

DRAFT SWMP
APPENDIX F
COST ESTIMATES FOR ALTERNATIVES

Sensitivity Analysis Comparison

	20 year NPV		Savings from	
	2009\$		Base Case	
	\$/ton			
Base Case	\$	51.85	\$	-
Case 2 25% Residue	\$	47.89	\$	3.96
Case 3 25% Residue and Local Disposal	\$	42.89	\$	8.96
Case 4 - Full Plant Capacity Utilization	\$	44.08	\$	7.77
Case 5 - Full Utilization w/ 25% residue and local disposal	\$	40.25	\$	11.60
Case 6 - 10% Increase in Electricity Rate	\$	47.54	\$	4.31
Case 7 - 10% Reduction in Waste Delivery	\$	59.49	\$	(7.64)

**Capital Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Base Case Conditions**

	2009 \$	2015	2016	2017	2020	2025	2030	2035	2040	2044
Assumptions		1500	2015\$							
Facility Design Capacity (TPD)		1500								
Anticipated Throughput Guarantee		92%								
Guaranteed Annual Throughput (tons) ¹		510,000								
Net Electricity generated per processed ton (kWh) ¹		635								
Electric Capacity price (\$/kWh)		0.07 \$	0.070 \$	0.084 \$						
Electric Capacity payment (\$/KwhYr)		25.80 \$	25.800 \$	30.807 \$						
Authority Share of Energy Revenue %		100%								
Percentage residue by weight ¹		32%								
Unacceptable Waste as % by weight of GAT		3%								
Operating and Maintenance Cost ²		29.77 \$	29.77 \$	35.54 \$						
Non-processible transport and disposal fee (\$/ton) ³		68.33 \$	68.33 \$	81.59 \$						
Residue transport and disposal fee (\$/ton) ³		58.33 \$	58.33 \$	69.65 \$						
Ferrous recovery by % ⁴		2%								
Ferrous sale price (\$/ton)		\$60	\$60.00 \$	71.64 \$						
Authority Share of Ferrous Revenue %		100%								
Non ferrous metal recovery by % ⁵		0.50%								
Non-Ferrous sale price (\$/ton)		120.00 \$	120.00 \$	143.29 \$						
Authority Share of Ferrous Revenue %		100%								
Annual Inflation Rates										
Electricity Revenue inflation rate		3.0%								
Ferrous and Non-Ferrous Revenue inflation rate		3.0%								
Non-processible and residue disposal fee inflation rate		3.0%								
Facility operating Cost inflation rate		3.0%								
Present Value Discount Rate		3.0%								
Authority Waste input (tpy)		510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)		494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Non processible or bypass waste (tpy)		15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity Generated (kWh)		314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric Revenue to Authority (\$) ⁶		\$ 27,361,237.50	\$ 28,182,074.63	\$ 29,027,536.87	\$ 31,719,173.28	\$ 36,771,215.24	\$ 42,627,916.50	\$ 49,417,438.45	\$ 57,288,355.21	\$ 64,478,548.50
Residue Generation (tpy)		158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Ferrous Metal Recovery (tpy)		9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority ⁶		\$ 708,837	\$ 730,102	\$ 752,005	\$ 821,737	\$ 952,618	\$ 1,104,345	\$ 1,280,239	\$ 1,484,148	\$ 1,670,421
Non-ferrous recovery (tpy)		2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority ⁶		\$ 354,419	\$ 365,051	\$ 376,003	\$ 410,868	\$ 476,309	\$ 552,173	\$ 640,119	\$ 742,074	\$ 835,211
Interest on Debt Service Reserve Account		\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487
Residue for disposal (tons)		158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Total non-processible and residue for disposal (tons)		173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604
Landfill Disposal Cost ⁶		\$ 12,274,047	\$ 12,642,269	\$ 13,021,537	\$ 14,228,985	\$ 16,495,293	\$ 19,122,566	\$ 22,168,295	\$ 25,699,129	\$ 28,924,596
Facility Operating and Maintenance Costs ⁶		\$ 18,127,386	\$ 18,671,207	\$ 19,231,343	\$ 21,014,608	\$ 24,361,690	\$ 28,241,876	\$ 32,740,075	\$ 37,954,720	\$ 42,718,371
Debt Service		\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165
Total SW Treatment Facility Expenses		\$ 70,638,598	\$ 71,550,641	\$ 72,490,045	\$ 75,480,758	\$ 81,094,148	\$ 87,601,607	\$ 95,145,534	\$ 103,891,014	\$ 111,860,133
Total SW Treatment Facility Revenues		\$ 30,033,960	\$ 30,865,715	\$ 31,755,032	\$ 34,561,265	\$ 39,809,629	\$ 45,693,921	\$ 52,947,283	\$ 61,124,063	\$ 68,593,667
Net SW Treatment Facility Expenses		\$ 40,604,618	\$ 40,684,926	\$ 40,735,013	\$ 40,919,493	\$ 41,284,520	\$ 41,907,686	\$ 42,198,251	\$ 42,766,950	\$ 43,266,466
Net Expenses per ton of Waste Input		\$ 79.62 \$	\$ 79.73 \$	\$ 79.85 \$	\$ 80.23 \$	\$ 80.95 \$	\$ 81.78 \$	\$ 82.74 \$	\$ 83.86 \$	\$ 84.88
Present Value in 2009\$		\$ 66.68 \$	\$ 64.83 \$	\$ 63.04 \$	\$ 57.96 \$	\$ 50.45 \$	\$ 43.96 \$	\$ 36.37 \$	\$ 30.16	\$ 30.16
20 Year average NPV in 2009\$		\$ 51.85								
30 year average NPV in 2009\$		\$ 45.93								

Notes
 1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
 2. See separate calculation sheet for O&M Cost
 3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a \$10/ton discount for residue disposal relative to non-processible waste.
 4. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
 5. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements
 6. Escalated annually at rate of Inflation

**Capital Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 2 Conditions - 25% Ash residue**

Assumptions	2009 \$	2015\$	2015	2016	2017	2020	2025	2030	2035	2040	2044
Facility Design Capacity (TPD)	1500		1	2	3	6	11	16	21	26	30
Anticipated Throughput Guarantee	92%										
Guaranteed Annual Throughput (tons)	510,000		510,000	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Net Electricity generated per processed ton (kWh) ¹	635		635	635	635	635	635	635	635	635	635
Electric Energy price (\$/kWh)	0.07	0.070	\$	29.77	\$	35.54	\$	81.59	\$	69.65	\$
Electric Capacity payment (\$/kWhr)	25.80	25.800	\$	30.807	\$	30.807	\$	30.807	\$	30.807	\$
Authority Share of Energy Revenue %	100%										
Percentage Ash residue by weight ²	25%										
Unacceptable Waste as % by weight of GAT	3%										
Operating and Maintenance Cost ³	29.77	29.77	\$	35.54	\$	35.54	\$	81.59	\$	69.65	\$
Non-processible transport and disposal fee (\$/ton) ⁴	68.33	68.33	\$	69.65	\$	69.65	\$	69.65	\$	69.65	\$
Residue transport and disposal fee (\$/ton) ⁴	58.33	58.33	\$	58.33	\$	58.33	\$	58.33	\$	58.33	\$
Ferrous recovery by % ⁵	2%										
Ferrous sale price (\$/ton)	60	60.00	\$	71.64	\$	71.64	\$	71.64	\$	71.64	\$
Authority Share of Ferrous Revenue %	100%										
Non-ferrous metal recovery by % ⁶	0.50%										
Non-Ferrous sale price (\$/ton)	120.00	120.00	\$	143.29	\$	143.29	\$	143.29	\$	143.29	\$
Authority Share of Ferrous Revenue %	100%										
Annual Inflation Rates											
Electricity Revenue inflation rate	3.0%										
Ferrous and Non-Ferrous Revenue inflation rate	3.0%										
Residue and Ash Disposal fee inflation rate	3.0%										
Facility operating Cost inflation rate	3.0%										
Present Value Discount Rate	3.0%										
Authority Waste input (tpy)	510,000	510,000	510,000	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Waste Processed (tpy)	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Non-processible or by-pass waste (tpy)	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity Generated (kWh)	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric revenue to Authority (\$) ⁷	\$ 27,361,237.50	\$ 28,182,074.63	\$ 29,027,956.87	\$ 31,719,173.28	\$ 36,771,215.24	\$ 42,827,916.50	\$ 49,417,438.45	\$ 57,288,355.21	\$ 64,478,548.50	\$ 73,951,165.00	\$ 83,843,980.00
Residue Generation (tpy)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Ferrous Metal Recovery (tpy)	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority ⁷	\$ 708,837	\$ 730,102	\$ 752,005	\$ 821,737	\$ 952,005	\$ 1,104,345	\$ 1,280,239	\$ 1,484,148	\$ 1,670,421	\$ 1,889,421	\$ 2,137,165
Non-Ferrous recovery (tpy)	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority ⁷	\$ 354,419	\$ 365,051	\$ 376,003	\$ 410,868	\$ 476,309	\$ 552,173	\$ 640,119	\$ 742,074	\$ 852,211	\$ 977,165	\$ 1,111,165
Interest on Debt Service Reserve Account	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487
Residue for disposal (tons)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Total non-processible and residue for disposal (tons)	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975
Landfill Disposal Cost ⁷	\$ 9,862,170	\$ 10,158,035	\$ 10,462,776	\$ 11,432,957	\$ 13,253,931	\$ 15,364,939	\$ 17,812,175	\$ 20,649,193	\$ 23,240,849	\$ 26,111,165	\$ 29,240,849
Facility Operating and Maintenance Costs ⁷	\$ 18,127,386	\$ 18,671,207	\$ 19,231,343	\$ 21,014,608	\$ 24,361,690	\$ 28,241,876	\$ 32,740,075	\$ 37,954,720	\$ 42,718,371	\$ 48,111,165	\$ 53,954,720
Debt Service	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165

Total SW Treatment Facility Expenses	\$ 68,226,720	\$ 69,931,284	\$ 72,684,730	\$ 77,852,786	\$ 83,843,980	\$ 90,789,415	\$ 98,841,078	\$ 106,196,385
Total SW Treatment Facility Revenues	\$ 30,033,960	\$ 30,866,715	\$ 31,765,032	\$ 34,561,265	\$ 39,809,629	\$ 45,893,921	\$ 52,947,283	\$ 61,124,063
Net SW Treatment Facility Expenses	\$ 38,192,760	\$ 38,179,692	\$ 38,123,486	\$ 38,043,158	\$ 37,950,059	\$ 37,842,131	\$ 37,717,014	\$ 37,602,718
Net Expenses per ton of Waste Input	\$ 74.89	\$ 74.86	\$ 74.75	\$ 74.59	\$ 74.41	\$ 74.20	\$ 73.95	\$ 73.73
Present Value in 2009\$	\$ 62.72	\$ 60.87	\$ 54.00	\$ 46.46	\$ 34.41	\$ 29.58	\$ 26.20	\$ 23.20
20 Year average NPV in 2009\$	\$ 47.89							
30 Year average NPV in 2009\$	\$ 41.97							

- Notes
- Based on Annual Throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
 - Based on CORRA Facility Ash residue rate of 25%
 - See separate calculation sheet for O&M Cost
 - Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a \$10/ton discount for residue disposal relative to non-processible waste.
 - Field study of waste composition showed 2.8% ferrous ; anticipated to decline to 2% with recycling program improvements
 - Field study of waste composition showed 1.3% non-ferrous ; anticipated to decline to 0.5% with recycling program improvements
 - Escalated annually at rate of inflation

**Capital Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 3 Conditions - 25% Ash residue with Local Disposal Site**

Assumptions	2009 \$	2015\$	2016	2017	2020	2025	2030	2035	2040	2044
Facility Design Capacity (TPD)	1500									
Anticipated Throughput Guarantee	92%									
Guaranteed Annual Throughput (tons)	510,000									
Net Electricity generated per processed ton (kWh) ¹	635									
Electric Energy price (\$/kWh)	0.07	\$ 0.070	\$ 0.084							
Electric Capacity payment (\$/KwYr)	25.80	\$ 25,800	\$ 30,807							
Authority Share of Energy Revenue %	100%									
Percentage Ash residue by weight ²	25%									
Unrecoverable Waste as % by weight of GAT	3%									
Operating and Maintenance Cost ³	\$ 29.77	\$ 29.77	\$ 35.54							
Non-processible transport and disposal fee (\$/ton) ⁴	\$ 50.00	\$ 50.00	\$ 59.70							
Residue transport and disposal fee (\$/ton) ⁴	\$ 40.00	\$ 40.00	\$ 47.76							
Ferrous recovery by % ⁵	2%									
Ferrous sale price (\$/ton)	\$ 60	\$ 60.00	\$ 71.64							
Authority Share of Ferrous Revenue %	100%									
Non ferrous metal recovery by %	0.50%									
Non-Ferrous sale price (\$/ton)	\$ 120.00	\$ 120.00	\$ 143.29							
Authority Share of Ferrous Revenue %	100%									
Annual Inflation Rates										
Ferrous and Non-Ferrous Revenue inflation rate	3.0%									
Residue and Ash Disposal fee inflation rate	3.0%									
Facility operating Cost inflation rate	3.0%									
Present Value Discount Rate	3.0%									
Authority Waste input (tpy)	1	2015	2016	2017	2020	2025	2030	2035	2040	2044
Waste Processed (tpy)	510,000	510,000	494,700	494,700	510,000	510,000	510,000	510,000	510,000	510,000
Non processible or by-pass waste (tpy)	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity Generated (kWh)	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric Revenue to Authority (\$) ⁷	\$ 27,361,237.50	\$ 28,182,074.63	\$ 29,027,536.87	\$ 31,719,173.28	\$ 36,771,215.24	\$ 42,627,916.50	\$ 49,417,438.45	\$ 57,288,355.21	\$ 64,478,548.50	\$ 72,349,697.25
Residue Generation (tpy)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Ferrous Metal Recovery (tpy)	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority ⁷	\$ 708,837	\$ 730,102	\$ 752,005	\$ 821,737	\$ 952,618	\$ 1,104,345	\$ 1,280,239	\$ 1,484,148	\$ 1,670,421	\$ 1,835,211
Non-ferrous recovery (tpy)	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority ⁷	\$ 354,419	\$ 365,051	\$ 376,003	\$ 410,868	\$ 476,309	\$ 552,173	\$ 640,119	\$ 742,074	\$ 835,211	\$ 935,211
Interest on Debt Service Reserve Account	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487
Residue for disposal (tons)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Total non-processible and residue for disposal (tons)	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975
Landfill Disposal Cost ⁷	\$ 6,820,427	\$ 7,025,040	\$ 7,235,791	\$ 7,906,744	\$ 9,166,063	\$ 10,626,003	\$ 12,318,449	\$ 14,280,459	\$ 16,072,782	\$ 18,072,782
Facility Operating and Maintenance Costs ⁷	\$ 18,127,386	\$ 18,671,207	\$ 19,231,343	\$ 21,014,608	\$ 24,361,690	\$ 28,241,876	\$ 32,740,075	\$ 37,954,720	\$ 42,718,371	\$ 47,718,371
Debt Service	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165
Total SW Treatment Facility Expenses	\$ 65,184,977	\$ 65,939,411	\$ 66,704,299	\$ 69,158,517	\$ 73,764,938	\$ 79,105,043	\$ 85,295,689	\$ 92,472,344	\$ 99,028,319	\$ 106,028,319
Total SW Treatment Facility Revenues	\$ 30,033,960	\$ 30,865,715	\$ 31,765,032	\$ 34,561,265	\$ 39,809,629	\$ 45,893,921	\$ 52,947,283	\$ 61,124,063	\$ 68,593,667	\$ 76,593,667
Net SW Treatment Facility Expenses	\$ 35,150,997	\$ 35,046,697	\$ 34,939,267	\$ 34,597,252	\$ 33,955,310	\$ 33,211,122	\$ 32,348,406	\$ 31,348,280	\$ 30,434,652	\$ 29,434,652
Net Expenses per ton of Waste Input	\$ 68.92	\$ 68.72	\$ 68.51	\$ 67.84	\$ 66.58	\$ 65.12	\$ 63.43	\$ 61.47	\$ 59.68	\$ 57.89
Present Value in 2009\$	\$ 57.72	\$ 55.87	\$ 54.08	\$ 49.01	\$ 41.49	\$ 35.01	\$ 29.41	\$ 24.59	\$ 21.21	\$ 18.31
20 Year average NPV in 2009\$	\$ 42.89									
30 Year average NPV in 2009\$	\$ 36.98									

Notes
1. Based on Annual Throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. Based on OORRA facility Ash residue rate of 25%
3. See separate calculation sheet for O&M Cost
4. Based on CHA estimate of local disposal fee for non-processibles. Assumes a \$10/ton discount for residue disposal relative to non-processible waste.
5. Field study of waste composition showed 2.8% ferrous; anticipated to decline to 2% with recycling program improvements
6. Field study of waste composition showed 1.3% non-ferrous; anticipated to decline to 0.5% with recycling program improvements

**Capital Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 4 - Full Plant Capacity Utilization**

Assumptions	2009 \$	2015 \$	2016	2017	2020	2025	2030	2035	2040	2044
Facility Design Capacity (TPD)	1500									
Anticipated Throughput Guarantee	92%									
Guaranteed Annual Throughput (tons) ¹	510,000									
Net Electricity generated per processed ton (kWh) ¹	635									
Electric Energy price (\$/kWh)	\$ 0.07	\$ 0.070	\$ 0.084							
Electric Capacity payment (\$/Kwh/yr)	\$ 25.80	\$ 25,800	\$ 30,807							
Authority Share of Energy Revenue %	100%									
Percentage residue by weight	32%									
Unacceptable Waste as % by weight of GAT	0%									
Operating and Maintenance Cost ²	\$ 29.77	\$ 29.77	\$ 35.54							
Non-processible transport and disposal fee (\$/ton) ³	\$ 68.33	\$ 68.33	\$ 81.59							
Residue transport and disposal fee (\$/ton) ³	\$ 58.33	\$ 58.33	\$ 69.65							
Ferrous recovery by % ⁴	2%									
Ferrous sale price (\$/ton)	\$ 60	\$ 60.00	\$ 71.64							
Authority Share of Ferrous Revenue %	100%									
Non-ferrous metal recovery by % ⁵	0.50%									
Non-Ferrous sale price (\$/ton)	\$ 120.00	\$ 120.00	\$ 143.29							
Authority Share of Ferrous Revenue %	100%									
Annual Inflation Rates										
Electricity Revenue inflation rate	3.0%									
Ferrous and Non-Ferrous Revenue inflation rate	3.0%									
Non-processible and residue disposal fee inflation rate	3.0%									
Facility operating Cost inflation rate	3.0%									
Present Value Discount Rate	3.0%									
Authority Waste input (tpy)	1	2015	2016	2017	2020	2025	2030	2035	2040	2044
Waste Processed (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Non-processible or by-pass waste (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Net electricity Generated (kWh)	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000
Electric revenue to Authority (\$) ⁶	\$ 28,207,461.34	\$ 29,053,685.18	\$ 29,925,295.74	\$ 32,700,178.64	\$ 37,908,469.32	\$ 43,946,305.68	\$ 50,945,812.83	\$ 59,060,160.01	\$ 66,472,730.41	\$ 73,304,141.00
Residue Generation (tpy)	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200
Ferrous Metal Recovery (tpy)	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200
Ferrous Revenue to Authority ⁶	\$ 730,760	\$ 752,683	\$ 775,263	\$ 847,151	\$ 962,090	\$ 1,138,500	\$ 1,319,834	\$ 1,530,049	\$ 1,722,084	\$ 1,933,150
Non-ferrous recovery (tpy)	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550
Non-Ferrous Revenue to Authority ⁶	\$ 365,380	\$ 376,341	\$ 387,632	\$ 423,576	\$ 491,040	\$ 569,250	\$ 659,917	\$ 765,025	\$ 881,042	\$ 1,009,487
Interest on Debt Service Reserve Account	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487
Residue for disposal (tons)	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200
Total non-processible and residue for disposal (tons)	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200
Landfill Disposal Cost ⁶	\$ 11,366,728	\$ 11,707,730	\$ 12,058,962	\$ 13,177,153	\$ 15,275,932	\$ 17,708,992	\$ 20,529,576	\$ 23,799,405	\$ 27,566,440	\$ 31,866,440
Facility Operating and Maintenance Costs ⁶	\$ 15,181,400	\$ 15,636,842	\$ 16,105,947	\$ 17,599,403	\$ 20,402,532	\$ 23,652,127	\$ 27,419,297	\$ 31,786,480	\$ 36,775,964	\$ 42,537,165
Debt Service	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165
Total SW Treatment Facility Expenses	\$ 66,785,293	\$ 67,581,737	\$ 68,402,074	\$ 71,013,722	\$ 75,915,629	\$ 81,598,284	\$ 88,186,038	\$ 95,823,050	\$ 102,799,568	\$ 110,237,165
Total SW Treatment Facility Revenues	\$ 30,913,088	\$ 31,792,196	\$ 32,697,677	\$ 35,580,392	\$ 40,991,076	\$ 47,263,543	\$ 54,535,050	\$ 62,964,720	\$ 70,665,943	\$ 78,866,440
Net SW Treatment Facility Expenses	\$ 35,872,205	\$ 35,789,541	\$ 35,704,397	\$ 35,433,330	\$ 34,924,553	\$ 34,334,741	\$ 33,650,987	\$ 32,858,330	\$ 32,134,225	\$ 31,370,725
Net Expenses per ton of Waste input	\$ 70.34	\$ 70.18	\$ 70.01	\$ 69.48	\$ 68.48	\$ 67.32	\$ 65.98	\$ 64.43	\$ 63.01	\$ 61.64
Present Value in 2009\$	\$ 58.91	\$ 57.06	\$ 55.27	\$ 50.19	\$ 42.67	\$ 36.19	\$ 30.60	\$ 25.77	\$ 21.39	\$ 17.39
20 Year average NPV in 2009\$	\$ 44.08									
30 year average NPV in 2009\$	\$ 38.16									

Notes
1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. See separate calculation sheet for O&M Cost
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a \$10/ton discount for residue disposal relative to non-processible waste.
4. Field study of waste composition showed 2.8% ferrous; anticipated to decline to 2% with recycling program improvements
5. Field study of waste composition showed 1.3% non-ferrous; anticipated to decline to 0.5% with recycling program improvements
6. Escalated annually at rate of inflation

**Capital Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 5 - Full Plant Capacity Utilization w/ 25% residue and local disposal**

Assumptions	2009 \$	2015 \$	2016	2017	2020	2025	2030	2035	2040	2044
Facility Design Capacity (TPD)	1500									
Anticipated Throughput Guarantee	92%									
Guaranteed Annual Throughput (tons) ¹	510,000									
Net Electricity generated per processed ton (kWh) ¹	635									
Electric Energy price (\$/kWh)	\$ 0.07	\$ 0.070	\$ 0.084							
Electric Capacity payment (\$/kWh)	\$ 25.80	\$ 25.800	\$ 30.807							
Authority Share of Energy Revenue %	100%									
Percentage Ash residue by weight ²	25%									
Unacceptable Waste as % by weight of GAT	0%									
Operating and Maintenance Cost ³	\$ 29.77	\$ 29.77	\$ 35.54							
Non-processible transport and disposal fee (\$/ton) ⁴	\$ 50.00	\$ 50.00	\$ 59.70							
Residue transport and disposal fee (\$/ton) ⁴	\$ 40.00	\$ 40.00	\$ 47.76							
Ferrous recovery by % ⁵	2%									
Ferrous sale price (\$/ton)	\$ 80	\$ 80.00	\$ 71.64							
Authority Share of Ferrous Revenue %	100%									
Non-Ferrous metal recovery by %	0.50%									
Non-Ferrous sale price (\$/ton)	\$ 120.00	\$ 120.00	\$ 143.29							
Authority Share of Ferrous Revenue %	100%									
Annual Inflation Rates										
Electricity Revenue inflation rate	3.0%									
Ferrous and Non-Ferrous Revenue inflation rate	3.0%									
Residue and Ash Disposal fee inflation rate	3.0%									
Facility operating Cost inflation rate	3.0%									
Present Value Discount Rate	3.0%									
Authority Waste input (tpy)	2015	2016	2017	2020	2025	2030	2035	2040	2044	
Waste Processed (tpy)	1	2	3	6	11	16	21	26	30	
Non-processible or by-pass waste (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	
Net electricity Generated (kWh)	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	
Electric revenue to Authority (\$) ⁷	\$ 28,207,461.34	\$ 29,053,685.18	\$ 29,925,295.74	\$ 32,700,178.64	\$ 37,908,469.32	\$ 43,946,305.68	\$ 50,945,812.83	\$ 59,060,160.01	\$ 66,472,730.41	
Residue Generation (tpy)	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	
Ferrous Metal Recovery (tpy)	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200	
Ferrous Revenue to Authority ⁷	\$ 730,760	\$ 752,683	\$ 775,263	\$ 847,151	\$ 982,080	\$ 1,198,500	\$ 1,319,834	\$ 1,530,049	\$ 1,722,084	
Non-Ferrous recovery (tpy)	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	
Non-Ferrous Revenue to Authority ⁷	\$ 365,380	\$ 376,341	\$ 387,632	\$ 423,576	\$ 491,040	\$ 569,250	\$ 659,917	\$ 765,025	\$ 861,042	
Interest on Debt Service Reserve Account	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	
Residue for disposal (tons)	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	
Total non-processible and residue for disposal (tons)	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	
Landfill Disposal Cost ⁷	\$ 6,089,667	\$ 6,272,357	\$ 6,460,527	\$ 7,059,593	\$ 8,184,003	\$ 9,487,502	\$ 10,998,615	\$ 12,750,410	\$ 14,350,699	
Facility Operating and Maintenance Costs ⁷	\$ 18,127,386	\$ 18,671,207	\$ 19,231,343	\$ 21,014,608	\$ 24,361,690	\$ 28,241,876	\$ 32,740,075	\$ 37,954,720	\$ 42,718,371	
Debt Service	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	
Total SW Treatment Facility Expenses	\$ 64,454,217	\$ 65,180,729	\$ 65,929,036	\$ 68,311,366	\$ 72,782,858	\$ 77,966,543	\$ 83,975,855	\$ 90,942,294	\$ 97,306,235	
Total SW Treatment Facility Revenues	\$ 30,913,088	\$ 31,792,196	\$ 32,697,677	\$ 35,580,392	\$ 40,991,076	\$ 47,263,543	\$ 54,535,050	\$ 62,964,720	\$ 70,665,343	
Net SW Treatment Facility Expenses	\$ 33,541,129	\$ 33,388,533	\$ 33,231,358	\$ 32,730,974	\$ 31,791,782	\$ 30,703,000	\$ 29,440,805	\$ 27,977,574	\$ 26,640,892	
Net Expenses per ton of Waste Input	\$ 65.77	\$ 65.47	\$ 65.16	\$ 64.18	\$ 62.34	\$ 60.20	\$ 57.73	\$ 54.86	\$ 52.24	
Present Value in 2009\$	\$ 55.08	\$ 53.23	\$ 51.44	\$ 46.36	\$ 38.85	\$ 32.36	\$ 26.77	\$ 21.94	\$ 18.56	
20 Year average NPV in 2009\$	\$ 40.25									
30 Year average NPV in 2009\$	\$ 34.33									

Notes
1. Based on Annual Throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. Based on OCRRRA facility Ash residue rate of 25%
3. See separate calculation sheet for O&M Cost
4. Based on CHA estimate of local disposal fee for non-processibles. Assumes a \$10/ton discount for residue disposal relative to non-processible waste.
5. Field study of waste composition showed 2.8% ferrous; anticipated to decline to 2% with recycling program improvements
6. Field study of waste composition showed 1.3% non-ferrous; anticipated to decline to 0.5% with recycling program improvements

**Capital Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 6 - 10% increase in initial price of electric energy**

Assumptions	2009 \$	2015\$	2015	2016	2017	2020	2025	2030	2035	2040	2044
Facility Design Capacity (TPD)	1500		1	2	3	6	11	16	21	26	30
Anticipated Throughput Guarantee	92%										
Guaranteed Annual Throughput (tons)	510,000		510,000	494,700	494,700	510,000	510,000	510,000	510,000	510,000	510,000
Net Electricity generated per processed ton (kWh) ¹	635		635	635	635	635	635	635	635	635	635
Electric Energy price (\$/kWh)	0.077	0.077	0.077	0.077	0.092	0.092	0.092	0.092	0.092	0.092	0.092
Electric Capacity payment (\$/kWhyr)	25.80	25.80	25.80	25.80	30.807	30.807	30.807	30.807	30.807	30.807	30.807
Authority Share of Energy Revenue %	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%
Percentage residue by weight ¹	32%		32%	32%	32%	32%	32%	32%	32%	32%	32%
Unacceptable Waste as % by weight of GAT	3%		3%	3%	3%	3%	3%	3%	3%	3%	3%
Operating and Maintenance Cost ²	29.77	29.77	29.77	29.77	35.54	35.54	35.54	35.54	35.54	35.54	35.54
Non-processible transport and disposal fee (\$/ton) ³	68.33	68.33	68.33	68.33	81.59	81.59	81.59	81.59	81.59	81.59	81.59
Residue transport and disposal fee (\$/ton) ³	58.33	58.33	58.33	58.33	69.65	69.65	69.65	69.65	69.65	69.65	69.65
Ferrous recovery by% ⁴	2%		2%	2%	2%	2%	2%	2%	2%	2%	2%
Ferrous sale price (\$/ton)	60	60	60	60	71.64	71.64	71.64	71.64	71.64	71.64	71.64
Authority Share of Ferrous Revenue %	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%
Non ferrous metal recovery by %	0.50%		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Non-Ferrous sale price (\$/ton)	120.00	120.00	120.00	120.00	143.29	143.29	143.29	143.29	143.29	143.29	143.29
Authority Share of Ferrous Revenue %	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%
Annual Inflation Rates											
Electricity Revenue inflation rate	3.0%		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Non-processible and residue disposal fee inflation rate	3.0%		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Facility operating Cost inflation rate	3.0%		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Present Value Discount Rate											
Authority Waste input (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Non processible or by-pass waste (tpy)	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity generated (kWh)	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric Revenue to Authority (\$) ⁵	\$ 29,966,888.65	\$ 30,866,495.91	\$ 31,811,090.17	\$ 32,763,022.58	\$ 34,763,022.58	\$ 40,299,870.82	\$ 46,718,595.44	\$ 54,159,656.48	\$ 62,785,885.63	\$ 70,866,067.42	\$ 79,966,067.42
Residue Generation (tpy)	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Ferrous Metal Recovery (tpy)	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority ⁶	\$ 708,837	\$ 730,102	\$ 752,005	\$ 774,000	\$ 796,100	\$ 821,737	\$ 848,100	\$ 874,200	\$ 900,100	\$ 926,000	\$ 952,100
Non-ferrous recovery (tpy)	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority ⁶	\$ 354,419	\$ 366,051	\$ 377,683	\$ 389,315	\$ 400,947	\$ 412,579	\$ 424,211	\$ 435,843	\$ 447,475	\$ 459,107	\$ 470,739
Interest on Debt Service Reserve Account	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487	\$ 1,609,487
Residue for disposal (tons)	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Total non-processible and residue for disposal (tons)	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604
Landfill Disposal Cost ⁶	\$ 12,274,047	\$ 12,642,269	\$ 13,021,537	\$ 13,400,805	\$ 13,780,073	\$ 14,159,341	\$ 14,538,609	\$ 14,917,877	\$ 15,297,145	\$ 15,676,413	\$ 16,055,681
Facility Operating and Maintenance Costs ⁶	\$ 18,127,386	\$ 18,671,207	\$ 19,231,343	\$ 19,791,479	\$ 20,351,615	\$ 20,911,751	\$ 21,471,887	\$ 22,032,023	\$ 22,592,159	\$ 23,152,295	\$ 23,712,431
Debt Service	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165	\$ 40,237,165
Total SW Treatment Facility Expenses	\$ 70,638,598	\$ 71,550,641	\$ 72,462,684	\$ 73,374,727	\$ 74,286,770	\$ 75,198,813	\$ 76,110,856	\$ 77,022,899	\$ 77,934,942	\$ 78,846,985	\$ 79,759,028
Total SW Treatment Facility Revenues	\$ 32,659,631	\$ 33,591,155	\$ 34,522,679	\$ 35,454,203	\$ 36,385,727	\$ 37,317,251	\$ 38,248,775	\$ 39,180,300	\$ 40,111,824	\$ 41,043,348	\$ 41,974,872
Net SW Treatment Facility Expenses	\$ 37,978,967	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486
Net Expenses per ton of Waste Input	\$ 74.47	\$ 74.43	\$ 74.39	\$ 74.35	\$ 74.31	\$ 74.27	\$ 74.23	\$ 74.19	\$ 74.15	\$ 74.11	\$ 74.07
Present Value in 2009\$	\$ 62.37	\$ 60.52	\$ 58.73	\$ 56.94	\$ 55.15	\$ 53.36	\$ 51.57	\$ 49.78	\$ 47.99	\$ 46.20	\$ 44.41
20 Year average NPV in 2009\$	\$ 47.54										
30 year average NPV in 2009\$	\$ 41.62										

Assumptions	2009 \$	2015\$	2015	2016	2017	2020	2025	2030	2035	2040	2044
Total SW Treatment Facility Expenses	\$ 70,638,598	\$ 71,550,641	\$ 72,462,684	\$ 73,374,727	\$ 74,286,770	\$ 75,198,813	\$ 76,110,856	\$ 77,022,899	\$ 77,934,942	\$ 78,846,985	\$ 79,759,028
Total SW Treatment Facility Revenues	\$ 32,659,631	\$ 33,591,155	\$ 34,522,679	\$ 35,454,203	\$ 36,385,727	\$ 37,317,251	\$ 38,248,775	\$ 39,180,300	\$ 40,111,824	\$ 41,043,348	\$ 41,974,872
Net SW Treatment Facility Expenses	\$ 37,978,967	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486	\$ 37,959,486
Net Expenses per ton of Waste Input	\$ 74.47	\$ 74.43	\$ 74.39	\$ 74.35	\$ 74.31	\$ 74.27	\$ 74.23	\$ 74.19	\$ 74.15	\$ 74.11	\$ 74.07
Present Value in 2009\$	\$ 62.37	\$ 60.52	\$ 58.73	\$ 56.94	\$ 55.15	\$ 53.36	\$ 51.57	\$ 49.78	\$ 47.99	\$ 46.20	\$ 44.41
20 Year average NPV in 2009\$	\$ 47.54										
30 year average NPV in 2009\$	\$ 41.62										

Notes
1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. See separate calculation sheet for O&M Cost
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a \$10/ton discount for residue disposal relative to non-processible waste.
4. Field study of waste composition showed 2.8% ferrous; anticipated to decline to 2% with recycling program improvements
5. Field study of waste composition showed 1.3% non-ferrous; anticipated to decline to 0.5% with recycling program improvements
6. Escalated annually at rate of inflation

**Capital Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 7 - 10% Reduction in Annual Waste Input**

Assumptions	2009 \$	2015	2016	2017	2020	2025	2030	2035	2040	2044
Facility Design Capacity (TPD)	1500									
Anticipated Throughput Guarantee	92%									
Guaranteed Annual Throughput (tons) ¹	510,000									
Net Electricity generated per processed ton (kWh) ¹	635									
Electric Energy price (\$/kWh)	0.07 \$	0.070 \$	0.070 \$	0.084 \$						
Electric Capacity payment (\$/Kw/yr)	25.80 \$	25.800 \$	25.800 \$	30.807 \$						
Authority Share of Energy Revenue %	100%									
Percentage residue by weight ¹	32%									
Unacceptable Waste as % by weight of GAT	3%									
Operating and Maintenance Cost ²	\$ 31.92 \$	31.92 \$	31.92 \$	38.11 \$						
Non-processible transport and disposal fee (\$/ton) ³	\$ 68.33 \$	68.33 \$	68.33 \$	81.59 \$						
Residue transport and disposal fee (\$/ton) ³	\$ 58.33 \$	58.33 \$	58.33 \$	69.65 \$						
Ferrous recovery by % ⁴	2%									
Ferrous sale price (\$/ton)	\$60	\$60.00 \$	60.00 \$	71.64 \$						
Authority Share of Ferrous Revenue %	100%									
Non ferrous metal recovery by % ⁵	0.50%									
Non-Ferrous sale price (\$/ton)	\$ 120.00 \$	120.00 \$	120.00 \$	143.29 \$						
Authority Share of Ferrous Revenue %	100%									
Annual Inflation Rates										
Electricity Revenue inflation rate	3.0%									
Ferrous and Non-Ferrous Revenue inflation rate	3.0%									
Non-processible and residue disposal fee inflation rate	3.0%									
Facility operating Cost inflation rate	3.0%									
Present Value Discount Rate	3.0%									
Authority Waste input (tpy)	1	2015	2016	2017	2020	2025	2030	2035	2040	2044
Waste Processed (tpy)	459,000	459,000	459,000	459,000	459,000	459,000	459,000	459,000	459,000	459,000
Net processible or by-pass waste (tpy)	13,770	13,770	13,770	13,770	13,770	13,770	13,770	13,770	13,770	13,770
Net electricity Generated (kWh)	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050
Electric revenue to Authority (\$) ⁶	\$ 24,625,113.75	\$ 25,363,867.16	\$ 26,124,783.18	\$ 28,547,255.95	\$ 33,094,093.71	\$ 38,365,124.85	\$ 44,475,694.60	\$ 51,559,519.69	\$ 58,030,693.65	\$ 65,000,000.00
Residue Generation (tpy)	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474
Ferrous Metal Recovery (tpy)	8,905	8,905	8,905	8,905	8,905	8,905	8,905	8,905	8,905	8,905
Ferrous Revenue to Authority ⁶	\$ 697,953 \$	657,092 \$	676,805 \$	739,563 \$	799,911 \$	857,356 \$	919,911 \$	982,215 \$	1,049,379 \$	1,116,474 \$
Non-ferrous recovery (tpy)	2,226	2,226	2,226	2,226	2,226	2,226	2,226	2,226	2,226	2,226
Non-Ferrous Revenue to Authority ⁶	\$ 318,977 \$	275,152 \$	283,407 \$	309,686 \$	359,011 \$	389,011 \$	416,192 \$	442,481 \$	469,328 \$	496,574 \$
Interest on Debt Service Reserve Account	\$ 1,609,487 \$	1,609,487 \$	1,609,487 \$	1,609,487 \$	1,609,487 \$	1,609,487 \$	1,609,487 \$	1,609,487 \$	1,609,487 \$	1,609,487 \$
Residue for disposal (tons)	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474
Total non-processible and residue for disposal (tons)	156,244	156,244	156,244	156,244	156,244	156,244	156,244	156,244	156,244	156,244
Landfill Disposal Cost ⁶	\$ 11,046,643 \$	11,378,042 \$	11,719,383 \$	12,065,086 \$	12,414,764 \$	12,767,664 \$	13,124,816 \$	13,486,336 \$	13,852,324 \$	14,218,776 \$
Facility Operating and Maintenance Costs ⁶	\$ 17,494,060 \$	18,018,882 \$	18,559,448 \$	19,106,410 \$	19,664,410 \$	20,233,554 \$	20,813,376 \$	21,403,519 \$	22,004,627 \$	22,617,359 \$
Debt Service	\$ 40,237,165 \$	40,237,165 \$	40,237,165 \$	40,237,165 \$	40,237,165 \$	40,237,165 \$	40,237,165 \$	40,237,165 \$	40,237,165 \$	40,237,165 \$
Total SW Treatment Facility Expenses	\$ 68,777,868 \$	69,634,089 \$	70,515,996 \$	73,323,662 \$	78,593,483 \$	84,702,650 \$	91,784,849 \$	99,995,058 \$	107,495,200 \$	115,292,200 \$
Total SW Treatment Facility Revenues	\$ 27,191,531 \$	27,905,598 \$	28,694,481 \$	31,203,992 \$	35,919,948 \$	41,821,515 \$	48,317,935 \$	55,064,067 \$	61,773,088 \$	68,999,113 \$
Net SW Treatment Facility Expenses	\$ 41,586,337 \$	41,728,491 \$	41,821,515 \$	42,117,670 \$	42,673,535 \$	42,881,135 \$	43,466,914 \$	44,930,991 \$	45,722,113 \$	46,293,087 \$
Net Expenses per ton of Waste Input	\$ 90.60 \$	90.91 \$	91.11 \$	91.76 \$	92.97 \$	94.37 \$	96.00 \$	97.89 \$	99.61 \$	101.44 \$
Present Value in 2009\$	\$ 75.88 \$	73.92 \$	71.93 \$	66.29 \$	57.94 \$	50.73 \$	44.52 \$	39.15 \$	35.40 \$	32.11 \$
30 Year average NPV in 2009\$	\$ 59.49									
30 Year average NPV in 2009\$	\$ 52.92									

Notes
 1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
 2. See separate calculation sheet for O&M Cost
 3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a \$10/ton discount for residue disposal relative to non-processible waste.
 4. Field study of waste composition showed 2.8% ferrous; anticipated to decline to 2% with recycling program improvements
 5. Field study of waste composition showed 1.3% non-ferrous; anticipated to decline to 0.5% with recycling program improvements
 6. Escalated annually at rate of inflation

Construction Fund Drawdown

Months after notice to proceed	Beginning Balance in		Monthly Drawdown (%) ¹	Drawdown	Ending Balance in		Interest Earned
	Construction Fund	Construction Fund			Construction Fund	Construction Fund	
1	\$ 420,885,364.00	\$ 409,521,459.17	2.7%	\$ 11,363,904.83	\$ 409,521,459.17	\$ 1,365,071.53	
2	\$ 409,521,459.17	\$ 395,632,242.16	3.3%	\$ 13,889,217.01	\$ 395,632,242.16	\$ 1,318,774.14	
3	\$ 395,632,242.16	\$ 380,059,483.69	3.7%	\$ 15,572,758.47	\$ 380,059,483.69	\$ 1,266,864.95	
4	\$ 380,059,483.69	\$ 359,436,100.86	4.9%	\$ 20,623,382.84	\$ 359,436,100.86	\$ 1,198,120.34	
5	\$ 359,436,100.86	\$ 349,334,852.12	2.4%	\$ 10,101,248.74	\$ 349,334,852.12	\$ 1,164,449.51	
6	\$ 349,334,852.12	\$ 343,863,342.39	1.3%	\$ 5,471,509.73	\$ 343,863,342.39	\$ 1,146,211.14	
7	\$ 343,863,342.39	\$ 325,765,271.74	4.3%	\$ 18,098,070.65	\$ 325,765,271.74	\$ 1,085,884.24	
8	\$ 325,765,271.74	\$ 308,088,086.45	4.2%	\$ 17,677,185.29	\$ 308,088,086.45	\$ 1,026,960.29	
9	\$ 308,088,086.45	\$ 284,939,391.43	5.5%	\$ 23,148,695.02	\$ 284,939,391.43	\$ 949,797.97	
10	\$ 284,939,391.43	\$ 267,262,206.14	4.2%	\$ 17,677,185.29	\$ 267,262,206.14	\$ 890,874.02	
11	\$ 267,262,206.14	\$ 245,376,167.21	5.2%	\$ 21,886,038.93	\$ 245,376,167.21	\$ 817,920.56	
12	\$ 245,376,167.21	\$ 226,015,440.47	4.6%	\$ 19,360,726.74	\$ 226,015,440.47	\$ 753,384.80	
13	\$ 226,015,440.47	\$ 204,129,401.54	5.2%	\$ 21,886,038.93	\$ 204,129,401.54	\$ 680,431.34	
14	\$ 204,129,401.54	\$ 180,980,706.52	5.5%	\$ 23,148,695.02	\$ 180,980,706.52	\$ 603,269.02	
15	\$ 180,980,706.52	\$ 161,199,094.41	4.7%	\$ 19,781,612.11	\$ 161,199,094.41	\$ 537,330.31	
16	\$ 161,199,094.41	\$ 140,996,596.94	4.8%	\$ 20,202,497.47	\$ 140,996,596.94	\$ 469,988.66	
17	\$ 140,996,596.94	\$ 126,686,494.56	3.4%	\$ 14,310,102.38	\$ 126,686,494.56	\$ 422,288.32	
18	\$ 126,686,494.56	\$ 109,009,309.28	4.2%	\$ 17,677,185.29	\$ 109,009,309.28	\$ 363,364.36	
19	\$ 109,009,309.28	\$ 87,965,041.08	5.0%	\$ 21,044,268.20	\$ 87,965,041.08	\$ 293,216.80	
20	\$ 87,965,041.08	\$ 69,866,970.42	4.3%	\$ 18,098,070.65	\$ 69,866,970.42	\$ 232,889.90	
21	\$ 69,866,970.42	\$ 53,031,555.86	4.0%	\$ 16,835,414.56	\$ 53,031,555.86	\$ 176,771.85	
22	\$ 53,031,555.86	\$ 36,617,026.67	3.9%	\$ 16,414,529.20	\$ 36,617,026.67	\$ 122,056.76	
23	\$ 36,617,026.67	\$ 21,465,153.56	3.6%	\$ 15,151,873.10	\$ 21,465,153.56	\$ 71,550.51	
24	\$ 21,465,153.56	\$ 4,629,739.00	4.0%	\$ 16,835,414.56	\$ 4,629,739.00	\$ 15,432.46	
25	\$ 4,629,739.00	\$ (0.00)	1.1%	\$ 4,629,739.00	\$ (0.00)	\$ (0.00)	
			100.0%			\$ 16,972,903.78	

Notes:
 1. Drawdown percentage as per table 10-1 Construction Payment Schedule from Appendix 10 of Draft Agreement for Frederick County Facility 7/13/09

Capital Region SWMP
Sources and Uses of Funds
SW Treatment Facility

Assumptions

Facility Design Capacity (TPD)	1500	Construction period	39 months
Facility Construction Price \$2009 ¹	\$ 332,000,000	Bond Term	30 yrs
Facility Construction Price in \$2012 ²	\$ 362,785,364	Interest rates	
Project development Expenses @ 7.5% ³	\$ 24,900,000	Tax exempt Bonds	6.00%
Contingency @ 10%	\$ 33,200,000	Debt Service reserve Fund	4.00%
		Capitalized interest Fund	4.00%
		Construction Fund	4.00%

Total Construction Costs \$

	\$ 420,885,364
Sources of Funds	
Bond Proceeds	\$ 553,857,780
	553857780

Uses of Funds

Construction Fund	\$ 420,885,364
Underwriters discount @ 0.75 % of Bond Proceeds	\$ 4,153,933
Cost of Bond Issuance @ 1.0 % of Bond proceeds	\$ 5,538,578
Capitalized Interest	\$ 108,002,267
Debt service reserve Fund	\$ 40,237,165
Resident Engineer CQA/QC @ 0.75% of Construction Fund	\$ 3,156,640
Bond Insurance @ 0.2% of bond proceeds	\$ 1,107,716
Less Interest earned during construction:	
Debt service reserve Fund	\$ (5,230,831)
Capitalized Interest	\$ (7,020,147)
Construction Fund	\$ (16,972,904)
Total Uses of Funds \$	\$ 553,857,780

Notes:

1. Based on proposed Facility in Frederick County MD
2. Assumes 3% annual inflation of the 2009 Facility Construction Price
3. Includes siting studies, acquisition, preliminary environmental review, RFP preparation, review, negotiations of project agreements

Estimated Operating and Maintenance Cost
1500 TPD SW Treatment Facility

	Unit	Unit Cost	Item Total in 2009\$
Labor and Salary 1	60	\$ 60,000.00	\$ 3,600,000.00
Fringe Benefits		35%	\$ 1,260,000.00
Maintenance 2	\$ per ton	\$ 5.00	\$ 2,550,000.00
Utility Charges 3	\$ per ton	\$ 1.00	\$ 510,000.00
Chemicals 4	\$ per ton	\$ 2.00	\$ 1,020,000.00
Contract Services 5	\$ per year		\$ 520,000.00
Insurance 6	\$ per year		\$ 308,000.00
Fuel 7	\$ per year		\$ 50,000.00
Equipment Rental 8	\$ per year		\$ 200,000.00
	% of construction		
Equipment Replacement Fund	Cost	0.5%	\$ 1,660,000.00
Subtotal			\$ 11,678,000.00
Management Fee		20%	\$ 2,335,600.00
Contingency		10%	\$ 1,167,800.00
Total			\$ 15,181,400.00
Cost per ton 9			\$ 29.77

1. 60 Full time operating employees based on Covanta Presentation to SWMP Committee
2. Includes recurring maintenance on all fixed and mobile equipment
3. Includes water, sewer, internet and telephone
4. Includes allowance for chemicals to operate air pollution control equipment
5. Professional, laboratory and other contract services
6. Based on% of wages plus \$200,000 for workers comp, vehicle insurance and CGL insurance
7. Fuel for operating equipment and auxiliary fuel for furnace start-up.
8. Allowance for equipment rental used for facility maintenance
9. Based on facility receipt of 510,000 tons per year

Excludes ash and nonprocessable waste disposal cost

Sources:

Covanta Presentation
MOSA Summary Report by GBB march 2009

Estimated Operating and Maintenance Cost
1500 TPD SW Treatment Facility

	Unit	Unit Cost	Item Total in 2009\$
Labor and Salary 1		60 \$ 60,000.00	\$ 3,600,000.00
Fringe Benefits		35%	\$ 1,260,000.00
Maintenance 2	\$ per ton	\$ 5.00	\$ 2,295,000.00
Utility Charges 3	\$ per ton	\$ 1.00	\$ 459,000.00
Chemicals 4	\$ per ton	\$ 2.00	\$ 918,000.00
Contract Services 5	\$ per year		\$ 520,000.00
Insurance 6	\$ per year		\$ 308,000.00
Fuel 7	\$ per year		\$ 50,000.00
Equipment Rental 8	\$ per year		\$ 200,000.00
Equipment Replacement Fund	% of construction Cost	0.5%	\$ 1,660,000.00
Subtotal			\$ 11,270,000.00
Management Fee		20%	\$ 2,254,000.00
Contingency		10%	\$ 1,127,000.00
Total			\$ 14,651,000.00
Cost per ton 9			31.91938998

1. 60 Full time operating employees based on Covanta Presentation to SWMP Committee
2. Includes recurring maintenance on all fixed and mobile equipment
3. Includes water, sewer, internet and telephone
4. Includes allowance for chemicals to operate air pollution control equipment
5. Professional, laboratory and other contract services
6. Based on% of wages plus \$200,000 for workers comp, vehicle insurance and CGL insurance
7. Fuel for operating equipment and auxiliary fuel for furnace start-up.
8. Allowance for equipment rental used for facility maintenance
9. Based on facility receipt of 459,000 tons per year

Excludes ash and nonprocessable waste disposal cost

Sources:

Covanta Presentation
MOSA Summary Report by GBB march 2009

**Capital Region SWMP
Life Cycle Cost and Revenue
SSOW Facility**

Assumptions

Facility Throughput Capacity (TPY)	40000
Anticipated Annual Throughput (tons)	40,000
Estimated Mass Reduction (% of throughput)	50%
Compost produced per processed ton	50%
Compost Price assumption (\$/ton)	30.00
Authority Share of Compost Revenue %	100%
Percentage residue by weight ¹	5%
Annual SSOW O&M Cost (2009\$) ²	\$ 1,010,000.00
Non-processible disposal fee (\$/ton, 2009) ³	\$ 68.33

Annual Inflation Rates

Compost Revenue rate	3.0%
Ferrous and Non-Ferrous Revenue rate	3.0%
Non-processible and residue disposal fee inflation rate	3.0%
Facility operating cost inflation rate	3.0%
Present Value Discount Rate	3.0%

Calendar Year	2013	2015	2020	2025	2030	2032
Inflation Year	4	6	11	16	21	23
Facility Operating Year	1	3	8	13	18	20
SSOW input (tpy)	40,000	40,000	40,000	40,000	40,000	40,000
SSOW Processed (tpy)	40,000	40,000	40,000	40,000	40,000	40,000
Net compost Generated (tpy)	19,000	19,000	19,000	19,000	19,000	19,000
Compost revenue to Authority (\$) ⁴	\$ 641,540.02	\$ 680,609.81	\$ 789,013.31	\$ 914,682.67	\$ 1,060,367.91	\$ 1,124,944.31
Interest on Debt Service Reserve Account	\$ 40,156	\$ 40,156	\$ 40,156	\$ 40,156	\$ 40,156	\$ 40,156
Residue for disposal (tons)	2,000	2,000	2,000	2,000	2,000	2,000
Landfill Disposal Cost ⁴	\$ 153,812	\$ 163,179	\$ 189,169	\$ 219,299	\$ 254,228	\$ 269,710
Annual Operating Cost ⁴	\$ 1,136,764	\$ 1,205,993	\$ 1,398,076	\$ 1,620,754	\$ 1,878,898	\$ 1,993,322
Debt Service	\$ 1,003,907	\$ 1,003,907	\$ 1,003,907	\$ 1,003,907	\$ 1,003,907	\$ 1,003,907
Total SSOW Facility Expenses	\$ 2,294,483	\$ 2,373,079	\$ 2,591,153	\$ 2,843,960	\$ 3,137,032	\$ 3,266,940
Total SSOW Facility Revenue	\$ 681,696	\$ 720,766	\$ 829,170	\$ 954,839	\$ 1,100,524	\$ 1,165,101
Net SSOW Facility Expenses	\$ 1,612,787	\$ 1,652,313	\$ 1,761,983	\$ 1,889,121	\$ 2,036,508	\$ 2,101,839
Net Expenses per ton of Waste Input	\$ 40.32	\$ 41.31	\$ 44.05	\$ 47.23	\$ 50.91	\$ 52.55
Present Value in 2009\$	\$ 35.82	\$ 34.59	\$ 31.82	\$ 29.43	\$ 27.37	\$ 26.62
20 year average NPV in 2009\$	\$ 30.82					

Notes

1. Conservative increase of Norterra's note of 2% residue at Joyceville
2. As per SSOW Facility O&M Cost sheet
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets.
4. Escalated annually at rate of inflation

SSOW Facility
Operating Cost Estimate
150 TPD

	Units	Unit Cost	Extended Cost	Avg per employee
1) LABOR				
(a) Foreman	1	\$ 60,000.00	\$ 60,000.00	
(b) Scale Attendant	1	\$ 31,000.00	\$ 31,000.00	
(c) equipment operators	2	\$ 57,000.00	\$ 114,000.00	
(d) Mechanics	1	\$ 50,000.00	\$ 50,000.00	
(e) Laborers	2	\$ 27,000.00	\$ 54,000.00	
			\$ 309,000.00	
Labor Subtotal				
(f) Overtime		10%	\$ 30,900.00	
(g) Replacement labor		10%	\$ 30,900.00	
(h) Fringe Benefits		31%	\$ 95,790.00	
(i) Management		5%	\$ 15,450.00	
			\$ 482,040.00	\$ 68,862.86
Labor and Fringe Total				
2) EQUIPMENT OPERATIONS				
(a) Fuel for Mobile Equipment		\$ 12,500.00	\$ 37,500.00	
(b) equipment maintenance	LS		\$ 10,000.00	
(c) equipment replacement fund	LS	\$ -	\$ 50,000.00	
			\$ 97,500.00	
3) MISC. O&M EXPENSES				
(a) Utilities	LS		\$ 40,000.00	
(b) Other insurance	LS		\$ 30,000.00	
(c) Building and grounds		1.5%	\$ 98,345.43	
			\$ 168,345.43	
			O&M Subtotal	\$ 747,885.43
Contingency @ 15%		15%	\$ 112,182.81	
Administrative Overhead @ 20%		20%	\$ 149,577.09	
O&M Cost Total			\$ 1,010,000.00	Rounded to the nearest thousand.

Capital Region SWMP
Sources and Uses of Funds
SSOW Facility

Assumptions

Annual Inflation Rate for Construction Price	3%	Construction period	12 months
Facility Throughput Capacity (TPY)	40,000	Bond Term	20 yrs
Facility Construction Price \$2009 ¹	\$ 6,000,000	Interest rates	
Facility Construction Price \$2012 ²	\$ 6,556,362	Tax exempt Bonds	6.00%
Project development Expenses @ 15% ³	\$ 983,454	Debt Service reserve Fund	4.00%
Property Acquisition - 15 acres @ \$75K/acre	\$ 1,125,000	Capitalized interest Fund	4.00%
Contingency @ 10%	\$ 866,482	Construction Fund	4.00%
Total Construction Costs \$	9,531,298		

Sources of Funds

Bond Proceeds	\$ 11,514,735	11514735
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Uses of Funds

Construction Fund	\$ 9,531,298
Underwriters discount @ 0.75 % of Bond Proceeds	\$ 86,361
Cost of Bond Issuance @ 1.0 % of Bond proceeds	\$ 115,147
Capitalized Interest	\$ 690,884
Debt service reserve Fund	\$ 1,003,907
Resident Engineer CQA/QC @ 2.5% of Construction Fund	\$ 298,282
Bond Insurance @ 0.2% of bond proceeds	\$ 23,029
Less Interest earned during construction:	
Debt service reserve Fund	\$ (40,156)
Capitalized Interest	\$ (13,818)
Construction Fund	\$ (120,200)
Total Uses of Funds \$	11,514,735

Notes:

1. Based on RFI response from Nortera noting Merchant Facility Cost in Joyceville ON of \$3Million US\$ for a 20,000 TPY facility.
2. Assumes 3% annual inflation rate from 2009 to 2012.
3. Includes siting studies, preliminary environmental review, Bid preparation, review, negotiations of project agreements

Construction Fund Drawdown
Equivalent Monthly Drawdown

Months after notice to proceed	Beginning Balance in		Drawdown	Ending Balance in		Interest Earned
	Construction Fund	Construction Fund		Construction Fund	Construction Fund	
1	\$ 6,556,362.00	\$ 546,363.50	\$ 546,363.50	\$ 6,009,998.50	\$ 20,033.33	
2	\$ 6,009,998.50	\$ 546,363.50	\$ 546,363.50	\$ 5,463,635.00	\$ 18,212.12	
3	\$ 5,463,635.00	\$ 546,363.50	\$ 546,363.50	\$ 4,917,271.50	\$ 16,390.91	
4	\$ 4,917,271.50	\$ 546,363.50	\$ 546,363.50	\$ 4,370,908.00	\$ 14,569.69	
5	\$ 4,370,908.00	\$ 546,363.50	\$ 546,363.50	\$ 3,824,544.50	\$ 12,748.48	
6	\$ 3,824,544.50	\$ 546,363.50	\$ 546,363.50	\$ 3,278,181.00	\$ 10,927.27	
7	\$ 3,278,181.00	\$ 546,363.50	\$ 546,363.50	\$ 2,731,817.50	\$ 9,106.06	
8	\$ 2,731,817.50	\$ 546,363.50	\$ 546,363.50	\$ 2,185,454.00	\$ 7,284.85	
9	\$ 2,185,454.00	\$ 546,363.50	\$ 546,363.50	\$ 1,639,090.50	\$ 5,463.64	
10	\$ 1,639,090.50	\$ 546,363.50	\$ 546,363.50	\$ 1,092,727.00	\$ 3,642.42	
11	\$ 1,092,727.00	\$ 546,363.50	\$ 546,363.50	\$ 546,363.50	\$ 1,821.21	
12	\$ 546,363.50	\$ 546,363.50	\$ 546,363.50	\$ -	\$ -	
			\$ 6,556,362.00		\$ 120,199.97	

4%

**Capital Region SWMP
Life Cycle Cost and Revenue
Transfer Station - Alternative Scenario #1**

Assumptions	2009\$	2015\$	2020	2025	2030	2034
Nominal Facility Throughput Capacity (TPD)						
Anticipated Annual Throughput (tons)	1000					
Landfill Disposal Fee (\$/ton)	25	29.85				
Annual Inflation Rates						
Disposition fee inflation rate	3.0%					
Facility operating Cost inflation rate	3.0%					
Present value discount rate	3.0%					
Calendar Year						
Inflation Year	2009	2010	2020	2025	2030	2034
Facility Operating Year	0	1	11	16	21	25
	-5	-4	6	11	16	20
Landfill Disposal Cost			213,000	213,000	213,000	213,000
Facility Operating Cost ⁴			7,371,045	8,545,062	9,906,069	11,149,367
Transportation O&M Cost	\$ 1,519,379	\$ 1,564,960	\$ 2,103,176	\$ 2,438,157	\$ 2,826,493	\$ 3,181,242
Facility Debt Service	\$ 7,083,411	\$ 7,295,913	\$ 9,805,097	\$ 11,366,795	\$ 13,177,231	\$ 14,831,090
Transportation Debt Service			\$ 1,441,655	\$ 1,441,655	\$ 1,441,655	\$ 1,441,655
Total Facility Operating and Debt Service			\$ 2,562,696	\$ 2,562,696	\$ 2,562,696	\$ 2,562,696
Facility Operating and Debt Service per ton			\$ 3,544,831	\$ 3,879,813	\$ 4,268,148	\$ 4,622,898
Total Transportation O&M, Debt Service & Disposal			\$ 15.29	\$ 16.22	\$ 20.04	\$ 21.70
Total T&D per ton			\$ 17,378,988	\$ 22,474,553	\$ 25,645,996	\$ 28,543,153
			\$ 92.67	\$ 105.51	\$ 120.40	\$ 134.01
Total Facility Operating, Transport & Disposal Cost (\$/ton)			\$ 109.31	\$ 123.73	\$ 140.44	\$ 155.71
Present Value in 2009\$			\$ 78.97	\$ 77.10	\$ 75.49	\$ 74.37
20 year average NPV in 2009\$			\$			

Notes

- 1
- 2
3. Assumption includes transport and Disposal
4. Escalated annually at rate of inflation

**Estimated Capital Cost
1000 TPD Transfer Station
2009 Cost**

	<u>Unit</u>		<u>Unit Cost</u>		<u>Extended Cost</u>
Building and Site Development					
Land Purchase ¹	5 acres	\$	75,000	\$	375,000
Site Preparation and Development ²	5 acres	\$	175,000	\$	875,000
Transfer Building ³	40000 sq. ft.	\$	175	\$	7,000,000
Scale House and Scales ⁴	2 scales	\$	250,000	\$	500,000
			Subtotal	\$	8,750,000
Mobile Transfer Equipment					
Wheel Loader	2	\$	250,000	\$	500,000
Excavator w/ Grapple	2	\$	350,000	\$	700,000
Tools and Spare Parts @ 8%				\$	96,000
Contingency	15%			\$	194,400
			Subtotal	\$	1,490,400
Total Transfer Station Facility Capital Cost				\$	10,240,400

Notes

1 - assumes land acquisition cost of 75,000 per acres

2 - Includes estimates for earthwork, paved roadways, site utilities and landscaping

3 - Pre-engineered buiding, concrete floors, push walls, foundation, load out scales, ventilation and electromechanical equipment

4 - Pre-engineered building, 2 truck scales and office furnishings

Capital Region SWMP
Sources and Uses of Funds
Transfer Station Facility
Nominal Capacity 1000TPD

Assumptions

GO Bond financing				
Annual Inflation Rate for Construction Price		3%		12 months
Facility Construction Price \$2009 ¹	\$	10,240,400		
Facility Construction Price \$2015 ²	\$	12,227,573		Bond Term 20 yrs
Project development Expenses @ 15% ³	\$	1,536,060		Interest rates
Property Acquisition - 5 acres @ \$75K included in Facility construc	\$	-		Tax exempt Bonds 6.00%
Contingency @ 10%		1,376,363		Debt Service reserve Fund 4.00%
		15,139,996		Capitalized interest Fund 4.00%
				Construction Fund 4.00%

Sources of Funds

Bond Proceeds	\$	16,535,673		16535673
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Uses of Funds

Construction Fund	\$	15,139,996		
Underwriters discount @ 0.75 % of Bond Proceeds	\$	124,018		
Cost of Bond Issuance @ 1.0 % of Bond proceeds	\$	165,357		
Capitalized Interest	\$	992,140		
Debt service reserve Fund ⁴	\$	-		
Resident Engineer CQA/QC @ 2.5% of Construction Fund	\$	378,500		
Bond Insurance @ 0.2% of bond proceeds	\$	33,071		
Less Interest earned during construction:				
Debt service reserve Fund	\$	-		
Capitalized Interest	\$	(19,843)		
Construction Fund	\$	(277,567)		
Total Uses of Funds	\$	16,535,673		
Annual Debt service payment	\$	\$1,441,655.32		

Notes:

1. Based on RFI response from Nortera noting Merchant Facility Cost in Joyceville ON of \$3Million US\$ for a 20,000 TPY facility.
2. Assumes 3% annual inflation rate from 2009 to 2012.
3. Includes siting studies, preliminary environmental review, Bid preparation, review, negotiations of project agreements
4. Debt service reserve not required for GO Bond financing

Transfer Station Cost Estimate
 Capital Cost Estimate
 1,000 TPD

	Units	Unit Cost	Extended Cost 2009\$	Estimated Cost 2015\$
Open Top Trailer - 105CY ¹	40	\$ 75,000	\$ 3,000,000	3,582,156.89
Tractors ¹	40	\$ 125,000	\$ 5,000,000	5,970,261.48
Tools and Spare Parts @ 1%	1%		\$ 80,000	95,524.18
Contingency @ 15%	15%		\$ 1,212,000	\$ 1,447,191
Rolling Stock Capital Cost Total			\$ 9,292,000	11,095,133.94
Total Annualized Capital Cost Amortization	5.0%		5 years	\$2,562,696
Assumed Annual Tonnage		213,000		
Amortized Facility Cost per ton		\$ 12.03		

Notes:

1 - assumes capacity for transporting 1000 TPD, w/ 25 ton payload, and 1 round trip per day.

Transfer Station Cost Estimate
 Operating Cost Estimate
 1,000 TPD

Assumptions:

Annual tonnage	213,000
Round trip travel time	7 hrs
turnaround time at LF	.5 hrs
turnaround time at TS	.5 hrs
Round trip mileage to High Acres	415
trailer payload	25
Annual Round trips	8,520
Annual VMT	3,535,800
Thruway tolls (round trip)	\$ 60.00
Road Fuel Cost \$/gallon	\$ 3.00
Road Fuel economy MPG	7
Fuel Cost \$/VMT	\$ 0.43

	Units	Unit Cost	Extended Cost	
1) LABOR				
(d) Truck Drivers	40	\$ 40,000.00	\$ 1,600,000.00	
Labor Subtotal			\$ 1,600,000.00	
(g) Overtime	10%		\$ 160,000.00	
(h) Replacement labor	10%		\$ 160,000.00	
(i) Fringe Benefits	31%		\$ 496,000.00	
(j) Management	5%		\$ 80,000.00	
Labor and Fringe Total				\$ 2,496,000.00
2) EQUIPMENT OPERATIONS				
(b) Fuel for tractors	3,535,800	\$ 0.43	\$ 1,515,342.86	
© Tires @ \$/VMT	3,535,800	\$ 0.28	\$ 972,345.00	
(d) equipment maintenance	5%		\$ 464,600.00	
(e) equipment replacement	0%		\$ -	
(f) tolls	8,520	\$ 60.00	\$ 511,200.00	
				\$ 3,463,487.86
3) MISCELLANEOUS EXPENSES				
(b) Vehicle license and insurance ¹	40	\$ 5,000.00	\$ 200,000.00	
				\$ 200,000.00
4) CONTINGENCIES	15%			\$ 923,923.18
O&M Cost Total			\$ 7,083,411.04	\$ 33.26 \$/ton
Total Amortized capital cost for Rolling Stock			\$2,562,696.32	\$ 12.03 \$/ton
Total Annual Transfer and Transport Cost			\$9,646,107.36	
Transport Cost per ton			\$ 45.29	
(NOT INCLUDING DISPOSAL COST)				

Notes:

1- Based on 2.5% of vehicle cost

**Estimated Capital Cost
750-1000 TPD Transfer Station
2009 Cost**

	<u>Unit</u>		<u>Unit Cost</u>		<u>Extended Cost</u>
Building and Site Development					
Land Purchase ¹	5 acres	\$	75,000	\$	375,000
Site Preparation and Development ²	5 acres	\$	175,000	\$	875,000
Transfer Building ³	40000 sq. ft.	\$	175	\$	7,000,000
Scale House and Scales ⁴	2 scales	\$	250,000	\$	500,000
			Subtotal	\$	8,750,000
Mobile Transfer Equipment					
Wheel Loader	2	\$	250,000	\$	500,000
Excavator w/ Grapple	2	\$	350,000	\$	700,000
Tools and Spare Parts @ 8%				\$	96,000
Contingency	15%			\$	194,400
			Subtotal	\$	1,490,400
Total Transfer Station Facility Capital Cost				\$	10,240,400

Notes

1 - assumes land acquisition cost of 75,000 per acres

2 - Includes estimates for earthwork, paved roadways, site utilities and landscaping

3 - Pre-engineered building, concrete floors, push walls, foundation, load out scales, ventilation and electromechanical equipment

4 - Pre-engineered building, 2 truck scales and office furnishings

Construction Fund Drawdown
 Equivalent Monthly Drawdown

4%

Months after notice to proceed	Beginning Balance in Construction Fund	Drawdown	Ending Balance in Construction Fund	Interest Earned
1	\$ 15,139,996.45	\$ 1,261,666.37	\$ 13,878,330.08	\$ 46,261.10
2	\$ 13,878,330.08	\$ 1,261,666.37	\$ 12,616,663.71	\$ 42,055.55
3	\$ 12,616,663.71	\$ 1,261,666.37	\$ 11,354,997.34	\$ 37,849.99
4	\$ 11,354,997.34	\$ 1,261,666.37	\$ 10,093,330.97	\$ 33,644.44
5	\$ 10,093,330.97	\$ 1,261,666.37	\$ 8,831,664.60	\$ 29,438.88
6	\$ 8,831,664.60	\$ 1,261,666.37	\$ 7,569,998.23	\$ 25,233.33
7	\$ 7,569,998.23	\$ 1,261,666.37	\$ 6,308,331.85	\$ 21,027.77
8	\$ 6,308,331.85	\$ 1,261,666.37	\$ 5,046,665.48	\$ 16,822.22
9	\$ 5,046,665.48	\$ 1,261,666.37	\$ 3,784,999.11	\$ 12,616.66
10	\$ 3,784,999.11	\$ 1,261,666.37	\$ 2,523,332.74	\$ 8,411.11
11	\$ 2,523,332.74	\$ 1,261,666.37	\$ 1,261,666.37	\$ 4,205.55
12	\$ 1,261,666.37	\$ 1,261,666.37	\$ -	\$ -
		\$ 15,139,996.45		\$ 277,566.60

Capital Region SWMP
Sources and Uses of Funds
Transfer Station Facility
Nominal Capacity 750TPD

Assumptions

GO Bond financing			
Annual Inflation Rate for Construction Price			3%
Facility Construction Price \$2009 ¹	\$	10,240,400	
Facility Construction Price \$2015 ²	\$	12,227,573	
Project development Expenses @ 15% ³	\$	1,536,060	
Property Acquisition - 5 acres @ \$75K included in Facility construct	\$	-	
Contingency @ 10%		1,376,363	
		15,139,996	

Total Construction Costs \$

Sources of Funds			
Bond Proceeds	\$	18,187,206	18187206

Uses of Funds

Construction Fund	\$	15,139,996	
Underwriters discount @ 0.75 % of Bond Proceeds	\$	136,404	
Cost of Bond Issuance @ 1.0 % of Bond proceeds	\$	181,872	
Capitalized Interest	\$	1,091,232	
Debt service reserve Fund ⁴	\$	1,585,643	
Resident Engineer CQA/QC @ 2.5% of Construction Fund	\$	378,500	
Bond Insurance @ 0.2% of bond proceeds	\$	36,374	
Less Interest earned during construction:			
Debt service reserve Fund	\$	(63,426)	
Capitalized Interest	\$	(21,825)	
Construction Fund	\$	(277,567)	
Total Uses of Funds \$		18,187,206	

Notes:

1. Based on RFI response from Nortera noting Merchant Facility Cost in Joyceville ON of \$3Million US\$ for a 20,000 TPY facility.
2. Assumes 3% annual inflation rate from 2009 to 2012.
3. Includes siting studies, preliminary environmental review, Bid preparation, review, negotiations of project agreements
4. Debt service reserve equal to 1 years debt service payment.

Transfer Station Cost Estimate
 Capital Cost Estimate
 750 TPD

	Units	Unit Cost	Extended Cost 2009\$	Estimated Cost 2015\$
Open Top Trailer - 105CY ¹	30	\$ 75,000	\$ 2,250,000	2,686,617.67
Tractors ¹	30	\$ 125,000	\$ 3,750,000	4,477,696.11
Tools and Spare Parts @ 1%	1%		\$ 60,000	71,643.14
Contingency @15%	15%		\$ 909,000	\$ 1,085,394
Rolling Stock Capital Cost Total			\$ 6,969,000	8,321,350.45
Total Annualized Capital Cost Amortization	5.0%		5 years	\$1,922,022
Assumed Annual Tonnage	167,000			
Amortized Facility Cost per ton	\$ 11.51			

Notes:

1 - assumes capacity for transporting 750 TPD, w/ 25 ton payload, and 1 round trip per day.

Transfer Station Cost Estimate
 Operating Cost Estimate
 750 TPD

Assumptions:

Annual tonnage	148,000
Round trip travel time	7 hrs
turnaround time at LF	.5 hrs
turnaround time at TS	.5 hrs
Round trip mileage to High Acres	415
trailer payload	25
Annual Round trips	5,920
Annual VMT	2,456,800
Thruway tolls (round trip)	\$ 60.00
Road Fuel Cost \$/gallon	\$ 3.00
Road Fuel economy MPG	7
Fuel Cost \$/VMT	\$ 0.43

	Units	Unit Cost	Extended Cost	
1) LABOR ¹				
(d) Truck Drivers	25	\$ 40,000.00	\$ 1,000,000.00	
Labor Subtotal			\$ 1,000,000.00	
(g) Overtime	10%		\$ 100,000.00	
(h) Replacement labor	10%		\$ 100,000.00	
(i) Fringe Benefits	31%		\$ 310,000.00	
(j) Management	5%		\$ 50,000.00	
Labor and Fringe Total				\$ 1,560,000.00
2) EQUIPMENT OPERATIONS				
(b) Fuel for tractors	2,456,800	\$ 0.43	\$ 1,052,914.29	
© Tires @ \$/VMT	2,456,800	\$ 0.28	\$ 675,620.00	
(d) equipment maintenance	5%		\$ 348,450.00	
(e) equipment replacement	0%		\$ -	
(f) tolls	5,920	\$ 60.00	\$ 355,200.00	
				\$ 2,432,184.29
3) MISCELLANEOUS EXPENSES				
(b) Vehicle license and insurance ²	30	\$ 5,000.00	\$ 150,000.00	
				\$ 150,000.00
4) CONTINGENCIES	15%			\$ 621,327.64
O&M Cost Total				\$ 4,763,511.93 \$ 32.19 \$/ton

Notes:

- 1- Labor based on annual tonnage averaged over 250 operating days per year
- 2- Based on 2.5% of vehicle cost