



**Waste Diversion Cost Model**  
**Algonquin Highlands Waste Management St** **Waste Diversion Cost Model**  
**Township of Algonquin Highlands Waste Management Plan**

Waste Generation Rate: 0.6 kg/person/day Density = 250 kg/m3

DETAILS		Waste/Recycling Tonnage Projection										Expanded Curbside percentage change		
		Year	Population	Waste	Recycling	Total	Diversion Rate	m <sup>3</sup> (waste only)	m <sup>3</sup> (all material)	Number of Bags	Waste	Recycling	Total	
Equivalent Population (2004)	4000 persons	1	2006	4245	446	365	810	45%	1782	3240	32744			
Permanent Population (2004)	2000 persons	2	2007	4330	454	372	826	45%	1817	3304	33391	1.019753	1.019753	
Seasonal Population (2004)	8000 persons	3	2008	4416	421	421	842	50%	1684	3368	30944	0.927	1.133	
Population Growth	2.0% per annum	4	2009	4505	443	443	886	50%	1772	3544	32561	1.052	1.052	
Total Households (2004)	4500 households	5	2010	4595	403	492	895	55%	1611	3580	29602	0.909	1.111	
Seasonal Households (2004)	3600 households	6	2011	4687	423	518	941	55%	1694	3764	31124	1.051	1.051	
Permanent Households (2004)	900 households	7	2012	4781	384	576	960	60%	1536	3840	28224	0.907	1.113	
Equivalent Households (2004)	1800 households	8	2013	4876	392	587	979	60%	1566	3916	28783	1.019792	1.019792	
Inflation Rate	5%	9	2014	4974	399	599	998	60%	1597	3992	29341	1.019408	1.019408	
	Waste (tonnes) Recycling (tonnes)	10	2015	5073	407	611	1018	60%	1629	4072	29929	1.02004	1.02004	
Tonnes Collected at Hawk Lake	134 81	2016	5175	416	623	1039	60%	1662	4156	30547	1.020629	1.020629		
Tonnes Collected at Maple Lake	296 235	2017	5278	424	636	1060	60%	1696	4240	31164	1.020212	1.020212		
Tonnes Collected at Pine Springs	40 22	2018	5384	432	649	1081	60%	1730	4324	31781	1.019811	1.019811		
Tonnes Collected at Dorset	210 187	2019	5491	441	661	1102	60%	1763	4408	32399	1.019426	1.019426		
Tonnes Collected at Oxtongue Lake	50 55	2020	5601	450	674	1124	60%	1798	4496	33046	1.019964	1.019964		
TOTAL	730 580	2021	5713	459	688	1147	60%	1835	4588	33722	1.020463	1.020463		
	2004 0.442748	2022	5827	468	702	1170	60%	1872	4680	34398	1.020052	1.020052		
		2023	5944	477	716	1193	60%	1909	4772	35074	1.019658	1.019658		
		2024	6063	487	730	1217	60%	1947	4868	35780	1.020117	1.020117		
		2025	6184	496	745	1241	60%	1986	4964	36485	1.019721	1.019721		
<b>2004 WDO Datacall</b>		2026	6308	506	760	1266	60%	2026	5064	37220	1.020145	1.020145		
Tonnes Generated	1074 tonnes	2027	6434	517	775	1292	60%	2067	5168	37985	1.020537	1.020537		
Tonnes Diverted	587 tonnes	2028	6563	527	790	1317	60%	2107	5268	38720	1.01935	1.01935		
Tonnes Disposed	487 tonnes	2029	6694	538	806	1344	60%	2150	5376	39514	1.020501	1.020501		
Diversion Rate	54.7%	2030	6828	548	823	1371	60%	2194	5484	40307	1.020089	1.020089		
											average =	1.009	1.035	

Bag Tag/Designated Bags		TOTAL	AVERAGE
Cost of Tag to Township	\$0.05	11358	454
Township's Charge for Tag or Bag	\$1.00	15761	630
		27119	1085
		45430	108476

**Backyard Composting**

Composter	\$35 cost
Recovery Rate	0.1 tonne/composter/year

**Leaf and Yard Waste Composting at Waste Disposal Site**

Density of leaf and yard waste (imperial)	500 lbs/yd <sup>3</sup>
Density of leaf and yard waste (metric)	0.297 tonnes/m <sup>3</sup>
Participation Rate	50%
Operating costs per tonne	\$44 Labour, equipment maintenance, gas, sampling, etc. Source: AMRC Leaf and Yard Waste Composting Study, Part 1, Page 105, 1991.
Capital Costs to set up Composting Pad	\$100,000 pad design, grading, labour, pad construction

**Composting Depot - Omega Organics**

**Capital Costs**

Building - Coverall, concrete floor, 4000 ft <sup>2</sup>	\$75,000
Mixer	\$20,000
In-feed Conveyor	\$8,000
Rotary Drum (model 824)	\$95,000
Out-feed Conveyor	\$8,000
Delivery	\$2,500
Rigging and Installation	\$5,000
Screen - optional (only if bagged material)	\$30,000
Amortization period for capital costs	5
Interest rate	7%

**Operating Costs**

Labor - 2 hours per day for 8 months	\$10,000
Utilities	\$2,000
Fuel	\$1,500
Screening	\$2,000
Chipper Rental	\$2,000

Percentage of Waste - Kitchen Organics 22% MOE Residential Waste Composition Study, 1991  
 Percentage of Waste - Yard Wastes 15% MOE Residential Waste Composition Study, 1991

**Promotion & Education**

New Program Launch	\$5 per household (\$3 - \$7; Source: <i>Solid Waste as a Resource Guide</i> , Federation of Canadian Municipalities, 2004)
On-going Reinforcement	\$1 per household (Source: <i>Solid Waste as a Resource Guide</i> , Federation of Canadian Municipalities, 2004)
Increase in Diversion Rate	5.0% (5% - 7%; Source: <i>District of Muskoka Solid Waste Diversion Plan</i> , 2005, pg. 19)
Public Consultation Event	\$15,000 per event
Advertising, mail outs, annual calendar	\$15,000 first 5 years \$10,000 after 5 years

**HHW Events**

Cost for HHW event	\$5,000
Cost for 2 annual HHW events	\$10,000 Based on admin costs and estimated amount of material collected



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 Summary

		Total Cost	Total Cost / hh	Average Annual Cost	Average Cost / Tonne	Average Annual Cost / hh	Increase in Diversion Rate	
Status Quo		\$2,060,000	\$500	\$90,000	\$130	\$18	0.0%	
Promotion and Education		\$330,000	\$100	\$20,000	\$20	\$3	5.0%	
Bag Limit		\$90,000	\$100	\$10,000	\$5	\$1	5.0%	
User Pay System <sup>1</sup>		(\$750,000)	(\$200)	(\$30,000)	(\$47)	(\$7)	5.0%	
Organics	Backyard Composting	\$83,000	\$18	\$3,400	\$15	\$0.7	8.0%	
	Leaf and Yard Waste	\$490,000	\$800	\$20,000	\$187	\$29	7.3%	
	Omega Organics System	\$1,130,000	\$300	\$50,000	\$583	\$10	10.6%	
Total For Recommended (shaded areas)		\$2,303,000	\$1,318	\$113,400		\$16	25.3%	
							Current waste diversion rate (2008)	43.0%
							Total with enhanced system	<b>68%</b>

Note: 1. User Pay System has associates revenues from bag tag sales, values in brackets indicate revenue.