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Attorneys for *Guam Solid Waste Authority*

BEFORE THE PUBLIC UTILITIES COMMISSION OF GUAM

IN RE: **PETITION FOR APPROVAL OF GSWA'S THREE-YEAR FINANCIAL RATE PLAN**	GSWA Docket No. 24-04 **PETITION FOR APPROVAL OF GUAM SOLID WASTE AUTHORITY'S THREE-YEAR FINANCIAL RATE PLAN FY2025-FY2027**

COMES NOW, Guam Solid Waste Authority ("GSWA" or "Authority"), and hereby files this Petition for Approval of the Guam Solid Waste Authority's Three-Year Financial Plan as previously approved by the GSWA Board of Directors on March 23, 2023 through GSWA Board Resolution No. 2023-007 (Exhibit A of Supporting Documentation).

I. JUSTIFICATION FOR APPROVAL

On April 20, 2023, by Resolution No. 2023-009 (Exhibit A of Supporting Documentation) the GSWA Board of Directors approved the recommended special waste acceptance rates that GSWA management presented to be filed along with the

ORIGINAL

rate case to PUC. On Friday, March 11, 2024, GSWA published notice in a local paper and on its website of its intent to request reasonable rate increases and charges for the collection, transportation, disposal, storage, recycling, and processing of solid waste to recover the full cost of providing solid waste management services. GSWA gave additional notice and requested that the public notice be included as an insert with customer invoices in May 2024.

The primary reasons for the rate increases are necessary to continue GSWA's programs and major priorities that GSWA will face over the next three years, including regulatory compliance priorities, funding the Ordot post-closure case, Layon Landfill cell closure and cell development, debt service payments, and equipment replacement. The proposed rate changes do not include the Community Benefit Charge. GSWA believes these rates to be reasonable, necessary and in the public interest so that the Authority may continue its operations in an environmentally safe and regulated manner.

The proposed rate increases to cover the increased costs set out in the Financial Plan approved by the Guam Solid Waste Authority Board of Directors and the testimonies and exhibits attached hereto are as follows for the GSWA's basic charges and non-lifeline solid waste disposal rates.

Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount per ton	Gov. Agencies and Small Commercial Rate
2025	33.00	11.55	23.10	34.65	15.60	185.00
2026	35.00	11.55	23.10	34.65	12.00	190.00
2027	35.00	11.55	23.10	34.65	10.00	190.00

Special Waste	**Rate**
Contaminated Soil	$250/ton and $200 Report Review Fee
Asbestos	$450/ton
FATS, Oils, Grease (FOG)	$271/ton
Construction Demolition Waste	$271/tom
Telephone Poles / Junk Tires	$300/ton
Engineering Review Fee	$200 per report

II. SUPPORTING DOCUMENTATION

GSWA submits the following documents in support of the Petition.

Exhibit A – GSWA BOARD RESOLUTIONS NO. 2023-007 and 2023-009 and FINANCIAL RATE PLAN

Exhibit B – GSWA GENERAL MANAGER'S TESTIMONY

Exhibit C – GSWA COMPTROLLER'S TESTIMONY AND SUPPORTING SCHEDULES

Exhibit D – UTILITY FINANCIAL SOLUTIONS, LLC (UFS) SOLID WASTE COST OF SERVICE & UNBUNDLING STUDY

Exhibit E – GUAM PUBLIC UTILITIES COMMISSION MANAGEMENT AUDIT OF GSWA

Exhibit F - RATE MANAGER OF UTILITY FINANCIAL SOLUTIONS, LLC TESTIMONY IN SUPPORT OF RATE REQUEST

III. CONCLUSION

Based on the foregoing, as well as the exhibits and testimony attached hereto, GSWA requests the Guam Public Utilities Commission grant this Petition for approval of the Guam Solid Waste Authority's Five-Year Financial Plan and Rate increase as presented.

Dated: August 9, 2024.

CAMACHO & TAITANO LLP
Attorneys for *Guam Solid Waste Authority*

By: _____
SHANNON TAITANO

SUPPORTING DOCUMENTATION

EXHIBIT A

GSWA Board Resolution No. 2023-007
RELATIVE TO APPROVING THE RATE MODEL AND FINANCIAL PLAN AND TO PETITION THE PUBLIC UTILITIES COMMISSION TO IMPLEMENT REVISED RATES

WHEREAS, 10 GCA Chapter 51A §51A104 (4) authorizes GSWA to establish and modify from time to time, with the approval of the Public Utilities Commission (PUC), reasonable rates and charges for the collection, transportation, disposal, storage, recycling and processing of solid waste to recover the full cost of providing solid waste management services, and collect money from customers using such services. Similarly, the Authority shall establish and modify from time to time, with the approval of the PUC, reasonable rate and charges for servicing of debt obtained to undertake capital improvements to solid waste; and

WHEREAS, the Authority awarded a contract for Professional Solid Waste Management and Financial Consulting Services to Utility Financial Solutions, LLC (UFS); and

WHEREAS, UFS performed the studies, and submitted a presentation and report of the recommended Rate Model and Financial Plan to the GSWA Board of Directors on March 23, 2023 at its regular board meeting; and

WHEREAS, the updated Rate Model and Financial Plan would require rate adjustments in the FY2024 period; and

THEREFORE, BE IT HEREBY RESOLVED by the Board of Directors as the Governing Body of the Guam Solid Waste Authority approves and adopts the Rate Model and Financial Plan presented by UFS and authorizes the GSWA General Manager to petition the Public Utilities Commission to implement the revised rates as provided in Exhibit A.

Ayes: 4

Nays: 0

Absent: 1

Abstain: 0

Upon said roll call, the text of the foregoing was duly enacted as a Resolution of the Board of Guam Solid Waste Authority, Guam, on the 23rd day of March 2023.

GSWA BOARD RESOLUTION NO 2023-007

GUAM SOLID WASTE AUTHORITY
BOARD OF DIRECTORS

Andrew Gayle, Chairman

Margaret Denney, Secretary

ATTEST:
ALICIA FEJERAN, CLERK

BY:

GSWA Board Resolution No. 2023-009
RELATIVE TO APPROVING THE ADDITION OF THE RECOMMENDED RATES FOR THE ACCEPTANCE OF SPEICAL WASTE TO BE ADDED ON TO THE RATE MODEL AND FINANCIAL PLAN PETITION TO THE PUBLIC UTILITIES COMMISSION TO IMPLEMENT REVISED RATES

WHEREAS, 10 GCA Chapter 51A §51A104 (4) authorizes GSWA to establish and modify from time to time, with the approval of the Public Utilities Commission (PUC), reasonable rates and charges for the collection, transportation, disposal, storage, recycling and processing of solid waste to recover the full cost of providing solid waste management services, and collect money from customers using such services. Similarly, the Authority shall establish and modify from time to time, with the approval of the PUC, reasonable rate and charges for servicing of debt obtained to undertake capital improvements to solid waste; and

WHEREAS, the Authority awarded a contract for Professional Solid Waste Management and Financial Consulting Services to Utility Financial Solutions, LLC (UFS); and

WHEREAS, UFS performed the studies, and submitted a presentation and report of the recommended Rate Model and Financial Plan to the GSWA Board of Directors on March 23, 2023 at its regular board meeting; and

WHEREAS, the Rate Model and Financial Plan would require rate adjustments in the FY2024 period and the Board of Directors approved and accepted the recommended Rate Model and Financial Plan to be petitioned to the Public Utilities Commission to implement revised rates through Board Resolution No. 2023-007; and

WHEREAS, on April 5, 2023 the Guam Environmental Protection Agency provided the Guam Solid Waste Authority approval for the disposal and acceptance of the Special Waste (SW) provided that it is non-hazardous and within the provided conditions attached as Exhibit A; and

WHEREAS, GSWA General Manager is seeking approval from the GSWA Board of Directors for the recommended Special Waste Acceptance Fees in the memorandum addressed to the GSWA Board of Directors attached as Exhibit A to include the upcoming petition to the Public Utilities Commission;

THEREFORE, BE IT HEREBY RESOLVED by the Board of Directors as the Governing Body of the Guam Solid Waste Authority approves and adopts the recommended Special Waste Acceptance Rates and authorizes the GSWA General Manager to petition the Public Utilities Commission to implement the rates as provided in Exhibit A.

Ayes: **3**

Nays: **0**

Absent: **2**

Abstain: 0

Upon said roll call, the text of the foregoing was duly enacted as a Resolution of the Board of Guam Solid Waste Authority, Guam, on the April 20, 2023.

GUAM SOLID WASTE AUTHORITY
BOARD OF DIRECTORS

Andrew Gayle, Chairman

Margaret Denney, Secretary

ATTEST:
ALICIA FEJERAN, CLERK

BY: _____

EXHIBIT A

April 20, 2023

GSWA MEMORANDUM

To: GSWA Board of Directors

From: General Manager, Guam Solid Waste Authority

Subject: **Special Waste Acceptance Proposed Rates**

This memorandum is issued for informational purposes and proposed Special Waste Fees.

On April 5, 2023 the Guam Solid Waste Authority received a letter of approval regarding the Layon Landfill Special Waste disposal for the following SW Streams:

1. Chipped Tires
2. Contaminated Soils
3. Sandblast Media
4. Treated or Painted Wood Products
5. Fats, Oils, and Grease (FOG)
6. Asbestos-containing Material (ACM)

The below information reflects rates used at similar geographical isolated landfills and special waste fees.

Special Waste Type	Similar Geographical Special Waste Fees
Contaminated Soil, FOG, Asbestos, special handling (County of Hawaii)	$232/Ton
Asbestos (Anchorage, Alaska)	$100/Ton & $83.50 special handling fee
Asbestos (EMRC Perth, Australia)	$197/Ton & $164 burial fee
Contaminated Soil, Special Waste (Manchester, Connecticut)	$100/Ton & $300/Ton special handling fee

I am proposing to the Board that GSWA implement the rates below based on the information gathered for similar geographical isolated landfills and special waste fees.

Special Waste Type	Recommended Rates
Contaminated Soil	$250/Ton and $200 Report Review Fee
Asbestos	$450/Ton
Fats, Oils, and Grease (FOG)	$271/Ton (Existing Commercial Fee)
Construction Demolition Waste	$271/Ton (Existing Commercial Fee)
Telephone Poles / Junk Tires	$300/Ton

I also propose that we implement a recover engineering review fee of $200 per report when GEPA determines acceptance.

Si Yu'os Ma'ase.

Irvin L Slike

IRVIN L. SLIKE

GSWA Board Resolution No. 2023-009
RELATIVE TO APPROVING THE ADDITION OF THE RECOMMENDED RATES FOR THE ACCEPTANCE OF SPEICAL WASTE TO BE ADDED ON TO THE RATE MODEL AND FINANCIAL PLAN PETITION TO THE PUBLIC UTILITIES COMMISSION TO IMPLEMENT REVISED RATES

WHEREAS, 10 GCA Chapter 51A §51A104 (4) authorizes GSWA to establish and modify from time to time, with the approval of the Public Utilities Commission (PUC), reasonable rates and charges for the collection, transportation, disposal, storage, recycling and processing of solid waste to recover the full cost of providing solid waste management services, and collect money from customers using such services. Similarly, the Authority shall establish and modify from time to time, with the approval of the PUC, reasonable rate and charges for servicing of debt obtained to undertake capital improvements to solid waste; and

WHEREAS, the Authority awarded a contract for Professional Solid Waste Management and Financial Consulting Services to Utility Financial Solutions, LLC (UFS); and

WHEREAS, UFS performed the studies, and submitted a presentation and report of the recommended Rate Model and Financial Plan to the GSWA Board of Directors on March 23, 2023 at its regular board meeting; and

WHEREAS, the Rate Model and Financial Plan would require rate adjustments in the FY2024 period and the Board of Directors approved and accepted the recommended Rate Model and Financial Plan to be petitioned to the Public Utilities Commission to implement revised rates through Board Resolution No. 2023-007; and

WHEREAS, on April 5, 2023 the Guam Environmental Protection Agency provided the Guam Solid Waste Authority approval for the disposal and acceptance of the Special Waste (SW) provided that it is non-hazardous and within the provided conditions attached as Exhibit A; and

WHEREAS, GSWA General Manager is seeking approval from the GSWA Board of Directors for the recommended Special Waste Acceptance Fees in the memorandum addressed to the GSWA Board of Directors attached as Exhibit A to include the upcoming petition to the Public Utilities Commission;

THEREFORE, BE IT HEREBY RESOLVED by the Board of Directors as the Governing Body of the Guam Solid Waste Authority approves and adopts the recommended Special Waste Acceptance Rates and authorizes the GSWA General Manager to petition the Public Utilities Commission to implement the rates as provided in Exhibit A.

Ayes: **3**

Nays: **0**

Absent: **2**

Abstain: 0

Upon said roll call, the text of the foregoing was duly enacted as a Resolution of the Board of Guam Solid Waste Authority, Guam, on the April 20, 2023.

GUAM SOLID WASTE AUTHORITY
BOARD OF DIRECTORS

Andrew Gayle, Chairman

Margaret Denney, Secretary

ATTEST:
ALICIA FEJERAN, CLERK

BY: _____

EXHIBIT B

Introduction and Background

Q1. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A1. My name is Irvin L. Slike, I am the General Manager of the Guam Solid Waste Authority, located at 546 North Marine Corps Drive, Tamuning, Guam 96913.

Q2. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL HISTORY

A2. I have thirty-eight years experience in managing permitting, design, construction , operation and closure of landfill facilities. I have managed solid waste collection and disposal programs for Frederick Maryland, Town of Windsor and Manchester in Connecticut. I have also managed three Construction and Demolition landfill expansions, closures, and operations for Waste Management Inc. in the Orlando Florida area. Most recently I was a Project Coordinator for the City of Winnipeg for its landfill capital program. I have also facilitated the transition from rear loading collection to automated collection in the Town of Manchester and City of Winnipeg.

I have been the General Manager for the Guam Solid Waste Authority since October of 2021. I have been an active member and held leadership positions in the Solid Waste Association of North America (SWANA) since 1986.

Q3. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING

A3. I am testifying in support of GSWA's rate increase (title) and special waste disposal rates.

Q4. What are the improvements in the proposed rate increase and special waste disposal rates.

A4. The proposed $3.00 per month rate increase on refuse collection customers will properly fund the collection equipment replacement, landfill cell development and cell closure and the post closure fund for the landfill.

The equipment replacement fund is crucial for efficient, timely, and sustained service of the weekly routes. The proposed rate increase will increase the equipment fund from $0.00 in 2022 to $580,635 in 2025. This will allow expenditures of approximately $6 million dollars in 2031 and 2032, which will be the end of the useful life of the diesels purchased in 2023.

The landfill cell development fund will increase from the $50,000 contribution to $606,545 in 2025. Even with this increase the landfill cell construction will likely be partially funded by bonds.

The post closure fund contribution will be a constant $1,500,000 starting in 2026 until the useful life of Layon is finished approximately 75 years from now. The fund will also pay for the 30 year regulatory commitment for every disposal cell from monies collected during its operating life. This regulatory commitment ends approximately 2123.

Q5. WHY ARE THE PROPOSED RATES NECESSARY

A5. The rates are necessary both from a fiducial standpoint and a regulatory compliance requirement. If it is possible to fund the equipment necessary for collection and the disposal infrastructure entirely from collection and disposal fees, this contributes to the financial health and stability of the organization.

The post closure care fund could technically wait until the useful life of the landfill expires, ie. 2098. However this would mean at least $32 million would need to be available in that year. And throughout its life approximately $1,700,000 would have to be drawn from rate payers for the groundwater monitoring and maintenance of the closed cells. If the cells were not closed properly then Layon would absorb 75 years of rainfall and the leachate disposal costs would be prohibitive.

Q6. WHAT IMPACTS WILL THE PROPOSED IMPROVEMENTS HAVE ON LEVELS OF SERVICE FOR GSWA RATE PAYERS?

A6. As stated above, the equipment replacement fund is essential in providing the funds and schedule for equipment to be replaced on or before its useful life is reached. This will ensure that each refuse truck has more hours of operational time as compared to time spent being repaired. It also means that rate payers monies are spent on collection of their refuse instead of increased repairs, overtime because double shifts have to be enacted, and the resale value of the retired equipment is not as great as it could be. A higher resale value will lower the cost of future equipment replacement.

A properly funded landfill disposal cell development plan will ensure that the rate payers are provided a state of the art disposal facility that will safely store their waste under all of the regulatory requirements and through-out they and their children's lifetimes. The post-closure fund ensures that rate payer's are not paying additional monies for leachate disposal and it limits rate payers liability to the useful life of Layon.

Q8 WHAT REGULATORY ISSUES WILL NEED TO BE ADDRESSED OUTSIDE OF THIS RATE INCREASE

A8. No other regulatory issues will need to be addressed. The costs, schedule, and capital requirements needed to be in full compliance have already been included.

Q9 WHAT SIGNIFICANT OPERATIONAL CHANGES ARE ANTICIPATED WITH THE PROPOSED RATE INCREASE.

A9. None

EXHIBIT C

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

PETITION FOR RATE INCREASES FOR SOLID WASTE SERVICES

Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.
My name is Kathrine B. Kakigi. I am the Comptroller of Guam Solid Waste Authority, located at 546 N. Marine Corps Drive, Tamuning, Guam 96913.

PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL HISTORY:
I have a Bachelor of Business Administration in Accounting and a Professional Masters of Business Administration from the University of Guam. I am a Certified Public Accountant in Guam. I have 25 years of experience working in the Government of Guam. I started as an Accountant III and eventually became the Financial Manager overseeing Division o
f Accounts, Department of Administration. As the leader of the Department of Administration, I earned the first clean audit in FY2007 for the Government of Guam and first time Certificate of Achievement for excellence in Financial Reporting awarded to Government of Guam in FY2012 and FY2013.
I am currently the Comptroller working at Guam Solid Waste Authority since September 2018. My primary responsibilities include overseeing the accounting and budget functions and providing timely financial information to internal and external stakeholders.

WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PRECEDING?
The purpose of my testimony is to request rate increases for solid waste services to adequately cover the cost of such services including, but not limited to, funding reserves for future costs relating to Ordot Post Closure Care, Layon Cell Closure, new cell development, the Layon post closure fund and Equipment Replacement Fund.

In FY2020 and FY2021, GPUC's consultant MSW Consultants (MSW) was hired to do a Management Audit of the Guam Solid Waste Authority. Following their review, MSW acknowledged and agreed that there is a need to first address near term projected deficiencies using the current rates and systems costs and once stabilized the need to address substantial long term projected deficiencies in the Layon close and post closure reserves.
MSW updated the latest Receiver's Rate Model and offered two options for rectifying the funding shortfalls for GSWA. Their analysis included Fiscal years 2020 to 2035. At this time, GSWA planned to implement recommended rate increases effective for FY2022 with Residential Rates moving from $30 to $35 and Commercial Haulers rates moving from $171.60 to $205.00. Effective FY2024, Residential Rates would remain the same and Commercial Rates would increase from $205 to $225.00.

GSWA's plan was to proceed with the recommendation of MSW and petition GPUC to seek approval for the rate adjustment however, the plan was changed when the Governor offered ARPA funds that covered FY2022 through FY2023 projected shortfalls. GSWA was allocated approximately $3 million each year.

Following Fiscal Year 2023, ARPA funds will no longer be available. It is critical that GSWA take action now to obtain GPUC's approval to adjust our rates to ensure our revenue requirement and reserves are met.

MSW also recommended that GSWA broaden its ratepayer base by making residential collection mandatory. GSWA had planned to move forward with the Island Wide Collection Initiative. However, despite the Legislature passing a bill to mandate Island Wide Collection, the Governor wanted a subsidy to fund a Customer Assistance Program and therefore vetoed it. There were not enough votes to override the veto. In September 2023, an agreement was reached with the United States to share the responsibility for the cleanup of Ordot. An estimated $30 million would cover the costs of Ordot Dump Post Closure Care, thereby preventing GSWA from having to anually transfer $2 million plus inflation payments to the Ordot Dump Post Closure Fund starting in FY2025. The vendor payments would be paid by both Operating Cash and Ordot Funds moving forward.

As required by Guam Public Utilities Commission, GSWA hired a consultant Utility Financial Solutions, LLC (UFS) to review GSWA's current rates, the cost to provide service and an alternative course of action. UFS prepared a report that provided GSWA with a cost-of-service study and financial projection and comprehensive examination of its existing rate structure by an outside party. The following information can be found in the attached Guam Solid Waste Cost of Service and Unbundling Study (Exhibit D).

Cost of Service

The financial projections prepared by UFS are from FY25 to FY29. To determine revenue requirements, the revenues and expenses for fiscal years 2021, 2022, and 2023 / 2024 budget were analyzed, with adjustment made to reflect projected operating characteristics. Forecasted expenses were based on 2021, 2022, and 2023 / 2024 budget adjusted for inflation. Landfill Tipping costs from 2025 – 2029 are based on GSWA's contractual agreements, specified as cost per ton, and adjusted for system growth factors.

SOLID WASTE OPERATION FUND

Comparative Revenues, Expenditures and change in Fund Balances

Fiscal Year 2021 to 2024

	Actuals			Budgeted
Description	FY 2021	FY 2022	FY 2023	FY 2024
Commercial	8,672,301.00	9,127,106.00	11,008,782.00	9,758,051.00
Government	1,545,101.00	906,344.00	2,102,906.00	987,518.00
Residential	7,442,841.00	7,967,130.00	7,789,913.00	7,951,648.00
Host Community Fees	325,188.00	323,690.00	375,780.00	300,000.00
Harmon Transfer Station	310,130.00	295,601.00	278,082.00	287,042.00
Malojloj Transfer Station	71,240.00	63,565.00	55,031.00	56,804.00
Agat Transfer Station	66,287.00	56,653.00	50,910.00	52,550.00
Other Revenues	86,003.00	45,290.00	35,870.00	34,888.00
ARPA Funding	545,732.00	2,393,778.00	3,473,564.00	-
Miscellaneous-Reimbursement	-	-	107,816.00	-
Use of money and property	3,104.00	1,586.00	2,418.00	-
Transfer in from COVID-19 Fund	-		-	-
Transfer in from Recycling Revolving Fund	-		400,000.00	400,000.00
Fund Balance				*2,283,826.00*
Total Revenues	*19,067,927.00*	*21,180,743.00*	*25,681,072.00*	*22,132,330.00*

Expenditures by Object Class

Fiscal Year 2021 to 2024

	Actuals			Budgeted
Description	FY 2021	FY 2022	FY 2023	FY 2024
Salaries and Benefits	2,366,692.00	2,453,368.00	3,388,155.00	4,022,582.00
Travel	3,536.00	11,421.00	14,485.00	24,286.00
Contractual Services	-	-	-	-
Layon Operations	3,623,178.00	3,755,578.00	4,877,722.00	4,550,000.00
Harmon Hauler	3,103,218.00	3,358,248.00	4,028,599.00	3,639,422.00
Temporary Employment	1,175,095.00	1,442,895.00	1,299,283.00	500,000.00
Ordot Dump Vendors	-	-	-	-
Others	3,556,962.00	3,620,821.00	2,621,695.00	2,020,785.00
Supplies	301,303.00	494,644.00	860,740.00	751,655.00
Equipment	628.00	25,963.00	33,517.00	10,242.00
Miscellaneous	210,171.00	461,625.00	269,361.00	445,708.00
Cell new and closure expenses	-	-	-	-
Utilities- power,water & communication	144,470.00	175,541.00	184,107.00	190,015.00
Capital outlays	45,980.00	188,760.00	464,753.00	680,635.00
Interest and Fiscal Charges				
Transfer out of General Fund				
Capital Projects				
Post Closure Care	2,247,971.00	2,533,056.00	2,400,350.00	2,000,000.00
Debt Services ($30 Million, 12 yrs)	3,042,521.00	3,044,146.00	3,045,854.00	2,997,000.00
Host Community Benefit	325,188.00	323,690.00	375,780.00	300,000.00
Total Expenditures	*20,146,913.00*	*21,889,756.00*	*23,864,401.00*	*22,132,330.00*
Excess (deficiency) of revenues over (under) expenditures	-1,078,987.00	-709,014.00	1,816,670.00	-
Other Financial sources(uses):				
Operating Transfers in	-	850,194.00	-	-
Operating Transfers out	-	-	-	-
Total other Financing sources(uses), net	-	850,194.00	-	-
Net Change in fund balances (Deficits)	*-1,078,987.00*	*141,182.00*	*1,816,670.00*	-

Included in the UFS reports are the financial statements projections using Current Rates (Base Case) and financial statement projections using Proposed Rates, FY2024 reflects additional revenues and cost associated with Typhoon Mawar and Soil Disposal:

Cash inflows

Collection Sales

Description	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Residential	8,126,450.00	8,091,500.00	8,127,912.00	8,164,487.00
Residential Transfer Station	396,396.00	389,034.00	388,320.00	390,067.00
Residential Uncollectable Accounts	(243,794.00)	(242,745.00)	(243,837.00)	(244,935.00)
Government Agencies and Small Commercia	1,263,995.00	1,092,072.00	1,095,894.00	1,099,730.00
Major Commercial Haulers(with discount)	10,477,526.00	10,506,710.00	10,543,483.00	10,580,386.00
ARPA Funding	-	-	-	-
Reactivation/Restoration/Trash Tags	34,888.00	53,223.00	53,463.00	53,463.00
Miscellaneous- Reimbursement	400,000.00	400,000.00	400,000.00	400,000.00
Interest and Other Income (DSF)		25,000.00	25,000.00	25,000.00
Ordot Net Transfer at Sunset			891,571.00	
Typhoon Revenue	1,476,778.00	-	-	-
Disposal of Soil	2,714,641.00	-	-	-
Host Community Premium Surcharge	300,000.00	300,000.00	300,000.00	300,000.00
Operating Revenue	24,946,880.00	20,614,794.00	21,581,806.00	20,768,198.00
Total Cash Inflows	24,946,880.00	20,614,794.00	21,581,806.00	20,768,198.00

Cash Outflows

Description	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Personnel Expense	4,002,582.00	4,325,376.00	4,407,558.00	4,491,302.00
Contractual Services	13,628,429.00	11,894,149.00	12,026,883.00	12,161,197.00
Adjustments for operator	-	(720,000.00)	(740,000.00)	(740,000.00)
Inflation Payment	1,900,000.00	-	-	-
Receiver Fees	1,100,000.00			
Travel	24,286.00	24,575.00	25,042.00	25,518.00
Supplies/ Vehicle	751,655.00	620,000.00	631,780.00	643,784.00
Equipment	10,242.00	5,305.00	5,406.00	5,509.00
Vehicle Maintenance				
Utilities - Power and Water	190,015.00	192,276.00	195,929.00	199,652.00
Communications				
Layon Post-closure/New Cell expenses	200,000.00	756,545.00	3,356,545.00	3,356,545.00
Capital outlays	680,635.00	580,635.00	580,635.00	580,635.00
Debt Service Payment	2,997,000.00	3,049,833.00	3,051,604.00	3,057,479.00
Host Communit Premium Benefit	300,000.00	300,000.00	300,000.00	300,000.00
Miscellaneous	244,708.00	247,608.00	252,313.00	257,106.00
Drug Testing	1,000.00	1,000.00	1,000.00	1,000.00
Total other Operating Expenses	26,030,552.00	21,277,302.00	24,094,695.00	24,339,727.00
Total cash outflows	26,030,552.00	21,277,302.00	24,096,695.00	24,339,727.00
Operating Income	(1,083,672.00)	(662,508.00)	(2,512,889.00)	(3,571,529.00)

Summary of the Financial Statements using the proposed Rate Changes:

Cash inflows
Collection Sales

Description	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Residential	8,126,450.00	8,698,363.00	9,482,564.00	9,525,235.00
Residential Transfer Station	396,396.00	389,034.00	388,320.00	390,067.00
Residential Uncollectable Accounts	-243,794.00	-260,951.00	-284,477.00	-285,757.00
Government Agencies and Small Commercial	1,263,995.00	1,156,031.00	1,213,403.00	1,217,650.00
Major Commercial Haulers(with discount)	10,477,526.00	11,183,585.00	12,030,385.00	12,208,137.00
ARPA Funding	-	-	-	-
Reactivation/Restoration/Trash Tags	34,888.00	53,223.00	53,463.00	53,463.00
Miscellaneous- Reimbursement	400,000.00	400,000.00	400,000.00	400,000.00
Interest and Other Income (DSF)		25,000.00	25,000.00	25,000.00
Ordot Net Transfer at Sunset			891,572.00	
Typhoon Revenue	1,476,778.00		-	
Disposal of Soil	2,714,641.00		-	
Host Community Premium Surcharge	300,000.00	300,000.00	300,000.00	300,000.00
Operating Revenue	24,946,880.00	21,944,285.00	24,500,228.00	23,833,795.00
Total Cash Inflows	24,946,880.00	21,944,285.00	24,500,228.00	23,833,795.00

Cash Outflows

Description	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Personnel Expense	4,002,582.00	4,325,376.00	4,407,558.00	4,491,302.00
Contractual Services	13,628,429.00	11,894,149.00	12,026,883.00	12,161,197.00
Adjustments for operator	-	-720,000.00	-740,000.00	-740,000.00
Inflation Payment	1,900,000.00	-	-	-
Receiver Fees	1,100,000.00	-	-	-
Travel	24,286.00	24,575.00	25,042.00	25,518.00
Supplies/ Vehicle	751,655.00	620,000.00	631,780.00	643,784.00
Equipment	10,242.00	5,305.00	5,406.00	5,509.00
Vehicle Maintenance				
Utilities - Power and Water	190,015.00	192,276.00	195,929.00	199,652.00
Communications				
Layon post-closure/New Cell expenses	200,000.00	756,545.00	3,356,545.00	3,356,545.00
Capital outlays	680,635.00	580,635.00	580,635.00	580,635.00
Debt Service Payment	2,997,000.00	3,049,833.00	3,051,604.00	3,057,479.00
Host Communit Premium Benefit	300,000.00	300,000.00	300,000.00	300,000.00
Miscellaneous	244,708.00	247,608.00	252,313.00	257,106.00
Drug Testing	1,000.00	1,000.00	1,000.00	1,000.00
Total other Operating Expenses	26,030,552.00	21,277,302.00	24,094,695.00	24,339,727.00
Total cash outflows	26,030,552.00	21,277,302.00	24,094,695.00	24,339,727.00
Operating Income	-1,083,672.00	666,982.00	405,533.00	-505,932.00

The assumptions for the revenues and expenses are listed below:

Fiscal Year	Residential Rate Adjustments	Major Commercial Haulers Rate Adjustments	Gov Agencies and Small Commercial Rate Adjustments	Government Tonnage Growth	Commercial Tonnage Growth	Avg Residential Growth	Residential Transfer Growth	Inflation	Hauler Waste Station Contractual Inflation	Landfill Cost Change
2024	0.00%	0.00%	0.00%	-39.89%	-4.83%	4.23%	0.50%	1.90%	7.00%	1.10%
2025	10%	8.60%	7.80%	-13.60%	0.28%	-0.43%	-2.50%	1.90%	1.20%	1.20%
2026	6.10%	5.10%	2.70%	0.35%	0.35%	0.45%	0.40%	1.90%	7.00%	1.90%
2027	0%	1.10%	0.00%	0.35%	0.35%	0.45%	0.40%	1.90%	7.00%	1.90%

The table 2 details the minimum level of cash reserves GSWA would like to establish and is based on assessment of working capital to fund operating expenditures, capital improvements, annual debt service payments and landfill tipping costs

Description	Projected 2025	Projected 2026	Projected 2027
Minimum Cash Reserve Levels Determinants			
Operation & Maintenance (excluding cash fund transfers)	16,890,289	17,105,911	17,345,067
Historical Rate Base	25,485,929	25,592,935	25,936,968
Minimum Cash Reserve Allocation			
Operation & Maintenance (excluding cash fund transfers)	16.40%	16.40%	16.40%
Historical Rate Base	5%	5%	5%
Calculated Minimum Cash Level			
Operation & Maintenance (excluding cash fund transfers)	2,776,486	2,811,931	2,851,244
Historical Rate Base	1,274,296	1,279,647	1,296,848
Minimum Cash Reserve Levels	**4,050,782**	**4,091,577**	**4,148,092**

Similar to MSW, UFS found rate increases are necessary to ensure financial stability of GSWA. GSWA is requesting the PUC issue an order granting:

Fee rate adjustments based on the following categories:

	Current	FY2025 (Starting January 2025)		FY2026		FY2027	
	Rate	Rate	Increase	Rate	Increase	Rate	Increase
Residential Rate	$ 30.00	$ 33.00	$ 3.00	$ 35.00	$ 2.00	$ 35.00	$ -
Residential Transfer Station (minimum charge)	$ 7.50	$ 11.55	$ 4.05	$ 11.55	$ -	$ 11.55	$ -
Residential Transfer Station (half cab)	$ 15.00	$ 23.10	$ 8.10	$ 23.10	$ -	$ 23.10	$ -
Residential Transfer Station (above cab)	$ 22.50	$ 34.65	$ 12.15	$ 34.65	$ -	$ 34.65	$ -
Commercial Discount (per ton)	$ 15.60	$ 15.60	$ -	$ 12.00	$ (3.60)	$ 10.00	$ (2.00)
Commercial Rate (per ton)	$ 171.60	$ 185.00	$ 13.40	$ 190.00	$ 5.00	$ 190.00	$ -
Government Rate (per ton)	$ 171.60	$ 185.00	$ 13.40	$ 190.00	$ 5.00	$ 190.00	$ -

GSWA is also seeking PUC approval for implementation of special handling rates. There are additional precautions taken to dispose of special materials properly and safely, and result in a higher cost to GSWA for handling of these materials. The rates are developed using the cost of tonnage disposal at the landfill and transfer station, density ratio for special materials, and associated record keeping and reporting costs

Special Waste	Rate
Contaminated Soil Rate (per ton)	$ 250.00
Asbestos Rate (per ton)	$ 450.00
Fats, Oils, & Grease (FOG) Rate (per ton)	$ 271.00
Power Poles / Junk Tires (per ton)	$ 300.00
Special Waste Report Review Fee (flat rate)	$ 200.00

HOW WAS THE REVENUE FORECAST DERIVED?

Initially, the review of our Rate Study was performed by PUC's Consultant, MSW Consultants. MSW opted to update the 2016 GBB Rate Model rather than creating a new one. GSWA provided MSW the FY2019 financials as a starting point. GSWA adopted MSW's key assumptions for projected revenues.

Projected residential revenue was forecasted to increase by 0.45% and commercial revenues are projected to increase by 0.35%. These assumptions were updated on the Receiver's Rate Model and reviewed by the PUC Consultant. Please refer to Exhibit 3-1 Guam Econometrics of the Final Report Guam Public Utilities Commission Management Audit of the Guam Solid Waste Authority. Our consultant, UFS updated the revenue forecast from FY22 to FY28.

We provided UFS actuals for FY2022 and FY2023 and the projections for FY2024. Although GSWA received almost $1.5 million in Typhoon Mawar Revenues and almost $2.5 million in contaminated soil, the additional revenues were not projected to continue after FY2024.

Table 13 - Growth Assumptions 2023

Fiscal Year	Avg Residential Growth	Residential Transfer Growth	Hauler Waste Station Contractual Inflation	Government Tonnage Growth	Commercial Tonnage Growth
2023	2.90%	-5.10%	1.20%	183.50%	17.90%
2024	4.32%	0.50%	7.00%	-39.89%	-4.83%

For the subsequent years, the key assumptions that UFS used to project revenues were used for FY2024 to FY2028 increases.

Non-rate-related revenues include items such as interest, trash tag fees, reactivation/restoration fees, miscellaneous reimbursement for recycling, and the host community premium surcharge,

which is a pass-through. The reimbursement for the recycling program is expected to remain consistent throughout the projection. Other revenue items are increased by inflation.

The FY2023 revenues included a $3.0 million grant through ARPA funding. This line item is not projected to continue after FY2023.

WHAT LEVEL OF STAFFING IS INCLUDED IN THE BUDGET?

GSWA has included full funding of 54 FTE in its FY2024 budget. GSWA's current staffing level is 52 employees.

HAS GSWA INCLUDED THE STAFFING STUDY AS REQUIRED AS A PART OF THIS PETITION?

Yes. GSWA had a staffing study performed by MSW consultants on the GSWA Collection System. MSW observed that GSWA does not service 100% of its residential customer base. The fact that GSWA doesn't have mandatory collection provides detrimental impacts on productivity and efficiency. One is greater impact on customer account management in having to keep track of customer base, charge and recover appropriate fees, and manage open/closed accounts. The second detrimental impact is Collection efficiency, GSWA routes must pass by non-customers to reach customers.

MSW noted current regulations require annual research on benchmarking manpower/staffing. They recognize that in practice, unless GSWA changes their collection system from semi-automated to fully automated and enforce mandatory residential collection, it is not likely that manpower/staffing research is necessary on an annual basis but should be performed every four to five years.

WHAT ARE THE DRIVERS BEHIND THIS PETITION FOR RATE RELIEF?

The primary driver for seeking a rate increase is the fact that GSWA will no longer have ARPA funds for operations in FY2024. The ARPA funds helped paid the increased Contract costs as

well as the hiring of additional Personnel. Without help of ARPA funds for operations, cash available from operations is projected to decrease by $2.5 million in FY2024.
Contractual Expenditures increased due to inflation. The Layon Operator and Hauler Transfer Station contract costs increased due to CPI adjustments. Since FY2019, Layon Operator and Harmon Transfer Station operating fees increased from 6.8% to 8.7%, respectively.

Personnel costs increased significantly. Our Temporary Staffing Services contract recently expired on September 2022 and required review by PUC. PUC recognized the need to reduce the number of temporary employees and limit the positions to Sanitation Workers and Equipment Operators. To reduce the number of Temporary employees, GSWA hired 14 additional Sanitation and Equipment Operator employees beginning January 2023. The total cost of additional personnel is projected to increase approximately 16% from FY2023 to FY2024, including the increases outlined in the GovGuam General Pay Plan.
Although the number of temporary employees decreased, the hourly rates increased averaging 36% more than the old rates.
In light of the recent increase of 22% to the GovGuam General Pay Plan, GSWA determined that a change to GSWA Compensation Pay Plan is in order and requested the board for approval. GSWA established the GSWA Compensation Plan on August 1, 2022 which provided a two (2) pay grade increase across the board, GSWA's consultant Allied Business Consultants recommended that an additional increase be implemented upon availability of funds as GSWA was still on average, 9% to 17% lower than other Utility Agencies. GSWA recommends revising its current Compensation Plan to mirror the GovGuam General Pay Plan. The recommended increase will ensure GSWA offers competitive compensation within the Government of Guam that will attract and retain qualified employees. The 22% increase was effective July 30, 2023.

UFS cost of service and unbundling study assessments included the following Rate- Related Considerations:

Rate-Related
Considerations

1. Revenue recovered by each major class of customers show the need for adjustments
in all classes.

2. Current total monthly charges for residential and tonnage charges for government and commercial are listed below and compare the current charges with the cost of service charges

Customer Class	Cost of Service Per/Customer	Projected Revenues Per/Customer
Residential	$ 38.86	$ 30.00
Residential Transfer Station	$ 13.10	$ 8.51
Government Agencies and Small Commercial	$ 162.22	$ 171.60
Major Commercial Haulers (with discount)	$ 171.88	$ 156.00

3. GSWA may consider movements toward cost of service. The 2023 cost of service study indicates a variance exists between revenues and costs for certain revenue classes. The student results are listed below:

Customer Class	Cost of Service $/Customer	Projected Revenues	% Change
Residential	$ 9,987,269.00	$ 8,160,851.00	22.40%
Residential Transfer Station	$ 640,155.00	$ 415,819.00	54.00%
Government Agencies and Small Commercial	$ 960,516.00	$ 1,016,054.00	-5.50%
Major Commercial Haulers (with discount)	$ 10,343,695.00	$ 9,388,183.00	10.20%
Total	$ 21,931,635.00	$ 18,980,907.00	15.50%

4. GSWA is seeking approval of the rate track for three years..

Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount (per ton)	Gov't Agencies & Small Commercial Rate (per ton)
2025	$ 33.00	$ 11.55	$ 23.10	$ 34.65	$ 15.60	$ 185.00
2026	$ 35.00	$ 11.55	$ 23.10	$ 34.65	$ 12.00	$ 190.00
2027	$ 35.00	$ 11.55	$ 23.10	$ 34.65	$ 10.00	$ 190.00

Fiscal Year	Contaminated Soil Rate (per ton)	Asbestos Rate (per ton)	FOG Rate (per ton)	Power Poles/Junk Tires Rate (per ton)	Special Waste Report Review Rate
2025	$ 250.00	$ 450.00	$ 271.00	$ 300.00	$ 200.00
2026	$ 250.00	$ 450.00	$ 271.00	$ 300.00	$ 200.00
2027	$ 250.00	$ 450.00	$ 271.00	$ 300.00	$ 200.00

5. The rate tracks should be reviewed each year and adjusted for the outcome of the IWC and Ordot Post Closure funding as needed.

Supporting documentation include the following:

- Schedule A – Debt Service Schedule
- Schedule B – Comparative Revenues, Expenditures & Changes in Fund Balance
- Schedule C – Comparative Schedule of Employees

GOVERNMENT OF GUAM GENERAL OBLIGATION: 2019 BONDS

Issue Amount:	$27,610,000 (Private Activity-AMT)	All in TIC: 3.25%
Dated Date:	July 25, 2019	
Delivery Date:	July 25, 2019	
Final Maturity:	**November 15, 2031**	

Bond Counsel:
Orrick, Herrington & Sutcliffe LLP

Underwriters:
Citigroup Global Markets Inc., Senior Manager
Barclays, Co-Manager

Underwriters Counsel:
Hawkins Delafield & Wood LLP

Trustee & Depository:
Bank of Guam

Paying Agent and Registrar:
U.S. Bank National Association

Purpose: The 2019 Bonds were issued by the Government of Guam (the "Government") for the purpose of paying: (i) costs relating to the construction of a new cell for the Layon Municipal Sanitary Landfill operated by the Guam Solid Waste Authority; and (ii) expenses incurred in connection with the issuance of the Bonds.

Sale Proceeds totaled $31,637,746.80, comprising the principal amount of the Bonds, $27,610,000, plus original issue premium of $4,027,746.80.

Authorization: The 2019 Bonds were authorized to be issued pursuant to Section 1512.4 of Title 5 of the Guam Code Annotated, as amended, an Issuance Certificate, dated as of July 1, 2019. The Issuance and sale of the Bonds were approved by the Guam Legislature by P.L. 35-21, pursuant to subsection (b) of the Bond Act, by the Guam Economic Development Authority pursuant to Resolution No. 19-01, adopted on July 8, 2019, and by the Guam Solid Waste Authority pursuant to Resolution No. 2019-01, adopted on June 25, 2019.

Source of Payment: The Bonds constitute the valid and legally binding general obligations of the Government. The Government pledges its full faith and credit for the punctual payment of principal of and interest on the Bonds.

Annual Disclosure-Obligations: Under the Indenture, the Government has agreed to provide the following (a) audited financial statements for the prior Fiscal Year (b) Budgeted revenues and expenditures of the Government for the current fiscal year (c) Historical information of the type shown in Table 6 of the Official Statement entitled "Government of Guam Outstanding Indebtedness."

Significant Events That-Must Be Reported: (1) principal and interest payment delinquencies (2) Unscheduled draws on debt service reserves reflecting financial difficulties; (3) Unscheduled draws on credit enhancements reflecting financial difficulties; (4) Substitution of credit or liquidity providers, or their failure to perform; (5) Adverse

tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability or Notices of Proposed Issue (IRS Form 5701 TEB); (6) Tender offers; (7) Defeasances; (8) Rating changes; (9) Bankruptcy, insolvency, receivership or similar event of the Issuer (Refer to Disclosure); (10) Default, event of acceleration, termination event, modification of terms, or similar events under the terms of a Financial Obligation of the obligated person, any of which reflect financial difficulties.

Filing Deadline for-
Annual Disclosure: June 27 (270 days after Fiscal Year End)

GOVERNMENT OF GUAM
GENERAL OBLIGATION 2019 BONDS
HISTORIC/PROJECTED DEBT SERVICE

Date	Principal	Interest	Debt Service	Annual Debt Service	Outstanding Debt
11/15/19	565,000.00	421,819.44	986,819.44		27,045,000.00
5/15/20		676,125.00	676,125.00		
9/30/20				1,662,944.44	
11/15/20	1,685,000.00	676,125.00	2,361,125.00		25,360,000.00
5/15/21		634,000.00	634,000.00		
9/30/21				2,995,125.00	
11/15/21	1,775,000.00	634,000.00	2,409,000.00		23,585,000.00
5/15/22		589,625.00	589,625.00		
9/30/22				2,998,625.00	
11/15/22	1,865,000.00	589,625.00	2,454,625.00		21,720,000.00
5/15/23		543,000.00	543,000.00		
9/30/23				2,997,625.00	
11/15/23	1,960,000.00	543,000.00	2,503,000.00		19,760,000.00
5/15/24		494,000.00	494,000.00		
9/30/24				2,997,000.00	
11/15/24	2,060,000.00	494,000.00	2,554,000.00		17,700,000.00
5/15/25		442,500.00	442,500.00		
9/30/25				2,996,500.00	
11/15/25	2,165,000.00	442,500.00	2,607,500.00		15,535,000.00
5/15/26		388,375.00	388,375.00		
9/30/26				2,995,875.00	
11/15/26	2,275,000.00	388,375.00	2,663,375.00		13,260,000.00
5/15/27		331,500.00	331,500.00		
9/30/27				2,994,875.00	
11/15/27	2,395,000.00	331,500.00	2,726,500.00		10,865,000.00
5/15/28		271,625.00	271,625.00		
9/30/28				2,998,125.00	
11/15/28	2,515,000.00	271,625.00	2,786,625.00		8,350,000.00
5/15/29		208,750.00	208,750.00		
9/30/29				2,995,375.00	
11/15/29	2,645,000.00	208,750.00	2,853,750.00		5,705,000.00
5/15/30		142,625.00	142,625.00		
9/30/30				2,996,375.00	
11/15/30	2,780,000.00	142,625.00	2,922,625.00		2,925,000.00
5/15/31		73,125.00	73,125.00		
9/30/31				2,995,750.00	
11/15/31	2,925,000.00	73,125.00	2,998,125.00		0.00
9/30/32				2,998,125.00	
TOTAL	27,610,000.00	10,012,319.44	37,622,319.44	37,622,319.44	

SOLID WASTE OPERATIONS FUND
Comparative Revenues, Expenditures and Changes in Fund balances
Fiscal Years 2019 to 2023

	FY2019	FY2020	FY2021	FY2022	FY20223
Commercial	9,736,079	8,563,649	8,672,301	9,127,106	11,008,769
Government	1,520,396	1,444,278	1,545,101	906,344	2,102,919
Residential	7,310,480	7,432,086	7,442,841	7,967,130	7,789,913
Host Community Fees	342,921	317,064	325,188	323,690	375,780
Harmon Transfer Station	234,939	236,941	310,130	295,601	278,082
Malojloj Transfer Station	53,140	67,369	71,240	63,565	55,031
Agat Transfer Station	50,988	55,865	66,287	56,653	50,910
Other Revenues	73,452	52,839	86,003	45,290	35,870
ARPA Funding			545,732	2,393,778	3,473,564
Miscellaneous - Reimbursement					107,816
Use of money and property	17,360	13,455	3,104	1,586	2,418
Transfer In from COVID-19 Fund	0	33,844		0	-
Transfer In from Recycling Revolving Fund					400,000
Total revenues	19,339,754	18,217,389	19,067,925	21,180,743	25,681,072
Expenditures by Object:					
Salaries and benefits	2,153,189	2,498,510	2,366,692	2,453,368	3,388,155
Travel	14,527	16,405	3,536	11,421	14,485
Contractual services:					
Layon Operations	3,649,082	3,290,388	3,623,178	3,755,578	4,877,722
Harmon Hauler	2,912,720	2,905,443	3,103,218	3,358,248	4,028,599
Temporary Employment	956,594	959,718	1,175,095	1,442,895	1,299,283
Others	4,982,491	3,701,412	3,556,962	3,620,821	2,621,695
Supplies	388,472	303,712	301,303	494,644	860,740
Equipment	17,786	53,761	628	25,963	33,517
Miscellaneous	467,810	272,186	210,171	461,625	269,361
Utilities - power, water & communication	159,962	149,204	144,470	175,541	184,108
Capital outlays	56,488	8,350	45,980	188,760	464,753
Interest and fiscal charges	79,273	0	0	0	-
Transfer Out to General Fund	0	0	0	0	-
Capital Projects	0	0	0	0	-
Post Closure Care	2,177,713	2,653,920	2,247,971	2,533,056	2,400,350
Debt service *($30 million, 12 years)*	1,086,633	3,059,332	3,042,521	3,044,146	3,045,854
Host Community Benefits	342,921	317,064	325,188	323,690	375,780
Total expenditures	19,445,661	20,189,405	20,146,913	21,889,757	23,864,402
Excess (deficiency) of revenues over (under) expenditures	-105,907	-1,972,016	-1,078,987	-709,014	1,816,670

Other financing sources (uses):					
Operating Transfers In	*0*		0	850,194	0
Operating Transfers Out	*0*		0	0	0
Total other financing sources (uses), net	*0*		0	850,194	0
Net change in fund balances (deficits)	*-105,907*	*-1,972,016*	*-1,078,987*	*141,182*	*1,816,670*

SOLID WASTE OPERATIONS FUND
Comparative Schedule of Employees
Fiscal Years 2022 to 2028

	Actuals FY2022	Budgeted FY2023	Proposed FY2024	Proposed FY2025	Proposed FY2026	Proposed FY2027	Proposed FY2028
Full Time Employees:							
Employee count:							
Administrative support	8	9	10	10	10	10	10
Residential collection	24	38	40	45	45	45	45
Disposal	4	4	4	4	4	4	4
Total employee count	36	51	54	59	59	59	59
Personnel costs:							
Salaries and wages - regular	1,601,058	2,203,068	2,633,012	2,887,711	2,942,578	2,998,486	3,055,458
Salaries and wages - overtime	185,865	193,451	152,907	177,824	181,203	184,646	188,154
Fringe benefits	666,445	1,039,797	1,216,662	1,259,841	1,283,778	1,308,170	1,333,025
Total government employee costs	2,453,368	3,436,316	4,002,581	4,325,376	4,407,558	4,491,302	4,576,636
Contract services:							
Employee count:							
Administrative support	5	0	0	0	0	0	0
Sanitation workers's	36	18	18	8	8	8	8
Total employee count	41	18	18	8	8	8	8
Total government/contractual employees	77	69	72	67	67	67	67
Total contractual employees costs:	1,442,895	1,200,000	975,635	680,000	688,092	696,280	704,566
Total combined government/contractual costs:	3,896,263	4,636,316	4,978,216	5,005,376	5,095,650	5,187,582	5,281,203

Notes:

As part of GSWA's efforts to reduce the number of tempoary employees, GSWA hired 14 employees beginning January 2023.

Effective FY2023, the new rates for the Tempoary employees increased by approximately 36%.

EXHIBIT D

Guam Solid Waste Authority

2023 Solid Waste Cost of Service and Unbundling Study

2024 Financial Projection Updates

August 2024

Corporate location:
Utility Financial Solutions, LLC
185 Sun Meadow Court
Holland, MI USA 49424
(616) 393-9722
Fax (888) 566-4430

Submitted Respectfully by:
Mark Beauchamp, CPA, CMA, MBA
President, Utility Financial Solutions, LLC
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(616) 393-9722

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UTILITY FINANCIAL SOLUTIONS, LLC

August 2024

Irvin Slike
General Manager
Guam Solid Waste Authority
546 N. Marine Corps Drive
Tamuning, Guam 96913

Dear Mr. Slike:

We are pleased to present the Revised Report for the solid waste cost of service study and financial projection for the Guam Solid Waste Authority (GSWA). The original report was prepared in June 2023 and gave an overview of the 2023 cost of service study and financial projection. Since the June report, known changes have occurred that affect the financial projection for 2024 – 2028. The financial section of this report was prepared to reflect these changes and to provide GSWA with a comprehensive examination of its existing rate structure by an outside party. The cost of service study is reflective of the 2023 cost structure.

The specific purposes of this rate study are:

- Determine solid waste utility's revenue requirements for fiscal year 2023 (cost of service)
- Recommend rate adjustments needed to meet targeted revenue requirements (financial projection)
- Identify the appropriate monthly charges for each customer class (cost of service)

This report includes results of the solid waste cost of service study and financial projection and recommendations on future rate designs.

This report is intended for information and use by the utility and management for the purposes stated above and is not intended to be used by anyone except the specified parties.

Sincerely,

Utility Financial Solutions, LLC
Mark Beauchamp, CPA, MBA, CMA
185 Sun Meadow Ct
Holland, MI 49424

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1. Introduction

This report was prepared to provide the Guam Solid Waste Authority (GSWA) with a solid waste cost of service study and financial projection and a comprehensive examination of its existing rate structure by an outside party. The specific purposes of the study are identified below:

1) ***Determine solid waste utility's revenue requirements for fiscal year 2023.*** GSWA's revenue requirements were projected for the period from 2023 – 2029 and included adjustments for the following:

    a. Projected landfill tipping costs
    b. Projected landfill post closure care and new cell development
    c. Projected debt service (landfill)
    d. Projected changes in staffing levels
    e. Capital improvement plan projected over next five years

2) ***Identify if cross-subsidies exist between rate classes.*** Cross-subsidies exist when certain customer classes subsidize the solid waste costs of other customers. The rate study identifies if cross-subsidies exist and practical ways to reduce the subsidies. The cost of service study was completed using 2023 projected revenues and expenses. The financial projections are for the period from 2023 – 2029.

3) ***Identify the appropriate monthly charges for each customer class.*** The monthly charge consists of fixed costs to serve customers, collection costs, and disposal costs.

4) ***Recommend rate adjustments needed to meet targeted revenue requirements.*** The primary purpose of this study is to identify appropriate revenue requirements and the rate adjustments needed to meet targeted revenue requirements. The report includes a long-term rate track for GSWA to help ensure the financial stability of the utility in future years.

2. Cost of Service Summary

Utility Rate Process

GSWA retained Utility Financial Solutions, LLC to review utility rates, the cost to provide service, and suggest an appropriate course of action. This report includes the results of the solid waste cost of service and unbundling study and projections for future rate designs.

GSWA Rate Overview

In 2020 and 2021, GSWA hired MSW Consultants (MSW) to perform a Management Audit for GSWA. The audit identified a need to address short-term projected operating shortfalls and long-term post-closure reserve balances through a multi-year rate plan. GSWA intended to seek Guam Public Service Commission (GPUC) approval to move forward with MSW's recommended rate adjustment.

Following the COVID-19 pandemic, ARPA funding was allocated to GSWA by the Governor to assist with projected operating shortfalls for FY2022 and FY2023. This allowed GSWA to delay rate increases to customers at that time. ARPA funding will no longer be available to fund operating losses after FY2023.

MSW's rate study also suggested implementation of an "Island Wide Program" (IWC), which would make residential collection through GSWA mandatory. This program, if authorized by GPUC would potentially increase GSWA's customer base by approximately 70%.

In addition, mandatory funding of Ordot Dump post closure costs equates to $2M per year through FY2027 as part of GSWA obligations. However, under the 2021 ruling *Guam v. United States* concerning fiscal responsibility for the cleanup of Ordot, GSWA may no longer be responsible for funding this portion of post closure care.

To properly account for the potential of the IWC and Ordot Funding, UFS considered the effect of four rate scenarios on projected revenue requirements.

Scenario	Island Wide (IWC)	Ordot
Scenario 1	Not Implemented	GSWA funds $2M annually
Scenario 2	Not Implemented	GSWA does not fund
Scenario 3	Implemented	GSWA funds $2M annually
Scenario 4	Implemented	GSWA does not fund

GSWA Rate Updates as of December 2023

Following June 2023, the government of Guam moved forward with implementing the IWC. Adjustments were made to the financial projections to reflect the implementation by phasing in the program in 2024 and 2025. In addition, GSWA will offer two types of residential discounts. The first is an overall reduction of the residential rate to $27.00 (with an expiration to this commitment in 2027). The second is an additional residential discount based on qualifying factors. The projections assumed around 50% of the residential customer base would qualify for this the additional discount.

In September 2023, Guam reached a settlement with the United States concerning it's fiscal responsibility for the cleanup of Ordot. Following the settlement, GSWA will no longer be responsible for this funding and it was therefore removed from the projection.

Additional adjustments were made to the projections to reflect increased labor costs, growth of commercial tonnage, and timing of new cell adjustments and closure expenses for 2024 - 2028. The following tables reflect these changes.

GSWA Rate Updates as of February 2024

Following the update to this report in December of 2023, the government of Guam is considering pausing their action to move forward with implementing the IWC. As a result, adjustments were made to the financial projections to remove IWC associated revenue and expense for 2025 – 2029. The rate track provided in Table 4 reflects GSWA's fiscal needs considering no implementation of the IWC program.

GSWA Rate Updates as of June 2024

Further specifications regarding the Ordot settlement have been identified and incorporated in the projections for accuracy. These specifications are as follows:

- GSWA is no longer required to transfer $2.0M annually to a separate Ordot-related cash fund, which was previously modeled through August 2026.
- GSWA is no longer required to transfer a 4.0% interest payment to a separate Ordot-related cash fund through August 2026.
- Vendor payments related to the Ordot Dump of approximately $1.2M will be funded from operating cash.
- Ordot operator expenses previously coded under "Contractual Services" in the financial statements are reduced by $740k beginning FY2025.

Utility Revenue Requirements

To determine revenue requirements, the revenues and expenses for fiscal years 2021, 2022, 2023, and 2024 budget were analyzed, with adjustments made to reflect projected operating characteristics. ***The projected financial statements are for cost of service purposes only.***

Table 1 is the projected financial statement under the base case for the Solid Waste Department from 2025 - 2029 with no changes to GSWA rates.

Table 1 – Financial Statements (Base Case)

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Cash Inflows					
Collection Sales					
Residential	$ 8,091,500	$ 8,127,912	$ 8,164,487	$ 8,201,228	$ 8,238,133
Residential Transfer Station	389,034	388,320	390,067	397,868	405,826
Residential Uncollectable Accounts	(242,745)	(243,837)	(244,935)	(246,037)	(247,144)
Government Agencies and Small Commercial	1,092,072	1,095,894	1,099,730	1,103,579	1,107,441
Major Commercial Haulers (with discount)	10,506,710	10,543,483	10,580,386	10,617,417	10,654,578
Interest and Other Income (DSF)	25,000	25,000	25,000	25,000	25,000
Reactivation / Restoration / Trash Tags	53,223	53,463	53,463	53,703	53,945
Miscellaneous - Reimbursement	400,000	400,000	400,000	600,000	600,000
Ordot Net Transfer at Sunset	-	891,572	-	-	-
Host Community Premium Surcharge	300,000	300,000	300,000	300,000	300,000
Cash Inflows	$ 20,614,794	$ 21,581,806	$ 20,768,198	$ 21,052,758	$ 21,137,779
Cash Outflows					
Personnel Expense	$ 4,325,376	$ 4,407,558	$ 4,491,302	$ 4,576,636	4,663,593
Contractual Services	11,894,149	12,026,883	12,161,197	12,305,916	12,452,356
Adjustments for operator	(720,000)	(740,000)	(740,000)	(740,000)	(740,000)
Travel	24,575	25,042	25,518	25,821	26,129
Supplies / Vehicle	620,000	631,780	643,784	651,445	659,197
Equipment	5,305	5,406	5,509	5,574	5,640
Utilities - power and water	192,276	195,929	199,652	202,028	204,432
Post Closure Care					
New cell closure expenses	$ 756,545	$ 3,356,545	$ 3,356,545	$ 3,396,488	$ 3,436,906
Other Expenditures					
Capital Outlays	$ 580,635	$ 580,635	$ 580,635	$ 580,635	$ 580,635
Debt Service Payment	3,049,833	3,051,604	3,057,479	3,058,229	3,062,146
Host Community Premium Benefits	300,000	300,000	300,000	300,000	300,000
Miscellaneous	247,608	252,313	257,106	260,166	263,262
Drug Testing	1,000	1,000	1,000	1,000	1,000
Total Cash Outflows	$ 21,277,302	$ 24,094,695	$ 24,339,726	$ 24,623,938	$ 24,915,296
Operating Income	$ (662,508)	$ (2,512,889)	$ (3,571,529)	$ (3,571,180)	$ (3,777,517)

Minimum Cash Reserve

Table 2 details the minimum level of cash reserves required to help ensure timely payment of bills, replacement of assets, and to provide financial stability of the utility. The methodology used to establish this target is based on an assessment of working capital needs to fund operating expenses, capital improvements, annual debt service payments, and landfill tipping costs. Based on these assumptions, GSWA should maintain a minimum of $4,050,782 in cash reserves for 2025 and $4,334,424 in 2029.

Table 2 – Minimum Cash Reserves (Base Case)

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Minimum Cash Reserve Levels Determinants					
Operation & Maintenance (excluding cash fund transfers)	$ 16,890,289	$ 17,105,911	$ 17,345,067	$ 17,588,586	$ 17,835,609
Historical Rate Base	25,485,929	25,592,935	25,936,968	26,892,967	28,050,854
Minimum Cash Reserve Allocation					
Operation & Maintenance (excluding cash fund transfers)	16.4%	16.4%	16.4%	16.4%	16.4%
Historical Rate Base	5.0%	5.0%	5.0%	5.0%	5.0%
% Assets Depreciated	72%	71%	70%	68%	65%
Calculated Minimum Cash Level					
Operation & Maintenance (excluding cash fund transfers)	$ 2,776,486	$ 2,811,931	$ 2,851,244	$ 2,891,274	$ 2,931,881
Historical Rate Base	1,274,296	1,279,647	1,296,848	1,344,648	1,402,543
Minimum Cash Reserve Levels	**$ 4,050,782**	**$ 4,091,577**	**$ 4,148,092**	**$ 4,235,923**	**$ 4,334,424**
Projected Cash Reserves	**$ 3,956,323**	**$ 1,443,434**	**$ (2,128,095)**	**$ (5,699,275)**	**$ (9,476,791)**

Projected Rate Tracks

The base case outlined in Table 3 shows cash decreasing below the recommended minimum to negative cash balances without changes to rates.

Table 3 – Base Case Projection

Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount per ton	Gov Agencies and Small Commercial	Projected Cash Balances	Proposed Minimum Cash
2025	$ 30.00	$ 11.55	$ 23.10	$ 34.65	$ 15.60	$ 171.60	$ 3,956,323	$ 4,050,782
2026	30.00	11.55	23.10	34.65	15.60	171.60	1,443,434	4,091,577
2027	30.00	11.55	23.10	34.65	15.60	171.60	(2,128,095)	4,148,092
2028	30.00	11.55	23.10	34.65	15.60	171.60	(5,699,275)	4,235,923
2029	30.00	11.55	23.10	34.65	15.60	171.60	(9,476,791)	4,334,424

Table 4 provides a summary of the financial results under the projected rate track, detailing the projected revenue adjustments to maintain cash reserves adequate to fund operations and debt service. The financial projections should be reviewed annually to adjust for changes in operating assumptions such as inflation.

Table 4 – Projected Rate Track - No IWC

Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount per ton	Gov Agencies and Small Commercial	Projected Cash Balances	Proposed Minimum Cash
2025	$ 33.00	$ 11.55	$ 23.10	$ 34.65	$ 15.60	$ 185.00	$ 5,285,813	$ 4,050,782
2026	35.00	11.55	23.10	34.65	12.00	190.00	5,691,346	4,091,577
2027	35.00	11.55	23.10	34.65	10.00	190.00	5,185,414	4,148,092
2028	37.00	11.55	23.10	34.65	10.00	193.00	5,445,701	4,235,923
2029	37.00	11.55	23.10	34.65	10.00	193.00	5,514,918	4,334,424

In addition, rates for special waste discharge will be added to the fee schedule as follows:

Table 5 – Special Waste Discharge Rates

Fiscal Year	Contaminated Soil Rate	Asbestos Rate	FOG Rate	Power Poles / Junk Tires Rate	Special Waste Report Review Rate
2025	$ 250.00	$ 450.00	$ 271.00	$ 300.00	$ 200.00
2026	250.00	450.00	271.00	300.00	200.00
2027	250.00	450.00	271.00	300.00	200.00
2028	250.00	450.00	271.00	300.00	200.00
2029	250.00	450.00	271.00	300.00	200.00

Rate Class Descriptions

Rate Class	Description
Residential Rate	Available to residential customers. Rate includes use of a 96 gallon cart with weekly pick up.
Discounted Residential Rate	Available to residential customers, if the IWC is implemented. Customer must meet GSWA defined specifications to qualify
RTS Minimum	Residential Transfer Station. The minimum charge is for one item up to the top of the sidewalls of a regular 8 foot pick-up bed.
RTS Half Cab	Residential Transfer Station. If the amount is above the sidewalls and approximately halfway to the top of the truck cab, the price will fall under the half cab rate.
RTS Above Cab	Charge for amount slightly above the truck cab. If significantly above the truck cab, the pay attendant will assess as needed
Commercial Discount per Ton	Available to professional haulers who meet GSWA defined specifications for payment.
Government Agencies and Small Commercial Rate	Commercial customers are professional haulers who primarily serve business customers and multi-family residential services such as apartment buildings or large-quantity producers who haul waste themselves. These entities must set up an account with GSWA before bringing their material to a GSWA facility.
Contaminated Soil Rate	Rate to dispose of contaminated soil per ton (special waste).
Asbestos Rate	Rate to dispose of asbestos contaminated material per ton. May be subject to an additional burial fee (special waste).
FOG Rate	Rate to dispose of fats, oils, and grease per ton (special waste).
Power Poles / Junk Tires Rate	Rate to dispose of power poles or junk tires, per item (special waste).
Special Waste Report Review Rate	Rate to provide review and approval of disposal of special waste.

Cost of Service Summary Results

A cost of service study was completed to determine the cost of providing service to each class of customers and to assist in design of solid waste rates. The study was performed in 2022 using a projected test year of FY 2023 revenues and expenses. A cost of service study consists of the following general steps:

1) Determine utility revenue requirement for test year 2023
2) Classify utility expenses into common cost pools
3) Allocate costs to customer classes based on the classes' contribution to utility expenses
4) Compare revenues received from each class to the cost of service

The cost of service summary is included as Table 6 which compares the projected cost to serve each class with the revenue received from each class. The "% change" column is the revenue adjustment necessary to meet projected cost of service requirements. The cost of service summary uses the current rates including any adjustment factors.

It is recommended that rates move toward cost of service slowly over time to minimize rate impacts on customers. The cost of service summary "% change" column indicates the rate adjustment required for all classes to meet cost of service requirements.

Table 6 – Cost of Service Summary

Customer Class	Cost of Service	Projected Revenues	% Change
Residential	$ 9,987,269	$ 8,160,851	22.4%
Residential Transfer Station	640,155	415,819	54.0%
Government Agencies and Small Commercial	960,516	1,016,054	-5.5%
Major Commercial Haulers (with discount)	10,343,695	9,388,183	10.2%
Total	$ 21,931,635	$ 18,980,907	15.5%

Cost of Service Results

Table 7 shows the average cost of service rates by class compared to the current monthly rate. The total cost of service charge depends on the nature of service, collection needs, and landfill tipping capacity.

Table 7 – Average Cost vs. Average Revenue

	Cost of Service $/Customer	Projected Revenues $/Customer
Residential	$ 38.86	$ 30.00
Residential Transfer Station	13.10	8.51
Government Agencies and Small Commercial	162.22	171.60
Major Commercial Haulers (with discount)	171.88	156.00

Residential Costs

Separation of collection cost helps identify collection components for the residential class. The breakdown of the monthly residential cost of service rate by collection component is shown in Table 8.

Table 8 – Residential Rate by Collection Component

Residential Rate Components - 2023	Monthly Rate
Transfer Fees	$ 2.54
Landfill Tipping	3.73
Recycling	3.37
Collection Costs	11.54
Ordot Dump	1.86
Debt Service	2.54
Operational Costs	4.11
Administrative	8.09
Equipment Replacement Reserves	1.08
Total	$ 38.86

3. Unbundling Process

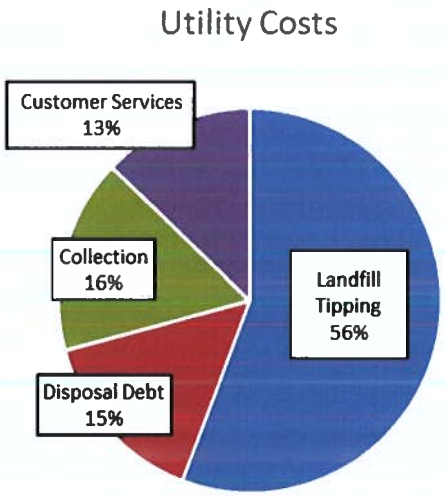
The cost of landfill tipping, collection, and customer service costs are identified as part of the unbundling process and are the first step in determining unbundled charges to customers. The total revenue requirements of $21,833,053 are separated into four categories identified in Table 9.

Table 9 – Breakdown of GSWA Cost Structure

Utility Costs		
Landfill Tipping	$	12,227,762
Disposal Debt		3,305,054
Collection		3,588,584
Customer Services		2,810,235
Total	$	21,931,635

GSWA is projected to expend 56% of its total costs toward landfill tipping/disposal and 15% on disposal-related debt. Collection-related costs are 16% and customer-related 13%.

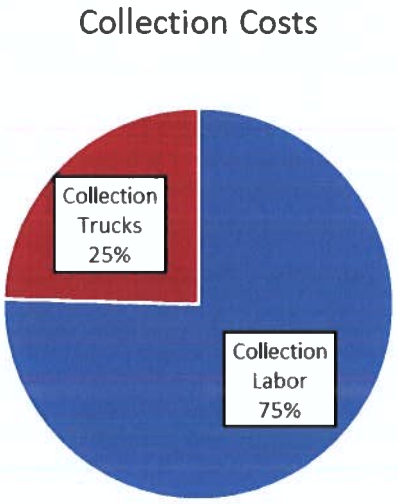
Figure 1 – Breakdown of Utility Costs



1. Landfill tipping costs are the costs associated with disposal of solid waste, recycling, and hazardous and bulky waste.
2. In 2019 the government of Guam issued 2019 Series A General Obligation Bonds to pay for the construction of Cell 3 for the Layon Landfill. GSWA transfers approximately $3.0M annually for this obligation.
3. Customer-related costs represent the costs for customer service related items. These items include administrative and general salaries, office supplies and expenses, and billing.

4. Collection costs consist of two components. The total collection-related costs of $3.6M for 2023 are broken down into collection labor and truck related costs. GSWA provides collection for the Residential class only. Therefore, these costs are attributed directly to Residential. Figure 1 shows the breakdown of collection components identified in the study.

Figure 2 – Breakdown of Collection Costs



4. Significant Assumptions

This section outlines the procedures used to develop the cost of service and unbundling study for GSWA and the related significant assumptions.

Forecasted Operating Expenses

Forecasted expenses were based on 2021, 2022, 2023, and 2024 budget adjusted for inflation. The table below is a summary of the expenses used in the analysis.

Table 10 – Projected Cash Outflows for 2025 - 2029

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Cash Outflows					
Personnel Expense	$ 4,325,376	$ 4,407,558	$ 4,491,302	$ 4,576,636	4,663,593
Contractual Services	11,894,149	12,026,883	12,161,197	12,305,916	12,452,356
Adjustments for operator	(720,000)	(740,000)	(740,000)	(740,000)	(740,000)
Travel	24,575	25,042	25,518	25,821	26,129
Supplies / Vehicle	620,000	631,780	643,784	651,445	659,197
Equipment	5,305	5,406	5,509	5,574	5,640
Utilities - power and water	192,276	195,929	199,652	202,028	204,432
Post Closure Care					
New cell closure expenses	$ 756,545	$ 3,356,545	$ 3,356,545	$ 3,396,488	$ 3,436,906
Other Expenditures					
Capital Outlays	$ 580,635	$ 580,635	$ 580,635	$ 580,635	$ 580,635
Debt Service Payment	3,049,833	3,051,604	3,057,479	3,058,229	3,062,146
Host Community Premium Benefits	300,000	300,000	300,000	300,000	300,000
Miscellaneous	247,608	252,313	257,106	260,166	263,262
Drug Testing	1,000	1,000	1,000	1,000	1,000
Total Cash Outflows	$ 21,277,302	$ 24,094,695	$ 24,339,726	$ 24,623,938	$ 24,915,296

Landfill Tipping costs from 2023 – 2029 are based on GSWA's contractual agreements, specified as a cost per ton, and adjusted for system growth factors.

Annual Projection Assumptions

Table 11 details the assumptions used for all scenarios; however, additional assumptions were made to model the Island Wide Program (IWC). Table 12 details the assumptions used for the IWC.

Table 11 – Base Assumptions 2023 - 2029

Fiscal Year	Avg Residential Growth	Residential Transfer Growth	Inflation	Hauler Waste Station Contractual Inflation	Government Tonnage Growth	Commercial Tonnage Growth	Landfill Cost Change	Fuel Cost increase
2023	2.9%	-5.1%	5.0%	1.2%	183.5%	17.9%	3.2%	74.3%
2024	4.32%	0.5%	1.9%	7.0%	-39.89%	-4.83%	1.1%	-11.6%
2025	-0.43%	-2.5%	1.9%	1.2%	-13.60%	0.28%	1.2%	-16.1%
2026	0.45%	0.4%	1.9%	7.0%	0.35%	0.35%	1.9%	1.9%
2027	0.45%	0.4%	1.9%	7.0%	0.35%	0.35%	1.9%	1.9%
2028	0.45%	2.0%	1.9%	7.0%	0.35%	0.35%	1.9%	1.9%
2029	0.45%	2.0%	1.9%	7.0%	0.35%	0.35%	1.9%	1.9%

Table 12 – Island Wide Assumptions 2025 -2028

Fiscal Year	Island Wide Residential Growth	Island Wide Low Income	Residential Transfer Station	Phase In Personel	Phase In Billing	Vechicle Maintenance - New Additional	Growth in per Residential Disposal	Increase in GHG Facilities Charge	Percent of New Residential to Transfer Station
2025	9,000	11,000	-100.0%	100.0%	100.0%	5.0%	8.0%	18.0%	50.0%
2026	9,041	11,000	0.0%	100.0%	100.0%	5.0%	8.0%	18.0%	50.0%
2027	9,081	11,000	0.0%	100.0%	100.0%	5.0%	8.0%	18.0%	50.0%
2028	9,122	11,000	0.0%	100.0%	100.0%	5.0%	8.0%	18.0%	50.0%
2029	9,163	11,000	0.0%	100.0%	100.0%	5.0%	8.0%	18.0%	50.0%

Revenue Forecast - FY2023

The revenue forecast for FY2023 was based on FY2022 usages adjusted for mid-year growth patterns observed from October 2022 – April 2023. In addition, GSWA received $3,000,000 in ARPA funding that will not continue after FY2023.

Table 13 – Growth Assumptions 2023

Fiscal Year	Avg Residential Growth	Residential Transfer Growth	Government Tonnage Growth	Commercial Tonnage Growth
2023	2.9%	-5.1%	183.5%	17.9%
2024	4.32%	0.5%	-39.89%	-4.83%

Revenue Forecast - FY2024

The revenue forecast for FY2024 was based on FY2023 projected usages and adjusted by the growth assumptions detailed in Table 11.

Revenue Forecast FY2025 – FY2029

FY2025 – FY2029 revenues were based on the prior fiscal year's projected usages, adjusted by the growth assumptions detailed in Table 11.

Ordot Fund Cash Flows

GSWA maintains a separate cash account for Ordot-related costs and payments. In August of 2026, a balloon payment will be made estimated at $35,233,058 through the use of Ordot fund account balances and the projected settlement funds. The cash flow is provided in Table 14.

Table 14 – Ordot Fund Balances

					Beg balance 1/24	Projected	Total due
	Inflow	Inflow	Outflow	Outflow	$ 7,103,296	$ 30,000,000	$ 35,233,058
	Ordot Interest Payments	Ordot Transfer Payment	Vendor Payments	Ordot Operator	Account Balance	Settlement	Net to Operating Cash
2024	$ -	$ 2,000,000	$ 240,000	$ 1,008,000	$ 7,604,630		
2025	-	-	-	740,000	6,864,630		
2026	-	-	-	740,000	6,124,630	30,000,000	891,572

5. Considerations and Additional Information

Financial Considerations

1. GSWA is projected to require increases in rates charged to customers in order to adequately fund operating expenses, debt service payments, and eventual funding of landfill closure and post closure reserves.
2. GSWA received ARPA funding from the Government in years FY2022 and FY2023 but will not receive funding from FY2024 onward. The $3.0M annual funding allowed GSWA to delay increases to rates in historic years.
3. GSWA received Typhoon-related revenue and revenue related to the disposal of soil in FY2024.
4. GSWA and the Government of Guam have postponed the implementation of mandatory collection for residents. The results of the financial analysis in this study are based on this assumption.

Rate-Related Considerations

1. Revenue recovered by each major class of customers shows the need for adjustments in all classes.
2. Current total monthly charges for residential and tonnage charges for government and commercial are listed below and compare the current charges with the cost of service charges based on the 2023 study.

	Cost of Service $/Customer	Projected Revenues $/Customer
Residential	$ 38.86	$ 30.00
Residential Transfer Station	13.10	8.51
Government Agencies and Small Commercial	162.22	171.60
Major Commercial Haulers (with discount)	171.88	156.00

3. GSWA may consider movements toward cost of service. The 2023 cost of service study indicates a variance exists between revenues and costs for certain revenue classes. The study results are listed below:

Customer Class	Cost of Service	Projected Revenues	% Change
Residential	$ 9,987,269	$ 8,160,851	22.4%
Residential Transfer Station	640,155	415,819	54.0%
Government Agencies and Small Commercial	960,516	1,016,054	-5.5%
Major Commercial Haulers (with discount)	10,343,695	9,388,183	10.2%
Total	$ 21,931,635	$ 18,980,907	15.5%

4. GSWA may consider adopting the following rate track for 2025 - 2029 rates.

No IWC Program

Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount per ton	Gov Agencies and Small Commercial
2025	$ 33.00	$ 11.55	$ 23.10	$ 34.65	$ 15.60	$ 185.00
2026	35.00	11.55	23.10	34.65	12.00	190.00
2027	35.00	11.55	23.10	34.65	10.00	190.00
2028	37.00	11.55	23.10	34.65	10.00	193.00
2029	37.00	11.55	23.10	34.65	10.00	193.00

5. The rate tracks should be reviewed each year and adjusted for further updates to the IWC program, Ordot Settlement, and changes in operating costs.

6. GSWA is seeking approval of the rate track for three years.

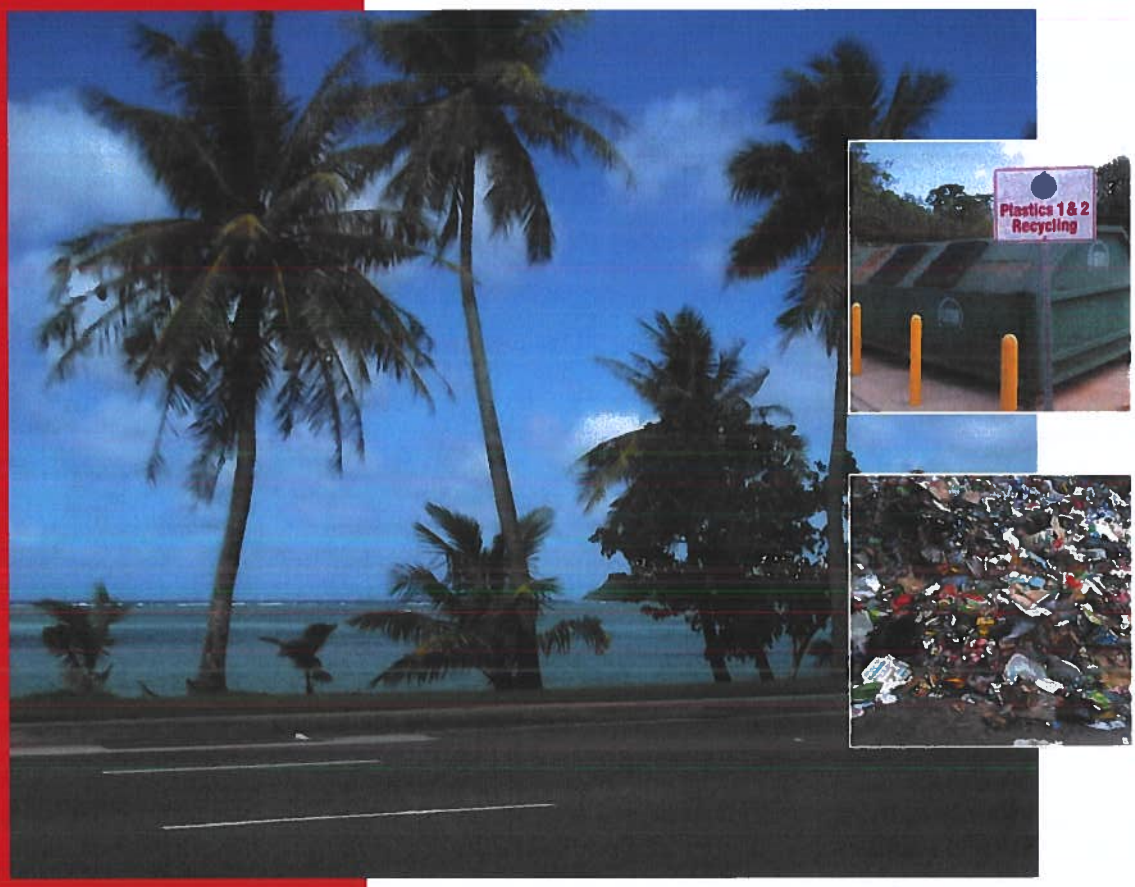
Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount per ton	Gov Agencies and Small Commercial
2025	$ 33.00	$ 11.55	$ 23.10	$ 34.65	$ 15.60	$ 185.00
2026	35.00	11.55	23.10	34.65	12.00	190.00
2027	35.00	11.55	23.10	34.65	10.00	190.00

Fiscal Year	Contaminated Soil Rate	Asbestos Rate	FOG Rate	Power Poles / Junk Tires Rate	Special Waste Report Review Rate
2025	$ 250.00	$ 450.00	$ 271.00	$ 300.00	$ 200.00
2026	250.00	450.00	271.00	300.00	200.00
2027	250.00	450.00	271.00	300.00	200.00

EXHIBIT E

FINAL REPORT

Guam Public Utilities Commission



Management Audit of the Guam Solid Waste Authority

October 15, 2020

MSW CONSULTANTS
800-679-9220

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This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to MSW Consultants constitute the opinions of MSW Consultants and/or its subconsultants. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, MSW Consultants has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. MSW Consultants makes no certification and gives no assurances except as explicitly set forth in this report.

Note: The research and analysis contained in the report was substantially completed prior to the onset of the COVID-19 pandemic. Based on direction from the Guam Public Utilities Commission, no attempt was made to integrate and update the analysis to capture impacts from COVID-19 to the Guam Solid Waste Authority (GSWA). Such impacts may include: an increase in waste generation from the residential sector; a decrease in waste generation from the commercial sector; increased risks to operations staff of contracting the COVID virus; and unforeseen costs resulting from the above.

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CHAPTER 1 – INTRODUCTION

1.1 INTRODUCTION

On March 17, 2008 the District Court of Guam appointed a Receiver to assume all solid waste and recycling responsibilities on Guam. At that time, GovGuam had 99 waste and recycling employees and was under court order to close the Ordot Dump and develop and operate a new landfill on Guam.

After years of Receiver-managed solid waste and recycling on Guam, the Legislature passed two key Statutes in 2013, and updated them in 2017, in anticipation of the return of solid waste and recycling duties to GovGuam.

Section 51A104 of 10GCA Health and Safety assigned solid waste and recycling powers and duties to the Guam Solid Waste Authority ("GSWA") and Section 51A119 provides that "The …Public Utilities Commission ("PUC")…shall perform a management audit of the … operations of the GSWA…"

In May 2019, the Court turned over responsibility for solid waste to the GSWA. The judge left the Receiver in charge of the Ordot Dump and of hiring a contractor to build Cell 3 at the Layon Landfill.

However, even with the role of the Receiver vastly diminished, the GSWA's direct role in managing waste and recycling on Guam is currently largely limited to the operation of the waste and recycling collection system and the three residential transfer stations as the Authority inherited numerous multi-year full-service third-party contracts that had been negotiated and executed by the Receiver. These contracts provide for the post-closure activities at the Ordot Dump, operation of the Layon Landfill, operation of the commercial transfer station, maintenance of the GSWA's collection vehicles, and marketing of recyclables and HHW, among other functions.

In 2017, the PUC issued a Request for Proposals for waste and recycling consulting firms to perform the statutorily required management audit of the GSWA. In 2019, MSW Consultants, along with Golder Associates as a subconsultant (MSW Team), was engaged by the PUC to perform the audit.

1.2 MANAGEMENT AUDIT METHODOLOGY

The management audit methodology was subsequently defined through conversations and input from both the MSW Team and the PUC. The final methodology included the following focal points:

- The creation of a rate model and performance of a revenue sufficiency analysis of current and future rates,
- A manpower and staffing analysis of GSWA's waste and recyclable collection and transfer operations, supplemented by research into four comparable programs on the U.S. mainland,
- A review of key third-party service contracts inherited by the GSWA from the Receiver, and
- An evaluation of the current management and operational capabilities of the GSWA.

In performing this management audit, the MSW Team performed a series of tasks including data collection and discovery (review of existing data and information; on-site meetings and interviews; facility tours; and collection system route observations); benchmarking research; financial analysis; and contract review. This report presents the findings and recommendations of the management audit.

1.3 REPORT ORGANIZATION

The management audit report is organized into the following chapters:

- **Chapter 2 – Baseline Assessments**: This chapter provides a description of the GSWA's operations, including collection operations, facility operations (including the active Layon Landfill, the closed

Ordot Dump, and the commercial and residential transfer stations), third party contracts, and financial management.

- **Chapter 3 – Rate Model Evaluation**: The GSWA is in possession of a financial rate model that was initially developed by the Receiver. This section contains a review of the model's strengths and weaknesses, and describes several important enhancements made to the model by the MSW Team to obtain a more robust snapshot of the near, medium, and long-term financial health of the GSWA. The section describes the basis of projected shortfalls of the current rate structure, and offers two alternatives for rectifying the shortfall.
- **Chapter 4 – Manpower-Staffing Analysis**: Research identified several U.S. mainland jurisdictions with a similar customer base and comparable collection services to those provided by GSWA. This section describes the research into the collection systems and their associated manpower and staffing, and draws several conclusions about GSWA's staffing and manpower. A more detailed methodology of the research, as well as supplemental findings, are contained in an appendix.
- **Chapter 5 – Review of Key Third-Party Contracts**: The GSWA inherited multiple contracts executed by the Receiver. Three key contracts for services being performed by private vendors include post-closure of the Ordot Dump, operation of the Layon Landfill, and operation of the commercial transfer station. The MSW Team reviewed these three contracts against standard terms and conditions that might be expected in similar contracts.
- Chapter 6 – Management and Operational Evaluation: Review of Management Structure; Evaluation of Operations

Supplemental details and information are contained in an exhibit and appendices at the end of the management audit.

CHAPTER 2 – BASELINE ASSESSMENTS

2.1 INTRODUCTION

The purpose of this chapter is to describe the GSWA-operated collection system and the GSWA-operated residential transfer stations. Additionally, this chapter provides analysis and commentary on these operations based on recognized industry performance metrics. Finally, this chapter describes the solid waste and recycling facilities within the GSWA's system, although the facilities that are operated under contract to a private vendor were not analyzed in depth. The information presented in this chapter was compiled based on input obtained during the MSW Team's site visits and collection system observations in November 2019.

2.2 RESIDENTIAL COLLECTION SYSTEM

The GSWA operates a solid waste collection system for all single-family residents of Guam (including small multi-unit buildings that receive single family service). This collection system includes curbside collection of refuse, single stream recyclables, and bulky waste.

It is important to note that not all residential households on Guam must receive curbside collection from GSWA. Residents can opt to forego both the service and the monthly fee, instead opting to self haul their materials to one of the Island's three residential transfer stations (described later in this section). The dynamics of non-mandatory curbside collection have a significant influence on the performance of collection services and this issue is revisited later in the report.

Table 2-1 summarizes the daily routes in service to reach GSWA's customers. As shown, there are a total of 65 total routes, or an average of 16 per day, with all households collected over four days per week. It was reported that the current routes were redesigned during the time that the Receiver operated the system.

Table 2-1 Daily Route Summary for GSWA Collection Operations

Truck Type	Mon	Tue	Wed	Thu	Fri	Total	Avg. per Day
Refuse Collection - Semi-automated	6	6	6	6	0	24	6
Refuse Collection - Mini-Packer	2	2	2	2	0	8	2
Refuse Collection - Baby Packer	1	1	1	1	0	4	1
Helper & Missed Collection Routes [1]	2	3	3	3	1	12	3
Recycling Collection [2]	3	3	3	3	0	12	3
Bulk Waste Collection	1	1	1	1	0	4	1
Total	**15**	**16**	**16**	**16**	**1**	**64**	**15**

[1] It was reported to the MSW Team that there are two helper routes that operate each day and are deployed to assist with the refuse and recycling collection system. Additionally, a missed collection route runs one day behind the regular refuse schedule.

[2] Recycling is collected twice per month. It was reported that some days have dedicated recycling routes, while on other days the refuse trucks collect recyclables after they finish the refuse route. The number of routes shown in this table is an estimate.

MSW Consultants utilized its proprietary curbside collection model to more comprehensively analyze the GSWA collection system. The collection model was populated based on available system attributes and validated on the basis of real-time collection observations during the November 2019 visit. Individual components of the collection system are discussed in the following subsections.

2.2.1 REFUSE COLLECTION

Refuse collection is provided once each week. Perhaps the most noteworthy observation of the refuse collection system is that GSWA uses three different types of trucks to service its customer base. The different sized trucks are 25 cubic yard rear loaders (RL), 10 cubic yard rear loaders called mini-packers (Mini) and pick-up trucks with six cubic yard dumping containers called Baby Trucks (Baby). All the trucks utilize cart tippers to dump the carts. The GSWA tries to collect as many units as possible with the RL system, with the Mini system used to collect from the smaller, unpaved roads and dead-end streets. The Baby system is for units that have difficult-to-collect small driveways, roads with low overhanging trees, or that have to be accessed by backing up the road. These trucks are shown in Figure 2-1.

Figure 2-1 Refuse Collection Truck Types

Full Size Rearloader

Mini Packer (stock photo)

Baby Packer

Based on an updated house count of the routes performed by GSWA in December 2019, the system currently services just over 19,600 customers. Table 2-2 shows the number of units collected by each of the three truck types. As shown, the vast majority of units are serviced by the full size rearloader, which is the most efficient collection vehicle. However, unpaved roads and some limited access streets require a smaller, lighter duty vehicle.

Table 2-2 Unit Counts by Collection Vehicle Type

Collection Vehicle Type	Units	Percentage
Full Size Rearload	17,752	91%
Mini Packer	1,383	7%
Baby Packer (pup truck)	478	2%
Total	**19,613**	**100%**

Full size (25 cubic yard) rearloaders use two person crews and are equipped with two cart tippers to service the 96-gallon carts. Residents are required to place their carts at the curb for collection. Generally, the driver does not help the loader dump carts unless there are multiple carts at a single stop. These residential routes start collections at 3:00 AM each morning Monday through Thursday. The crews enjoy working in the cooler weather of the early mornings rather than the extreme heat of the afternoons. Each crew is required to work a 10-hour day with their shifts ending at 1:30 PM.

These trucks are not only equipped with the cart tippers but also a series of spotlights to illuminate the work area behind and next to the rear of the truck, increasing the safety of the work area for the crews.

The island has many streets that are narrow, have low hanging branches, or which are unpaved dirt roads. These street types are not conducive to the large rear loader trucks. Therefore, the GSWA uses smaller 10

cubic yard rear loader trucks for these more difficult collections. Two person crews operate this smaller size truck which is equipped with a single cart dumper. Collection operations are similar to the full size rearloader.

The GSWA also uses a single-operator pick-up truck with the six cubic yard dumping container with cart tipper to make collections at residences with long driveways or more difficult-to-access roadways. Another view of this service is shown in Figure 2-2.

Figure 2-2 Single Crew Pick-Up Truck

The residential house counts are shown in Table 2-3. This table also shows the variance of daily house counts to the average daily number of households served. As shown, the regular rearload packer routes are not well balanced.

Table 2-3 Residential House Counts by Route

Day	Rearload	Var.	Mini	Var.	Baby	Var.	Total
Monday	6,306	42%	357	3%	127	6%	6,790
Tuesday	5,178	17%	366	6%	113	-5%	5,657
Wednesday	3,696	-17%	328	-5%	119	0%	4,143
Thursday	2,572	-42%	332	-4%	119	0%	3,023
Average	**4,438**		**346**		**120**		**4,903**

Table 2-4 further illustrates the impact of unbalanced routes. Latter days of the week have low enough house counts that they could be serviced with only six trucks per day. However, the Monday and possibly the Tuesday house counts require more trucks. Given the cost of operating a daily route, it would appear that rebalancing routes could reduce the number of trucks on the routes each day and commensurately operating costs.

Table 2-4 Average Residential House Counts by Day

	Routes/Day	Monday	Tuesday	Wednesday	Thursday
Total RL HH		6,306	5,178	3,696	2,572
Budget HH/FL	6	1,051	863	616	429
Actual HH/RL	8	788	647	462	322

2.2.2 MISSED COLLECTION ROUTE

The GSWA operates a missed collection truck Tuesday through Friday. The one-person crew uses a pick-up truck with the six cubic yard dumping container with cart tipper to make these collections. The number of collections vary by day and week. The customer service department takes the missed collection calls from the customers and relays those calls to the Operation Dispatch Department for collection.

2.2.3 RECYCLING COLLECTION

The GSWA collects residential curbside recyclable material twice per month on the same day as refuse collection. Recyclables generated at residences are contained in 96-gallon wheeled carts and collected by semi-automated rear load trucks like the residential refuse collection. Recycling collection was reported to be performed through a combination of the following resources:

- **Dedicated recycling routes**: On some days of the week, there are dedicated recycling trucks that collect only recyclables.
- **Refuse truck go-back routes**: Other recycling collection was reported to be performed by refuse routes that have finished their refuse collection, and return to the same neighborhoods to collect recyclables.
- **Helper routes**: It was also reported that a helper truck could assist both a refuse route or a recycling route.

Given the multiple ways recycling is collected, it was not possible to observe the recycling collection service on the initial trip. The MSW Team intends to review this service on its next trip to Guam. However, based on our professional experience, it is atypical to provide curbside recycling collection with refuse routes or with helper routes. Both public sector and private sector operators on the US mainland would customarily develop balanced, dedicated recycling routes to service a residential region.

2.2.4 BULKY WASTE ROUTE

The GSWA collects curbside bulky waste from residents who call in for service. Each resident can request a bulky waste collection twice per year for a maximum of five items. Materials collected include appliances, mattresses, hot water heaters, and other bulky and metallic waste. Additional collections can be performed by GSWA crews for an addition charge of $25 for five items.

There is one bulky waste crew that is dispatched daily with a list of 20 to 30 residents that have materials to be collected. The crew uses a flat-bed truck with a lift gate to haul away these materials. This collection method is widely used for bulk waste collection and the provision of bulk waste service is hypothesized to be very important on Guam to minimize illegal dumping. Figure 2-3 shows a bulk waste crew loading appliances.

Figure 2-3 Bulk Waste Collection

2.2.5 EQUIPMENT

Each subscribed Guam residential unit receives a 96-gallon cart for refuse and a 96-gallon cart for recycling. Given the current customer base, the GSWA should have roughly 40,000 carts (half for refuse and half for recycling) in the field at residential locations throughout the island. Because collection is not mandatory, the GSWA faces the responsibility for tracking its cart inventory. Should account additions or deletions occur rapidly, it could create some challenges to maintain the cart inventory and to assure that only current customers have carts for GSWA service.

There is a total of 36 vehicles in the fleet with the majority consisting of rear loaders. Table 2-5 provides a count and average age of the various collection vehicles used by the GSWA. The average age of the fleet is comparable to most other US municipal collection system fleets. However, the current fleet is beginning to exceed expected average age in a fully utilized collection system (such as would be provided by a private collection company seeking to maximize its return on capital). It should be noted that one of the reasons the average fleet age is high is that the GSWA is currently retaining additional older, spare vehicles. Front-line collection trucks are all newer than average.

Table 2-5 GSWA Fleet Analysis

Truck Type	Count	Actual Average Age	Expected Average Age	Meeting Age Standards?
Pick-Up Trucks	8	4.5	5	Yes
RL Packers	15	7.4	5	No
Mini Packers	3	2.0	5	Yes
Baby Packers	3	2.0	5	Yes
Roll-Off Trucks	2	9.0	5	No
Service Vehicles	5	13.2	5	No
Total	**36**	**7**		**No**

2.2.6 BACK-OFFICE SOFTWARE

The Customer Service and Operations Department uses a software program from Alpine Technology Corporation (Waste Management Software) to manage the customer base and optimize operations. The Operation's office has a large video screen on the wall above the dispatch area that can project the routes and other pertinent information concerning the daily operation. The Waste Management Software also utilizes GPS technology to track the locations of fleet vehicles which can be viewed on the screen. A photograph of the video screen is shown in Figure 2-4.

Figure 2-4 Alpine Technology Routing Software

Many municipalities are using this type of technology to better manage the daily operations of the collection system including the tracking of collection vehicles and collections performed in order to maximize routing efficiency. The MSW Team understands that this software may be capable of assisting in a reroute of the island.

2.2.7 STAFFING

GSWA staffs its operations with a combination of permanent staff on payroll, and temporary labor provided by a court-assigned contract with Pacific Human Resources. The GSWA provided a detailed listing of budgeted positions in response to the data request, including position number, title name, positions, and grade. GSWA further itemized the typical use of contract staffing to supplement GSWA permanent staff. A summary of the total staffing for GSWA is shown in Table 2-6.

Table 2-6 GSWA Staffing

Type	Title	Permanent	Contract	Total
Admin	Accounting Technician I	1	0	1
	Accounting Technician II	1	0	1
	Administrative Assistant	1	0	1
	Assistant General Manager of Operations	1	0	1
	Chief of Administration	1	0	1
	Comptroller	1	0	1
	Customer Service Representative	8	0	8
	Engineer Supervisor	1	0	1
	General Manager	1	0	1
	Management Analyst III	1	0	1
	Safety Officer	1	0	1
	Subtotal Admin	**18**	**0**	**18**
Operations	Equipment Operator II	8	0	8
	Equipment Operator III	1	0	1
	Sanitation Worker	14	0	14
	Helpers	0	11	11
	Roll-off Operators	0	2	2
	Subtotal Operations	**23**	**13**	**36**
Grand Total		**41**	**13**	**54**

As shown in this table, there are 18 management and administrative staff and 36 operations staff, 13 of which are being performed by contract labor rather than permanent staff. MSW Consultants made a rapid audit of the permanent and contract staffing configuration during the field observations. While it was beyond the scope if this audit to validate the detailed rationale for current staffing assignments, we make the following observations:

- Based on a daily review of the Operational Assignment Sheets from three days of route observations, the collection system needs 38 operations staff (Sanitation Workers, Equipment Operators, and Helpers).
- To make up for the slight deficiency in the 36 budgeted and operations positions, GSWA assigns employees listed under Admin to perform operations.

- There are a number of apparent differences between the titles identified in the GSWA list of budgeted staff, and the actual roles being performed by those staff. Some of these are listed in Table 2-7.

Table 2-7 Discrepancies Between Budgeted and Actual Roles

Position on the Books	Actual Job Function Performed
Customer Service Representative	Sanitation Foreman
Equipment Operator III	Field Foreman
Customer Service Representative	Operations Clerk
Equipment Operator II	Support Repo [1]
Contract Employee	Support Termination [1]
Unknown	Grounds Maintenance (2 staff)
Unknown	Cart Maintenance (3 staff)

[1] These job functions are shown as provided by GSWA via email.

It was beyond the scope of this audit to validate the basis of the discrepancies observed. However, in the opinion of MSW Consultants, there are opportunities for GSWA to more closely align its budgeted staff positions with its administrative and operational needs. There may also be a benefit to revisiting the mix of permanent and contract employees to assure that GSWA continues to recruit experienced staff and complete its duties safely and efficiently.

2.2.8 Optimized Route Configuration

As a result of the apparent additional staff, and also because the current recycling collection configuration is not typical of municipal collection programs, the MSW Team made a more in-depth analysis of the daily route demand using its proprietary collection model. The results of this exercise are shown in Table 2-7.

Table 2-8 Optimized Route Estimation

	Current System				Optimized System	
Service	Daily Routes	Households Served	Days/ Week	Households per Route	Estimated Daily Routes	Households per Route
Refuse Collection - Semi-automated	6	17,752	4	740	6	740
Refuse Collection - Mini-Packer	2	1,383	4	173	1	465
Refuse Collection - Baby Packer	1	478	4	120	0	N/A
Helper & Missed Collection Routes [1]	3	unknown	4	Unknown	0	N/A
Recycling Collection [2]	Varies	unknown	4	Unknown	3	740
Total	**15**				**10**	

There are several important concepts shown in this table. First, three dedicated daily recycling routes would be sufficient to service the system, rather than the unbalanced system currently in place. With recycling being collected every other week, it should still be possible to collect half of the island one week and the other half the next week, all on the same day as refuse collection. Second, it is likely that mini-packer routes and the baby packer route could be condensed. Although it was beyond the scope of the audit to investigate all customers and roadway access, the mini-packer the number of daily routes in operation appears higher than expected given the size of the customer base. Finally, the helper route should be eliminated, once again simply by balancing routes across days of the week. The MSW Team recognizes that re-routing may

be challenging and could require up-front costs; however, the benefits would be expected to grow over time.

2.3 RESIDENTIAL TRANSFER STATIONS (CITIZEN CONVENIENCE CENTERS)

There are three Transfer Stations operated by the GSWA; Harmon Street, Agat, and Malojloj. Each of the transfer stations is designed for citizens to drop of their residential waste, recyclables, or bulky waste. The facility at Harmon Street also accepts Household Hazardous Waste (HHW). Each of the transfer stations is open Thursday through Monday from 9:00 AM until 5:00 PM.

The GSWA charges resident to use these facilities. The usage fees are described in Table 2-8. A GSWA employee staffs each facility and collects the fees at the gate before the residents are allowed to unload.

Table 2-9 Transfer Station Rate Table

Item	Fee
Household Trash	Price is based on volume which is estimated by the pay attendant in the following manner: • The minimum charge is $7.50 from one item up to the top of the sidewalls of a regular 8-foot pick-up bed. • If the amount is above the sidewalls and approximately half way to the top of the truck cab, the price will be $15.00. If slightly above the truck cab, the price will be $22.50. If significantly above the truck cab, the pay attendant will assess as needed.
Sofas, Mattresses / Box Spring	$7.50 per item
Cardboard	Free if placed in the recycling container
Glass Bottles and Jars	Free if placed in the recycling container

The Harmon Transfer Station handles the majority of the residential refuse at the transfer stations. As Table 2-9 illustrates, Harmon TS receives 13 percent of the total residential refuse. Agat and Malojloj each handle four and three percent, respectively.

Table 2-10 2019 Transfer Station Refuse Tonnage

Origin of Refuse	Total	Percent
Agat	681	4%
Harmon	2,551	13%
Malojloj	642	3%
Residential Refuse Collection	15,574	80%
Total	19,447	100%

The transfer stations also receive recyclables with Harmon receiving three percent of the total residential recyclables generated. Table 2-10 shows that both Agat and Malojloj each generate a little more than one percent of the total residential recyclable.

Table 2-11 2019 Recycling Tonnage

Origin of Recycled Material	Total	Percent
Agat	14	1%
Harmon	59	3%
Malojloj	10	1%
Residential Recycling Collection	1,734	95%
Total	1,816	100%

2.3.1 HARMON STREET TRANSFER STATION AND HOUSEHOLD HAZARDOUS WASTE FACILITY

The Harmon Street Transfer Station and the Hazardous Waste Facility is located on Harmon Industrial Park Road behind the Government of Guam's Department of Public Works. This facility has compactors for household trash and cardboard. There are closed-top containers for other fiber and containers and open-top containers for glass and bulky waste. There is staff to accept payments, manage the household hazardous waste program, and help customers with their refuse and recyclables.

Figure 2-5 Harmon Street Transfer Station

The household hazardous waste materials are managed and stored in a separate building. This specially constructed building meets all the required safety standards for the different containers for each hazardous waste collected. The staff has to be specially trained to handle, identify, and package these types of hazardous materials. Management of household hazardous waste is provided by an outside contractor.

Figure 2-6 Household Hazardous Waste Materials

2.3.2 AGAT TRANSFER STATION

The Agat Transfer Station is located on Route 2 on the south end of Agat. This facility is staffed with a single person. The facility grounds were clean, signage was clear, and there was ample space available for residents to drop off materials. Several photos are shown in Figure 2-7.

Figure 2-7 Agat Transfer Station

2.3.3 MALOJLOJ TRANSFER STATION

The Malojloj Transfer Station is located on Route 4 (Malojloj Highway) just north of the intersection to the Talofofo Falls. This facility is staffed with a single person. This facility was also clean, had ample space for safe usage, and good signage. Pictures of the facility are shown in Figure 2-8.

Figure 2-8 Malojloj Transfer Station

Even with a fully staffed facility, residents using the facility for their recyclable materials still place significant contamination in with the targeted recyclables. The glass, plastic and metal containers were found to have significant contamination, as shown in Figure 2-9. Some of the contamination is simply due to cross-placement of recyclables into the wrong compartment; other contamination includes materials that are not wanted in the recycling stream.

Figure 2-9 Contamination Examples

These transfer stations facilities rely on the GSWA roll-off trucks to empty the loaded containers. The Authority uses their two roll-off trucks to service the containers at the three transfer stations. Table 2-11 below shows the average number of hauls for materials generated at the three transfer stations.

Table 2-12 Roll-off System Pull Frequencies from Transfer Stations

Material	Harmon	Agat	Malojloj
OCC	1x/wk	2x/yr	2x/yr
Paper	1x/wk	2x/yr	2x/yr
Glass	4x/wk	1x/wk	1x/wk
Refuse	7x/wk	2x/wk	2x/wk
Bulky	5x/wk	2x/mo	2x/mo

2.4 GSWA FACILITIES OPERATED UNDER CONTRACT

Descriptions of the commercial transfer station, recycling facility, HHW facility, the Layon Landfill, and the closed Ordot Dump are provided below primarily for reference.

2.4.1 COMMERCIAL TRANSFER STATION

The GSWA contracts with Guahan Waste Control to operate a commercial transfer station designed to minimize truck traffic to the Layon Landfill. The scale house for the facility is operated by the GSWA while Guahan Waste Control (Guahan) manages the operation of the facility. This facility primarily serves collection vehicles that collect residential or commercial waste throughout the northern and central parts of the island, as these regions are more distant from the Layon Landfill. Some collection in the southern end of the island may be transported directly to the landfill. The loaded collection vehicles must weigh in at the scale house at the transfer station.

Figure 2-10 shows several photographs of the commercial transfer station. The picture on the left is the tip floor where inbound trucks dump their loads. The waste is stored on the tip floor and loaded by wheeled loaders into transfer trailers located on a lower level as shown in the middle picture. The scalehouse is shown on the right.

Figure 2-10 Commercial Transfer Station

Guahan operates a fleet of ten transfer trucks and 100 cubic yard transfer trailers to transport the refuse collected at the facility to the Layon Landfill located 37.2 km from the transfer station. The trip to the landfill takes between 45 and 60 minutes each way, plus about 20 to 30 minutes to dump at the landfill. The transfer trucks must transverse a windy step section on Highway 4 before arriving at the Layon Landfill. Because the trailers are 45 feet long the drivers must swing into the opposing lane of traffic to make the turns. Because of this dangerous situation of having to cross the middle lane of the road, Guahan has hired, at a significant cost, a company to provide "pilot" vehicles to lead the transfer vehicles through this dangerous section of the road and warn oncoming vehicles of the danger. The pilot vehicle operation is a direct pass-through cost reimbursed by the GSWA to Guahan Waste Control, per the contract terms. Figure 2-11 shows a transfer trailer and stretches of highway traversed by the trailers and pilot vehicles.

Figure 2-11 Transfer Trailer and Highway 4 Between Transfer Station and Landfill

The transfer station received 80,728 tons in 2019. Guahan hauls an average of 13 to 14 loads per day to the landfill. Based on the truck inventory, and on the ability of one truck to make three to four trips per day, the operator has a sufficient amount of equipment and staff to efficiently operate this transfer station.

2.4.2 ORDOT DUMP

The Guam Solid Waste Authority owns two landfill facilities, the Layon Municipal Sanitary Landfill (Layon Landfill) and the Ordot Dump. The Layon Landfill is currently operating, and the Ordot Dump is closed and in its post-closure care period. MSW Team member Golder toured each facility in November 2019.

The Ordot Dump has a long history of environmental impacts and was the reason, via the Clean Water Act, that the Guam Receivership came into existence. The closure construction occurred during a 28-month period and the facility entered its post-closure long term care period in March 2016. However, the Receiver's request for a post-closure permit is still awaiting approval from the Guam EPA, which is expected to approve the permit in mid-November 2020. The Ordot Dump is operated by Brown and Caldwell through a contract with the Receiver, with the initial term being seven years from May 2018. The Ordot Dump appeared to be in good order, well maintained, and stabilized. Key items noted during the site visit:

- The contract term is for seven years, with two renewal term of five years each.
- The stormwater management system appeared to be very robust as compared to similar facilities in the mainland. This is likely due to the large amount of annual rainfall that Guam experiences.
- No excessive erosion conditions were noted during the site visit.
- The landfill gas collection and control system (GCCS) consists of several dozen gas extraction wells (both horizontal and vertical) and one open candlestick type flare. The GCCS is monitored, adjusted, and reported on a monthly basis.
- The site has ten groundwater monitoring wells and four surface water sampling locations which are required to be sampled on a semi-annual basis. During the site visit, a representative of Brown and Caldwell noted that the monitoring requirements are robust and require large volumes of water to be sampled (approximately 20 liters per well). This amount is large when compared to similar facilities in the mainland.
- The facility has three leachate storage tanks which serve to store collected leachate from the Ordot Dump. Leachate is then pumped to the Hagatna Wastewater Treatment Plant (operated by the Guam Waterworks Authority) for treatment.

Figure 2-12 shows several photographs of the Ordot Dump. The picture on the left shows the perimeter road, while the center and right pictures show a landfill gas flare and the concrete perimeter stormwater channel, respectively.

Figure 2-12 Ordot Dump

2.4.3 LAYON LANDFILL

The Layon Landfill is the only operating municipal solid waste (MSW) landfill on Guam. The facility's disposal area is approximately 22.4 acres and currently consists of two landfill cells (Cells 1 and 2). The Layon Landfill is operated by the GreenGroup (formerly Herzog Environmental, Inc.) which handles the waste disposal operations at the facility. The GreenGroup is in their first renewal term of the contract between the GreenGroup and the Receivership. The Layon Landfill appeared to be well operated and maintained. Key items noted during the site visit include:

- The contract term is for seven years, with two renewal term of five years each.
- The facility encounters significant rain during the year (at times greater than 100 inches/year).
  - 70% of the rain can be expected during the period of July through December. The operator noted that during the drier season, preparations for the wet season need to be completed. A major part of operating the facility is managing stormwater runoff and associated erosion.
- The landfill property is approximately 317 acres with approximately 127 acres (11 cells) devoted to waste disposal.

- The site access road needs to be relocated in support of the pending Cell 3 construction. This relocation appeared to be associated with changes in cell sequencing and long-term planning.
- The liner system for the facility is very robust and exceeds the requirements for a subtitle D (MSW landfill), which may increase the costs to construct and operate the facility.
- The facility appeared to be well equipped with machinery and vehicles to perform the required waste disposal operations. During the site visit, the GreenGroup noted that obtaining repair parts can be very challenging and costly due to the remoteness of Guam, thus having a well-equipped inventory of machinery appears to be prudent to maintain continued operations.
- It was noted that waste receipts have fluctuated in the past, with little increase over the past several years.
- Although it was beyond the scope of this engagement to investigate further, the MSW Team is aware of the recently created Zero Waste Guam Working Group. Assuming this Group achieves success at waste reduction initiative, it has the potential to impact (i.e., reduce) future waste receipts.

Figure 2-13, going left to right, shows the top of the Layon Landfill working face, a sideslope, and a view of the leachate tanks.

Figure 2-13 Layon Landfill

2.4.4 RECYCLING FACILITY

The recycling facility is privately owned and provides for manual picking of corrugated cardboard and mechanized sorting of commingled containers. The facility had a new baler for cardboard and plastics, but the sorting equipment appeared to be older and showing wear. The facility was reported to recycle cardboard, plastics, steel and aluminum, while glass does not go to the recycling facility but to the landfill for beneficial reuse. Figure 2-14, going left to right, shows the inbound pile of single stream material with floor sorting of cardboard; the mechanized sorting line, and cardboard bales exiting the baler.

Figure 2-14 Recycling Facility

CHAPTER 3 – RATE MODEL UPDATE & ANALYSIS

3.1 OVERVIEW

Solid waste rate models are Excel-based tools that compare current and future system revenues to current and future system costs to determine whether or not per household, per ton, or other system billing rates are sufficient to cover costs.

Current Guam statutes require that "...All commercial and residential tipping fees charged by the Authority shall be subject to the review and approval of the PUC;" further, that "A tipping fee per cubic yard, uncompacted, shall be established for business and government generators, subject to approval by the PUC, and shall be published in a rate order developed by the PUC," and elsewhere that "The PUC is hereby authorized to establish, amend and approve all commercial, government and residential tipping fee and user fees…"

Accordingly, an important task within this management audit has been to review and analyze the most recent rate model being utilized by the Authority, to update and enhance it to account for current system realities, and to examine whether current per household and per ton billing rates are sufficient to cover current costs and expected costs over a 15 year period, and to suggest possible new billing rate levels and policies that should be considered.

3.2 RECEIVER RATE MODEL

As a starting point, the most recent version of the receiver's rate model (dated 2010) was studied and analyzed. The most significant observations, among others, were that this rate model:

- Did not take into account the availability of bond proceeds to fund construction of Cell 3,
- Did not take into account the obligation of the Authority to pay the debt service on those bonds,
- Did not make clear the differences between long-term projected balances and best practices target balances of several important landfill-related reserve funds,
- Utilized cost inflation rate projections not based upon econometric data, and
- Utilized unrealistic cost estimates for cell construction, closure, and post-closure care.

3.3 METHODOLOGY FOR UPDATE

Working closely and collaboratively with the Authority, the MSW Team revised the Receiver rate model to accommodate the above observations and to also review and confirm the Authority's projection of system costs over the next 15 years.

Further, landfill engineers from Golder Associates reviewed the landfill-related schedules and assumptions within the rate model and made enhancements to make them more useful and accurate.

Once our revised rate model was agreed to by the Authority (the "Base Revised Rate Model") the MSW Team proceeded to run multiple iterations keeping certain underlying assumptions fixed while varying other assumptions in order to identify the potential impact of 1) the timing and level of possible increases in billing rates, and 2) an alternative reserve fund policy.

Table 3-1 shows the key fixed underlying assumptions common to all iterations of the model.

Table 3-1 Key Assumptions Used in Base Revised Rate Model

Assumption	Value
Annual Waste Growth (Tons)	0.35%
Population / Household Growth	0.45%
Cell Construction Cost per Acre - 2012	$2,000,000
Cells Closure Cost per Acre - 2019	$820,000
Layon Post-Closure Cost per Acre - 2012	$15,000
CPI Growth – Not Contracted	1.19%
CPI Growth – Ordot and Layon	1.86%
CPI Growth – Hauler Transfer Station	2.82%
Airspace Utilization Factor (Tons/CY)	0.675
Interest Rate	0.5%
Unrestricted Cash Balance Minimum (Days)	90
Unrestricted Cash Balance Minimum (Percent)	24.7%
Admin Cost Allocation to Disposal	50.0%
Admin Cost Allocation to Collection	50.0%
The only debt service paid by solid waste revenues is for the Cell 3 construction bonds.	

3.3.1 Rationale For Fixed Assumptions

The following bullets provide additional details for the basis of the various assumptions in the preceding table.

- **Annual Waste Growth (Tons) – 0.35% –** While recent annual increases in tonnage have averaged only 0.24%, Guam's population growth has averaged 0.45% over the past 8 years and is increasing (see World Bank statistics in Exhibit 3-1, Guam Econometrics).
- **Population Growth – 0.45% –** Guam's population growth has averaged 0.45% over the past 8 years and is increasing (see World Bank statistics in Exhibit 3-1, Guam Econometrics).
- **Cell Construction Cost per Acre (2012) – $2,000,000 –** Cell construction cost assumed in the Receiver's rate model of $900,000 per acre appears to be insufficient. Typical costs in the mainland vary and may be expected to range from $300,000 to $800,000 per acre. Actual Cell 3 contracted construction costs (for the Layon Landfill) are approximately $27,000,000 for approximately 13.3 acres. This equates to a cost of approximately $2,000,000 per acre and is significantly higher than the noted range of costs. One item to note is that the cost of $27,200,000 does include the relocation of an access road and associated utilities, which may cause the unit cost to be slightly higher than needed. However, cell construction projects often include these types of costs for various reasons (mostly due to unknown conditions, etc.), so the landfill engineers recommend maintaining this cost per acre basis for future cell construction. This value yields a remote location factor of 2.5 (250%) to account for the remoteness of Guam and the apparent effect on pricing.
- **Cell Closure Cost per Acre (2019) – $820,000 –** Closure construction duration has been assumed to be a maximum of one year in duration for modeling purposes. Closure costs for landfills are typically less than that of new cell development/construction. Typical closure costs in the mainland range from $227,000 to $326,000 per acre. Given the contracted cost associated with the Cell 3 construction,

Golder estimates a closure cost of $820,000 per acre (approximately 250% of $326,000 per acre) to account for higher construction costs on the island.

- **Layon Post-Closure Cost per Acre (2012) – $15,000 –** The unit rate for post-closure care costs assumed in the Receiver's rate model of $5,039 per acre appears to be low based upon the other landfill related costs associated with Guam. Our landfill engineers recommend utilizing the unit rate of $15,000 per acre, per year in the rate model to account for the remoteness of Guam and the associated impact of pricing. This amount was based on the average cost per acre of select mainland landfills and scaled to account for higher construction costs.
- **CPI Growth – Not Contracted – 1.19% –** This is the consensus of two third-party measures of recent Guam CPI growth (see Moody's Analytics Economic Indicators and CIA World Factbook statistics in Exhibit 3-1, Guam Econometrics).
- **CPI Growth – Ordot and Layon – 1.86% –** This estimate is based upon the most recent annual CPI observations from the Bureau of Labor Statistics as applied to the contract-defined Adjustment Factors.
- **CPI Growth – Hauler Transfer Station – 2.82% –** This estimate is based upon the most recent annual CPI observations from the Bureau of Labor Statistics as applied to the contract-defined Adjustment Factor.
- **Airspace Utilization Factor (Tons/CY) – 0.675 –** The airspace utilization factor for the Layon Landfill is assumed to be 0.675 tons (1,350 pounds) per cubic yard, the minimum required by the operating contract between Herzog Environmental, Inc. and the Receiver. The airspace utilization factor is similar and related to the minimum effective density as noted in the operating contract for the Layon Landfill. The airspace utilization factor from the 2018-2019 Annual Operating Report for the Layon Landfill is 0.715. Note that for small MSW landfills with best management practices, the airspace utilization factor would have an expected range of 0.60 – 0.85. Thus, the assumed value appears to be reasonable given the size of the facility. The cumulative cubic yardage capacity (airspace), *Added CY's* from *Cells Built* (volumes from constructed cells), and *Liner Constructed* (area in acres) of the Layon Landfill has been calculated in accordance with the information presented in the Master Plan Update.
- **Interest Rate – 0.50% –** This assumption represents the recent rate on short term US treasury notes.
- **Unrestricted Cash Balance Minimum (Days) – 90 –** This assumption is as per the recommendation of the Authority.
- **Unrestricted Cash Balance Minimum (Percent) – 24.7% –** This assumption is as per the recommendation of the Authority.
- **Allocation of Administrative Expense – 50.0% Disposal & 50.0% Collection –** This assumption is as per the recommendation of the Authority.
- **The only debt service paid by solid waste revenues is for the Cell 3 construction bonds –** This assumption is as per the recommendation of the Authority.

3.4 FINANCIAL ASSURANCE FOR MUNICIPAL SOLID WASTE LANDFILLS

The United States Environmental Protection Agency (EPA) requires that all owners/operators of municipal solid waste landfills demonstrate that they will be able to pay for the required closure and post-closure care activities, and any corrective action that might become necessary due to releases of contaminants into the surrounding environment. The EPA believes that requiring these financial assurance demonstrations ensures proper long-term financial planning by owner/operators so that sites will be closed properly and maintained and monitored in a manner that protects human health and the environment.

While state and federal government entities are exempt from these requirements, meeting them is considered Best Practice for Governmentally-owned landfills such as Layon. Furthermore, the Guam EPA requires that this requirement be addressed in landfill permit applications.

While Layon closure and post-closure expenses are not expected to be incurred for many years into the future, the MSW Team believes that it is important to identify at this time the very large deficiencies that can be expected in the projected balances of the Layon closure and post-closure reserve funds relative to the Best Practices balance.

Accordingly, our landfill engineers have calculated an estimated level that these reserve funds should reach under Best Practices for each year. While we believe that Guam should focus first on remedying the much nearer term deficiencies projected in the GovGuam Fund, it is important to note that once this fund is stabilized, deficiencies in the Layon closure and post-closure reserve funds must be addressed.

3.5 FINDINGS

As noted elsewhere, our rate sufficiency analysis covers the 15-year period FY 2020 thru FY 2035. While not opining on rates beyond that point, in the course of our work we have also projected the long-term life to the Layon Landfill and potential deficits in Layon closure and post-closure reserve funds in the very long term (50-100 years).

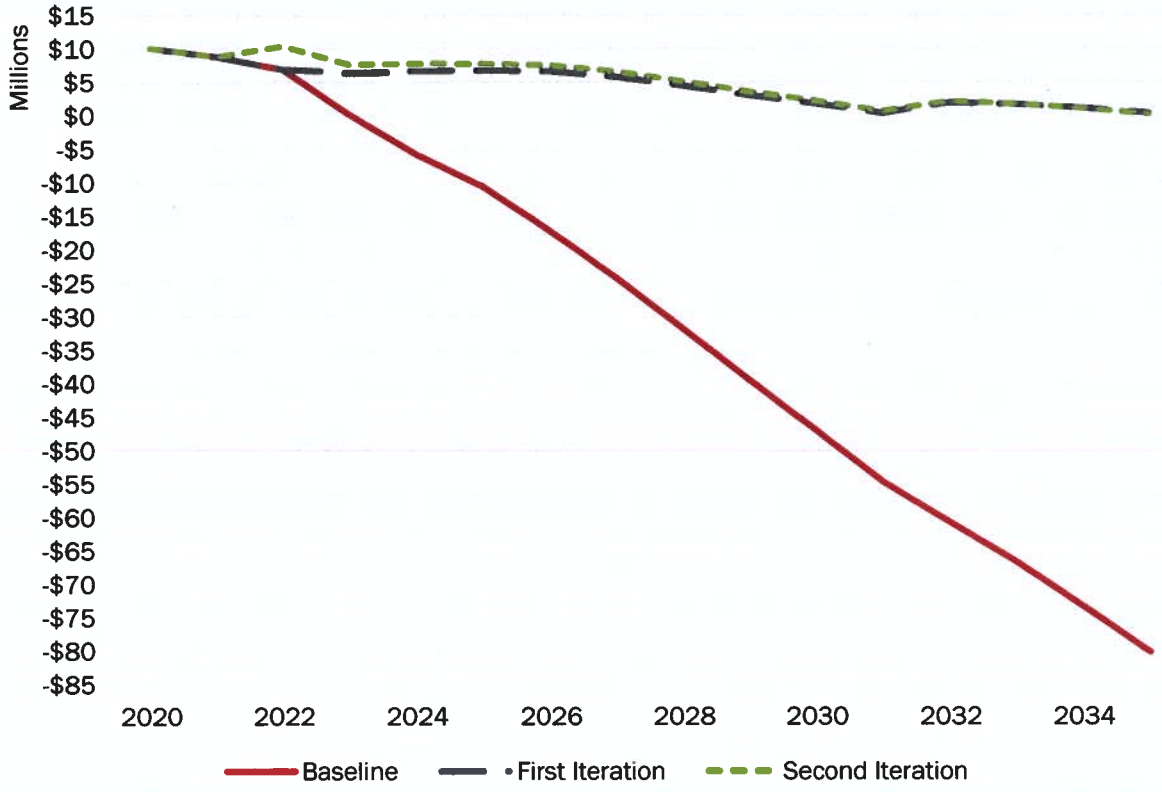
The MSW Team prepared two additional iterations of the rate model to fully define the potential impact of achieving revenue sufficiency over the 15-year study period. In addition to a baseline rate model, separate iterations were prepared to show the impact of (i) a single rate increase, which would be expected to create greater potential for a shock to solid waste customers, and (ii) two smaller rate increases, designed to scale up to revenue sufficiency more slowly. The baseline and both iterations are shown in Table 3-2 and graphically in Figure 3-1.

Table 3-2 Rate Model Findings for Base Assumptions and Iterations

	Base Revised Rate Model	Iteration #1: One Rate Increase	Iteration #2: Two Rate Increases
Unique Assumptions			
Cell Build Reserve Policy	Annual deposit assumptions provided by GSWA	Maintain approximately 10% balance after each cell build	Maintain approximately 10% balance after each cell build
GovGuam Fund Policy	None, substantial deficits will occur beginning in FY 2024	Stabilize GovGuam Fund through FY 2035	Stabilize GovGuam Fund through FY 2035
Layon Closure and Post Closure Reserve Policy	None	Calculate and monitor long-term deficiencies	Calculate and monitor long-term deficiencies
Findings			
Required Rate Increase*	Current rates maintained	Approximately 30% ($39/HH, $223/Ton) by FY 2024	Approximately 17% for residential ($35/HH) and 19% for tipping fee ($205/Ton) by FY 2022; approximately 9% for residential ($38/HH) and 10% for tipping fee ($225/Ton) by FY 2024
Last Year of Layon Capacity	2115	2115	2115
Current Aggregate Deficit in Layon Closure and Post-Closure Funds	-$28,265,271	-$28,265,271	-$28,265,271
Year Layon Closure Expenses Begin	2066	2066	2066
First Year Layon Closure Reserve Turns Negative (Year/Reserve Deficit)	2088 / -$40,877,794	2088 / -$40,877,794	2088 / -$40,877,794
Year Layon Post-Closure Expenses Begin	2066	2066	2066
First Year Layon Post-Closure Reserve Turns Negative (Year/Reserve Deficit)	2101 / -$149,170,489	2101 / -$149,170,489	2101 / -$149,170,489

**This may result in more waste being brought to the three drop off centers and/or more illegal dumping. It is beyond the scope of this study to quantify this potential impact. However, this impact along with other potential rate model iterations should be addressed in further rate analyses subsequent to this study.*

Figure 3-1 Comparison of GovGuam Fund Balance



As shown in the above table and figure, our two primary findings are (1) there is a need to address near-term projected deficiencies in the GovGuam Fund under current rates and system costs, and (2) there is a need to address substantial long-term projected deficiencies in the Layon Closure and Post Closure Reserve Funds under current and projected rates and projected system costs. The two iterations are shown to stabilize the GovGuam Fund for the 15-year study period.

3.6 CONCLUSIONS

As summarized in Table 3-2, our two primary findings are (1) there is a need to address near-term projected deficiencies in the GovGuam Fund under current rates and system costs, and (2) there is a need to address substantial long-term projected deficiencies in the Layon Closure and Post-Closure Reserve Funds under current and projected rates and projected system costs.

Generally, these deficiencies can be mitigated in the short term primarily by rate increases while tools to address longer term deficiencies would include, in addition to further rate increases, capital and operating cost reduction programs and broadening the ratepayer base by making household subscription mandatory and/or assessing certain base residential system costs via taxes or user fees.

3.7 SUPPLEMENTAL RESEARCH: MANDATORY VS. NON-MANDATORY COLLECTION POLICIES

At this point it is worth mentioning that residential collection service provided by the GSWA does not have to be purchased by Guam households; residential curbside refuse collection is therefore non-mandatory, and residents can instead opt to use the Island's transfer stations for their waste disposal needs. As will be further discussed in Chapter 4, three of the four communities included in the benchmarking research have mandatory, exclusively-provided residential collection service. Communities with

mandatory, exclusively provided curbside collection services[1] gain three advantages over Guam's current non-mandatory system:

- The size of the customer base remains stable over time, because customers cannot opt to drop or add service (which could be disruptive for unexpected additions or subtractions).
- They are able to charge a fair, revenue-sufficient rate to all customers who benefit from having a solid waste utility; and
- They are able to operate their residential collection services with the optimal efficiency that is gained by servicing every household in a residential neighborhood.

Although not explicitly included in the scope of the manpower and staffing research, MSW Consultants performed an additional query into the prevalence of mandatory, exclusively-provided residential refuse and recycling collection among similar sized local governments on the U.S. mainland. We randomly selected 15 communities across the nation with a comparable number of total households to Guam. For each community, we consulted our *WasteInsight* database to obtain information about the provision of residential curbside collection, and subsequently confirmed that the database was accurate through internet research and in some cases follow-up phone calls.

Table 3-3 summarizes the results of this research. As shown, 14 out 15 similar-sized cities in the U.S. have established mandatory, exclusive residential refuse and recycling collection systems. Some of these cities provide residential collection through a public organization (public works or sanitation department), while others have opted to contract with a private hauling company to provide the exclusive service. Only one of the randomly selected cities does not provide exclusive collection. Clarksville (TN) has left its residential collection market open to be served by private haulers, and requires residents to make arrangements for curbside collection with a private provider. Notably, Clarksville does not offer its own public collection service (like GSWA), but rather leaves all collection responsibility to private haulers.

Local regulations in these cities dictate whether or not residential refuse and recycling collection are mandatory and provided via an exclusive arrangement. In the professional opinion of MSW Consultants, the results of the small but random sample of like-sized communities is very representative of the broader universe of local governments on the US mainland. Guam is in a very small minority of jurisdictions that has not established exclusive, mandatory residential refuse collection.

[1] One of the benchmark communities, the City of Grand Rapids, does not provide mandatory, exclusive collection and currently experiences lower collection productivity, higher collection costs, and currently subsidizes its refuse collection user fees with tax revenue.

Table 3-3 Residential Collection in 15 Randomly Selected U.S. Cities

Municipality	State	Total Households	Mandatory Residential Collection?	Service Provider
Deerfield Beach	Florida	42,671	Yes	Public
Erie	Pennsylvania	44,790	Yes	Public
Asheville	North Carolina	41,626	Yes	Public
San Buenaventura	California	42,827	Yes	Contracted
Clinton	Michigan	40,057	Yes	Contracted
Simi Valley	California	42,506	Yes	Contracted
Billings	Montana	41,165	Yes	Public
Guam	**N/A**		**No**	**Public**
Richardson	Texas	40,630	Yes	Public
Davenport	Iowa	44,087	Yes	Public
Everett	Washington	41,447	Yes	Contracted
Vallejo	California	44,433	Yes	Contracted
Clarksville	Tennessee	41,220	No	Private Subscription
Fall River	Massachusetts	42,750	Yes	Contracted
Tuscaloosa	Alabama	40,842	Yes	Public
San Mateo	California	40,014	Yes	Contracted

3.8 SUPPLEMENTAL RESEARCH: SYSTEM ECONOMICS OF BENCHMARK COMMUNITIES

As described more fully in Chapter 4, comparative research was performed on four U.S. mainland jurisdictions to compare the manpower and staffing levels of their collection programs relative to GSWA collection system manpower and staffing. In performing this research, the MSW Team found it informative to compile critical attributes of the overall waste management and recycling systems in addition to just manpower and staffing data. Although it was technically beyond the scope of the management audit, selected financial data from the four benchmark communities is provided below.

Table 3-4 compares the disposal and processing costs incurred by Guam and by each of the benchmark cities. As shown in this table, Guam's disposal and processing costs are exponentially higher compared to mainland jurisdictions, especially as all four of the cities selected for this comparative analysis are located in areas of the country with extensive land availability and proportionately low disposal costs. For this reason, at least some of the differences in the service fees charges to residents in Guam is attributable to the higher disposal and processing cost environment.

Table 3-4 Disposal and Processing Facilities and Costs

Metric	Guam	Salina, KS	Flower Mound, TX	Logan, UT	Grand Rapids, MI
Disposal Facility Type	Landfill	Landfill	Landfill	Landfill	WTE
Tip Fee ($/Ton)	$171.60	$36.00	$35.00	$29.00	$65.00
Processing Facility Type	MRF	MRF	MRF	MRF	MRF
Processing Fee ($/Ton) [1]	$275.68	$65.00	Unavailable	-$8.00	$65.00

[1] The amount shown for Guam is not a fee per se, but has been pulled from the rate model and represents the actual full cost of recyclables process under existing contracts. The values shown for the other jurisdictions are actual processing fees paid to material recovery facilities.

Table 3-5 summarizes the service charges in place within each of the benchmark communities.

Table 3-5 Collection Service Rates

Metric	Guam	Salina, KS	Flower Mound, TX	Logan, UT	Grand Rapids, MI
Refuse Collection Rate	$30.00/mo	$16.00/mo	$13.75/mo	$13.50/mo	32-Gal: $2.05/ collection 64-Gal: $5.10/ collection 96-Gal: $7.15/ collection
Recycling Collection Rate	Included in Refuse Rate	$5.50	Included in Refuse Rate	Included in Refuse Rate	Free
Yard Waste Fee	N/A	Included in Refuse Rate	Included in Refuse Rate	Included in Refuse Rate	Cart: $6.00/collection Bag: $2.50/collection
Bulk Item Fee	2 free collections per year; $25 per collection for each additional	$25 for first 15 mins; $25 for each additional 30 mins	Rolled into Refuse Rate	$20 + tonnage	Bulk: $20/collection Appliance: $25/collection

There are several noteworthy observations in this table:

- **Basic Rate Structure**: Three of the five jurisdictions – one of which is Guam – have a single monthly rate charged to residents. This rate includes both refuse and recycling collection. In the case of Flower Mound, even the bulk waste is included in the monthly rate.
- **Additional Charge for Bulk Waste**: While the bulk waste rate schedules vary, three of the benchmark cities charge extra for bulky waste, as a means to recoup the extra cost of maintaining a bulk waste service. Guam provides two free collection annually, after which additional fees are charged per collection. Salina, Logan, and Grand Rapids all charge extra for their bulk waste services.
- **Pay-As-You-Throw Rates**: The City of Grand Rapids is unique among the research partners in offering a pure Pay-As-You-Throw (PAYT) system. In Grand Rapids, refuse rates are determined based both on the size of the refuse cart (larger carts pay more than smaller carts) and on the frequency of set-out (residents who set out weekly are charged double residents who set out every-other-week). While this system is highly supported based on resident surveys, it creates significant customer service demands to track cart sizes and to record the frequency of cart lifts. Grand Rapids has invested in

extensive back-office and onboard event recording systems to properly manage this system, and also maintains a relatively large customer service staff.

MSW Consultants notes that there are many considerations in setting appropriate service rates for refuse, recycling and bulk waste service, and that the greater the cost for a refuse removal service, the higher the likelihood for increased illegal dumping. However, based on our professional opinion, many communities have found an appropriate way to provide a base level of service that includes refuse, recycling and some bulk waste service at a consistent price so that the incentive to illegally dispose is minimized. Although it was reported to us that illegal dumping is a problem in Guam, GSWA's rate structure, by including both refuse and recycling and by allowing for some free bulk waste set-outs, has attempted to address this important issue.

WasteInsight database to obtain information about the provision of residential curbside collection, and subsequently confirmed that the database was accurate through internet research and in some cases follow-up phone calls.

Table 3-3 summarizes the results of this research. As shown, 14 out 15 similar-sized cities in the U.S. have established mandatory, exclusive residential refuse and recycling collection systems.

Exhibit 3-1 - Guam Econometrics

Inflation

Moody's Analytics Economic Indicators

Index 2007 Q4 = 100, Not Seasonally Adjusted

	2014				2015				2016				2017				2018				2019			
Period	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Percent	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.25%	1.50%	0.13%	1.00%	0.00%	1.25%	0.50%	0.50%	-0.25%	1.25%	0.00%	-2.25%
Annual Total				**N/A**				**N/A**				**N/A**				**2.88%**				**2.25%**				**-1.25%**

CIA World Factbook as of 6/30/18

	2014				2015				2016				2017				2018				2019			
Period	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Percent	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Annual Total				**1.75%**				**1.50%**				**1.50%**				**1.25%**				**1.00%**				**1.00%**
Combined Average																**2.07%**				**1.63%**				**-0.13%**
																				Average for most recent three years				**1.19%**

Population Growth

World Bank

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Percent	0.14%	0.16%	0.19%	0.26%	0.38%	0.52%	0.68%	0.81%	0.90%
								Average	**0.45%**

Ordot Adjustment Factor

Index	Percent of Total	Most Recent - BLS	Previous Year - BLS	Percent Change	Percent Adjustment	Substitute for Percent Change
Fixed Component	18.00%	N/A	N/A	N/A	0.00%	
Construction Machibnery & Equipment	30.00%	236.4	231.6	2.07%	0.62%	
Employment Cost Index	37.00%	138.7	135.0	2.74%	1.01%	
Gasoline - Fuel	15.00%	168.2	153.2	9.79%	0.23%	1.50%
Projected Adjustment Factor	**100.00%**				**1.86%**	

Layon Adjustment Factor

Index	Percent of Total	Most Recent - BLS	Previous Year - BLS	Percent Change	Percent Adjustment	Substitute for Percent Change
Fixed Component	18%	N/A	N/A	N/A	0.00%	
Construction Machibnery & Equipment	30%	236.4	231.6	2.07%	0.62%	
Employment Cost Index	37%	138.7	135.0	2.74%	1.01%	
Gasoline - Fuel	15%	168.2	153.2	-11.09%	0.23%	1.50%
Projected Adjustment Factor	**100%**				**1.86%**	

Transfer Station Adjustment Factor

Index			Percent of Total	Most Recent - BLS	Previous Year - BLS	Percent Change	Percent Adjustment	Substitute for Percent Change
Facility Fee								
Fixed Component			8%					
Operations Fees	Fixed	0.41	14%					
	Variable	0.59	21%					
Employment Cost Index				138.7	135.0	2.74%	1.62%	
Transport Fee			50%					
Percent That Changes With			25%					
			13%					
Employment Cost Index				138.7	135.0	2.74%	0.34%	
Percent That Changes With			75%					
			38%					
Producer Price Index				266.3	261.0	2.03%	0.76%	
Fuel Charge			6%				0.10%	1.50%
Total			**100%**				**2.82%**	

CHAPTER 4 – MANPOWER & STAFFING ANALYSIS

4.1 INTRODUCTION

This section summarizes the manpower and staffing comparative research performed across local governments on the U.S. mainland that provide similar services to a comparable number of customers as the GSWA.

It should be noted that, based on input from the GSWA and the PUC, only the GSWA collection system was included in the manpower and staffing research. This is because collection services are provided directly by the GSWA (i.e., publicly-owned trucks and GSWA employee crews), which consequently means there is reasonable ability to make incorporate changes to collection operations that may be identified as a result of the research findings. Conversely, the landfill and transfer stations were excluded from the manpower and staffing research because these facility operations are performed via contract with private vendors. The GSWA consequently has little ability to incorporate findings from a manpower and staffing analysis for these facility operations. In lieu of manpower and staffing research, the Project Team reviewed the landfill and transfer station contracts against best procurement and operating practices. The results of these contract reviews are contained elsewhere in this report.

4.2 OVERVIEW OF SELECTED CITIES

The following four cities were selected for inclusion in the manpower and staffing analysis:

- **Salina, KS**: The City of Salina serves close to the same size population, and is located away from any major metro area (Kansas City is the closest major city at over 170 miles). Salina also offers a semi-automated collection system to its residents and is not an exclusive provider. Salina is arguably the closest comparison to Guam identified by the filter.
- **Flower Mound, TX**: Flower Mound is also comparably sized to Guam and provides exclusive semi-automated collection. Flower Mound does not share Guam's isolation, as it is located on the outskirts of the Dallas/Fort Worth region. Flower Mound has been retained in the research because its collection services are provided by a contractor rather than by the City itself.
- **Logan, UT**: Logan is located in a mountain valley over an hour from Salt Lake City. It shares Guam's relative isolation. The City also serves roughly the same number of households as GSWA, and is an exclusive provider. However, Logan uses fully automated collection for its residential services. It has been included as a comparison of semi-automated collection vs fully automated collection.
- **Grand Rapids, MI**: Grand Rapids is relatively isolated from other metro areas, but has a residential customer base which is substantially larger than Guam's. However, Grand Rapids shares another uncommon trait with Guam: it provides residential refuse collection which is not mandatory for residents to accept. Like Guam's, Grand Rapids' households can choose not to take the refuse collection service, opting instead to hire a private hauler. Both Grand Rapids and Guam must therefore devote administrative and management resources to tracking an ever-changing residential customer base. Most cities are the exclusive provider of residential refuse collection service and do not face this issue.

Table 4-1 summarizes the critical attributes that drove the selection of the four jurisdictions selected for the manpower and staffing analysis.

Table 4-1 Manpower and Staffing Research Partners

Municipality	Isolated from Metro Areas	Total Residential Households	Residential Households Served	Mandatory, Exclusive Service?	Collection Technology	Collection Service Provider
Guam	Yes	42,026[1]	19,613	No	Semi-Auto	City
Salina, KS	Yes	19,453	15,100	No	Semi-Auto	City
Flower Mound, TX	No	22,792	22,792	Yes	Semi-Auto	Contractor
Logan, UT	Yes	15,632	15,632	Yes	Full Auto	City
Grand Rapids, MI	Yes	55,000	47,575	No	Full Auto	City

[1]The Guam total residential household number contains both single-family and multi-family households, which are not served by the GSWA, as available data does not further split the total households into varying categories.

It should be noted that three cities – Hot Springs, AR; Ypsilanti, MI; and Midland, MI – were also found to have semi-automated collection systems. However, these cities all ultimately declined to provide the details needed to be included in the comparative analysis.

4.3 COLLECTION SYSTEM MANPOWER AND STAFFING KEY FINDINGS

The analysis of manpower and staffing levels for the collection systems of the four research partners as well as for the GSWA specifically attempted to compare and contrast the following staffing levels of these collection organizations:

- **Collection Crews**: First and foremost, we compiled the number of equipment operators and helpers needed to be on route every day, plus any additional staff that must be kept within the organization to manage absenteeism such as vacations, sick leave, and other leave.
- **Route Supervisors**: Effective collection systems require a first line of supervision to serve as a troubleshooter within the service area, and to coordinate routes and route changes as circumstances warrant.
- **Collection Customer Service Representatives**: While there can be a blurry line between general solid waste system administration and collection system customer service, every program must be capable of interacting with customers to answer questions, confirm services, and address problems with scheduled collection (whether real or perceived).
- **Cart Management Staff**: Finally, with semi-automated and fully automated systems, every customer is assigned one or more standardized carts. These carts must be maintained and replaced as they are damaged, lost or stolen. Cities with cart-based collection must service its cart inventory.

Table 4-2 contains a detailed accounting of the number of staff at each of the four positions above. These counts are used in subsequent tables to compare staffing.

Table 4-2 Residential Collection System Staffing Summary (No. of Staff by Function)

Municipality	Guam	Salina, KS	Flower Mound, TX	Logan, UT	Grand Rapids, MI
Route Supervisors	2	1	2	1	Note
Customer Service Reps	3	1	1	1	
Collection Crew	29	18	26	13	
Cart Management	4	2	1	1	
Total	38	22	30	16	

Note: Grand Rapids to be added in final draft

There are several key performance indicators that can be calculated for each of the collection systems included in the research. These are shown in Table 4-3.

Table 4-3 Residential Collection System Key Performance Indicators

Municipality	Guam	Salina, KS	Flower Mound, TX	Logan, UT	Grand Rapids, MI
Routes per Day	15.0	7.0	13.0	9.9	Note
Staff per Route	2.5	3.1	2.3	1.6	
Households Served	19,613	15,100	22,792	15,632	
Staff per 1,000 Households	1.9	1.5	1.3	1.0	
Avg. Households per Refuse Route	490	604	569	909	
Avg. Households per Recycling Route	1,961	1,510	911	1,818	

Note: Grand Rapids to be added in final draft

There are a number of important observations from Table 4-3. Note that MSW Consultants has based these observations both on the specific data available from this research exercise, but also supplemented with our knowledge of residential collection systems more broadly. Key findings include:

- **GSWA Staff per Semi-Automated Route is In Line**: When compared against other semi-automated collection systems, GSWA's number of staff per route is in line with other semi-automated systems.
- **GSWA Staff per 1,000 Households is Below Average**: Although GSWA's semi-automated staff per route is in line, GSWA requires more staff to service 1,000 households than the other semi-automated service providers. GSWA requires 1.9 staff per 1,000 households, which is 33 percent higher than Salina, and 47 percent higher than Flower Mound. In lay terms, this suggests that GSWA may be operating a larger number of routes than necessary to service its customers, or else is maintaining extra capacity in its collection system in the event that it increases its customer base.
- **GSWA has Average to Below Average Route Size**: Similarly, the number of households served per semi-automated route is smallest in Guam compared to the other semi-automated collection systems. Some of this effect is attributable to the fact that GSWA does not service every household and must drive past non-customers, while Salina and Flower Mound routes collect from every household.
- **GSWA Could Increase Productivity and Improve Safety with Automated Collection**: The data from this analysis clearly show the productivity and efficiency benefits of automated collection over semi-automated collection. Automated collection systems significantly reduce the size of the work force needed to provide services. Further, they increase the speed of collecting from each household. Finally, the waste management industry has embraced the higher safety levels achievable through automation. Logan and Grand Rapids provide automated collection, and they have significantly fewer

staff per collection route, and far fewer staff per 1,000 households needed to service the area. Automated collection systems average one plus a fractional full-time equivalent (FTE) employee per route. Conversely, semi-automated systems average more than two FTEs per route. GSWA may wish to investigate some automated collection in the future to realize these productivity advantages.

Based on these data, at appears that GSWA is maintaining a slightly larger collection system than necessary to service its customer base. However, this may be appropriate if GSWA is obligated to collect from non-customers and/or support other services (e.g., illegal dump clean-ups), which may not be the case in the benchmark cities. Further, GSWA maintains incrementally more customer service staff. This is to be expected for a non-exclusive provider of service who must track current customers, and manage new customer onboarding and suspension of accounts for former customers.

4.4 COMPARATIVE DATA

The tables and exhibits to follow systematically compare relevant attributes of the collection programs and systems in each of the benchmark communities and provide context to the findings in Section 4.3. Table 4-2 identifies the specific residential collection services provided and shows the collection frequency for each service.

Table 4-4 Collection Frequency

Municipality	Guam	Salina, KS	Flower Mound, TX	Logan, UT	Grand Rapids, MI
Refuse Collection	Weekly	Weekly	Weekly	Weekly	Weekly
Recycling Collection	EOW	Weekly	Weekly	EOW	EOW
Yard Waste	N/A	Collected with Refuse	Collected with Bulk	Weekly	Weekly
Bulk Waste	On-Call	On-Call	Weekly	On-Call	Weekly

The following observations can be made from this table:

- Weekly collection of refuse is the norm in Guam and on the US mainland,
- Recycling collection frequency varies between weekly and every-other-week (EOW) frequency.
- The two cities that provide automated refuse collection also provide a third collection service for yard waste; while the semi-automated communities mix yard waste in with their refuse or bulk collection.
- All of the communities provide some form of bulk waste collection, which is usually on-call. On-call service requires a resident to notify the City that they need additional collection to remove larger items that cannot be readily collected within the regular trash collection program.

Table 4-3 shows the collection technology (i.e., the truck type and crew size) in use in each collection system

Table 4-5 Collection Technology and Crew Size

Metric	Guam	Salina, KS	Flower Mound, TX	Logan, UT	Grand Rapids, MI
Truck Type					
Refuse	Semi-auto	Semi-auto	Semi-auto	Automated	Automated
Recycling	Semi-auto	Semi-auto	Semi-auto	Automated	Automated
Yard Waste	N/A	N/A	N/A	Automated	Manual
Bulk Waste	Manual	Grapple	Grapple	Grapple	Manual
Crew Size					
Refuse	2	3	2	1	1
Recycling	2	1	2	1	1
Yard Waste	N/A	N/A	N/A	1	1
Bulk Waste	2	2	2	1	1

As previously discussed, three of the cities use semi-automated collection, with the other two using full automation. Bulk waste collection is the most diverse and includes manual and grapple truck service. The most noteworthy observation from this table is the inverse relationship between the degree of automated and the crew size. Semi-automated collection systems require an equipment operator with one or even two crew to load the truck; while automated collection systems require only a single equipment operator to tip carts using onboard hydraulics.

4.5 RESEARCH NOTES

In addition to the purely quantitative manpower and staffing comparisons in the preceding tables, there were additional, qualitative factors in these cities that are informative in a manpower and staffing comparison with Guam.

- **Plans to Automate**: Salina will soon be converting from its semi-automated collection system to a fully automated system. The City cited safety and efficiency in making this conversion.
- **Recycling Market Impacts**: Salina has also recently made the decision to stop its curbside recycling collection program, instead asking residents to use a local drop-off center. More broadly, all cities with any recycling program are currently incurring higher cost for these programs, as global markets for recyclables are in the midst of a long-lasting downturn due to changes in global trade policies. Grand Rapids has seen their recyclables processing fees increase as well. Among the research partners, only Logan appears to enjoy a positive material value for its recyclables.
- **Exclusivity in Commercial Sector**: Flower Mound and Logan each have regulated commercial collection by allowing only a single, exclusive provider. In the case of Flower Mound, the contract includes both residential and commercial customers and services. In Logan, the City is the exclusive provider of commercial sector collection as well as residential sector collection. For these cities, the scale of their collection system is significantly larger than had they only provided residential collection.[1] Such an increase in scale translates into more efficient, and therefore lower cost, collection service on a per-unit basis.

[1] The City of Logan is also the exclusive residential and commercial collection provider for the surrounding Cache County. This arrangement further increases the scale of the City's operation, thereby further improving the efficiency of the collection service for all City and non-city residents.

- **Heightened Customer Service for Non-Exclusive Providers**: The City of Grand Rapids was included in this research because it does not have mandatory, exclusive residential collection and consequently does serve every residential household. Grand Rapids in effect competes with private haulers for refuse collection business. In order to properly manage the fact that it only serves some customers, (as well as to manage its PAYT rate structure), the City has a larger customer service staff. The primary customer service needed for exclusive providers in a mandatory collection system is to record and address missed collections, which are relatively low in a well-operated system.

4.6 CONCLUSIONS

Comparing collection systems is a complex undertaking, due to the many variables that impact the collection system, service delivery, and cost. This section has attempted to compare and contrast key variables among Guam and the four research partners. MSW Consultants offers the following observations and conclusions, based both on this immediate research, but also on our broad-based experience and understanding of residential collection systems across the U.S.

- **Non-Mandatory Collection Policy Hampers GSWA Productivity and Increases Management Burden**: Perhaps the most noteworthy finding of this research is that Guam is in a small minority of public service providers that does not service 100 percent if its residential customer base via mandatory collection. This has two detrimental impacts on productivity and efficiency. First, there is a greater impact on account management to accurately track the customer base, charge and recover appropriate user fees, and manage open/closed accounts. Second, collection efficiency is impaired because GSWA routes must pass by non-customers in order to reach customers. Key performance indicators suggest that the semi-automated collection system in Guam is performing in line in some areas, but at the low end of the scale on other areas. In the opinion of MSW Consultants, there is a benefit to making sure the public sector collection provider is capable of servicing some overflow from the usual customer base in case there is a spike in new customers (e.g., if a private hauler goes out of business), or unexpected growth in the Guam customer base.
- **High-cost Market Conditions Suggest Collection Policies Should Strive for Operational Efficiency**: The cost of disposal and processing is inherently high on Guam (as discussed in Chapter 3). These factors are largely a product of market economics and cannot be readily reduced. However, the authorities on Guam could revisit the policy that allows residents to opt out of receiving curbside collection service from the GSWA, and consider converting GSWA to be the exclusive, mandatory collection provider. This policy change would bring Guam back into the vast majority of US mainland jurisdictions which grant mandatory, exclusive service – and charge full-cost rates – to their customers.
- **Frequency of Manpower/Staffing Research Updates**: We note finally that the current regulations requiring this research suggest the benchmarking should be performed on an annual basis. In practice, residential collection systems change slowly and it is not likely that this research needs to be performed more than every four to five years. In the opinion of MSW Consultants, the findings of the research presented herein would not be expected to change as long as the GSWA provides semi-automated collection as a non-exclusive service provider. Should the GSWA evolve over time to use another collection technology (i.e., to more fully automate their collection system) or should Guam enact regulatory changes to assign exclusive, mandatory residential collection system responsibility to the GSWA, then there would be a benefit to re-performing this manpower and staffing research in order to assess the effectiveness of these new collection system attributes.

CHAPTER 5 – REVIEW OF THIRD-PARTY CONTRACTS

5.1 SUMMARY OF CONTRACTS INHERITED BY THE GSWA

In April, 2019 the Court turned over responsibility for solid waste to the GSWA. The judge left the Receiver in charge of the Ordot Dump and of hiring a contractor to build Cell 3 at the Layon Landfill.

Subsequently, the Authority inherited numerous multi-year full-service third-party contracts that had been negotiated and executed by the Receiver. These contracts provide for the post-closure activities at the Ordot Dump, operation of the Layon Landfill, operation of the commercial transfer station, maintenance of the GSWA's collection vehicles, and marketing of recyclables and HHW, among other tasks. Table 5-1 lists the three key third party contracts reviewed by the MSW Team.

Table 5-1 Summary of Key Contracts Inherited by GSWA

Contract	Service Provider	Start	Optional Renewal Dates	End Date
Post-Closure of the Ordot Dump	Brown and Caldwell	May, 2018	May, 2023 May, 2028	May, 2033
Operation of the Layon Landfill	Green Group (Herzog)	April, 2011	April, 2016 April, 2021	April, 2026
Operation of the Commercial Transfer Station	Guahan Waste Control, Inc. (Mr. Rubbishman)	May, 2011	May, 2016 May, 2021	May, 2026

As shown, the GSWA is committed to the Layon Landfill and commercial transfer station operating contracts until mid-2021, and the Ordot Dump post-closure contract until mid-2023 at the earliest. All three contracts include one additional five-year extension period. The remaining sections further review each of these three key contracts.

5.2 ORDOT DUMP OPERATING CONTRACT

The Ordot Dump is operated under a contract with Brown and Caldwell (B&C). The contract is turnkey and requires B&C to provide services associated with the post-closure care of the Ordot Dump. The overall scope of the contract appears to be in-line with similar facilities and includes expected routine monitoring and reporting. The contract requires the operator to have trained individuals on site, and the training requirements are defined. The contract also requires the operator to have the adequate number, type, and size of equipment for use at the Ordot Dump.

The services are divided into routine and non-routine services. The routine services are segregated into 11 tasks, with sub-tasks noted under each main task and are as follows:

- Task 1 – General Administrative Services
- Task 2 – Site Security Operations and Maintenance Services
- Task 3 – Operations and Maintenance of the Cover System
- Task 4 – Groundwater and Surface Water Monitoring System Operations, Maintenance, and Monitoring Services
  - Groundwater Monitoring System Inspection and Maintenance
  - Groundwater and Surface Water Monitoring Services
  - Semiannual Groundwater Monitoring Report Preparation

- Task 5 – Landfill Gas Monitoring System Operations, Maintenance and Monitoring Services
  - Landfill Gas Monitoring Wellhead Inspections, valves, fittings, and components
  - Landfill Gas Monitoring Well Vegetation Removal/Disposal, and Wellhead and Access Maintenance
  - Landfill Gas Monitoring Well Sampling and Reporting
- Task 6 – Gas Collection and Control System
  - Routine LFG System Operation and Maintenance, Well-head Monitoring, and Surface Monitoring and Reporting
  - Routine Flare Station and Condensate Collection System Operation, Maintenance, Monitoring, and Reporting
  - Surface Emissions Monitoring and Reporting
- Task 7 – Settlement Survey and Monitoring
- Task 8 – Surface Water Drainage System Monitoring and Maintenance
  - Surface Water Drainage System Monitoring and Reporting
  - Surface Water Drainage System Maintenance and Cleaning
- Task 9 – Leachate Collection and Removal System Operations, Monitoring, and Maintenance
  - Leachate Collection and Removal System Monitoring
  - Leachate Collection and Removal System Operations and Maintenance
- Task 10 – Quarterly and Annual Consolidated Report Preparation
- Task 11 – Consolidated Expense Allowance/Insurance and Performance Bond
  - Consolidated Expense Allowance for Permit Fees, and Materials, Part and Equipment
  - Property Insurance
  - Performance Bond

Non-routine services are also segregated into a task structure with ten tasks listed as follows:

- Task 1 – General Administrative
- Task 2 – Site Security Operations and Maintenance Services
- Task 3 – Operations and Maintenance of the Final Cover System
- Task 4 – Groundwater and Surface Water Monitoring System Operations, Maintenance, and Monitoring Services
- Task 5 – Landfill Gas Monitoring System Operations, Maintenance and Monitoring Services
- Task 6 – Gas Collection and Control System
- Task 7 – Settlement Survey Monument Inspections and Monitoring
- Task 8 – Surface Water Drainage System Monitoring and Maintenance
- Task 9 – Leachate Collection and Removal System Operations, Monitoring, and Maintenance
- Task 10 – Quarterly and Annual Consolidated Report Preparation

Non-routine tasks are generally tasks which are not required to be performed on a routine/regular basis, but may be needed to continue proper operation, monitoring, and maintenance during the post-closure care period (e.g. redeveloping a groundwater monitoring well to allow for continued sampling operations).

Given that this contract may be renewed/extended until 2033, MSW Team member Golder has viewed these costs as fixed during our review. However, Golder notes that since the contract is turnkey, the risk

is placed on the contractor, thus they may have to account for multiple scenarios to continue providing the required tasks. This risk will typically be accounted for in man-hours/anticipated costs, and therefore be reflected in the overall annual cost. One example is that leachate generated from the facility is typically pumped from the leachate storage tanks to the Hagatna Wastewater Treatment plant. The contract does however require the operator to have a contingency in place to haul leachate from the facility at a minimum rate of 4,800 gallons per hour, 24 hours per day, seven days per week. This contingency likely caused the operator to contract multiple haulers on an emergency, on-call basis. This effort is likely included in the overall cost associated with the operation and maintenance of the leachate collection and removal system.

While having one service provider for the entire suite of services required for the Ordot Dump's post-closure care period is convenient, Golder has seen similar facilities break out these services to multiple service providers, often resulting in increased competition, which may yield a more cost-effective contract. Note doing this may require additional resources from the Guam Solid Waste Authority (GSWA) in procuring separate services and managing the subsequent contracts, if these services are transitioned away from the Receivership and back to the GSWA after the current contract expires.

Table 5-2 summarizes the salient elements of the Ordot Dump post-closure operating contract.

Table 5-2 Summary of Ordot Dump Post-Closure Operating Contract

Service Provider	Brown and Caldwell		
Term	**Start**	**End**	**Option Renewal**
	May 2018	May 2033	May 2023 / May 2028
Services Provided	"Routine Services" including preventive maintenance and monitoring of all equipment and systems required to meet all environmental requirements for a closed landfill and closure reporting and documentation "Non-Routine Services" defined as "services and maintenance that cannot be performed by the staffing assigned to carry out Routine Services" Procure, maintain, repair and replacement of all equipment required for Routine Services Full compliance and reporting responsibility		
Services NOT Provided	None – All services required will either be "Routine" or "Non-Routine"		
Fee Structure	If "Routine" – $800,732 in 2011 plus CPI-based annual escalation, plus pass-through costs which are limited to leachate treatment and hauling, stand-by water trucks and utilities If "Non-Routine" – Fee subject to mutual agreement via a defined "Task Order" procedure		

5.3 LAYON LANDFILL OPERATING CONTRACT

The Layon Municipal Sanitary Landfill (Layon Landfill) is operated under a contract with the GreenGroup (formerly Herzog Environmental, Inc.). The contract is turnkey and requires the contractor to provide

services associated with the waste disposal operations at the Layon Landfill. The overall scope of the contract appears to be in-line with similar facilities and includes various obligations of the operator. The contract is based upon a minimum annual waste disposal tonnage of 80,000 tons per operating year, with excess operating fees being $21.90 per ton in the base year of the contract, with annual CPI-based adjustments (as defined in the contract). There are allowances for pass-through costs, which may be requested and approved on a case-by-case basis. The contract requires the operator to coordinate the excavation and stockpiling of soil for daily cover use with the Receiver and GSWA. The contract also requires the operator to anticipate Final Closure Construction of portions of Cells 1 and 2. Specifically, the operator is to prepare Cells 1 and 2 to intermediate cover conditions in accordance with applicable laws and landfill permits.

Golder notes that depending on timing of the contract closeout, existing conditions should be reviewed prior to enforcing this requirement; requiring Cells 1 and 2 to be at intermediate grades prior to actual waste volume achieving those requirements could reduce the amount of available landfill volume (filling of Cell 1 and 2 with soil to achieve intermediate cover grades). The contract requires the operator to have trained individuals on site, and the training requirements are defined. The contract also requires the operator to have the adequate number, type, and size of equipment for use at the Layon Landfill. The contract defines waste not allowed for disposal at the Layon Landfill as the following:

- Old corrugated containers
- Untreated wood
- Bulky metallic waste
- Cleaners
- Pesticides/herbicides
- Septic tank or cesspool wastes

The operator is responsible for the screening of solid waste; a protocol is provided in Appendix 4 of the contract. There are also performance requirements associated with the contract. The operator must achieve a minimum effective waste density of 1,350 pounds per cubic yard (equates to an airspace utilization factor of 0.675), which Golder believes is reasonable given the size and location of the facility. The minimum effective density requirements do have liquidated damages associated with not achieving the minimum value, in the amount of $20 per cubic yard (in the base year of the contract with CPI-based escalation) with clear methodology described and an example calculation provided in the contract. The contract also requires the landfill to be operated efficiently and in a manner that will permit weighing, delivery, and exiting of vehicles delivering waste without undue waiting time.

The contract lists several landfill operation requirements in Section 5.05. The main requirements are as follows:

- Layon Landfill, general requirements
- Obligations regarding recyclables diversion
- Obligations regarding site maintenance
- Layon Landfill costs
- Operation of Layon Landfill
- Operator's managers
- Screening of waste
- Deliveries of excluded waste
- Weighing and identification of vehicles

- Leachate and condensate collection services
- Customer service
- Temporary access, haul, and fire break roads
- Maintaining landfill in a sanitary condition in accordance with applicable requirements (i.e. permits and regulations)

The contract excludes the following items/services:

- Environmental monitoring
- Cell construction
- Weighing and recording of waste haulers (trucks)
- Closure and post-closure care responsibilities

The contract notes that the facilities and buildings provided by the Receiver/GSWA were presented in good operating condition. Unlike the Ordot Dump contract, having one service provider (operator) for the operation of a landfill is typical in the industry.

Table 5-3 summarizes key terms of the Layon landfill operating contract.

Table 5-3 Summary of Layon Landfill Operating Contract

Service Provider	Green Group (formerly Herzog)		
Term	**Start**	**End**	**Option Renewal**
	April 2011	April 2025	April 2016 / April 2021
Services Provided	Very inclusive turnkey landfill operations including operations during cell 1&2 construction (before receipt of waste) and uninterrupted operations during future cell construction Procure, maintain, repair and replacement of all equipment Daily and periodic cover from on-site material Waste screening and set aside Full compliance and reporting responsibility		
Services NOT Provided	Environmental monitoring, cell construction, closure and post-closure responsibilities"		
Fee Structure	80,000 tons per year put or pay at $2,871,681 in 2011 ($35.90/ton) plus CPI-based annual escalation $21.90/ton for waste over 80,000 tons per year plus CPI-based annual escalation from 2011 Plus pass-through costs which are limited to new governmental charges Liquidated damages for failure to achieve minimum effective density (1,350 lbs/cubic yard) at the cost of $20/cubic yard, plus CPI-based annual escalation		

5.4 SUMMARY OF HAULER-ONLY TRANSFER STATION CONTRACT

The Hauler only transfer station and related transportation services are operated under a contract with Guahan Waste Control, Inc. aka known as Mr. Rubbishman (MR). The facility is also owned by principals of this company. The contract is turnkey and requires MR to provide services required for the receipt, loading and transportation of waste to the Layon Landfill. The contract is very inclusive and requires MR to provide and maintain the facility, to procure, maintain, repair and replace all equipment, and to provide, maintain, repair and replace the outgoing scale.

MR is also responsible for waste screening and set aside, and compliance and reporting duties.

The fee structure mirrors that of the Layon Operating Contract with an 80,000 tons per year put or pay obligation at $30.08 in June 2011 plus cost of escort vehicles (added via Amendment 1) and CPI-based escalation. Although it is common for transfer station operating contracts to include both the loading and the transportation functions, these two services are typically priced separately, which could enable additional bidders in the future, as trucking-only concerns would not be expected to operate a facility but may provide competitive hauling services.

Additional waste up to 145,000 tons per year must be accepted if delivered, with 600 tons per day maximum at the same rate. Maintaining this standby capacity is a burdensome and costly feature to MR, but of significant value to GSWA, representing a substantial risk allocation away from GSWA.

Table 5-4 summarizes the key terms of the hauler-only transfer station operating and transportation contract.

Table 5-4 Summary of Hauler-Only Transfer Station Operating Contract

Service Provider	Guahan Waste Control, Inc		
Term	**Start**	**End**	**Option Renewal**
	May 2011	August 2026	April 2016 / April 2021
Services Provided	Very inclusive turnkey transfer station provision and operations Procure, maintain, repair and replacement of all equipment Outgoing scale provision, operation, maintenance, repair and replacement Waste screening and set aside Full compliance and reporting responsibility		
Services NOT Provided	Escort vehicles from transfer station to Layon Landfill. This was added via Amendment No. 1 in 2011.		
Fee Structure	80,000 tons per year put or pay at $30.08 in June 2011 plus cost of escort vehicles (added via Amendment 1) and CPI-based escalation Additional waste up to 145,000 tons per year, with 600 tons per day maximum at same rate		

GSWA inherited other contracts for maintenance of the GSWA's collection vehicles, marketing of recyclables, and HHW management. These contracts were not reviewed as part of the management audit.

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CHAPTER 6 – MANAGEMENT & OPERATIONAL EVALUATION

6.1 MANAGEMENT STRUCTURE

The Guam Solid Waste Authority is managed by a Board of Directors. This Board is appointed by the Guam government and oversees the management of the Authority. The Board has hired a General Manager to oversee and manage day-to-day operations. The General Manager is assisted by a staff of five managers with varying responsibilities. Table 6-1 lists the management (non-operational) staff.

Table 6-1 Management and Administrative Positions in GSWA

General Manager	
Comptroller	**Chief of Administration**
Management Analyst	Administrative Assistant
Accounting Tech (2)	Customer Svc. Reps – Office (3)
Engineer Supervisor	Customer Svc Reps – Scalehouse (3)
Safety Officer	**Operations Supervisor**
	Customer Svc Rep – Operations Support

Roles and responsibilities for these non-operating staff are listed below.

- The Comptroller manages the Accounting Department with a staff of three other employees. This department is responsible for all account, budgeting and collection activity.
- The Chief of Administration is responsible for all office staff comprised of an Administrative Assistant, three customer service representatives in the office, three scalehouse attendants, and another customer service representative who is assigned to help the Operations Supervisor. The Customer Service Representatives answer calls for all service-related issues. The scalehouse attendants manage the transfer stations, verifying usage and collecting money.
- The Operations Supervisor manages a large staff of Equipment Operators, Sanitation Workers and Cleaning Crew manage the day-to-day operations of the GSWA. The Organizational Chart, provided to the team in the initial data request, list 28 workers but that number has been expanded since the chart was last updated. It was also verified that 10 or more contract workers are routinely used to support GSWA operations (see Chapter 2 for details). The Operations Department is responsible for the collection of the residential refuse and recycling. A Clerk also report to the Supervisor and assists in the management of the collection operations and paperwork associated with those operations.
- The Safety Officer is responsible for safety training and accident investigation and prevention.
- The Engineering Supervisor is responsible for the management of the transfer stations and has some oversight at the landfills.

In the professional opinion of the MSW Team, the current management staffing configuration is appropriate for the GSWA's current breakdown of directly managed and contracted operations.

6.2 OPERATIONAL EVALUATION

The MSW Team was explicitly charged with providing an evaluation of the GSWA's ability to manage and operate its current waste management and recycling system, consisting of residential collections and residential transfer stations directly staffed and operated by the GSWA, and other facility operations provided via operating contracts which were all put in place by the Receiver and inherited by the GSWA.

CHAPTER 6 – MANAGEMENT & OPERATIONAL EVALUATION

The MSW Team has prepared the preceding sections of this report to organize the information and data relied upon to formulate an assessment of GSWA management and operations. As described throughout this report, the GSWA provided all data and information requested by the MSW Team; and further hosted the MSW Team to observe collection observations and tour its facilities during a visit in November 2019. During the visit the MSW Team observed residential refuse, recycling and bulky waste collection, and the operation of the convenience centers. Also, during this visit, the Team conducted interviews with the General Manager and each of the Managers. A senior landfill engineer from Golder Associates spent the week visiting the two landfills, observing their operations and interviewing on-site contracted operators.

6.2.1 COLLECTION SYSTEM AND RESIDENTIAL TRANSFER OPERATIONS

Based on the above tasks, the MSW Team offers its opinion that current Authority senior management and staff possess the industry knowledge, experience, and commitment to operate the residential collection system and the residential convenience centers effectively. The framework for the collection system is appropriate, and the user fee structure is typical of numerous programs on the US mainland that must cover their full costs from direct fees charged to customers. (The amount of the actual user fees to be charged are discussed in Chapter 3 and are not repeated here. It was beyond the scope of this audit for the MSW Team to make a formal recommendation as to the level of GSWA fees.)

The MSW Team further notes, as discussed in Chapters 3 and 4, that the GSWA faces greater challenges than the typical collection program on the US mainland because its services are not mandatory for all Guam residential households. This characteristic creates both operational inefficiency and also adds confusion to collection crews who cannot easily track active customers on route. Although it was beyond the scope of this management audit to provide extensive recommendations for changes to the system, and notwithstanding the current policy of non-mandatory residential collection, the MSW Team offers the following supplemental comments about the management of the services directly provided by GSWA:

- **Refuse and Recycling Route Balance**: The current refuse collection system uses helper/support routes for larger assigned house counts on Monday and Tuesday. Recycling routes sometimes have additional trucks, and sometimes recycling is collected by refuse routes after completing refuse collection. These are inefficient methods for refuse collection and contrary to best practices. The GSWA should consider balancing routes, assigning dedicated recycling routes, and assigning each crew to their full route each day. It should also explore the use of its Alpine Technology system and its underlying geocoded customer addresses as the basis for the reroute. The potential savings of reducing one or more daily routes is meaningful, and dedication of an appropriate number of recycling routes would improve the order and management of the collection program.
- **Need for Residential Transfer Stations**: The three transfer stations handle a small portion of the island waste. Due to the higher volume of throughput, the Harmon Street facility appears to have the volume to justify its cost of operation. Longer term, GSWA should consider tracking the number of cars, tonnage delivered, and cost at the Agat and Malojloj transfer stations and decide if the operating hours should be further reduced or even if the facilities should be closed. Should mandatory curbside refuse and recycling collection be implemented on Guam, this would also lead to the likely closure of these facilities (which would no longer be needed because everyone would receive the curbside service), with the exception of the HHW receiving area at the Harmon Street convenience center.
- **Fleet Management and Replacement**: Should the GSWA pursue route balancing and reduce its number of operating routes per day, it would be expected to reduce the size of the collection fleet and place a greater emphasis on proper fleet replacement. Under such a scenario, the GSWA would need the flexibility and financial resources to replace older trucks on a routine schedule.

6.2.2 LANDFILL OPERATIONS

As detailed in Chapter 5 the two key third-party contracts shown in Table 6-1 will be coming up for renewal soon.

Table 6-2 Third-Party Contracts

Contract	Renewal Date
Ordot Post-Closure	May 2023
Layon Operations	April 2021

Senior Authority management has indicated that they believe that these contracts should not be renewed and that the Authority should take over these aspects of the solid waste system in addition to residential collection and the three convenience centers.

The MSW Team is of the opinion that both Authority management and operational resources would require substantial enhancement in order to successfully assume these additional responsibilities. Landfill operations require specialized technical and engineering expertise to plan, operate, and maintain the various components of the landfill. The commercial transfer station requires less technical expertise than a landfill, but expands operations into long-haul and its inherent risks given Guam's highway system. During the site observations, the MSW Team noted nine or ten staff employed at the Layon Landfill, and two at the Ordot Dump. GSWA would need to expand its work force significantly to employ appropriate staff to fill these roles and responsibilities. Also, the commercial transfer station is privately owned. Public operation may not be an acceptable option to the owners.

The above paragraph notwithstanding, the MSW Team notes that it is relatively common on the US mainland for municipalities to privatize their operations, and in the course of converting from public to private service provision, there is a direct transfer of employees from the municipal jurisdiction to the private vendor upon assumption of service. In reverse, should the GSWA not renew either or both contracts, it would presumably be advisable to explore how to retain many or even most of the current contractor staff to continue their roles under direct employment to GSWA. The MSW Team did not perform an in-depth review of the currently contract operations and therefore cannot offer an opinion on assumption of any currently contracted employees at the conclusion of these operating contracts.

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APPENDIX A

BENCHMARK RESEARCH METHODOLOGY

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APPENDIX A – BENCHMARK RESEARCH METHODOLOGY

A 1. METHODOLOGY

Literally thousands of U.S. mainland cities, counties, and solid waste authorities operate vertically integrated solid waste management systems that include the provision of curbside refuse and recycling services to their single-family residential sectors. However, these collection systems vary widely in the size of the customer base, and in the collection services offered. Further, effective comparative research requires active participation from the selected jurisdictions, who must be willing to invest their own employee time provide operational data that is not readily available through conventional internet research. It was therefore necessary to develop a process to identify, screen, and select jurisdictions to be included in the manpower and staffing benchmark research to give the greatest chance that the findings of the research would realistically inform this management audit and provide useful observations and findings about collection system best management practices.

MSW Consultants applied the following methodology to conduct the benchmarking research:

- **Step 1**: Filter U.S. Census Bureau data to identify jurisdictions that have curbside collection of refuse and recycling and approximately the same number of residential households as Guam.
- **Step 2**: Develop screening criteria related to the provision of "similar services." MSW Consultants believes that the single most influential aspect of GSWA's collection system is the use of semi-automated collection technology. Other forms of collection technology include manual collection and fully automated collection. Filtering out manual and fully automated collection dramatically reduces the number of candidate benchmark communities. MSW Consultants identified only five communities in the entire U.S. that met the first two criteria.
- **Step 3**: Develop a concise list of data needs from each of the identified jurisdictions. The list of data needs included not only manpower and staffing data, but also a range of collection system parameters that better enable us to interpret and understand the differences between the selected jurisdictions and the GSWA. The research, consequently, was more broad-based and therefore more informative than had we focused solely on manpower and staffing.
- **Step 4**: Establish formal contact with each identified jurisdiction to gauge their interest in participating in the comparative research. It is important to note that MSW Consultants relies on the support of these third parties to complete this assignment; such support is not always forthcoming. To bolster our potential success recruiting participants, the PUC provided an open letter introducing the project to prospective cities and requesting their assistance. Further MSW Consultants offered to share the results of the benchmarking research with all participants. As a result of these efforts, two jurisdictions with highly similar customer bases and service provision were successfully recruited.
- **Step 5**: Supplement the results set after Step 4 with additional jurisdictions to cover the range of manpower and staffing considerations that are relevant to this audit. MSW Consultants is a national expert in collection system optimization, with a long list of collection system analyses for public sector organizations. In order to gain the maximum insight into GSWA's collection system operations, MSW Consultants supplemented the list of research partners with two additional cities for which we have completed collection system analyses and therefore have access to the critical operating data that is needed to draw meaningful conclusions about the GSWA's collection service.

As a result of these steps, four jurisdictions were successfully and thoroughly compared to the GSWA, and MSW Consultants believes the findings and observations from this research provide informative insights and satisfy the intent of this requirement of the management audit.

A 2. LIMITATIONS

While this research is intuitively a reasonable means of evaluating the management and performance of the GSWA, it is important to note that waste and recycling collection systems operate under numerous variables that are unique to their service areas. Collection systems and services are influenced by, among other variables, regulatory policy, regional disposal and recycling market conditions, neighborhood topography and housing density, labor markets, privatization, and many smaller factors. While the selection of same-sized jurisdictions helps to normalize the comparative research somewhat, it is nonetheless critical to understand various aspects of the local collection systems and regional markets in which the benchmark communities operate.

A critical component of this research involves the definition of the phrase "similar services." Broadly, the ideal comparison would include communities that only provide curbside refuse and curbside recycling collection. In practice, many U.S. cities also provide curbside yard waste collection in addition to refuse and recycling. Yard waste collection is provided seasonally in more northern climes, and annually in the south. Additionally, many cities offer a separate curbside collection of bulky wastes. Bulk waste collection may be offered routinely (e.g., every month or once per quarter), or the bulk service may be offered on an on-call basis for an additional fee. Some jurisdictions even offer commercial collection service. It is important to recognize these additional services when comparing Guam to other mainland jurisdictions.

A second critical detail to determining whether two communities offer "similar services" involves the collection technology being used. Guam relies on a semi-automated collection system On the U.S. mainland, there has been and continues to be a strong push within the waste management industry towards fully automated collection. MSW Consultants estimates that over 75 percent of all refuse collection programs nationally are fully automated, and over 50 percent of recycling programs (based on number of households served). In performing this research, we selected communities that provide semi-automated as well as automated collection to provide some contrast between the two systems.

APPENDIX B

REGULATORY BACKGROUND

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APPENDIX B – REGULATORY BACKGROUND

In the process of developing a scope of services for this management audit, the MSW Team performed an in-depth review of the regulatory language which guides the management audit and identifies specific duties to be performed by the PUC and the GSWA. This appendix contains the results of this regulatory review for future reference.

The following formatting convention was developed to summarize the identified language:

- **Bolded:** sections that assign obligations to the PUC (numbered as "PUC*X*").
- **Bolded and Underlined:** sections that assign obligations to the GSWA (numbered as GSWA*X*").

12 GCA Sections 12102.1 through 12102.2, aka the "Ratepayers Bill of Rights", in addition to laying out the procedure by which a utility must propose a rate increase also requires the PUC to **"…annually conduct a study comparing the staffing pattern and man power levels of Public Utilities under their purview to the staffing patterns and manpower levels of at least (4) other utilities in the United States Mainland which provide similar services to a comparable number of customers."** PUC1

The Ratepayer Bill of Rights also requires that such **"studies be made available to residents attending the public hearings on the proposed rate increase."** Further, the **"PUC must, in determining approval an any rate increase, take into account the results of such studies and order reductions or other adjustments in the operations of the Public Utility requesting a rate adjustment, as recommended or suggested by such studies, prior to granting approval for a rate increase."** PUC2

Section 51A119 of 10GCA Health and Safety provides that **"The…PUC…shall perform a management audit of the existing operations of the Guam Solid Waste Authority …"** PUC3

Section 51A104 assigns the following "Powers and Duties" to the GSWA.

(A) "The Authority shall have and exercise each and all of the following powers:

(1) **administer those powers listed under Chapter 51a, Title 10 of the Guam Code Annotated…**"

(2) **"acquire by grant, purchase, gift, devise, or lease or by the exercise of the right of eminent domain in accordance with the provisions and subject to limitations of Title 21 GCA Chapter 15, and hold and use any real or personal property necessary or convenient or useful for the carrying on of any of the powers pursuant to the provisions of this chapter "** GSWA1

(3) "**establish its internal organization and management, and adopt regulations for the administration of its operations** " GSWA2

(4) **"(A) establish and modify from time to time with approval of the PUC, reasonable rates and charges for the collection, transportation, disposal, storage, recycling and processing of solid waste to recover the full cost of providing solid waste management services, and collect money from customers using such services** " PUC4 and GSWA3

(B) **"similarly, the authority shall establish and modify from time to time, with approval of the PUC reasonable rates and charges for servicing of debt obtained to undertake capital improvements to solid waste management"** PUC5 and GSWA4

(5) **"enter into contracts and execute all instruments necessary or convenient in the exercise of its powers, adopt a seal, and sue or be sued in its own corporate name"** GSWA5

(6) **"at any time or from time to time, incur indebtedness pursuant to Article 2 of this Chapter."** GSWA6

Section 51A 301(b) requires that "...All commercial and residential tipping fees charged by the Authority shall be subject to the review and approval of the PUC"

(c) **"A tipping fee per cubic yard, uncompacted, shall be established for business and government generators, subject to approval by the PUC, and shall be published in a rate order developed by the PUC."** PUC6

(d) **"A residential tipping fee, which may include collection charges and a Self-Drop Fee, may be established subject to the approval of the PUC".** PUC7

(e) **"The PUC is hereby authorized to establish, amend and approve, in accordance with chapter 12 of Title 12, Guam Code Annotated, all commercial, government and residential tipping fee and user fees (including without limitation a self-drop fee, a variable residential tipping fee and, collectively referred to as "Tipping Fees" which, when established, shall replace those previously created by law."** PUC8

(1) **"Tipping fees authorized and establish by PUC shall be based on volume and on an analysis of operations costs, including those cost components specifically listed under Title 10 GCA Section 51a 114".** PUC9

(2) **"PUC is empowered to undertake a focused management audit of the existing operations of the Guam Solid Waste Authority."** PUC3

Table B-1 summarizes the key tasks from our management audit approach and indicates which regulatory requirements will be addressed within each task. Citations in the table relate to the enumerated excerpts above.

Table B-1 Correlation of Regulatory Language to Report Sections

Report Section	Regulatory Language
Entire Report	PUC3
Chapter 1 – Introduction	
Chapter 2 – Baseline Assessment	GSWA1, GSW2
Chapter 3 – Rate Analysis	PUC2, PUC4 GSWA3, PUC5, GSWA4, GSWA6, PUC6, PUC7, PUC8, PUC9
Chapter 4 – Manpower and Staffing	PUC1
Chapter 5 – Contract Review	GSWA5
Chapter 6 – Operational Assessment	PUC3

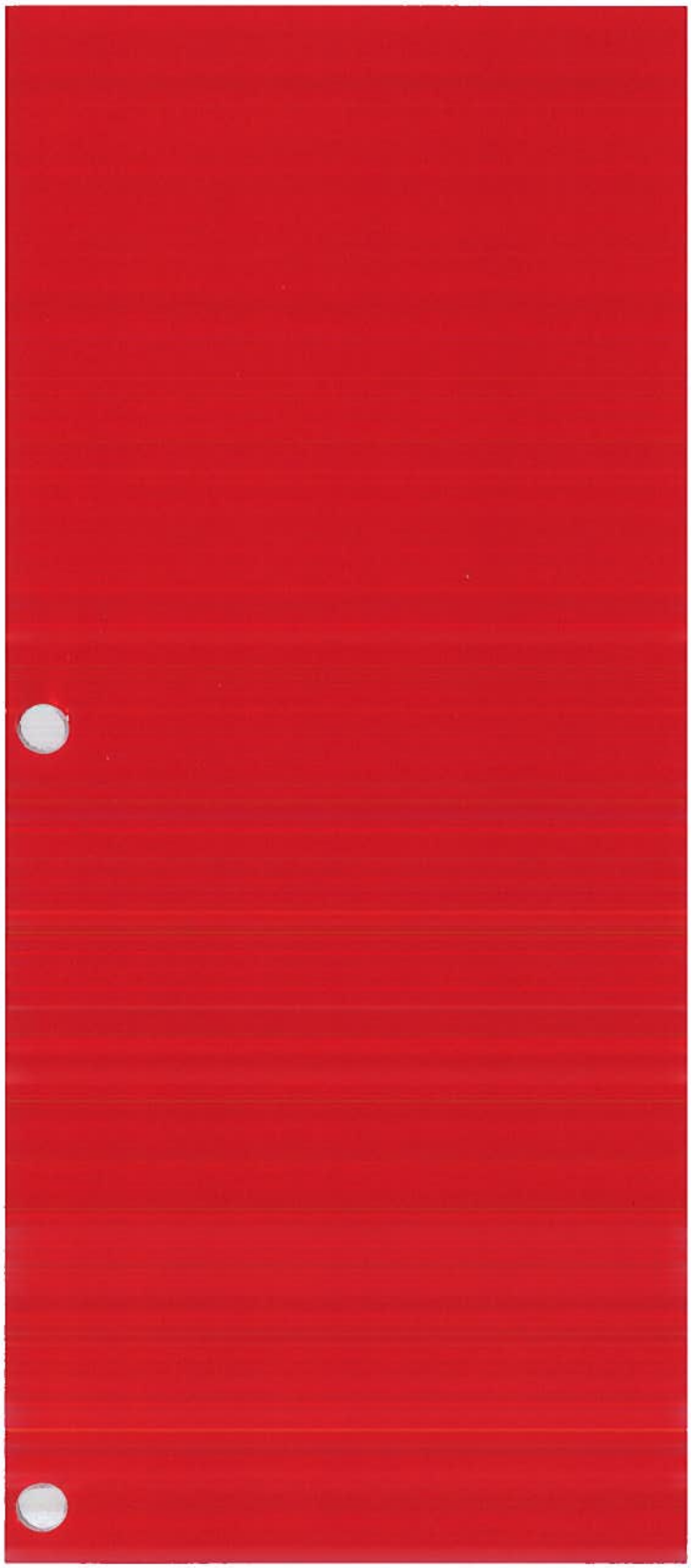

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EXHIBIT F

GSWA Rate Case
Direct Testimony of Ms. Jillian Jurczyk

Written Testimony of Ms. Jillian Jurczyk Before the Guam Public Utilities Commission in Support of the 2024 Rate Request of the Guam Solid Waste Authority

Q1. What is your full name?

A. My name is Jillian T. Jurczyk.

Q2. What is your position?

A. I am a rates manager with Utility Financial Solutions, LLC. Our company was hired to assist Guam Solid Waste Authority in developing a rate plan.

Q3. What education, special qualifications, or expertise do you have that assisted you in making this written testimony?

A. I have a Bachelor of Science degree in Mathematics, a Bachelor of Science degree in Social Studies, and a Master's degree in Applied Economics from Johns Hopkins University. I am a member of the following organizations:

- Solid Waste Association of North America (SWANA)
- American Public Power Association (APPA Elite Corporate Member)
- American Water Works Association (AWWA)

My expertise is in long-term financial planning, cost of service analysis, and rate design. I have extensive experience utilizing client data to build financial projections, forecast utility sales, and develop cost allocations. In addition, I prepare and analyze cost of service studies to determine appropriate allocations of cost between customer classes, including identification of fixed and variable costs, and assigning appropriate cost drivers to utility expenses. Using the cost of service analysis, I identify cross-subsidization between rate classes and develop rate design plans to assist utilities in moving toward more equitable rate structures.

I am an instructor for the American Public Power Association's financial planning courses, and a frequently requested speaker on utility-related financial topics for National and Regional conferences.

My project work includes clear communication to governing bodies and community members about utility financial health, cost to provide service, and rate design, allowing officials to make informed decisions regarding their utility and rates.

Q4. Did anyone assist you with this testimony and the rate proposal?

A. Yes. I was assisted by the following individuals:

Mark C. Beauchamp – President and founder of Utility Financial Solutions, LLC. Mr. Beauchamp holds a Bachelor of Science degree in Accounting and Master's degree in in Business Administration.

Mr. Beauchamp was originally a chemist and plant operator for a municipally owned wastewater treatment plant before moving into administration with the same utility, providing electric, water, wastewater, and fiber. Mr. Beauchamp managed the utility's customer service representatives before moving into finance and rates. Mr. Beauchamp oversaw customer service representatives, meter reading, billing and rates, and later became financial planning and strategic planning manager.

Following 17 years at the municipal utility, in 1998 Mr. Beauchamp started the national consulting practice in municipal rates for Baker Tilly (at the time Virchow, Krause). In 2001 Mr. Beauchamp founded Utility Financial Solutions, LLC.

Mr. Beauchamp remains President of Utility Financial Solutions, LLC and has overseen thousands of utility rate cases for submittal to municipal governing bodies and state public service commissions. Mr. Beauchamp has served as an expert witness in rate related matters for utilities around the United States and internationally, including Guam Power Authority.

Q5. Why this petition being submitted?

A. This petition is being submitted to support the financial stability of the Guam Solid Waste Authority (GSWA) following a period of increased and sustained inflation, the elimination of the American Rescue Plan Act (ARPA) funding, and the Ordot settlement decision. In addition, GSWA has long-term care and post closure care requirements that requires funds are annually set aside to ensure sustainability of landfill cells.

Q6. Is Utility Financial Solutions, LLC recommending a rate increase be approved?

A. Yes, Utility Financial Solutions is proposing the following rate track be approved. Further detail on how this rate track was derived is included in this testimony.

Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount per ton	Gov Agencies and Small Commercial
2025	$ 33.00	$ 11.55	$ 23.10	$ 34.65	$ 15.60	$ 185.00
2026	35.00	11.55	23.10	34.65	12.00	190.00
2027	35.00	11.55	23.10	34.65	10.00	190.00

Fiscal Year	Contaminated Soil Rate	Asbestos Rate	FOG Rate	Power Poles / Junk Tires Rate	Special Waste Report Review Rate
2025	$ 250.00	$ 450.00	$ 271.00	$ 300.00	$ 200.00
2026	250.00	450.00	271.00	300.00	200.00
2027	250.00	450.00	271.00	300.00	200.00

Q7. What are the rates currently being charged by the GSWA?

A. The current rates charged by the GSWA are as follows:

Rate Class	Rate	Description
Residential Rate	$30.00	Available to residential customers. Rate includes use of a 96 gallon cart with weekly pick up.
RTS Minimum	$7.50	Residential Transfer Station. The minimum charge is for one item up to the top of the sidewalls of a regular 8 foot pick-up bed.
RTS Half Cab	$15.00	Residential Transfer Station. If the amount is above the sidewalls and approximately halfway to the top of the truck cab, the price will fall under the half cab rate.
RTS Above Cab	$22.50	Charge for amount slightly above the truck cab. If significantly above the truck cab, the pay attendant will assess as needed
Commercial Discount per Ton	$15.60	Available to professional haulers who meet GSWA defined specifications for payment.
Government Agencies and Small Commercial Rate	$171.00	Commercial customers are professional haulers who primarily serve business customers and multi-family residential services such as apartment buildings or large-quantity producers who haul waste themselves. These entities must set up an account with GSWA before bringing their material to a GSWA facility.

Q8. What is the current status of the reserves of the GSWA?

A. The following table outlines the status of GSWA's reserve accounts:

Financial Statement	2023
Cash and Cash Equivalents	$5,702,502
Restricted Cash and Cash Equivalents	$5,963,590

From the Auditor's Report on restricted assets: "*The bond indenture relating to the Limited Obligation (Section 30) Bonds, 2016 Series A and Government of Guam General Obligations Bonds, 2019 Series A, require amounts to be restricted for capital projects and debt service. Furthermore, a Court Order requires amounts to be restricted for Ordot Dump post closure activities. These amounts have been classified as restricted assets*".

Q9. Have the elements of the proposed rates changed since the 2012 Rate Filing?

A. No, the cost elements remain the same. These are:

- Operating cost for Layon Landfill
- Operating cost for Commercial Transfer Station
- Operating cost for Community Transfer Stations
- Residential Trash Collection
- Bulky and Metallic Waste collection
- Recycling
- Customer Service and Education
- Equipment Maintenance
- Household Hazardous Waste Program
- Administration
- Debt Service
- Reserve for Equipment Replacement
- Reserve for New Cell Development at the Layon Landfill
- Reserve for Closure of Cells at the Layon Landfill
- Reserve for Post Closure Care at the Layon Landfill

Q10. What period was used in development of the financial projection and what is the forecast horizon?

Historical financial data from FY 2019 – FY 2023 was used as the basis for the projection. The budget for FY 2024 was used to develop an interim projection. The forecast horizon is a period of five years from October 2024 – August 2027.

The interim year adjustments for cash inflows and outflows for FY 2024 are provided below. FY 2024 provides the forecasting basis for the projection. A notable cash inflow difference is the American Rescue Plan Act (ARPA) funding of $3.47 million dollars. GSWA has been receiving ARPA funds since 2021 due to the impact of the COVID-19 pandemic. These funds will not be provided for FY 2024 and forward.

Description	Actual 2023	Projected 2024	Support
Cash Inflows			
Collection Sales			
Residential	$ 7,789,913	$ 8,126,450	Growth escalator: 0.45%
Residential Transfer Station	384,023	396,396	No Change
Residential Uncollectable Accounts	-	(243,794)	Estimated at 3.0% of residential collection revenue
Government Agencies and Small Commercial	2,102,906	1,263,995	Decrease of 39.9% due to FY2023 being uncharacteristically high
Major Commercial Haulers (with discount)	11,008,782	10,477,526	Decrease of 4.8% due to FY2023 being uncharacteristically high
ARPA Funding	3,473,564	-	Not available following FY2023
Reactivation / Restoration / Trash Tags	35,870	34,888	Trending downward by 2.0%
Miscellaneous - Reimbursement	507,816	400,000	Reimbursement for recycling cost
Typhoon Revenue	-	1,476,778	One time FEMA funding for Typhoon Mawar
Disposal of Soil	-	2,714,641	One time revenue for soil disposal
Host Community Premium Surcharge	375,780	300,000	This is a pass through on the expense side and will net to zero
Cash Inflows	$ 25,678,654	$ 24,946,881	
Cash Outflows			
Personnel Expense	$ 3,388,155	$ 4,002,582	Increasing due to hiring additional staff, wage increases, and increases in the cost of benefits
Contractual Services	12,827,299	11,628,429	Decreasing due to renegotiated contracts
Inflation Payment	-	1,900,000	Transferred to restricted fund in October 2024 from operations
Reciever Fees	-	1,100,000	Annual reciever costs, previously included in "Contractual Services"
Travel	14,485	24,286	Increasing due to increase in travel and travel costs
Supplies / Vehicle	860,740	751,655	Decreasing due to decreased cost of fuel, replacing diesel trucks with
Equipment	33,517	10,242	Decreased equipment needs
Utilities - power and water	184,107	190,015	Decreased using historical averages
Ordot Transfer and Interest Payment	2,200,350	2,000,000	Calculated payment for FY2024
Layon Post-Closure Care	200,000	200,000	Transferred funds for post-closure
Capital Outlays	464,753	680,635	Capital outlays stalled due to projected operating income
Debt Service Payment	3,045,854	2,997,000	Debt Payment schedule
Host Community Premium Benefits	375,780	300,000	This is a pass through on the revenue side and will net to zero
Miscellaneous	268,361	244,708	Decreased using historical averages
Drug Testing	1,000	1,000	Drug testing brought to historical average
Total Cash Outflows	$ 23,864,401	$ 26,030,552	

Q11. Are there any additional cash inflows or outflows anticipated for the projection period FY2025-FY2027?

Yes, the following additional cash outflows are anticipated for the projection.

These outflows are associated with financial planning for cell closure expenses and new cell adjustments, and anticipated capital outlays such as truck and cart replacements.

Due to the long-term financial responsibilities associated with ownership and operation of landfills, solid waste utilities must be prudent in setting aside funds to manage the current and future maintenance, including addition of new cells. This projection recognizes this fiscal commitment by including a portion of this eventual cost in cash outflows each year.

Historically, GSWA has not been able to set aside these balances due to negative cash flow.

Commented [JJ1]: Kathy - is this correct?

Description	Projected 2025	Projected 2026	Projected 2027
Cash Outflows			
Post Closure Care			
New cell closure expenses	$ 756,545	$ 3,356,545	$ 3,356,545

Q12. What inflation assumptions were used in development of the projection?

The following inflation assumptions were used in development of the projection.

Inflation for Expenses	FY2025	FY2026	FY2027
Salaries and benefits	8.06%	1.90%	1.90%
Travel	1.19%	1.90%	1.90%
Contractual services	1.70%	1.12%	1.12%
Supplies / Vehicle	-17.52%	1.90%	1.90%
Equipment	-48.20%	1.90%	1.90%
Drug testing	0.00%	1.90%	1.90%
Miscellaneous	1.19%	1.90%	1.90%
Utilities	1.19%	1.90%	1.90%
Debt service	1.76%	0.06%	0.19%
Host Community Benefits	0.0%	0.0%	0.0%

Salaries and benefits are increasing in FY 2025 due to hiring an in-house mechanic.

Q13. What growth assumptions were used in development of the projection?

Fiscal Year	Avg Residential Growth	Residential Transfer Growth	Government Tonnage Growth	Commercial Tonnage Growth
2025	-0.43%	-2.5%	-13.60%	0.28%
2026	0.45%	0.4%	0.35%	0.35%
2027	0.45%	0.4%	0.35%	0.35%

Government tonnage and Commercial tonnage growth is due to high tonnage in FY2023 and low tonnage indicated by year to date sales for FY2024. Tonnage growth for FY2025 brings these classes more in line with historic averages.

Tonnage	Residential Customers	Commercial Tonnage	Government Tonnage	
2019	20,334	62,406	8,865	Actual
2020	20,670	54,562	8,720	Actual
2021	20,669	55,564	9,029	Actual
2022	22,404	59,836	4,322	Actual
2023	21,639	70,569	12,255	Actual
2024	22,573	67,164	7,366	Projection
2025	22,476	67,351	6,364	Projection

Q14. What assumptions have been made with regard to the Island Wide Collection (IWC) program?

In this projection, IWC is not included. If IWC is passed in the future, it is proposed that GSWA review their financial projection and rates at that time.

Q15. What assumptions have been made with regard to the Ordot settlement?

In September 2023, Guam reached a settlement with the United States concerning it's fiscal responsibility for the cleanup of Ordot. The following specifications regarding the Ordot settlement have been identified and incorporated in the projections for accuracy.

- GSWA is not required to transfer $2.0M annually (beginning FY 2025) to a separate Ordot-related cash fund.
- GSWA is not required to transfer a 4.0% interest payment (beginning FY 2024) to a separate Ordot-related cash fund.
- An inflation payment of $1.9M is required in FY 2024 only.
- Vendor payments related to the Ordot Dump of approximately $1.2M will be funded from operating cash.
- Ordot operator expenses previously coded under "Contractual Services" in the financial statements are reduced by $740k beginning FY2025 and will be paid from the separately Ordot fund instead of operating cash.
- $30.0 million dollars of settlement funds will be available to GSWA in August 2026 to help fund the balloon payment of $35,233,058.
    - Cash flows for the Ordot fund are projected as follows. Remaining funds (net to operating cash) will be transferred to GSWA Operating fund following August 2026.

					Beg balance 1/24	Projected	Total due
	Inflow	Inflow	Outflow	Outflow	$ 7,103,296	$30,000,000	$35,233,058
Fiscal Year	Ordot Interest Payments	Ordot Transfer Payment	Vendor Payments	Ordot Operator	Account Balance	Settlement	Net to Operating Cash
2024	$ -	$ 2,000,000	$ 240,000	$ 1,008,000	$ 7,604,630		
2025	-	-	-	740,000	6,864,630		
2026	-	-	-	740,000	6,124,630	30,000,000	891,572

Q16. Under these assumptions, what is the projected cash balance for the projection?

Under the above assumptions at GSWA's current rates, cash is projected to fall as follows.

Fiscal Year	Projected Cash Balances
2023	$ 5,702,502
2024	4,618,831
2025	3,956,323
2026	1,443,434
2027	(2,128,095)

Q17. What is the minimum cash GSWA should maintain and why?

GSWA should maintain an operating cash minimum of $4,050,782 in FY 2025 or 74 days cash on hand for operations. This ensures GSWA has funds available to pay bills, fund anticipated improvements, and has funds available in the case of an emergency.

Description	Projected 2025	Projected 2026	Projected 2027
Minimum Cash Reserve Levels Determinants			
Operation & Maintenance (excluding cash fund transfers)	$ 16,890,289	$ 17,105,911	$ 17,345,067
Historical Rate Base	25,485,929	25,592,935	25,936,968
Minimum Cash Reserve Allocation			
Operation & Maintenance (excluding cash fund transfers)	16.4%	16.4%	16.4%
Historical Rate Base	5.0%	5.0%	5.0%
% Assets Depreciated	72%	71%	70%
Calculated Minimum Cash Level			
Operation & Maintenance (excluding cash fund transfers)	$ 2,776,486	$ 2,811,931	$ 2,851,244
Historical Rate Base	1,274,296	1,279,647	1,296,848
Minimum Cash Reserve Levels	**$ 4,050,782**	**$ 4,091,577**	**$ 4,148,092**
Projected Cash Reserves	**$ 3,956,323**	**$ 1,443,434**	**$ (2,128,095)**
Minimum Days Cash on Hand	**74**	**74**	**74**

Determinants	Explanation of risk factor
Operation & Maintenance Less Depreciation	60 / 365 = 16.4% working capital lag
Historical Ratebase	72% depreciated + Risk of Typhoon = risk factor of 5.0% investment in assets

Though the Solid Waste Association of North America (SWANA) does not provide a guideline for the day's cash on hand metric, 74 days cash on hand is consistent with other industry standards. A table and quote from the AWWA Cash Reserve Policy Guideline provide guidance on utility industry standards.

"Based on these case studies and AWWA's report Benchmarking Performance Indicators for Water and Wastewater: 2016 Edition, the range of operating reserves for utilities is generally within the range of 2 to 12 months of operating expenses."[1]

Organization	Recommended Reserve Level	Publication
Water Environment Federation (WEF)	One to Three Months of Operating Costs[1]	Financing and Charges for Wastewater Systems; Manual of Practice No. 27
International City/County Management Association (ICMA)	1-2 Months of Expenses[2]	Capital Budgeting and Finance: A Guide for Local Governments
Government Finance Officers Association (GFOA)	No less than 45 days of expenses[3]	Determining the Appropriate Levels of Working Capital in Enterprise Funds

1 – Depending on the instability or unpredictability of revenues and expenses.
2 – Depending on the utility's size, the challenges it faces, and the availability of special reserves for rate stabilization or emergency purposes.
3 - The recommendation is to use annual operating expenses, which include depreciation expenses. If, however, annual depreciation expenses are significantly more or less than the anticipated capital outlays of the next period to be paid from working capital, consideration should be given to adjusting the benchmark. An appropriate adjusted benchmark may be annual operating expenses, annual depreciation expense + capital outlays of the next period paid from working capital.

Q18. What rate track supports the financial health of GSWA from FY 2025 – FY 2029, given the above assumptions?

The following rate track supports the financial health of GSWA for the projection period as indicated by GSWA's ability to maintain a cash balance slightly above the proposed minimum level.

Fiscal Year	Residential Rate	RTS Minimum	RTS Half Cab	RTS Above Cab	Commercial Discount per ton	Gov Agencies and Small Commercial	Projected Cash Balances	Proposed Minimum Cash
2025	$ 33.00	$ 11.55	$ 23.10	$ 34.65	$ 15.60	$ 185.00	$ 5,285,813	$ 4,050,782
2026	35.00	11.55	23.10	34.65	12.00	190.00	5,691,346	4,091,577
2027	35.00	11.55	23.10	34.65	10.00	190.00	5,185,414	4,148,092

[1] https://www.awwa.org/Portals/0/AWWA/ETS/Resources/awwacashreservepolicynew.pdf

Q19. Why are the Residential and Transfer station rates increasing at a greater percentage than the other rates?

In 2022, UFS conducted a cost of service study for GSWA for projected FY 2023. It is not uncommon for cost of service to show variations between customer classes. The information from a cost of service study is used as guidance for rate design to help ensure that revenue requirements are recovered through the classes that are incurring the cost.

The study consisted of the following steps.

1) Determine utility revenue requirement for FY 2023
2) Classify utility expenses into common cost pools
3) Allocate costs to customer classes based on the classes' contribution to utility expenses
4) Compare revenues received from each class to the cost of service

The "% change" column was the revenue adjustment necessary to meet projected cost of service requirements in FY 2023. The cost of service summary used the rates applicable in this year.

Customer Class	Cost of Service	Projected Revenues	% Change
Residential	$ 9,987,269	$ 8,160,851	22.4%
Residential Transfer Station	640,155	415,819	54.0%
Government Agencies and Small Commercial	960,516	1,016,054	-5.5%
Major Commercial Haulers (with discount)	10,343,695	9,388,183	10.2%
Total	$ 21,931,635	$ 18,980,907	15.5%

The Residential and Residential Transfer Station rates are increasing at a greater percentage than the Government and Commercial rates because the cost of service study showed the need for a proportionately larger increase.

Q20. How do actual 2023 expenses compare to the projected cost of service study?

GSWA's actual expenses for FY 2023 came in above the projected values. The financial projection and subsequent three-year rate adjustment plan takes the 2023 actuals into account.

The 2023 cost of service study revenue requirement was projected to be $21,931,635. The actual revenue requirement for FY 2023 was $22,945,027, indicating the cost of service values remain within a reasonable range.

Revenue Requirement	Actual 2023
Cash Outflows	$ 23,864,401
Less Recurring Revenue Offsets	919,374
Total	$ 22,945,027

The financial projection for 2025 – 2027 is based on the FY 2023 actuals. Therefore, the projected rates outlined in this request would not exceed any revised cost of service rates.