



Flathead County Septage Treatment and Biosolids Composting Facility

Preliminary Market Analysis and Business Plan

March 9, 2023



PRELIMINARY

Introduction

The Preliminary Market Analysis and Business Plan provides an estimate and projection of both revenue and expenses for the proposed Flathead County Septage Treatment and Biosolids Composting Facility based on the data collected during preliminary analysis of the facilities. The information in this document was derived from data from other wastewater treatment plants and composting facilities in the region, conversations with current and former operators and administrators of these facilities, and conversations with compost suppliers and consumers. This Preliminary Market Analysis and Business Plan will be updated as the data and facility design are refined.

Market Analysis

Compost Market Analysis

The compost market analysis is impacted by two factors: the availability of biosolids to create compost and the demand for compost, both of which serve as a source of income.

BIOSOLIDS AVAILABILITY

Biosolids are a byproduct of wastewater treatment and are an integral part of the proposed composting process for this project. The availability of biosolids affects the quantity of compost that can be created. Though biosolids will be created from the septage treatment plant, it is anticipated the biosolids could also be received from the Kalispell, Columbia Falls and Whitefish Treatment Plants. The quantity of biosolids delivered for composting will depend on several factors including disposal cost and the availability of other disposal options for the three municipalities.

Table 1 summarizes the estimated amount of biosolids generated from Kalispell, Columbia Falls and Whitefish, and the estimated quantity from the proposed septage treatment plant for 2021 and 2041.

Table 1: Estimated Biosolids

Biosolids Origin	2021 Biosolids Generated (dry tons)	2041 Biosolids Generated (dry tons)
Kalispell WWTP	776	1,153
Columbia Falls WWTP	154	229
Whitefish WWTP	111	165
Proposed SBR Septage Treatment Facility	245	364
Total Dry Tons of Biosolids Composted:	1,286	1,911

The City of Kalispell currently sends approximately 558 dry tons to Glacier Gold (600 dry tons is reported to be Glacier Gold's limit) and the remaining to the landfill, which was estimated to be

218 dry tons in 2021. This is approximately equivalent to 3,980 and 1,430 wet tons, respectively. The landfill charges \$31 per wet ton and Glacier Gold charges \$238 per dry ton.

The City of Columbia Falls currently sends all their biosolids, 154 dry tons or approximately 1,010 wet tons, to the landfill. The City of Whitefish, which has a new treatment facility, is planning to continue drying their biosolids at the treatment facility site and disposing of the dried material at the landfill.

The market for this facility serving as a disposal option for biosolids is initially dependent heavily on the cost of disposal, but the lack of available disposal options in the future may drive more biosolids to this facility.

According to the City of Kalispell, if the cost of biosolids disposal at the new Flathead County facility is less than the Flathead City/County Landfill, they will bring the biosolids that are currently landfilled, to the new facility. This results in approximately 1,430 wet tons of biosolids being available immediately for composting upon facility start up. In addition, since the capacity of the Glacier Gold Facility is limited, it is anticipated that all biosolids from Kalispell above the 600 dry ton threshold could also come to the new Flathead County facility in the future.

According to the City of Columbia Falls, if the Flathead County Facility is as affordable as the landfill, they will also bring all their biosolids to the new facility immediately. It is not anticipated that Whitefish will contribute biosolids.

COMPOST MARKET - BULK SALES

The largest producer of compost in the valley, Glacier Gold, was understandably unwilling to share detailed information regarding compost sales. However, in discussions with landscapers, other compost retailers, and the City of Missoula composting facility, there appears to be a significant market for compost in Flathead County and around northwestern Montana (e.g., Lake, Sanders, Lincoln, and Glacier Counties). The market generally includes sales to the general public (20%), nurseries (13%), other composting facilities that include a bagging operation (35%), land reclamation (20%), and farmers for specialty crops, landscapers, construction companies, golf courses and municipalities (12%). This market breakdown is based on the current sales from the City of Missoula facility.

According to the City of Missoula, they sell compost throughout the region and as far away as Bozeman. A fairly large percentage of Missoula's total sales are to other compost companies who bag the compost and sell it under their brand name, meaning that competing compost producers may also serve as customers for the new facility.

The largest producer of compost in the area is Mountain West Products (Glacier Gold), whose two closest operations are in Olney and Superior, Montana. The closest facility, Olney, is located approximately 31 miles north of Kalispell. An internet search of compost suppliers in the Flathead Valley indicates that the only other bulk supplier of compost is Creston Topsoil, but it appears that their business is centered around topsoil and other products than compost. There are also other smaller companies that sell compost in the valley including Dirt Rich in Columbia Falls, which sells organic compost.

The City of Missoula sells approximately 26,000 cubic yards of bulk compost per year at \$26 per cubic yard. Bulk compost sales at smaller facilities in the valley reach nearly \$80 per cubic yard.

Septage and Porta Potty Waste Market Analysis

Since land application of septage is still legal, it is difficult to estimate exactly how much residential septage will be taken to the facility upon startup given that many of the pumpers may still have a very cost effective and viable form of disposal. Like biosolids, the use of the new facility will be heavily impacted by the cost of disposal and the future availability of land for pumpers to use for septage disposal.

The local wastewater treatment plants in the region do not accept septage. Columbia Falls has historically accepted porta potty waste and they currently charge around \$0.07 per gallon for disposal. Based on data collection from septic pumpers, the average cost for land application of septage is \$0.06 per gallon. This value may not be accurate if actual septage volumes are under-reported, nor does it appear to account for other costs such as the requirement to screen the septage prior to disposal, the effort to clean the trash out of fields if the septage is not screened, etc.

An important factor to consider is the pumper’s loss of potential revenue due to the volatility associated with the land application of waste. Pumpers are not supposed to land apply if the ground is muddy from rain or if it is frozen, meaning that land application of septage likely does not (or should not) occur in the wet spring months or during the winter.

There are an estimated 30,000 septic tanks in Flathead County. If an average of 1,000 gallons is pumped from each septic tank once per four years, then the average annual amount of septage is 7,500,000 gallons. Data provided from the Montana Department of Environmental Quality (MDEQ) seems to indicate that there is a significant demand for septage disposal beyond the quantity of land that is currently permitted for land application. Table 2 provides a summary of the amount of waste by category that was land applied in 2021 and 2022 based on data reported to MDEQ.

Table 2: Land-Applied Waste Volume in Flathead County

Period	Septage (gal)	Pit/Vault Toilets (gal)	Grease Trap (gal)	Sump (gal)
2021	5,475,400	447,819	209,850	271,400
2022	4,029,250	287,720	290,250	255,100
Total	9,504,650	735,539	500,100	526,500

Based on this data, the average amount of land applied waste of all categories is 5.6 million gallons per year. The average amount of land applied septage is 4.8 million gallons per year.

Another consideration is the amount of waste each parcel of land is permitted to land apply. Based on conversations with local septic pumpers, a large amount of land that has been used in recent years for land application will no longer be taking any waste. For instance:

1. Pumper A pumps approximately 1,000,000 gallons per year. They are losing their current lease and moving to a new spot. They stated that it is very hard to find a spot for land application. They currently use 30 acres of land.
2. Pumper B pumps approximately 400,000 gallons per year. They found out recently that they are losing their land lease early this year and will be looking for a place to dump.
3. Pumper C pumps approximately 3,000,000 gallons per year. They currently have one site to dump at and are looking for more.

Not only is 4.8 million gallons per year less than the expected septage based on the number of septic systems in the County, but it is also significantly less than the sum of what the various pumpers dispose of in an average year based on interviews with these companies. The quantity of the total septage from three of the pumpers interviewed almost exceeds the quantity that was reported to MDEQ. This results in two potential conclusions:

- The amount of land applied waste is being under-reported to MDEQ
- Many residents are not regularly maintaining their septic systems

This indicates that at some point a large amount of waste will be required to be brought to the new facility simply due to the lack of land available for application. However, it is expected that it will take time for pumpers to transition from land application of septage to use of the facility. Based on conversations with some companies it appears that the facility will receive a significant amount of porta potty septage. The Columbia Falls wastewater treatment plant has historically received approximately 400,000 gallons of porta potty waste per year. However, they are currently limiting the amount they take, and are planning to completely eliminate it within 5 years. Limitations on porta potty waste disposal has resulted in challenges for haulers. For example, after the “Under the Big Sky” festival, pumpers were forced to haul waste to a neighboring county for disposal due to the lack of local options. With the County still growing, events like these are expected to grow.

After review of the data and numerous conversations with various septage pumpers, the following conclusions have been reached regarding the market for this facility:

- Land application is still legal, and as a result, serves as a major competitor for this facility.
- Since tipping fees will be applied on a volumetric basis, any increase in cost to the pumpers is the same, meaning that the facility does not provide a competitive advantage to those who use the facility.
- The tipping fees for this facility will likely be greater than the cost of land application. However, the facility offers the following major advantages:

- Year-round pumping resulting in the potential for greater annual revenue. Further, the facility allows for septage disposal during times when septage should not be land applied.
- If over-application is indeed occurring, the new facility provides the pumpers with the opportunity to bring their current land application sites into compliance with DEQ requirements.
- The new facility eliminates the risk of losing an existing land application site.
- The new facility prevents the need to screen septage in the field prior to disposal or the need to remove trash from the field if screening does not occur.
- The new facility will provide an environmentally conscious method of porta potty and septage waste disposal. The waste will be treated and beneficially reused, reducing the risk of surface and groundwater contamination and land pollution.

Business Plan

The business plan is based on an income and expense model developed using assumptions developed from the market analysis as well as estimates of expenses based on information provided by existing, similar facilities. The model assumptions and model results/conclusions are discussed in detail below.

Facility Organization

This business plan envisions the Septage Treatment and Biosolids Composting Facility will be owned by Flathead County and operated by a separate entity, such as a formed district, a private entity, or a public entity. The operation is anticipated to be incorporated into an Enterprise Fund, where the expenses and revenue have a separate account structure and the fund is expected to be revenue neutral – i.e., the income is expected to offset the expenditures. However, this may not be the case depending on what entity operates the facility, and the stakeholders should consider whichever option would result in dependable operation and affordable, reliable rates.

Facility Expenses

The business plan model includes a preliminary budget of operating expenses to help determine the economic viability of the proposed facilities. The expenses were developed based on data from other similar facilities in the area. There are many unknown factors in the operation, therefore the projected budget was prepared to reflect a conservative scenario. The business plan was developed based on a draft version of the Flathead County Septage Treatment & Biosolids Composting Facility Basis of Design Report dated November 3, 2021. The costs presented in this budget do not include costs associated with purchase of the property or construction of the required improvements. The next sections describe the assumptions of costs that make up a budget to support the proposed operation.

PERSONNEL

Personnel requirements for operating the Septage Receiving and Treatment facility were projected using the Northeast Guide for Estimating Staffing at Publicly and Privately Owned Wastewater Treatment Plants assuming that the facility is operated utilizing one shift per day,

five days per week. Weekend staffing may be required for accepting woody waste and monitoring facility operations.

Additional staff time was allotted for composting operation duties not anticipated in the model, such as receipt of woody wastes diverted from the landfill and compost sales. Staff time was also allocated for managing septage haulers through a program designed to ensure septic haulers are insured, maintain their equipment properly to prevent spills, and discharge only septage to the facility. Together, the staffing requirements are estimated at 2 full-time employees at facility startup and 3 full-time employees (FTEs) as septage flows to and/or compost sales from the facility increase. One half-time employee (HTE) was added for administrative work. The budget was developed using 3 FTE Operators at \$25/hour average wages and 1 HTE administrative worker at \$18/hour. A benefits package was assumed to add 63% to the wage costs.

SUPPLIES

The supplies budget includes chemicals required for the treatment processes, fuel for equipment, operating supplies such as amendment (woody waste) used as a carbon source for composting, office supplies, and equipment parts and supplies.

The volume of amendment to be purchased is based on several factors. Each dry ton of biosolids to be composted requires approximately 6.2 tons of amendment. Sources of amendment include woody waste diverted from the landfill, purchased amendment, and material that is screened from the finished compost (recycle). In this business plan, a 40% recycle rate was assumed, but anecdotal information suggests that the rate may be higher. The model assumes 3,000 tons of woody waste will be diverted from the landfill and available to use in the composting process. Because there is not an established market for large quantities of woody waste, local sources for waste wood products should be explored to get a better sense of local cost for the needed woody waste material.

The fuel budget was developed using a list of equipment generated during preliminary design efforts. Fuel powered equipment includes two front end loaders, two augers, a woodchipper and screening equipment. Average operating hours, assumed engine horsepower, and an average fuel cost of \$3.50 per gallon were all considered during the development of these costs.

The Chemical budget was developed to address alkalinity addition, chemical phosphorus removal, and polymer for solids dewatering. In addition, a nominal amount of cost was added for office supplies and maintenance supplies.

SERVICES

This line item includes costs associated with operator training, certification and licensure, utilities (electric, natural gas, phone, sanitation), professional services, and miscellaneous repair and maintenance.

Electric Utility costs were generated using the current Flathead Cooperative schedule XCS01-1 Extra Large General Service rate. Based on an equipment list developed during preliminary design, peak and average kilowatt consumption rates were developed. The estimate was

generated assuming the compost blowers are operating at 75% of the installed capacity 24 hours per day.

A fee for effluent discharge is based on communications with Lakeside County Water & Sewer District. A fee quote of \$10,030 per month for 60,000 gallons per day of discharge was provided. These costs would be prorated based on the growth estimates in the model.

ADMINISTRATIVE OVERHEAD

This line item includes using outside services for administrative functions such as human resource services, payroll, information technology services, accounting, audits, and general business expenses. The budget item is equal to 18% of the total of the above budget items.

MAINTENANCE FEES

This budget item is meant to recover costs from other departments within the facility owner's organization that might be used to support the proposed facility. These costs include services from outside entities such as general street maintenance (snow plowing, etc.) and skilled maintenance personnel such as electricians and plumbers, Supervisory Control and Data Acquisition (SCADA) maintenance, etc.

EQUIPMENT REPLACEMENT

This budget item is meant to contribute to a replacement fund based on the cost of the equipment and the expected life of that equipment. Preliminary design of the facilities provided a list of equipment needed for the facility. Estimated purchase costs for major equipment was divided by an assumed life expectancy to generate an annual equipment replacement budget. Equipment includes septage receiving equipment, septage treatment equipment, effluent pumping equipment, wheel loaders, other compost equipment (Augers, Woodchipper, Mixing and screening equipment), and compost blowers.

CONTINGENCY

A 20% contingency was added to the total of the above budget to reflect uncertainty in the budget development and the facility details.

Based on these assumptions, an overall budget was created for the first ten years of facility operations. The budget model takes into consideration both fixed costs and costs that are variable based on the amount of septage received and the amount of compost produced. Examples of variable costs include chemicals, compost amendment, power, fuel, and the cost of discharge of effluent to Lakeside. A three percent inflation rate was also included.

The ten-year budget, which is presented in an Enterprise Fund format consistent with public facility operations, is included at the end of this Business Plan.

Model Assumptions and Inputs

The business plan model includes several key assumptions and inputs that were developed based on the information gleaned from the market analysis and other sources of information previously discussed. The model assumptions are included in Figure 1.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Composting										
Available Biosolids - annual wet tons (increase by growth rate)	6500	6,610	6,720	6,830	6,940	7,060	7,180	7,300	7,420	7,540
Available Biosolids - annual dry tons at 15% solids	975	992	1,008	1,025	1,041	1,059	1,077	1,095	1,113	1,131
% of available biosolids delivered	45%	60%	75%	90%	90%	90%	90%	90%	90%	90%
Biosolids delivered to site (dry tons)	439	595	756	922	937	953	969	986	1,002	1,018
Biosolids generated from Septage Treatment (dry tons)	120	140	170	190	220	250	280	310	340	380
Compost amendment required (6.6:1 ratio with 40% coming from recycle)	2,210	2,910	3,670	4,400	4,580	4,760	4,950	5,130	5,310	5,540
Woody waste diverted from landfill (tons) (increase by growth rate)	3,000	3,050	3,100	3,150	3,200	3,250	3,300	3,360	3,420	3,480
Amendment needed to purchase (tons)	-	-	570	1,250	1,380	1,510	1,650	1,770	1,890	2,060
Finished Compost Available - (cu. yds) (13 cu. yds. per ton of input biosolids)	7,267	9,555	12,038	14,456	15,041	15,639	16,237	16,848	17,446	18,174
% of Compost sold	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Volume of compost sold (cu.yd)	7,267	9,555	12,038	14,456	15,041	15,639	16,237	16,848	17,446	18,174
Septage Treatment										
SeptageTreatment design volume - increase by growth rate (mil. of gallons per year)	7.50	7.63	7.76	7.89	8.02	8.15	8.29	8.43	8.57	8.71
% of design value delivered to site	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%
Septage to be treated	1.88	2.29	2.72	3.16	3.61	4.08	4.56	5.06	5.57	6.10
Biosolids generated (61.7 tons/mil gal.)	120	140	170	190	220	250	280	310	340	380

Figure 1: Model Assumptions

Comments on the model assumptions are summarized as follows:

- The biosolids available for composting is based on data provided by the cities of Kalispell, Columbia Falls, and Whitefish and the availability of these solids to be brought to the new facility is based on the current disposal strategies of these municipalities.
- It is assumed that at a minimum, the quantity of biosolids currently landfilled by Kalispell and Columbia Falls will be diverted to the new facility in Year 1. It is then assumed that the facility will see a significant increase in biosolids delivery between Years 2 and 4, predominately from the City of Kalispell as the new facility offers significant advantages over other options due to travel distance.
- It is assumed that 100 percent of the compost will be sold. There is a high level of confidence in this assumption based on the market analysis and given the fact that the compost supply is located right within the Flathead Valley.
- Septage delivered to the facility will be about 1.9 million gallons in Year 1 comprised of porta potty waste and a limited amount of septage from pumpers that currently do not have land for disposal. The quantity of septage is assumed to increase to 6.1 million gallons per year by the end of Year 10.
- The model assumes equipment replacement will be fully funded starting in Year 1.

Business Plan Model Results and Conclusions

The business plan model is presented as cash flow taking into consideration income and expenses over a ten-year period. The accumulation of cash, or cash carry over, is cash that can be used for reinvestment into the facility, profit, etc. Any deficit in cash carry over would be addressed in the facilities operating budget. In addition to the assumptions above, the business plan model has four basic inputs used to estimate revenue in the ten-year cash flow. These inputs include:

Woody Waste Tipping Fee (\$/ton) – The fee for accepting woody waste used in the composting process.

Biosolids Tipping Fee (\$/dry ton) – The fee for accepting biosolids from the local municipalities.

Septage Tipping Fee (\$/1,000 gal) – The fee for accepting septage from pumpers.

Compost Sales (\$/cu. yd.) – The rate at which bulk compost will be sold.

The model also takes into consideration a small annual increase in fees.

Though the model is dynamic and can be used to predict numerous potential scenarios, only one scenario is represented in this plan at this time. This scenario represents a negative cash carry over for the first 7 to 8 years due to the assumption that the Owner/Operator of the facility would fully fund equipment replacement. It assumes treatment of septage and porta potty waste utilizing a complex biological treatment system that includes a high equipment replacement cost. Work is underway to perform additional septage testing to assess alternatives for treatment that are more economical. As the facility becomes fully operational the cash balance becomes positive. This scenario is based on reasonable inputs that are consistent with the information gleaned from the business plan.

These inputs assume that the woody waste tipping fee (\$31.05 per ton) and biosolids tipping fee (\$222 per dry ton or \$31 per wet ton) are the same as that currently being charged by the landfill. As a result, it is reasonably assumed that woody waste and biosolids will easily be diverted to this facility rather than the landfill. The model scenario presented also assumes a tipping fee for septage and porta potty waste of \$0.13 per gallon, or \$130 per thousand gallons. Though this is obviously greater than a land application option or slightly greater than what the municipalities are charging for receiving porta potty waste, the cost is not deemed unreasonable given the fact that pumpers can pump year-round resulting in greater income and given that the facility significantly reduces the risk to the pumpers. Finally, the model assumes that bulk compost is sold at a cost of \$32 per cubic yard. The ten-year cash flow is presented in Figure 2.

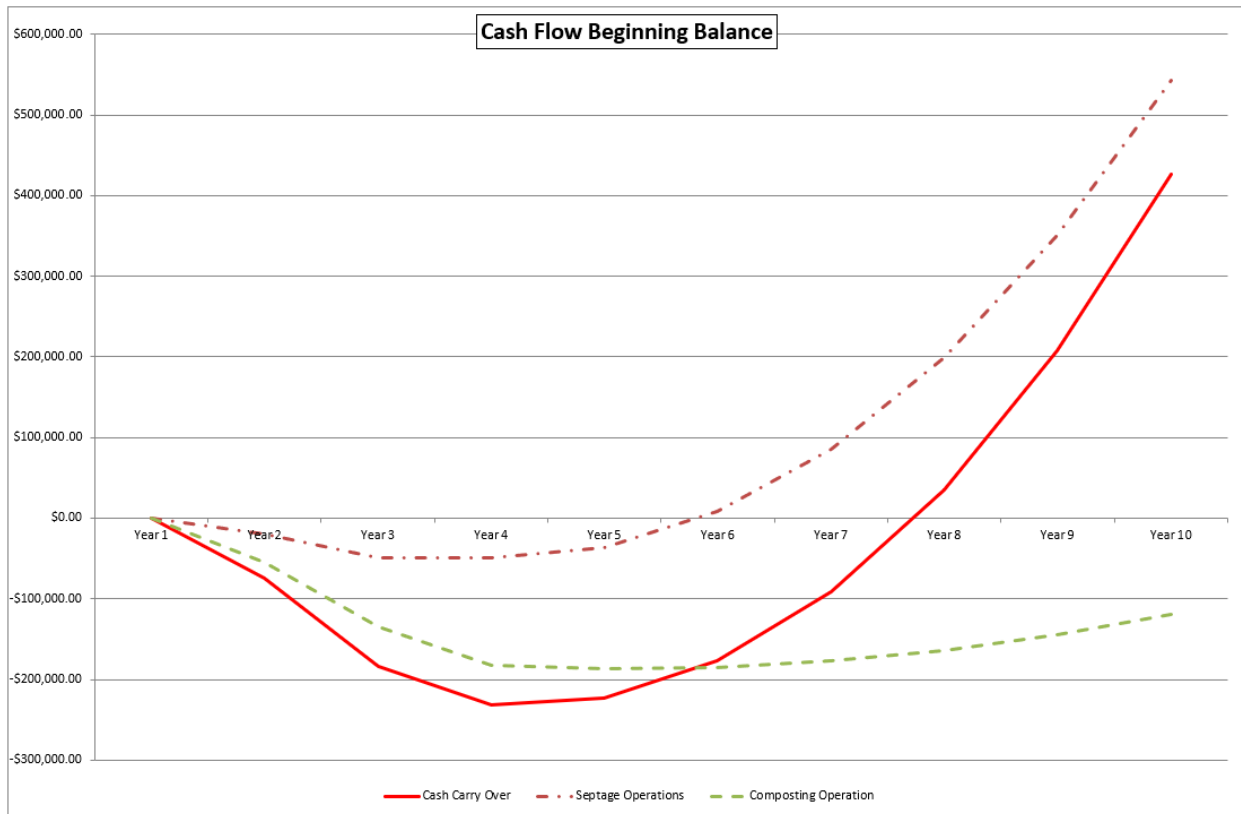


Figure 2: Ten-Year Cash Flow

As described above, the facility operates at a negative balance for the first 7 to 8 years. This is because fixed costs are a much larger percentage of total costs since septage flows and compost production are low at start up. As flows and compost sales increase, income increases and fixed costs become smaller as a percent of total costs, resulting in more cash that can be carried over year after year.

The major conclusions of this business plan based on information derived from the model as well as other considerations are as follows:

- The facility appears to be operating with positive revenue in the eighth year based on the assumptions developed from the market analysis and business plan model.
- The sooner both the septage treatment plant and compost facility approach full capacity, the faster cash carry over will grow.
- The model assumes a conservative approach to treating septage and porta potty waste. Additional septage testing is being performed in order to develop a more economical alternative. A more economical treatment process would result in the facility operating with positive revenue much sooner.
- Consideration should be given to having the construction contractor provide 'contract operations' of the facility built into the construction bid to assist with the transition to the ultimate operator of the facility.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Rates/Fee Structure										
Woody Waste Tipping Fee (\$/ton)	31.05	31.44	31.83	32.23	32.63	33.04	33.45	33.87	34.29	34.72
Biosolids Tipping Fee (\$/dry ton)	222	224.78	227.59	230.43	233.31	236.23	239.18	242.17	245.20	248.27
Septage Tipping Fee (\$/1,000 gal)	130	131.63	133.28	134.95	136.64	138.35	140.08	141.83	143.60	145.40
Compost Sales (\$/cu. yd.)	32	32.40	32.81	33.22	33.64	34.06	34.49	34.92	35.36	35.80
Beginning Balance	\$0.00	-\$74,926	-\$183,978	-\$231,675	-\$223,023	-\$177,263	-\$91,332	\$35,198	\$207,389	\$426,691
Revenues										
License and Permits										
Sales of Biosolids Materials & Supplies										
1. Woody Waste Tipping Fees	\$93,150.00	\$95,892.00	\$98,673.00	\$101,525.00	\$104,416.00	\$107,380.00	\$110,385.00	\$113,803.00	\$117,272.00	\$120,826.00
2. Biosolids Tipping Fees	\$97,458.00	\$133,744.00	\$172,058.00	\$212,456.00	\$218,611.00	\$225,127.00	\$231,765.00	\$238,780.00	\$245,690.00	\$252,739.00
3 Sales of Compost	\$232,544.00	\$309,582.00	\$394,967.00	\$480,228.00	\$505,979.00	\$532,664.00	\$560,014.00	\$588,332.00	\$616,891.00	\$650,629.00
Sales of Septage Materials & Supplies										
1. Septage Tipping Fees	\$244,400.00	\$301,433.00	\$362,522.00	\$426,442.00	\$493,270.00	\$564,468.00	\$638,765.00	\$717,660.00	\$799,852.00	\$886,940.00
Investment and Royalty Earnings	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$352.00	\$2,074.00	\$4,267.00
Interfund Operating Transfer										
Total Revenue	\$667,552.00	\$840,651.00	\$1,028,220.00	\$1,220,651.00	\$1,322,276.00	\$1,429,639.00	\$1,540,929.00	\$1,658,927.00	\$1,781,779.00	\$1,915,401.00
Outside Funding (Grants and Loans)										
Expenses										
Administration										
Salaries and Wages	\$123,192.00	\$180,654.00	\$186,073.00	\$191,656.00	\$197,406.00	\$203,327.00	\$209,428.00	\$215,710.00	\$222,181.00	\$228,846.00
Employer Contributions	\$77,611.00	\$113,812.00	\$117,226.00	\$120,743.00	\$124,366.00	\$128,096.00	\$131,940.00	\$135,897.00	\$139,974.00	\$144,173.00
Office Supplies & Materials	\$250.00	\$258.00	\$266.00	\$274.00	\$282.00	\$290.00	\$299.00	\$308.00	\$317.00	\$327.00
Memberships and Dues	\$150.00	\$155.00	\$160.00	\$165.00	\$170.00	\$175.00	\$180.00	\$185.00	\$191.00	\$197.00
Licenses and Certifications	\$210.00	\$216.00	\$222.00	\$229.00	\$236.00	\$243.00	\$250.00	\$258.00	\$266.00	\$274.00
Purchased Services										
Utility Services										
1. Sanitation	\$2,300.00	\$2,369.00	\$2,440.00	\$2,513.00	\$2,588.00	\$2,666.00	\$2,746.00	\$2,828.00	\$2,913.00	\$3,000.00
2. Gas/phone/other	\$1,200.00	\$1,236.00	\$1,273.00	\$1,311.00	\$1,350.00	\$1,391.00	\$1,433.00	\$1,476.00	\$1,520.00	\$1,566.00
Professional Services	\$4,500.00	\$4,635.00	\$4,774.00	\$4,917.00	\$5,065.00	\$5,217.00	\$5,374.00	\$5,535.00	\$5,701.00	\$5,872.00
Training	\$1,500.00	\$1,545.00	\$1,591.00	\$1,639.00	\$1,688.00	\$1,739.00	\$1,791.00	\$1,845.00	\$1,900.00	\$1,957.00
Repair and Maintenance Services	\$10,000.00	\$10,300.00	\$10,609.00	\$10,927.00	\$11,255.00	\$11,593.00	\$11,941.00	\$12,299.00	\$12,668.00	\$13,048.00
License Fee (Annual)	\$1,800.00	\$1,854.00	\$1,910.00	\$1,967.00	\$2,026.00	\$2,087.00	\$2,150.00	\$2,215.00	\$2,281.00	\$2,349.00
Biosolids Composting										
Operating Supplies										
1. Compost Amendments	\$0.00	\$0.00	\$22,680.00	\$51,230.00	\$58,250.00	\$65,650.00	\$73,890.00	\$81,630.00	\$89,780.00	\$100,800.00
Repair & Maintenance Supplies	\$1,225.00	\$1,262.00	\$1,300.00	\$1,339.00	\$1,379.00	\$1,420.00	\$1,463.00	\$1,507.00	\$1,552.00	\$1,599.00
Gas, Oil, Diesel Fuel, Grease, etc.	\$13,500.00	\$18,540.00	\$23,870.00	\$29,500.00	\$30,380.00	\$31,290.00	\$32,230.00	\$33,190.00	\$34,190.00	\$35,220.00
Utility Services - Electrical	\$79,200.00	\$108,800.00	\$140,100.00	\$173,200.00	\$178,400.00	\$183,700.00	\$189,200.00	\$194,900.00	\$200,800.00	\$206,800.00
Repair & Maintenance Services	\$625.00	\$644.00	\$663.00	\$683.00	\$703.00	\$724.00	\$746.00	\$768.00	\$791.00	\$815.00
Septage Treatment										
Operating Supplies										
1. Chemicals	\$24,400.00	\$30,200.00	\$36,300.00	\$42,700.00	\$49,500.00	\$56,700.00	\$64,200.00	\$72,100.00	\$80,500.00	\$89,300.00
Repair & Maintenance Supplies	\$5,775.00	\$5,948.00	\$6,126.00	\$6,310.00	\$6,499.00	\$6,694.00	\$6,895.00	\$7,102.00	\$7,315.00	\$7,534.00
Utility Services - Electrical	\$15,600.00	\$19,300.00	\$23,200.00	\$27,300.00	\$31,700.00	\$36,200.00	\$41,100.00	\$46,100.00	\$51,500.00	\$57,100.00
Utility Services - Effluent Discharge	\$10,310.00	\$12,960.00	\$15,840.00	\$18,950.00	\$22,320.00	\$25,960.00	\$29,920.00	\$34,190.00	\$38,780.00	\$43,720.00
Transfer to Biosolids (Tipping Fee)	\$26,640.00	\$31,469.00	\$38,690.00	\$43,782.00	\$51,328.00	\$59,058.00	\$66,970.00	\$75,073.00	\$83,368.00	\$94,343.00
Repair & Maintenance Services	\$1,875.00	\$1,931.00	\$1,989.00	\$2,049.00	\$2,110.00	\$2,173.00	\$2,238.00	\$2,305.00	\$2,374.00	\$2,445.00
Contingencies										
Overhead Costs	\$72,300.00	\$98,700.00	\$114,700.00	\$132,000.00	\$140,200.00	\$148,800.00	\$157,700.00	\$166,900.00	\$176,600.00	\$187,400.00
20% Contingency	\$94,800.00	\$129,400.00	\$150,400.00	\$173,100.00	\$183,800.00	\$195,000.00	\$206,800.00	\$218,900.00	\$231,500.00	\$245,700.00
Other Fixed Charges										
Equipment Replacement	\$173,515.00	\$173,515.00	\$173,515.00	\$173,515.00	\$173,515.00	\$173,515.00	\$173,515.00	\$173,515.00	\$173,515.00	\$173,515.00
Total O&M Expense	\$742,478.00	\$949,703.00	\$1,075,917.00	\$1,211,999.00	\$1,276,516.00	\$1,343,708.00	\$1,414,399.00	\$1,486,736.00	\$1,562,477.00	\$1,647,900.00
Total Expenses	\$742,478	\$949,703	\$1,075,917	\$1,211,999	\$1,276,516	\$1,343,708	\$1,414,399	\$1,486,736	\$1,562,477	\$1,647,900
Annual Surplus (Deficiency)	-\$74,926.00	\$(109,052.00)	\$(47,697.00)	\$ 8,652.00	\$ 45,760.00	\$ 85,931.00	\$ 126,530.00	\$ 172,191.00	\$ 219,302.00	\$ 267,501.00
Ending Balance	-\$74,926	-\$183,978	-\$231,675	-\$223,023	-\$177,263	-\$91,332	\$35,198	\$207,389	\$426,691	\$694,192

Figure 3: Ten-Year Budget