

January 19, 2022

TECHNICAL MEMORANDUM



TO: Sarah Reeves, Executive Director – Chittenden Solid Waste District
Josh Tyler, Director of Operations – Chittenden Solid Waste District

FROM: Vita Quinn, MBA, Director – SCS Engineers, Management Services
Kellyn Modlin, MBA, Management Analyst – SCS Engineers, Management Services

SUBJECT: Chittenden Solid Waste District – Materials Recovery Facility Alternatives Analysis

This memorandum presents a comparative analysis of several scenarios for the materials recovery and recycling program of the Chittenden Solid Waste District in Chittenden County, Vermont (CSWD). SCS Engineers' Management Services team (SCS) conducted this analysis for CSWD.

BACKGROUND

CSWD encompasses Chittenden County, and is the largest solid waste district in Vermont with a population of approximately 165,400. CSWD's mission is to provide efficient, economical, and environmentally sound management of solid waste generated by member towns and cities and their residents and businesses. Since 1992, CSWD has implemented regional programs and constructed facilities intended to affect the production, consumption and disposal decisions made by residents, businesses, and institutions, encouraging waste reduction, diversion, and proper disposal.

CSWD operates a Materials Recovery Facility (MRF) where large loads of recyclables collected curbside are sorted and prepared for market. The MRF, operated under a contract with Casella Waste Management, mechanically separates bottles, cans and other containers from mixed paper and cardboard. After the initial sort, workers manually separate recyclables into different material types. With the exception of glass, after sorting, like materials are compacted into bales and sold on the global commodities market.

The earnings from the sold recyclables are one source of funding for the recycling operations. The other funding source is a tipping fee per ton paid by haulers bringing the loads of recyclables to the MRF. While CSWD has no control over the sales price for recyclables in the global commodities market, they are able to adjust the tipping fee to maintain financial viability when the markets are less favorable, at times even paying haulers for the recyclable materials.

SOURCE DATA, ASSUMPTIONS, & SCENARIOS

CSWD provided estimated operating expenses, capital and equipment costs, labor and overtime expectations, and anticipated borrowing terms for each scenario considered. All other assumptions used in the study were discussed with CSWD staff and are detailed in the schedules in the Appendix.



CSWD is considering four MRF alternatives, in addition to analysis of their current operations, as described below and in the following section:

- **Status Quo** – Current MRF operations, also referred to as the “Do Nothing” option
- **Retrofit** – Reconfiguration of the current MRF, constrained to the limitations of the existing facility
- **Greenfield – 35k TPY** – New construction with an annual capacity of 35,000 tons
- **Greenfield – 40k TPY** – New construction with an annual capacity of 40,000 tons
- **Greenfield – 50k TPY** – New construction with an annual capacity of 50,000 tons

Using this information, we developed a model that compared the long-term financial outcomes for each scenario.

ANALYSIS

After receiving, validating, and reviewing the above data and scenarios to be considered, we developed a cost-benefit model to evaluate the long-term financial outcomes for each scenario. The scenario descriptions and results are described below and reflected in greater detail in the Appendix.

Status Quo – The “Do-Nothing” Option

Although this option has minimal upfront capital investment, it **is the least profitable alternative in the long-term and has the lowest cumulative net revenue**. There are several reasons for this. First, the facility is currently operating at capacity, which does not allow for future growth. Also, the lack of optical sorting technology maintains the high labor demand, including overtime. Additionally, the manual materials sorting results in some contamination slipping into the baled materials, which then yield a lower price per ton. Over time, these constraints result in the facility operations beginning to lose money; with the Status Quo scenario beginning to realize **negative cash flows** by the middle of the projection period.

Retrofit – Reconfiguration of Existing Facility

In this scenario, CSWD will gut its existing facility, rebuild the tip floor and operating floor, replace the roof, and grind and regrade the asphalt. In addition to the \$12.5 million costs for these capital improvements, the facility will be out of commission during construction, resulting in tonnage transfer costs during that time. After the retrofit, the MRF would remain constrained by the limited capacity and working space and continue to produce lower quality baled materials. Of the proposed alternatives, this scenario has the **lowest upfront capital investment** but is the **least desirable alternative to the Status Quo**. Over time, this results in the facilities operations beginning to experience **negative cash flows**.

Greenfield – 35,000 Tons per Year

This scenario assumes that CSWD will build and operate a new \$18.0 million facility with a capacity of 35,000 tons per year and optical sorting equipment, resulting in the lowest salary costs of the scenarios considered and a lower level of anticipated overtime than in the Status Quo or Retrofit scenarios. This option offers the **second lowest upfront capital investment**. However, because of the capacity and installation of only one baler, this alternative offers the lowest processing capacity of the alternatives considered, resulting in the **third highest cumulative net revenue**, less than the other new construction scenarios.

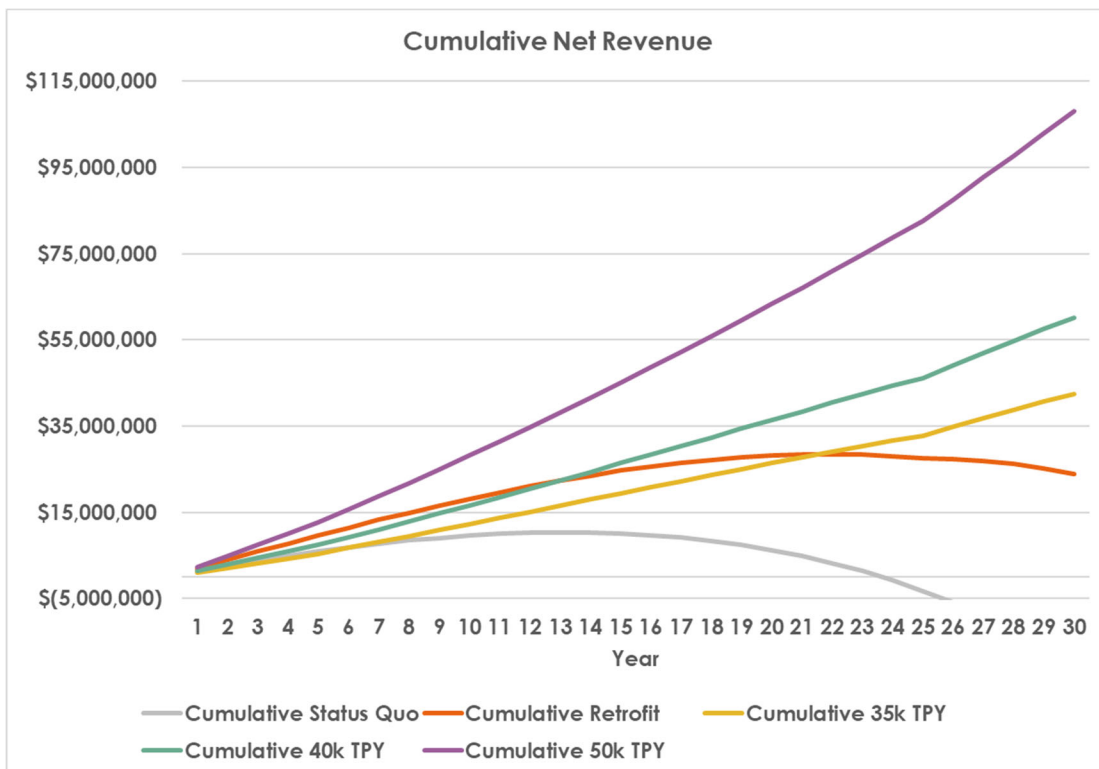
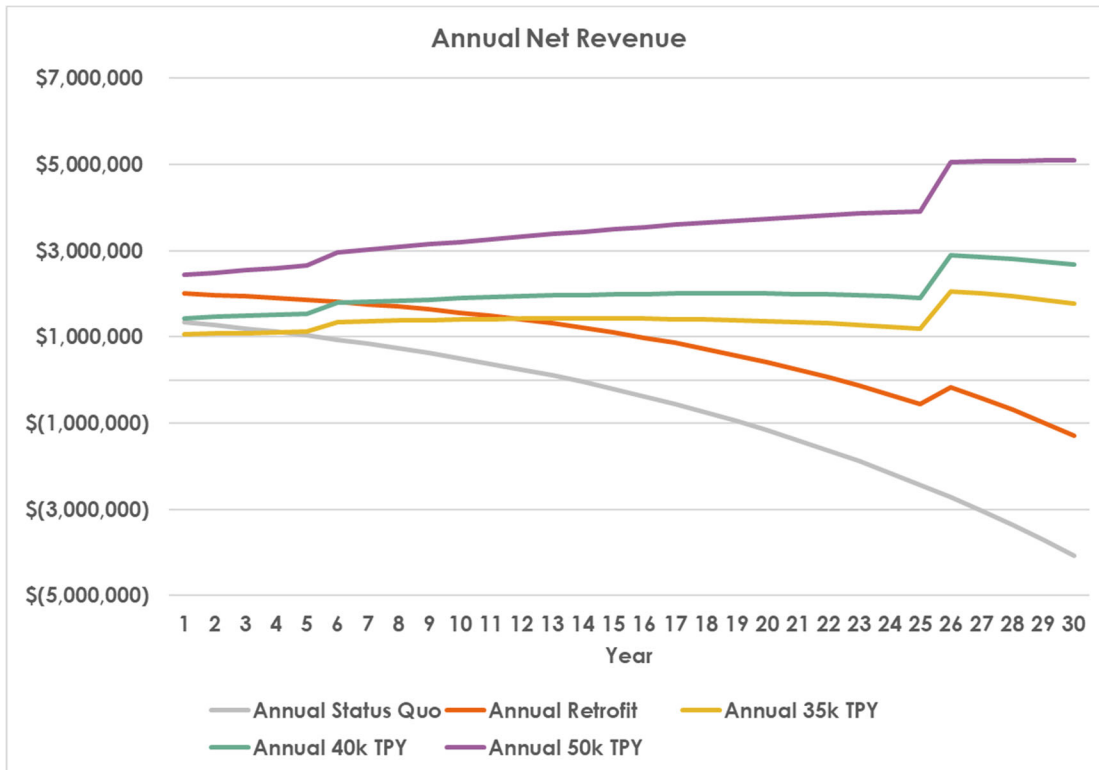
Greenfield – 40,000 Tons per Year

This scenario assumes that CSWD will build and operate a new \$20.0 million facility with a capacity of 40,000 tons per year, two balers, and optical sorting equipment, resulting in lower salary costs and anticipated overtime than in the Status Quo or Retrofit scenarios. This scenario assumes staffing requirements to be the same as the 50,000 tons per year scenario. This option has the **second highest upfront capital investment**, and the **second highest cumulative net revenue**.

Greenfield – 50,000 Tons per Year

This scenario assumes that CSWD will build and operate a new \$22.0 million facility with a capacity of 50,000 tons per year, two balers and optical sorting equipment, resulting in lower salary costs and anticipated overtime than in the Status Quo or Retrofit scenarios. Additionally, this scenario requires no more additional staffing than the 40,000 tons per year facility, but allows CSWD to accept more recyclables and can accommodate growth in the system in future years. As a result, although this scenario has the **highest upfront capital investment**, it also commands the **highest cumulative net revenue**.

Comparison of MRF Alternatives



RESULTS & RECOMMENDATIONS

Based upon the results of the analysis described herein, SCS concludes the following:

- The Greenfield – 50k TPY scenario, despite the highest initial capital investment, offers the most favorable long-term results for the MRF operations.
- The Status Quo and Retrofit alternatives have a lower cost in the near-term but, because they do not allow for future growth in tonnages accepted, nor do they allow for expanding material sortation such as targeting polypropylene (PP), and produce lower quality baled materials, they eventually begin to operate at a cash flow deficit. In the long-term, these scenarios are not financially sustainable without considerable increases in either tipping fees or market prices for recyclables.

While this analysis is meant to evaluate alternatives that CSWD is considering, SCS recommends the following:

- CSWD should perform a revenue sufficiency analysis to further analyze one or more of the alternatives being considered in a greater level of detail and project financial sustainability over a long-term projection period.
- The revenue sufficiency analysis should consider capital project funding alternatives and timing of facility improvements/construction. Also, it should analyze projected staffing, operating costs, equipment replacements, and anticipated revenues in each year of the projection period.

While the existing MRF is able to remain financially viable in the near-term, the manual separation of recyclables after mechanical separation results in labor intensive and redundant additional examination of materials. However, the current facility cannot support optical sorting equipment. Additionally, the facility size constraints will not allow the MRF to grow with the level of recyclables and growth in the system in the long-term.

We appreciate the opportunity to participate in the CSWD's Materials Recovery Facility Alternatives Analysis, and look forward to working with you again in the future. If you have any questions or would like to discuss this further, please call me anytime at (386) 546-7719.

Regards,



Vita Quinn, MBA
Director of Management Services
SCS Engineers



Kellyn Modlin, MBA
Management Analyst
SCS Engineers

APPENDIX

**Chittenden Solid Waste District
Materials Recovery Facility Alternatives Analysis**

Results as of Jan 19, 2022



Chittenden Solid Waste District

Schedule 1 - Summary

Schedule 2 - Assumptions

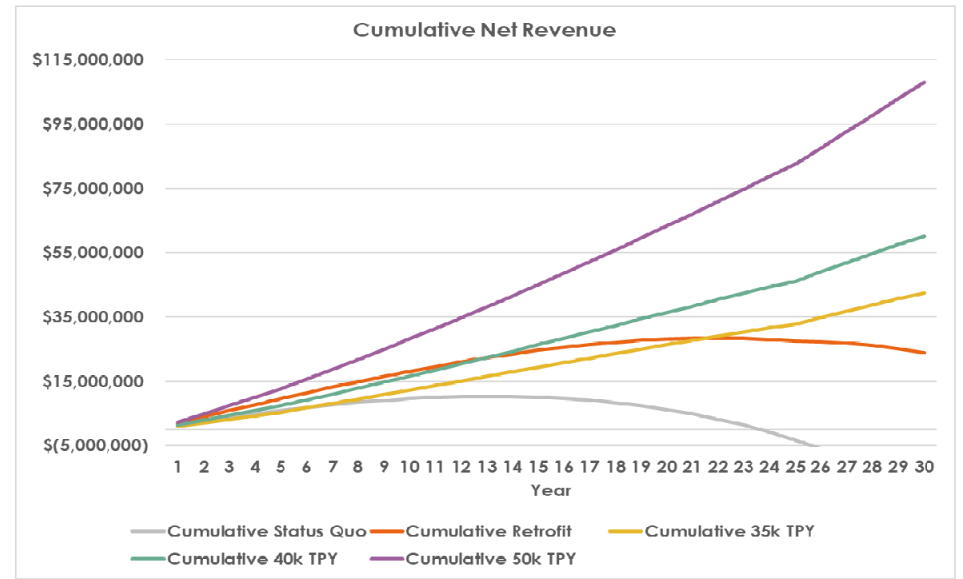
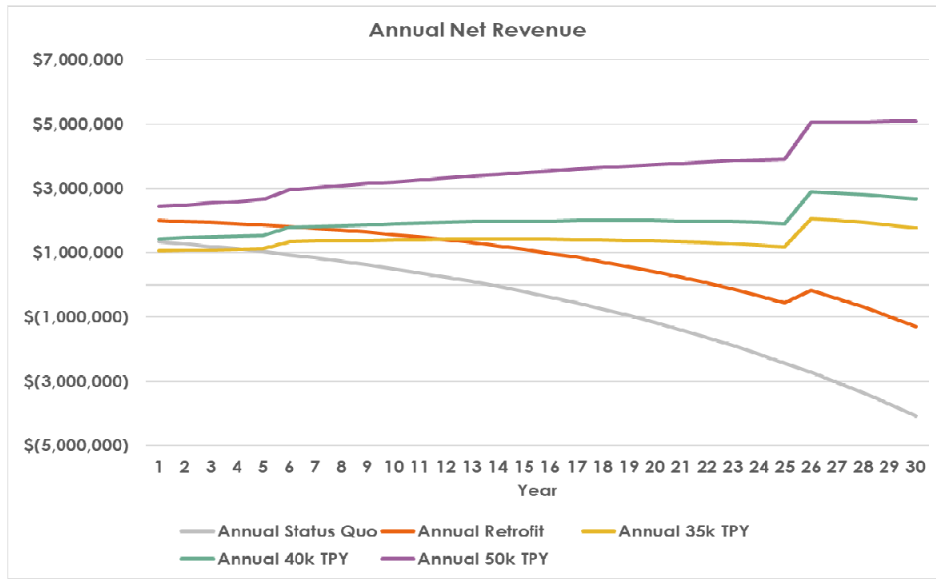
Schedule 3 - Expenses

Schedule 4 - Net Revenue Projection

SCS ENGINEERS

Management Services

Schedule 1 - Summary



Schedule 2 - Assumptions

Growth & Cost Escalation

Population Growth	0.73%
O&M Escalation	3.00%
Labor Cost Escalation	5.00%
CPI	1.73%
Revenue Increase	2.00%

Scenarios

	Status Quo	Retrofit	Greenfield - 35k TPY	Greenfield - 40k TPY	Greenfield - 50k TPY
Capital	\$ 1,000,000	\$ 12,500,000	\$ 18,000,000	\$ 20,000,000	\$ 22,000,000
Renewal & Replacement	\$ 255,000	\$ 185,000	\$ 150,000	\$ 155,000	\$ 155,000
Tonnage	48,000	50,000	35,000	40,000	50,000

Labor Requirements

FTEs	Salary	Status Quo	Retrofit	Greenfield - 35k TPY	Greenfield - 40k TPY	Greenfield - 50k TPY
Program Director and Engineer	\$ 65,603	1.0	0.8	0.5	0.5	0.5
Facility Manager	\$ 95,000	1.0	1.0	1.0	1.0	1.0
Office Administrator/Scale Operator	\$ 45,000	1.0	1.0	1.0	1.0	1.0
Floor Manager	\$ 70,720	1.0	1.0	1.0	1.0	1.0
Maintenance Manager	\$ 66,560	1.0	1.0	1.0	1.0	1.0
Maintenance Laborer	\$ 45,760	1.0	1.0	1.0	1.0	1.0
Equipment Operator	\$ 45,760	7.0	6.0	5.0	6.0	6.0
Sorter	\$ 34,840	34.0	21.0	13.0	13.0	13.0
Overtime		5%	5%	3%	3%	3%

Tippling Fees & Material Sales

Low	\$ 60.00
Medium	\$ 65.00
High	\$ 75.00
Tip Fee	\$ 80.00

Contracted Services / Ton

Equipment Maint. (machinex/baler)	\$ 4.00
Maintenance (rolling stock)	\$ 0.75
Bale Wire	\$ 4.00
Brokerage Fees	\$ 3.00
MSW Disposal	\$ 145.00

Schedule 2 - Assumptions

Operating Expenses

General Materials / T	\$	1.00	per ton
Diesel Fuel & Propane / T	\$	0.90	per ton
Operator Safety Equipment	\$	9,000	annual
Uniforms / Employee	\$	500	per FTE
Insurance	\$	125,000	annual
Telephone	\$	3,500	annual
Electric / T	\$	5.00	per ton
Gas Heat	\$	25,000	annual
Municipal Water	\$	5,000	annual
Host Town Expense	\$	45,500	35k tons

Bond Terms

Interest Rate	2.0%
Term (Years)	25
Payments/Year	1

Other

Inbound/Marketed Ratio	80.1%
Residue	7.0%
Benefits Multiplier	44.0%

* The capital cost for the retrofit assumes completely gutting the facility, repaving the tip floor and operating floor, new roof, new asphalt (grind and regrade) and the cost for the facility to be down (tonnage transfer costs).

** The 35k TPY scenario assumes one baler whereas the others assume two.

*** Optical technology will be alleviating the labor burden.

Schedule 3 - Expenses

	Status Quo	Retrofit	Greenfield - 35 TPY	Greenfield - 40 TPY	Greenfield - 50 TPY
Capital Cost	\$ 1,000,000	\$ 12,500,000	\$ 18,000,000	\$ 20,000,000	\$ 22,000,000
Total Incoming Tons (Initial)	48,000	50,000	35,000	40,000	50,000

Labor Cost

	Salary	Status Quo	Retrofit	Greenfield - 35 TPY	Greenfield - 40 TPY	Greenfield - 50 TPY
Program Director and Engineer	\$ 65,603	\$ 65,603	\$ 52,482	\$ 32,802	\$ 32,802	\$ 32,802
Facility Manager	\$ 95,000	\$ 95,000	\$ 95,000	\$ 95,000	\$ 95,000	\$ 95,000
Office Administrator/Scale Operat	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000
Floor Manager	\$ 70,720	\$ 70,720	\$ 70,720	\$ 70,720	\$ 70,720	\$ 70,720
Maintenance Manager	\$ 66,560	\$ 66,560	\$ 66,560	\$ 66,560	\$ 66,560	\$ 66,560
Maintenance Laborer	\$ 45,760	\$ 45,760	\$ 45,760	\$ 45,760	\$ 45,760	\$ 45,760
Equipment Operator	\$ 45,760	\$ 320,320	\$ 274,560	\$ 228,800	\$ 274,560	\$ 274,560
Sorter	\$ 34,840	\$ 1,184,560	\$ 731,640	\$ 452,920	\$ 452,920	\$ 452,920
Total Salary before OT	\$ 1,893,523	\$ 1,381,722	\$ 1,037,562	\$ 1,083,322	\$ 1,083,322	\$ 1,083,322
		5%	5%	3%	3%	3%
Total Salary w OT	\$ 1,988,199	\$ 1,450,809	\$ 1,068,688	\$ 1,115,821	\$ 1,115,821	\$ 1,115,821

Operations & Maintenance Costs

	Status Quo	Retrofit	Greenfield - 35 TPY	Greenfield - 40 TPY	Greenfield - 50 TPY
Labor					
Salaries & Wages	\$ 1,988,199	\$ 1,450,809	\$ 1,068,688	\$ 1,115,821	\$ 1,115,821
Personnel Benefits	\$ 874,808	\$ 638,356	\$ 470,223	\$ 490,961	\$ 490,961
Other Contracted Services					
Processing Equip Maintenance	\$ 192,000	\$ 200,000	\$ 140,000	\$ 160,000	\$ 200,000
Rolling Stock Maintenance	\$ 36,000	\$ 37,500	\$ 26,250	\$ 30,000	\$ 37,500
Bale Wire	\$ 192,000	\$ 200,000	\$ 140,000	\$ 160,000	\$ 200,000
Brokerage Fees	\$ 144,000	\$ 150,000	\$ 105,000	\$ 120,000	\$ 150,000
MSW Disposal	\$ 487,200	\$ 507,500	\$ 355,250	\$ 406,000	\$ 507,500
Insurance					
Insurance	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000
Utilities					
Telephone	\$ 3,500	\$ 3,500	\$ 3,500	\$ 3,500	\$ 3,500
Electric	\$ 240,000	\$ 250,000	\$ 175,000	\$ 200,000	\$ 250,000
Gas Heat	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000
Municipal Water	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000

Schedule 3 - Expenses

General Materials

General Materials	\$	48,000	\$	50,000	\$	35,000	\$	40,000	\$	50,000
Diesel Fuel & Propane	\$	43,200	\$	45,000	\$	31,500	\$	36,000	\$	45,000
Operator Safety Equipment	\$	9,000	\$	9,000	\$	9,000	\$	9,000	\$	9,000
Uniforms	\$	23,500	\$	16,400	\$	11,750	\$	12,250	\$	12,250

Capital Outlay

Facilities/Equipment R&R	\$	255,000	\$	185,000	\$	150,000	\$	155,000	\$	155,000
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Operating Expense

Host Town Expense	\$	62,400	\$	65,000	\$	45,500	\$	52,000	\$	65,000
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Total	\$	4,753,807	\$	3,963,064	\$	2,921,661	\$	3,145,532	\$	3,446,532
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Net Revenue

		Status Quo		Retrofit		Greenfield - 35 TPY		Greenfield - 40 TPY		Greenfield - 50 TPY
Revenues										
Tip Revenue	\$	3,840,000	\$	4,000,000	\$	2,800,000	\$	3,200,000	\$	4,000,000
ACR Revenue	\$	2,307,598	\$	2,604,060	\$	2,103,280	\$	2,403,748	\$	3,004,685
Total	\$	6,147,598	\$	6,604,060	\$	4,903,280	\$	5,603,748	\$	7,004,685
Expenses										
Salaries & Benefits	\$	(2,863,007)	\$	(2,089,164)	\$	(1,538,911)	\$	(1,606,782)	\$	(1,606,782)
O&M	\$	(1,573,400)	\$	(1,623,900)	\$	(1,187,250)	\$	(1,331,750)	\$	(1,619,750)
Other Operating Costs	\$	(62,400)	\$	(65,000)	\$	(45,500)	\$	(52,000)	\$	(65,000)
Other Capital	\$	(255,000)	\$	(185,000)	\$	(150,000)	\$	(155,000)	\$	(155,000)
Bond Payment	\$	(51,220)	\$	(640,255)	\$	(921,968)	\$	(1,024,409)	\$	(1,126,850)
Total Annual Expenses	\$	(4,805,027)	\$	(4,603,320)	\$	(3,843,629)	\$	(4,169,941)	\$	(4,573,382)
Net Revenue (Expense)	\$	1,342,571	\$	2,000,741	\$	1,059,650	\$	1,433,807	\$	2,431,303
Revenue per Ton	\$	128.07	\$	132.08	\$	140.09	\$	140.09	\$	140.09
Expense per Ton	\$	(100.10)	\$	(92.07)	\$	(109.82)	\$	(104.25)	\$	(91.47)
Net Revenue (Expense) per Ton	\$	27.97	\$	40.01	\$	30.28	\$	35.85	\$	48.63

Schedule 4 - Net Revenue Projection

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Status Quo															
Revenue	\$ 6,147,598	\$ 6,270,550	\$ 6,395,961	\$ 6,523,880	\$ 6,654,358	\$ 6,787,445	\$ 6,923,194	\$ 7,061,658	\$ 7,202,891	\$ 7,346,949	\$ 7,493,888	\$ 7,643,766	\$ 7,796,641	\$ 7,952,574	\$ 8,111,625
Expenses	\$(4,805,027)	\$(4,997,228)	\$(5,197,117)	\$(5,405,002)	\$(5,621,202)	\$(5,846,050)	\$(6,079,892)	\$(6,323,088)	\$(6,576,012)	\$(6,839,052)	\$(7,112,614)	\$(7,397,119)	\$(7,693,003)	\$(8,000,724)	\$(8,320,752)
Annual Status Quo	\$ 1,342,571	\$ 1,273,322	\$ 1,198,844	\$ 1,118,878	\$ 1,033,156	\$ 941,395	\$ 843,302	\$ 738,570	\$ 626,880	\$ 507,897	\$ 381,274	\$ 246,647	\$ 103,638	\$ (48,150)	\$ (209,127)
Cumulative Status Quo	\$ 1,342,571	\$ 2,615,893	\$ 3,814,736	\$ 4,933,615	\$ 5,966,770	\$ 6,908,165	\$ 7,751,467	\$ 8,490,037	\$ 9,116,916	\$ 9,624,813	\$ 10,006,087	\$ 10,252,734	\$ 10,356,371	\$ 10,308,222	\$ 10,099,094
Retrofit															
Revenue	\$ 6,604,060	\$ 6,736,142	\$ 6,870,864	\$ 7,008,282	\$ 7,148,447	\$ 7,291,416	\$ 7,437,245	\$ 7,585,990	\$ 7,737,709	\$ 7,892,464	\$ 8,050,313	\$ 8,211,319	\$ 8,375,545	\$ 8,543,056	\$ 8,713,917
Expenses	\$(4,603,320)	\$(4,763,995)	\$(4,931,580)	\$(5,106,385)	\$(5,288,739)	\$(5,478,981)	\$(5,677,470)	\$(5,884,580)	\$(6,100,703)	\$(6,326,249)	\$(6,561,649)	\$(6,807,351)	\$(7,063,828)	\$(7,331,572)	\$(7,611,100)
Annual Retrofit	\$ 2,000,741	\$ 1,972,147	\$ 1,939,285	\$ 1,901,896	\$ 1,859,709	\$ 1,812,435	\$ 1,759,775	\$ 1,701,409	\$ 1,637,006	\$ 1,566,214	\$ 1,488,664	\$ 1,403,968	\$ 1,311,718	\$ 1,211,485	\$ 1,102,818
Cumulative Retrofit	\$ 2,000,741	\$ 3,972,887	\$ 5,912,172	\$ 7,814,069	\$ 9,673,777	\$ 11,486,213	\$ 13,245,987	\$ 14,947,397	\$ 16,584,403	\$ 18,150,617	\$ 19,639,281	\$ 21,043,249	\$ 22,354,967	\$ 23,566,451	\$ 24,669,269
Greenfield - 35k TPY															
Revenue	\$ 4,903,280	\$ 5,037,855	\$ 5,176,124	\$ 5,318,188	\$ 5,464,151	\$ 5,614,120	\$ 5,768,205	\$ 5,926,519	\$ 6,089,178	\$ 6,256,302	\$ 6,428,012	\$ 6,604,436	\$ 6,785,701	\$ 6,971,941	\$ 7,163,293
Expenses	\$(3,843,629)	\$(3,962,057)	\$(4,085,577)	\$(4,214,418)	\$(4,348,821)	\$(4,470,173)	\$(4,606,952)	\$(4,749,652)	\$(4,898,540)	\$(5,053,898)	\$(5,215,020)	\$(5,382,213)	\$(5,554,880)	\$(5,733,421)	\$(5,918,436)
Annual 35k TPY	\$ 1,059,650	\$ 1,075,798	\$ 1,090,547	\$ 1,103,770	\$ 1,115,329	\$ 1,343,947	\$ 1,361,253	\$ 1,376,867	\$ 1,390,638	\$ 1,402,404	\$ 1,411,993	\$ 1,419,223	\$ 1,423,901	\$ 1,425,821	\$ 1,424,767
Cumulative 35k TPY	\$ 1,059,650	\$ 2,135,448	\$ 3,225,995	\$ 4,329,765	\$ 5,445,094	\$ 6,789,041	\$ 8,150,294	\$ 9,527,161	\$ 10,917,799	\$ 12,320,203	\$ 13,732,196	\$ 15,151,419	\$ 16,575,320	\$ 18,001,141	\$ 19,425,908
Greenfield - 40 TPY															
Revenue	\$ 5,603,748	\$ 5,757,549	\$ 5,915,570	\$ 6,077,929	\$ 6,244,744	\$ 6,416,137	\$ 6,592,234	\$ 6,773,165	\$ 6,959,061	\$ 7,150,059	\$ 7,346,300	\$ 7,547,927	\$ 7,755,087	\$ 7,967,933	\$ 8,186,621
Expenses	\$(4,169,941)	\$(4,296,443)	\$(4,428,346)	\$(4,565,894)	\$(4,709,340)	\$(4,861,331)	\$(5,018,884)	\$(5,182,004)	\$(5,350,791)	\$(5,525,323)	\$(5,705,602)	\$(5,891,736)	\$(6,083,733)	\$(6,281,604)	\$(6,485,359)
Annual 40k TPY	\$ 1,433,807	\$ 1,461,106	\$ 1,487,224	\$ 1,512,035	\$ 1,535,404	\$ 1,784,806	\$ 1,814,630	\$ 1,842,995	\$ 1,869,751	\$ 1,894,736	\$ 1,917,780	\$ 1,938,701	\$ 1,957,304	\$ 1,973,387	\$ 1,986,730
Cumulative 40k TPY	\$ 1,433,807	\$ 2,894,913	\$ 4,382,136	\$ 5,894,171	\$ 7,429,576	\$ 9,214,382	\$ 11,029,012	\$ 12,872,007	\$ 14,741,758	\$ 16,636,495	\$ 18,554,275	\$ 20,492,976	\$ 22,450,280	\$ 24,423,667	\$ 26,410,396
Greenfield - 50 TPY															
Revenue	\$ 7,004,685	\$ 7,196,936	\$ 7,394,463	\$ 7,597,411	\$ 7,805,930	\$ 8,020,171	\$ 8,240,293	\$ 8,466,456	\$ 8,698,826	\$ 8,937,574	\$ 9,182,875	\$ 9,434,908	\$ 9,693,859	\$ 9,959,916	\$ 10,233,276
Expenses	\$(4,573,382)	\$(4,708,914)	\$(4,850,118)	\$(4,997,246)	\$(5,150,559)	\$(5,309,266)	\$(5,473,484)	\$(5,643,213)	\$(5,818,564)	\$(6,000,644)	\$(6,189,574)	\$(6,384,463)	\$(6,585,421)	\$(6,792,558)	\$(7,006,074)
Annual 50k TPY	\$ 2,431,303	\$ 2,488,022	\$ 2,544,345	\$ 2,600,166	\$ 2,655,371	\$ 2,954,905	\$ 3,018,808	\$ 3,082,163	\$ 3,144,843	\$ 3,206,711	\$ 3,267,621	\$ 3,327,420	\$ 3,385,939	\$ 3,443,002	\$ 3,498,419
Cumulative 50k TPY	\$ 2,431,303	\$ 4,919,325	\$ 7,463,670	\$ 10,063,835	\$ 12,719,206	\$ 15,674,112	\$ 18,692,920	\$ 21,775,083	\$ 24,919,926	\$ 28,126,636	\$ 31,394,258	\$ 34,721,677	\$ 38,107,616	\$ 41,550,618	\$ 45,049,037

Schedule 4 - Net I

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Status Quo															
Revenue	\$ 8,273,858	\$ 8,439,335	\$ 8,608,122	\$ 8,780,284	\$ 8,955,890	\$ 9,135,007	\$ 9,317,708	\$ 9,504,062	\$ 9,694,143	\$ 9,888,026	\$ 10,085,786	\$ 10,287,502	\$ 10,493,252	\$ 10,703,117	\$ 10,917,180
Expenses	\$ (8,653,583)	\$ (8,999,726)	\$ (9,359,715)	\$ (9,734,103)	\$ (10,123,468)	\$ (10,528,406)	\$ (10,949,543)	\$ (11,387,524)	\$ (11,843,025)	\$ (12,316,746)	\$ (12,809,416)	\$ (13,321,793)	\$ (13,854,664)	\$ (14,408,851)	\$ (14,985,205)
Annual Status Quo	\$ (379,725)	\$ (560,391)	\$ (751,593)	\$ (953,820)	\$ (1,167,578)	\$ (1,393,399)	\$ (1,631,835)	\$ (1,883,463)	\$ (2,148,882)	\$ (2,428,720)	\$ (2,723,630)	\$ (3,034,291)	\$ (3,361,412)	\$ (3,705,734)	\$ (4,068,026)
Cumulative Status Quo	\$ 9,719,369	\$ 9,158,978	\$ 8,407,385	\$ 7,453,566	\$ 6,285,988	\$ 4,892,589	\$ 3,260,754	\$ 1,377,291	\$ (771,591)	\$ (3,200,311)	\$ (5,923,941)	\$ (8,958,232)	\$ (12,319,644)	\$ (16,025,378)	\$ (20,093,404)
Retrofit															
Revenue	\$ 8,888,196	\$ 9,065,960	\$ 9,247,279	\$ 9,432,224	\$ 9,620,869	\$ 9,813,286	\$ 10,009,552	\$ 10,209,743	\$ 10,413,938	\$ 10,622,217	\$ 10,834,661	\$ 11,051,354	\$ 11,272,381	\$ 11,497,829	\$ 11,727,786
Expenses	\$ (7,902,953)	\$ (8,207,698)	\$ (8,525,929)	\$ (8,858,268)	\$ (9,205,365)	\$ (9,567,902)	\$ (9,946,595)	\$ (10,342,192)	\$ (10,755,477)	\$ (11,187,272)	\$ (10,998,182)	\$ (11,469,621)	\$ (11,962,277)	\$ (12,477,141)	\$ (13,015,252)
Annual Retrofit	\$ 985,243	\$ 858,261	\$ 721,349	\$ 573,957	\$ 415,504	\$ 245,384	\$ 62,957	\$ (132,449)	\$ (341,539)	\$ (565,055)	\$ (163,521)	\$ (418,266)	\$ (689,896)	\$ (979,312)	\$ (1,287,466)
Cumulative Retrofit	\$25,654,512	\$26,512,773	\$27,234,123	\$27,808,079	\$28,223,584	\$28,468,968	\$28,531,925	\$28,399,476	\$28,057,938	\$27,492,882	\$27,329,361	\$26,911,095	\$26,221,199	\$25,241,887	\$23,954,421
Greenfield - 35k TPY															
Revenue	\$ 7,359,897	\$ 7,561,897	\$ 7,769,441	\$ 7,982,681	\$ 8,201,773	\$ 8,426,879	\$ 8,658,163	\$ 8,895,795	\$ 9,139,949	\$ 9,390,804	\$ 9,648,544	\$ 9,913,358	\$ 10,185,440	\$ 10,464,990	\$ 10,752,212
Expenses	\$ (5,939,388)	\$ (6,149,094)	\$ (6,368,050)	\$ (6,596,682)	\$ (6,835,436)	\$ (7,084,778)	\$ (7,345,197)	\$ (7,617,205)	\$ (7,901,339)	\$ (8,198,161)	\$ (7,586,292)	\$ (7,910,284)	\$ (8,248,816)	\$ (8,602,566)	\$ (8,972,242)
Annual 35k TPY	\$ 1,420,509	\$ 1,412,803	\$ 1,401,390	\$ 1,385,998	\$ 1,366,337	\$ 1,342,101	\$ 1,312,967	\$ 1,278,590	\$ 1,238,610	\$ 1,192,643	\$ 2,062,253	\$ 2,003,074	\$ 1,936,624	\$ 1,862,424	\$ 1,779,970
Cumulative 35k TPY	\$20,846,417	\$22,259,220	\$23,660,611	\$25,046,609	\$26,412,947	\$27,755,048	\$29,068,015	\$30,346,605	\$31,585,215	\$32,777,859	\$34,840,111	\$36,843,186	\$38,779,810	\$40,642,234	\$42,422,204
Greenfield - 40 TPY															
Revenue	\$ 8,411,311	\$ 8,642,168	\$ 8,879,361	\$ 9,123,064	\$ 9,373,455	\$ 9,630,719	\$ 9,895,044	\$ 10,166,623	\$ 10,445,656	\$ 10,732,348	\$ 11,026,908	\$ 11,329,552	\$ 11,640,503	\$ 11,959,989	\$ 12,288,242
Expenses	\$ (6,414,208)	\$ (6,637,908)	\$ (6,871,418)	\$ (7,115,190)	\$ (7,369,692)	\$ (7,635,418)	\$ (7,912,885)	\$ (8,202,632)	\$ (8,505,227)	\$ (8,821,262)	\$ (8,126,949)	\$ (8,471,758)	\$ (8,831,961)	\$ (9,208,272)	\$ (9,601,441)
Annual 40k TPY	\$ 1,997,103	\$ 2,004,260	\$ 2,007,942	\$ 2,007,874	\$ 2,003,763	\$ 1,995,301	\$ 1,982,159	\$ 1,963,991	\$ 1,940,429	\$ 1,911,086	\$ 2,899,959	\$ 2,857,794	\$ 2,808,542	\$ 2,751,716	\$ 2,686,801
Cumulative 40k TPY	\$28,407,499	\$30,411,759	\$32,419,701	\$34,427,576	\$36,431,339	\$38,426,640	\$40,408,798	\$42,372,789	\$44,313,218	\$46,224,305	\$49,124,263	\$51,982,058	\$54,790,600	\$57,542,316	\$60,229,117
Greenfield - 50 TPY															
Revenue	\$10,514,139	\$10,802,710	\$11,099,201	\$11,403,830	\$11,716,819	\$12,038,399	\$12,368,805	\$12,708,279	\$13,057,070	\$13,415,435	\$13,783,635	\$14,161,940	\$14,550,629	\$14,949,986	\$15,360,303
Expenses	\$ (6,962,150)	\$ (7,199,214)	\$ (7,446,491)	\$ (7,704,441)	\$ (7,973,548)	\$ (8,254,317)	\$ (8,547,277)	\$ (8,852,983)	\$ (9,172,015)	\$ (9,504,980)	\$ (8,725,665)	\$ (9,088,435)	\$ (9,467,139)	\$ (9,862,505)	\$ (10,275,301)
Annual 50k TPY	\$ 3,551,989	\$ 3,603,495	\$ 3,652,710	\$ 3,699,388	\$ 3,743,271	\$ 3,784,082	\$ 3,821,528	\$ 3,855,296	\$ 3,885,056	\$ 3,910,455	\$ 5,057,970	\$ 5,073,505	\$ 5,083,491	\$ 5,087,480	\$ 5,085,002
Cumulative 50k TPY	\$48,601,026	\$52,204,521	\$55,857,231	\$59,556,620	\$63,299,891	\$67,083,973	\$70,905,501	\$74,760,796	\$78,645,852	\$82,556,307	\$87,614,276	\$92,687,782	\$97,771,272	\$102,858,753	\$107,943,754