

Town of Grantham, New Hampshire
Analysis of Solid Waste & Recycling Operations and Opportunities
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Objective:

The purpose of this analysis is to gain a comprehensive view of the costs and revenues associated with managing waste in Grantham; and to estimate the savings associated with increases in residential recycling. If the town feels that it is cost-effective to pursue any programs that increase recycling, RCAP Solutions can provide educational materials, training, and technical assistance needed to ensure success in your community.

Data:

Tonnage Estimates for the years 2008-2010 were gathered from the New Hampshire Department of Environmental Services' solid waste database. Municipal Solid Waste (MSW) has dropped over the past three years and may be explained by the recession. People tend to buy/throw away less "stuff" when the strength of the economy is low.

Usually there is less Construction and Demolition (C&D) as well, but it doesn't seem to be the case with C&D in Grantham. Recycling has also decreased over the past three years,

HISTORICAL TONNAGES- NH DES			
YEAR	2008	2009	2010
MSW	1,269	967	943
C/D	233	257	247
Recycling	693	471	403
Composting	-	-	-
TOTAL TONS	2,195	1,695	1,593
Residential Recycling Rate	32%	28%	25%

both in tonnage and in percentage of the total waste. This could either be explained by errors in reporting or people in the town are not recycling as much as they used to. There is nothing reported for composting, but perhaps there is some being done and not reported. The column highlighted in yellow is the data used for the recycling savings analysis.

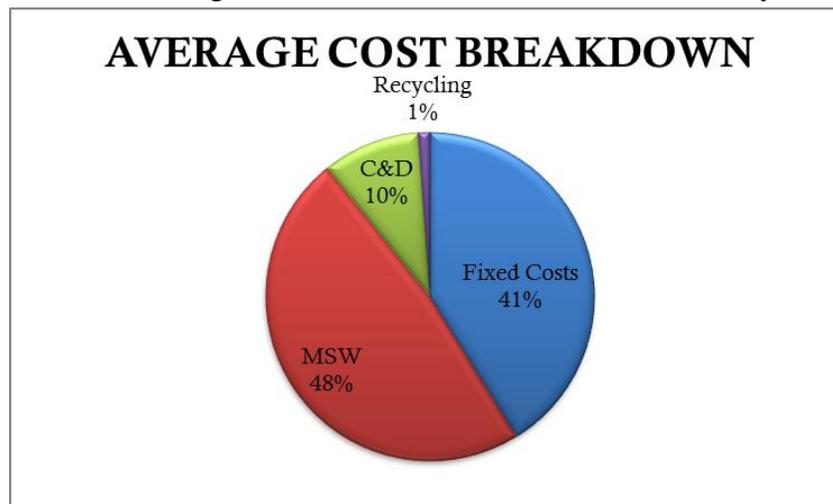
Recycling Activity data was collected from the Northeast Resource Recovery Association (NRRA) and is reported on a fiscal year and annual basis. Depending on the level of recycling and market prices, the net gain from recycling fluctuates from year to year. There may be additional revenues gained from recycling outside of the NRRA and associated expenses, but only the available data in the yellow row for FY 10/11 was used for this analysis.

RECYCLING ACTIVITY (NRRA)			
	EXPENSES	REVENUES	NET
FY 08/09	\$ 13,028	\$ 12,381	\$ (647)
FY 09/10	\$ 13,292	\$ 16,317	\$ 3,025
FY 10/11	\$ 13,196	\$ 21,497	\$ 8,301
ANNUAL 2009	\$ 14,520	\$ 11,679	\$ (2,840)
ANNUAL 2010	\$ 14,851	\$ 20,886	\$ 6,035
ANNUAL 2011	\$ 4,488	\$ 8,563	\$ 4,075

Solid Waste Budgets were provided by the Town Administrator and reported on a FY basis. Even though the yellow highlighted FY 10/11 is not yet completed, it was used in the recycling savings analysis because they are actual costs. To determine where savings could be made, the budget was broken into fixed and variable costs. The fixed costs associated with solid waste include: Salaries, Facility and Equipment costs. It is assumed that they will likely be the same regardless of the recycling rate. The variable costs are those that are directly related with the amount of waste and recycling passing through the town.

GRANTHAM SOLID WASTE BUDGETS				
<i>Fixed Costs</i>	10/11 Budget	10/11 Actual	11/12 Budget	Average Budget
Salaries	\$ 70,700	\$ 71,180	\$ 75,900	\$ 73,300
Benefits	\$ -	\$ -	\$ -	\$ -
Facility Costs (Electricity, Phone, Maintenance Heat)	\$ 10,500	\$ 6,619	\$ 10,500	\$ 10,500
Repair and Maintenance of Equipment	\$ 55,350	\$ 54,953	\$ 33,700	\$ 44,525
TOTAL FIXED	\$ 136,550	\$ 132,752	\$ 120,100	\$ 128,325
<i>Variable Costs</i>				
Hauling ?				
MSW Disposal	\$ 150,000	\$ 82,414	\$ 150,000	\$ 150,000
C&D Disposal	\$ 30,000	\$ 26,035	\$ 30,000	\$ 30,000
Recycle Disposal	\$ 3,000	\$ 3,975	\$ 4,000	\$ 3,500
TOTAL VARIABLE	\$ 183,000	\$ 112,424	\$ 184,000	\$ 183,500
TOTAL COSTS	\$ 319,550	\$ 245,175	\$ 304,100	\$ 311,825
% of budget for recycling	1%	2%	1%	1%
% of budget for MSW	47%	34%	49%	48%
% of budget for C&D	9%	11%	10%	10%
% of fixed costs	43%	54%	39%	41%

This graph was made using the final column in the table above and reflects the average budget allocated for each expense expected for solid waste operations. It is important to note the costs accrued to the disposal of MSW are almost half of the entire budget, and much of this cost can be avoided by increased recycling.



Recycling Savings Analysis: Summary Table

The table below provides *estimates* of the costs and savings associated with different levels of recycling in Grantham. These figures are not guaranteed and actual results could be higher or lower than these estimates, based on annual variations recycling market prices and tons of waste generated. The cost of waste disposal is expected to increase each year. It is simple to replace the data used with other years and numbers should they provide more accurate estimates to report.

RECYCLING SAVINGS SUMMARY TABLE			
\$COST/TON MSW	\$ (87.40)		
\$COST/TON RECYLING (Budget + NRRA expenses deducted)	\$ (9.86)	\$ (32.74)	\$ (42.61)
Estimated RECYCLING REVENUE/TON	\$ 45.64		
Net \$/TON Recycling	\$ 3.03		
Recycling Savings/Ton	\$ 90.43	(avoidance + revenue)	
Average Per Capita Cost Per Ton		Tonnage	Cost
(Does not include C&D or Fixed Costs)	MSW	0.35	\$ (30.96)
	Recycling	0.15	\$ 0.46
Estimated Residential Recycling Rate	25%		
Current Avoided Costs	\$ 36,443		
If Recycling Rate increased to...	Avoided Costs would be....		
	30%	\$ 43,216.22	
	40%	\$ 57,621.63	
	50%	\$ 72,027.04	
	60%	\$ 86,432.45	
For every 1% increase in recycling, the tax payers save about...	\$ 1,441		

Note- the tonnage estimates for each fiscal year were not reported and if they are indeed available they may be better used in this analysis to correspond with the fiscal year budgets/recycling activity.

Useful comparisons and information gathered from this analysis:

- Recycling saves ~ \$90/ton if it is diverted from the MSW stream by avoiding the tipping fees and potentially earning a bit of money for the town
- Recycling costs almost half as much as MSW
- MSW has no potential to cover its own costs, it's just burned or buried
- MSW costs ~\$31 per person each year and recycling basically costs nothing
- Its estimated that at least if 60% of all waste was recycled, it would save over \$86,000 each year for the tax payers, which is nearly 1/3 of the entire solid waste budget
- The national recycling rate is around 33% and New Hampshire is around 22%, Grantham has a lower than average recycling rate on a national level, but a little better than the state average

FORMAL RECOMENDATIONS FOR GRANTHAM, NH:

1. INCREASE EDUCATION: Increasing recycling education and awareness is reportedly the single most important aspect of encouraging recycling. This can be done many ways including scheduled events and meetings, presentations, and school recycling programs. Many people are confused as to why recycling is important and what items are recyclable. RCAP Solutions can assist you in public outreach and education by helping to create materials, organize events and conduct presentations. Please refer to RCAP's *Recycling Education and Awareness Guide* for further information.

2. IMPLEMENT PAY-AS-YOU-THROW (PAYT): Over 7,000 towns in the US, and 47 in New Hampshire have hailed PAYT as the most effective way to reduce and recover MSW costs and increase recycling rate. People respond to price signals, and if they are forced to pay for each bag of garbage they produce, they will find ways to reduce their costs (i.e. recycling). It also creates equity among residents by distributing the costs of MSW according to how much you throw away. Each PAYT town has adopted a unique program to suit their needs, and most have reported a 20-60% reduction in MSW in the first year and a 30-40% increase in recycling. * Note that the reduced MSW doesn't always result in recycled material. Many refer to this "missing garbage" to be the result of reducing, reusing waste and increased donations.

Solid waste should be treated like any other utility, where the user pays for what they consume. Many people feel that the transition to PAYT is inevitable, and it is important to approach residents in a way that clearly and logically explains the need for such a change. RCAP can assist you in creating an implementation strategy, timeline and public education campaign to ensure success in your community. Please refer to RCAP's *Becoming Comfortable with Pay-as-you-throw (PAYT)* handout for more information.

3. ENCOURAGE ORGANICS RECYCLING: Nearly 30% of the waste stream consists of organic, compostable materials, which presents a large opportunity for savings. However, the infrastructure needed to have a successful and financially viable large-scale composting facility can be costly. Encouraging and educating residents on the benefits of home composting may be a more cost-effective way to take organics out of the waste stream. RCAP Solutions can provide you with more information if this is an avenue of recycling that you would like to pursue.

4. CONSIDER THE COSTS AND BENEFITS SINGLE STREAM: Since Grantham has been successful at generating revenue from recycling; the town may stand to lose more than they would gain with single stream recycling. The NRRRA can provide a detailed analysis of the losses associated with switching to single stream. With single stream, the co-op would pay a variable dollar amount for each ton of recycling, but Grantham would have to pay for the transportation of material to the facility. While the ease and convenience associated with single stream recycling is expected to increase recycling among residents, evidence suggests that those who don't already recycle, probably won't. Education plays more of a role than convenience when increasing recycling rate.

5. If PAYT is not an option, then MAKE RECYCLING MANDATORY: Many towns have seen an increase in recycling by telling residents that it is mandatory. However it is the responsibility of the town to make recycling convenient and available. A major drawback to mandatory recycling is the problem of enforcement and monitoring. Those who are tasked with collecting the recycling and garbage would bear the burden. RCAP is available to create educational materials and provide information to residents.

Please contact *Sarah Nichols, Solid Waste Management Specialist- NH*, with any comments, questions or concerns about this analysis. Phone 207-751-9539 or Email: snichols@rcapsolutions.org