximately 39 percent.



# SOLID WASTE COST OF SERVICE & RATE STUDY

Table 4-4 2025 Test Year System Surplus (Deficit)

Cost Center	Adjusted Annual Revenue Need	Current Revenue	Surplus (Deficit)
<b>Collection</b>	<b>\$1,513,862</b>	<b>\$1,022,723</b>	<b>(\$491,139)</b>
Residential Services	\$1,337,452	\$942,987	(\$394,465)
Main Street Refuse	\$92,331	\$15,884	(\$76,446)
Commercial Refuse	\$84,080	\$63,852	(\$20,228)
<b>Facilities</b>	<b>\$164,649</b>	<b>\$7,593</b>	<b>(\$157,056)</b>
Drop-Off Site	\$164,649	\$7,593	(\$157,056)
<b>Total</b>	<b>\$1,678,511</b>	<b>\$1,030,316</b>	<b>(\$648,195)</b>

## 4.3 FULL COST RATE CALCULATIONS

The next step in the evaluation was to calculate the full-cost rates that would be required to fully fund each collection service and facility operation. Table 4-5 shows the monthly full cost of each individual curbside collection service by the various material streams and container sizes.

Table 4-5 Monthly Full Cost of Residential Services by Material Stream

Residential Collection Services	Full Cost Rates (\$/Month) Before	Full Cost Rates (\$/Month) After
1x/wk Refuse – 32-Gal	\$10.64*	\$14.66
1x/wk Refuse – 96-Gal	\$10.64*	\$12.22
1x/wk Refuse – Private Property Entry Service (Additional Cost)	\$23.40	\$23.40
1x/wk Recycling	\$4.11	\$4.09
1x/wk Yard Waste	\$1.00	\$.98
Drop-Off Access	\$2.45	\$2.45

\*Incorporates zero disposal cost prior to the recent change of Warren County's residential tip fee policies.

Table 4-6 combines the individual full cost of each service for comparison against the current flat rate. As shown, current rates are not sufficient to cover the full cost of residential curbside service. Now that the Town pays a tip fee to Warren County for residentially generated materials taken to the transfer station, the full cost of servicing the smaller refuse cart is less than the larger cart due to the lower disposal capacity of the smaller cart.

Table 4-6 Residential Services Monthly Rates - Current vs. Full Cost

Residential Service	Current Rate	Full Cost Rate Before	Full Cost Rate After
1x/wk Refuse 96-Gal, Recycling Bin, and Yard Waste	\$14.10	\$18.20	\$22.18
1x/wk Refuse 32-Gal, Recycling Bin, and Yard Waste	\$12.00	\$18.20	\$19.74
Entry onto Private Property Collection	\$5.00	\$23.40	\$23.40

The full cost of service for commercial collection was determined and similarly compared to current rates as shown in Table 4-7. The Town's current rate structure includes a one-ton equivalent disposal fee to recover costs incurred when taking commercial waste to the Warren County transfer station. The full cost rate, however, incorporates the allocated volume and associated tip fee according to the container size and service frequency.

# SOLID WASTE COST OF SERVICE & RATE STUDY

Table 4-7 Commercial Services Monthly Rates – Current vs. Full Cost

Commercial Service	Current Rate	Full Cost Rate Before	Full Cost Rate After
Commercial Dumpsters Disposal Tip Fee (per Month)	\$58.00	*	*
8 CY 1x/wk (per Month)	\$215.00	\$251.98	\$280.27
8 CY 2x/wk (per Month)	\$300.00	\$503.97	\$560.53

\*Disposal Fee cost incorporated in monthly rate

The full cost for services in the Main Street area as compared to the current rate revenue is provided in Table 4-8. Both residential and commercial parcels utilize the shared dumpsters, though it has been confirmed that many of the users do not pay, as indicated by the large gap shown.

Table 4-8 Main Street Service Area – Current Revenue vs. Full Cost

Main Street Service	Current Rate	Full Cost Before	Full Cost After
Main Street Businesses	\$26.00		
Main Street Residents	\$14.10		
Total Annual Revenue or Cost	\$15,884	\$86,502	\$92,331
Revenue Shortfall		(445%)	(481%)

Overall, the current rates are systematically under-recovering the full cost of providing the services.

## 4.4 RATE DESIGN

MSW Consultants (in conjunction with Town staff) worked through various rate scenarios with different timing of increases so the Town could see the implications to their Solid Waste Fund Cash Flow and Reserve balance. The options designed included:

- **Option 1 – One Time Increase:** Implement the rates needed to cover the full cost and meet reserve targets in year one.
- **Option 2 and 3 – Phased-In Increases:** Phase in the residential rates needed to cover the full cost and meet reserve targets over a three-year or five-year period. These options maintained the commercial rate increase to recover the full cost in year 1.

Once the Warren County disposal tip fee was announced in late June, the revenue gap became even more substantial, and Town leaders determined it would be essential to move forward with one increase rather than a phase-in. The current and recommended residential rates are provided in Table 4-9, and the percentage change is shown in Table 4-10.

Table 4-9 Recommended Residential Monthly Rates

Residential Service	Current	Recommended Before	Recommended After
1x/wk Refuse 96-Gal, Recycling Bin, and Yard Waste	\$14.10	\$18.45	\$22.05
1x/wk Refuse 32-Gal, Recycling Bin, and Yard Waste	\$12.00	\$15.80	\$19.60
Entry onto Private Property Collection [Additional Cost]	\$5.00	\$23.50	\$23.50

# SOLID WASTE COST OF SERVICE & RATE STUDY

**Table 4-10 Residential Monthly Rates - Percent Change**

Residential Service	Current	Recommended Before	Recommended After
1x/wk Refuse 96-Gal, Recycling Bin, and Yard Waste	N/A	30.9%	56.4%
1x/wk Refuse 32-Gal, Recycling Bin, and Yard Waste	N/A	31.7%	63.3%
Entry onto Private Property Collection [Additional Cost]	N/A	370.0%	370.0%

The commercial rate increase is recommended to be implemented immediately as shown in the full cost rate “after” column of Table 4-11. The reasoning for this is that there are very few commercial customers, and the Town should consider ceasing this line of business if they cannot recoup the costs of service.

**Table 4-11 Recommended Commercial Dumpster Monthly Rates**

Commercial Service	Current	Recommended Before	Recommended After
Commercial Dumpsters Disposal Tip Fee (per Month)	\$58.00	*	*
Commercial Dumpster 8 CY 1x/wk (per Month)	\$215.00	\$255.00	\$275.00
Commercial Dumpster 8 CY 2x/wk (per Month)	\$300.00	\$510.00	\$550.00

\*Disposal cost is incorporated into monthly rates

For Main Street rates, various options were identified and discussed with Town staff:

- Charge all users the same fee.
- Charge residential users the same rate as residential curbside collection accounts and spread the remaining cost equally among the commercial accounts.
- Charge residential users the same rate as residential curbside collection accounts and establish a varied rate structure for the commercial accounts.

As mentioned earlier in this report, there are a number of accounts in the Main Street area that are not currently paying for refuse collection services. Further, there are deficiencies with the existing Town code of ordinances which does not define a commercial refuse customer and does not identify payment as a responsibility unless a location has a sewer account.

A meeting was held with the Town Council on Monday, January 8, 2024, to provide the study outcome and seek guidance on the Town’s preference for recovering costs for Main Street services. The Council opted to conduct further analysis of the parcels and utility accounts within the Main Street service area. Town utility lists and County tax parcel information were researched in further detail and compared.

Three concepts for recovering Main Street services costs were defined and meetings with Main Street stakeholders were conducted. The Town advertised the meeting through multiple avenues and two meetings were held on May 15, 2024. One was held midmorning, and the other held early evening to provide opportunity for those with varying work schedules to attend. The meetings were also recorded for viewing afterwards for those who could not attend. Five stakeholders attended the meetings, generally voicing concerns for existing container overflow, and understanding the need to recover revenue for the services. No further feedback was received from non-attenders.

MSW Consultants worked with Town staff to draft code language to define the Main Street service area and customer classifications with business classes defined by size and whether the entity serves food and/or beverages. Current user accounts were assigned a classification with input from Public Works staff. MSW Consultants designed a rate structure to provide revenue sufficiency. The recommended classification and rates for the Main Street users is provided in Table 4-12.

# SOLID WASTE COST OF SERVICE & RATE STUDY

Table 4-12 Recommended Main Street User Classifications and Rates

Customer Category	Definition	Proposed Rate per Month
Residential	Residential Living Unit	\$22.05
Class I	Small Business	\$46.00
Class II	Medium Business/Small Food Service	\$120.00
Class III	Large Business/Restaurant	\$425.00
Exception	Businesses not falling into any of the above categories, either unique in the downtown area, accounts with unusual circumstance such as master metering for several business units, paying for dedicated service from premise, etc.	TBD by Public Works Director or Designee

Two Projected Cash Flow Exhibits are provided in Appendix A incorporating the rate increases recommended above, assuming they would be effective for the last three quarters of FY 2025. Exhibit A assumes no CPI increase in subsequent years and target reserves are not reached as of FY 2029. Exhibit B incorporates a 3 percent CPI increase in FY 2029 to maintain targeted reserves for the five-year period.

## 5. CONCLUSIONS

This analysis highlights the following conclusions associated with Front Royal solid waste services.

- Solid waste and recycling collection service is critical for maintaining a high community standard of living, and the Town provides this service effectively.
- Rising costs of labor, equipment, and fuel over the past few years result in full costs of operation being more than current rate revenue. Further, the unanticipated Warren County tip fee implementation for municipal solid waste and increase in the commercial waste tip fee compounds the revenue shortfall. The last rate change was in 2016 and costs have increased significantly since then.

## 6. RECOMMEDATIONS

MSW Consultants provides the following recommendations for consideration.

### 6.1 RATE RECOMMENDATIONS

- Implement the “After” rates provided in tables and discussed throughout section 4.4. These rates are designed to be sufficient for the next five years.
- Pass the drafted municipal code that establishes the Main Street service area, adopts a customer classification system and requires users of the solid waste collection infrastructure within the service area to pay monthly fees.

### 6.2 OTHER RECOMMENDATIONS

In addition to the rate recommendation, MSW Consultants provides the following considerations related to operations and general program management.

- **Consider Offering a Third Refuse Cart Size** – With a disposal cost component now impacting the rates of residential services, the Town may want to consider adding a mid-size cart (e.g. 64-65 gallon) as an option for users that may not typically generate 96 gallons of material to set out.

## SOLID WASTE COST OF SERVICE & RATE STUDY

- **Consider Restricting Drop-off Usage to Town Residents** – Historically, the recycling and brush drop-off “yard” has been open to county residents as well as Town citizens. Only commercial loads are required to pre-pay a fee to drop off brush. During the study, a breakdown of Town vs. County users, along with the cost per use as incurred by the Town, was determined as shown in Table 6-1.

Table 6-1 Drop-off Use and Cost in 2023

No Charge Users	Number	Percent	Cost	Cost per Use	Monthly Cost per User
Town	3,323	63%	\$99,026	\$29.80	\$2.48
County	1,960	37%	\$58,408	\$29.80	\$2.48
Total No Charge Entries	5,283		\$157,434		

Because the County has implemented municipal waste tip fees at its transfer station, the Town may want to consider implementing a fee for residential users that are not Town citizens, or simply restrict the usage of this drop-off site to Town users. The cost of operating the drop-off is covered through residential solid waste fees, which only Town residents pay.

- **Continue Providing Residential Collection Services** – Front Royal has effectively avoided staffing challenges that other municipal solid waste service providers have encountered in recent years with pay increases. Vehicles are kept in good condition and used efficiently, and tucking in business customers is an efficient way to maintain efficient service and increase system revenue. There is no reason to believe that the Town could contract a private collector at any savings.
- **Outsourcing Commercial Services Can Be a Contingency as the Town Grows** – The small number of commercial and institutional accounts serviced by the Town does not currently result in underutilized resources that are costly to carry. However, if the Town’s residential population grows over time, the Town may want to consider contracting out collection for its facilities and leaving businesses to contract their own collection services if servicing these ever overextended the residential collection routes.
- **Update Cost-of-Service and Rate Study** – Update the cost-of-service and rate study every three to five years, or more frequently if significant changes are made to the programs to ensure costs are recovered consistent with cost-of-service principles and customer characteristics.



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## **APPENDIX A**

### **CASH FLOW EXHIBITS**

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Exhibit A – Projected Cash Flow One Rate Increase Year One  
Exhibit B – Projected Cash Flow Rate Increase Year One and CPI Increase 2029

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# Exhibit A - Projected Cash Flow With Recommended Rates (effective quarter 2 forward)

## Operating Reserve Target Based on Days (%)

24.7%

Year	2025	2026	2027	2028	2029
Projected Revenue	\$1,525,238	\$1,691,487	\$1,710,093	\$1,728,905	\$1,747,922
Rate Revenue <sup>[1]</sup>	\$1,525,238	\$1,691,487	\$1,710,093	\$1,728,905	\$1,747,922
Projected Expenses	\$1,631,709	\$1,726,478	\$1,826,286	\$1,863,973	\$1,887,760
Operating Expenses	\$1,536,709	\$1,551,910	\$1,598,468	\$1,646,422	\$1,695,814
CIP and Equipment Replacement	\$95,000	\$174,568	\$227,818	\$217,551	\$191,946
Surplus (Deficit)	(\$106,471)	(\$34,991)	(\$116,192)	(\$135,068)	(\$139,838)
Operating Reserves	2025	2026	2027	2028	2029
Beginning of Year, Unrestricted	\$954,413	\$847,942	\$812,951	\$696,758	\$561,690
Expenditures	(\$1,631,709)	(\$1,726,478)	(\$1,826,286)	(\$1,863,973)	(\$1,887,760)
Revenues	\$1,525,238	\$1,691,487	\$1,710,093	\$1,728,905	\$1,747,922
End of Year	\$847,942	\$812,951	\$696,758	\$561,690	\$421,853
Target End of Year	\$402,339	\$425,707	\$450,317	\$459,610	\$465,475
Excess Operating Reserve	\$445,602	\$387,244	\$246,441	\$102,081	(\$43,622)
Operating Reserve Level	52%	47%	38%	30%	22%
Achieves Operating Reserve Target	TRUE	TRUE	TRUE	TRUE	FALSE

<sup>[1]</sup> 2025 Rate Revenue pro-rated for rate increase for three quarters of the year

**Exhibit B - Projected Cash Flow With Recommended Rates (effective quarter 2 forward) and 3% CPI increase in 2029**

**Operating Reserve Target Based on Days (%)**

**24.7%**

<b>Year</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
<b>Projected Revenue</b>	<b>\$1,525,238</b>	<b>\$1,691,487</b>	<b>\$1,710,093</b>	<b>\$1,728,905</b>	<b>\$1,800,271</b>
Rate Revenue <sup>[1]</sup>	\$1,525,238	\$1,691,487	\$1,710,093	\$1,728,905	\$1,800,271
<b>Projected Expenses</b>	<b>\$1,631,709</b>	<b>\$1,726,478</b>	<b>\$1,826,286</b>	<b>\$1,863,973</b>	<b>\$1,887,760</b>
Operating Expenses	\$1,536,709	\$1,551,910	\$1,598,468	\$1,646,422	\$1,695,814
CIP and Equipment Replacement	\$95,000	\$174,568	\$227,818	\$217,551	\$191,946
<b>Surplus (Deficit)</b>	<b>(\$106,471)</b>	<b>(\$34,991)</b>	<b>(\$116,192)</b>	<b>(\$135,068)</b>	<b>(\$87,489)</b>
<b>Operating Reserves</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
<b>Beginning of Year, Unrestricted</b>	<b>\$954,413</b>	<b>\$847,942</b>	<b>\$812,951</b>	<b>\$696,758</b>	<b>\$561,690</b>
Expenditures	(\$1,631,709)	(\$1,726,478)	(\$1,826,286)	(\$1,863,973)	(\$1,887,760)
Revenues	\$1,525,238	\$1,691,487	\$1,710,093	\$1,728,905	\$1,800,271
<b>End of Year</b>	<b>\$847,942</b>	<b>\$812,951</b>	<b>\$696,758</b>	<b>\$561,690</b>	<b>\$474,202</b>
Target End of Year	\$402,339	\$425,707	\$450,317	\$459,610	\$465,475
Excess Operating Reserve	\$445,602	\$387,244	\$246,441	\$102,081	\$8,727
Operating Reserve Level	52%	47%	38%	30%	25%
<b>Achieves Operating Reserve Target</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>

<sup>[1]</sup> 2025 Rate Revenue pro-rated for rate increase for three quarters of the year







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