

CHESHIRE COUNTY

NEW HAMPSHIRE

MUNICIPAL SOLID WASTE STUDY



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Masters of Public Administration Internship

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Executive Summary

In 2001 a survey conducted by Southwest Region Planning Commission found that 14 out of 17 Cheshire County municipalities felt they were paying too much for municipal solid waste management, and 3 were concerned with depleting landfill space. On average, 8 out of 8 communities depicted an 11% decrease in budget along with a 3.11% increase in solid waste disposal costs between 2000 and 2001. All of the 17 respondents expressed interest in a county or regional approach to solid waste management. Recognizing the interest in a cooperative solid waste solution, Cheshire County should pursue a countywide or regional integrated solid waste management system that (1) alleviates municipal solid waste (MSW) costs for municipalities, and (2) slows the depletion of landfill space.

Numerous counties throughout the United States operate solid waste management programs and many of them include such characteristics as citizen information programs, waste stream reduction, recycling, waste-to-energy plants, or a network of transfer stations situated around a centrally located county landfill. Many counties use public/private partnerships with local haulers as well. Cheshire County should research some of these approaches and determine what plan would best facilitate a countywide or regional approach to solid waste management. These recommendations can be achieved by following these steps:

1. Secure updated letters of support for a cooperative solid waste management plan from each town.
2. Establish a permanent solid waste advisory committee representative of the various municipalities for the purpose of overseeing the process.
3. Conduct further research that will determine the exact needs of each town. The research should be conducted town by town in an interview format with key people (waste manager, budget personnel, Selectmen etc.). Questions should consider other examples across the country for comparison purposes.

2001 Survey by Southwest Regional Planning

This research was completed using a combination of statistical analysis, based on countywide municipal solid waste (MSW) survey data collected in 2001 by Southwest Region Planning Commission and research on four (4) existing countywide solid waste management systems across the country. The survey, although broad in some of its questions, is helpful in providing an overview of what Cheshire's municipalities are dealing with in regards to solid waste management. The nationwide comparative models are diverse in their populations, demographics, and approaches

to solid waste management giving this research and Cheshire County many options to consider (incineration, recycling, etc.). Time constraints have confined this research paper to surface issues of Cheshire's problems, and brief overviews of the models.

The survey depicts the responses of 20 out of 36 municipalities that make up southwest New Hampshire. Sixteen of the municipalities did not respond to the survey, and some of the communities did not respond to all of the questions. Some of the questions about the budget used for MSW may be skewed as solid waste management costs can be broken into many subgroups, and as a result, some confusion could have resulted from the question resulting in only 8 useable samples from that variable (discussed later). There are eight illustrations that coincide with all of the results, and a correlation table depicting causal relationships.

The models in this report of other successful solid waste management systems are all countywide solutions. The examples that have been studied are: Pierce County, Washington; Pinellas County, Florida; Lane County, Oregon; and El Paso County, Texas. Although the counties have larger populations than Cheshire, they do have a mix of urban and rural residents, similar to Cheshire's city/town makeup. Each example was chosen based on the diversity of their solid waste management systems. Many of these examples have won awards for recycling and other initiatives.

Introduction

How can Cheshire County solve countywide solid waste management problems?

A countywide or regional solid waste management system that tailors many of the characteristics of existing examples across the country to Cheshire's needs would address local solid waste management problems. Inherent in answering this question is first the identification of the problem(s), which are "disposal costs" and "landfill space". "Disposal costs" refers to high or increasing costs for solid waste disposal, and "landfill space" refers to a lack of space, a decreasing amount of space, or landfill closure concerns. New Hampshire's enabling state legislation on solid waste has laid a foundation upon which the county could build. Coupled with the efforts of local municipalities, a custom-made plan could be devised to serve all of Cheshire County's residents. A countywide solid waste management plan could consider alternatives like:

- ◆ Waste to energy incineration.
- ◆ Recycling
- ◆ Exporting waste
- ◆ A local regional dump site
- ◆ Establish solid waste commission of citizens, elected officials, business leaders, etc.
- ◆ Secure a research grant/ hire a consultant or do a needs assessment

- ◆ Initiate legislation at the state level
- ◆ Outreach/education programs focusing on waste stream reduction
- ◆ Food recycling/composting

This study is an attempt to lay a foundation for further research into the possible solutions and to find an alternative that best fits the needs of the county and its towns. Examples from Pierce County, WA; Pinellas County, FL; El Paso County, TX; and Lane County, OR all provide useful comparison points. This analysis should stimulate further discussion, research, and analysis that will lead to a custom made solution to Cheshire County's solid waste management problems. Some goals for the research are:

- ◆ Set the county into action by articulating the problem
- ◆ Unify towns and cities into taking a proactive approach to their collective problems
- ◆ Stimulate further discussion
- ◆ Stimulate further research
- ◆ Depict some of the existing alternatives via other examples
- ◆ Look to lower costs for each community's waste management solutions
- ◆ Find ways to slow the depletion of landfill space
- ◆ Search for alternatives to the exportation of municipal solid waste

NH Laws on Solid Waste Management

All of the examples studied have some type of state law that served as a catalyst for the county/regional arrangement. With state mandated approaches such as waste stream reduction, municipalities found that it would be beneficial to pool their efforts to make the challenge easier to manage and possibly more economical. New Hampshire's existing legal framework for solid waste management can be found in NH revised statute chapter 149-M, annotated 1996, which allows for municipalities to devise a solid waste management plans as they see fit – including a county or regional approach to solid waste management. The primary difference between the Granite State and others is that New Hampshire *recommends* whereas the other states *mandate*. New Hampshire's approach allows for local autonomy and creativity in dealing with solid waste management along with stating several worthy goals (it also permits the establishment of "solid waste districts" not yet utilized by municipalities). Highlights of the statute are:

Purpose:

- ◆ To protect human health
- ◆ To protect the health of the environment
- ◆ To preserve resources via an integrated solid waste management system

Waste Reduction goals:

- ◆ A forty percent (40%) reduction of the solid waste stream
- ◆ Recommends reduce, reuse, recycle

Hierarchy of Goals (in order of preference):

- ◆ Waste stream reduction
- ◆ Recycling/reuse
- ◆ Composting
- ◆ Waste-to-energy
- ◆ Incineration
- ◆ Landfilling

Roles/responsibilities of the Department of Environmental Services:

- ◆ To enforce and regulate state policies
- ◆ To prepare a solid waste management plan
- ◆ To assess surcharges and determine certification criteria
- ◆ Can adopt rules for town/district solid waste management plans
- ◆ Allocate grants for the funding of solid waste management plans
- ◆ Acknowledges that towns decide “how” to manage solid waste, and as a result, towns are responsible
- ◆ Regional cooperation is authorized
- ◆ Facilitate ongoing solid waste management studies

Of the various recommendations that the State of New Hampshire presents, southwest New Hampshire municipalities use primarily 2 of them. Of 26 respondents, 24 landfill their waste (2 indicated they did not have an MSW program), and 7 of 26 take part in some type of recycling program. Additionally, 2 of the 26 respondents utilize a pay-as-you-throw program. A countywide or regional solid waste system could help municipalities expand upon the recommendations and goals of the State of New Hampshire.

Cheshire County Solid Waste Problems

Graphs derived from survey statistics indicate “disposal costs” as the primary problem (13 of 17 municipalities). For 8 communities, budgets dropped 11% while MSW costs rose 3.11%, and tons of waste dropped 18.3%. At the time of the survey, 17 out of 22 towns were under contract with private entities. *An overwhelming statistic is that 17 out of 17 respondents indicated that they would be interested in some sort of countywide or cooperative approach to solid waste management, or at least researching such an approach.*

Illustration 1 indicates that 18 communities out of 20 export solid waste, while only 2 utilize a local landfill. Illustration 2 identifies Turnkey/WMI as being the final location used by most communities for solid waste disposal.

Illustration 1

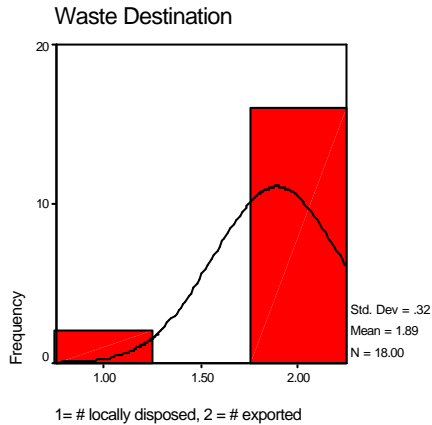


Illustration 2

Waste Destination	Number of Communities Participating
Turnkey/Rochester (WMI)	8
Monadnock Disposal	3
Penacook	1
Upstate NY	1
WMI	3
Brattleboro Salvage	2
Local Landfill	2

Illustration 3 indicates that 13 of 20 respondents use “private contractors”, while 7 communities use municipal, or “public” pickup services for waste collection. WMI was identified as the most frequent hauler and contractor used in both illustrations 4 and 5.

Illustration 3

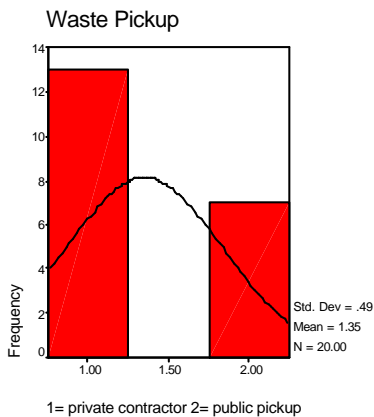


Illustration 4

Who is Hauling Waste	Number of Communities
WMI	10
TTT	3
Monadnock	3
Independent	1
Cheshire	1

Illustration 5

Under Contract (2001)	Number of Communities
WMI	13
TTT	1
Monadnock Disposal	2
Cheshire Disposal	1
No Contract	5

In illustration 6, respondents answered the question: “What is your operating budget for 2000 & 2001 and % dedicated to MSW?” Some towns responded with budget dollar amounts, while some included both dollar amounts and percentages of the budget spent on municipal solid waste management. Some confusion about the question may have resulted in inaccuracies (such as localities listing 100% of their budget for MSW). In looking at the survey, 13 municipalities out of

18 indicated an increased budget in the dollar amount, while 3 out of 8 that depicted percentages of the budget used for MSW showed an increase in spending while 2 remained the same. On average, municipalities that responded with percentages used for MSW and a dollar amount depicting the budget (8 communities, excluding those indicating 100% on MSW) *there was an 11% decrease in the budget - a \$562,465 difference - with a 3.11% increase in MSW spending* (those communities are underlined in illustration 6).

Illustration 6

Community	Budget in Dollars 2000	% of 2000 for MSW	Budget in Dollars 2001	% of 2001 for MSW
Bennington	\$55,898		\$61,480	
<u>Chesterfield</u>	<u>\$135,418</u>	<u>48%</u>	<u>\$151,049</u>	<u>46%</u>
<u>Dublin</u>	<u>\$67,057</u>	<u>42%</u>	<u>\$131,855</u>	<u>30%</u>
<u>Fitzwilliam</u>	<u>\$94,740</u>	<u>40%</u>	<u>\$118,285</u>	<u>40%</u>
Greenfield	\$73,000		\$93,000	
<u>Hancock</u>	<u>\$56,647</u>	<u>46%</u>	<u>\$65,700</u>	<u>40%</u>
Harrisville	\$52,607	100%	\$60,000	100%
<u>Hinsdale</u>	<u>\$1,952,313</u>	<u>8.17%</u>	<u>\$2,042,389</u>	<u>9.43%</u>
Jaffery			\$300,060	60%
<u>Keene</u>	<u>\$2,172,546</u>	<u>2%</u>	<u>\$1,414,163</u>	<u>3%</u>
<u>Marlborough</u>	<u>\$124,520</u>	<u>50%</u>	<u>\$110,460</u>	<u>50%</u>
New Ipswich	\$67,319		\$68,554	
Peterborough			\$35,000	100%
Rindge	\$120,346.31		\$154,371.15	
Stoddard	\$66,400		\$70,800	
Swanzey	\$224,900		\$204,755	
<u>Walpole</u>	<u>\$154,096</u>	<u>52.96%</u>	<u>\$160,971</u>	<u>55.37%</u>
Winchester	\$151,900		\$232,711	
Totals	\$5,569,707	43.24%	\$5,475,603	48.6%
Select Totals	\$4,757,337	31.14%	\$4,194,872	34.25%
Differences			\$562,465 decrease	3.11% incr.

Illustration7 indicates that 13 of 17 respondents named disposal costs as the problem, while 3 indicated landfill space, and 1 indicated both.

Illustration 7

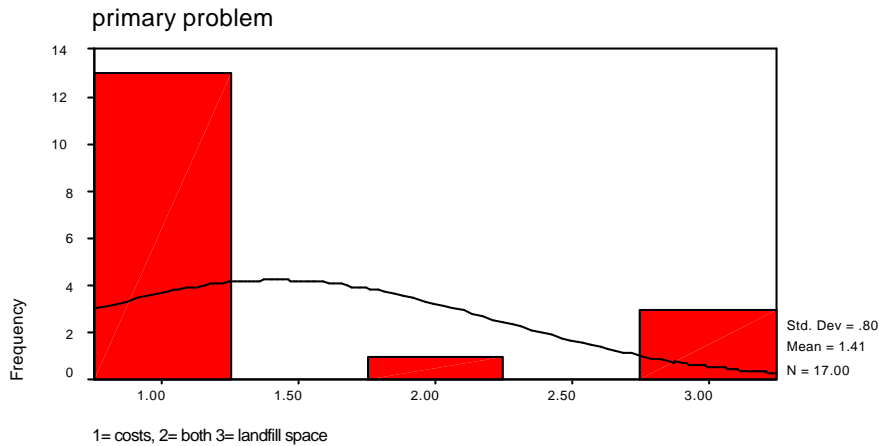
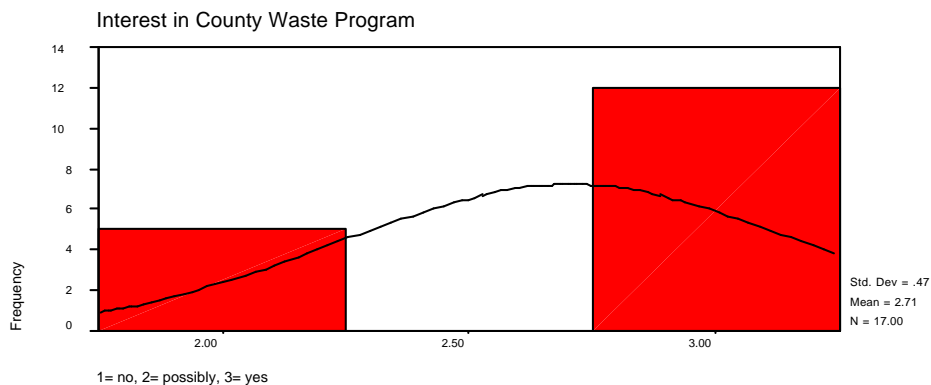


Illustration 8 indicates that of 17 respondents, 12 indicated that they were interested in a countywide or regional solid waste management system, while 5 stated that they were possibly interested. The lack of the “1” on the horizontal axis of illustration 8 is because *none of the respondents answered with a “no”*.

Illustration 8



Of note, there has been a drop in overall tonnage countywide between 1998 and 2000; yet 11 out of 15 towns saw their individual tonnage increase (an 18.3% decrease countywide, or 47.7% increase without considering Keene’s waste). This could presumably be due to recycling efforts. Statistics per year from 1998 to 2000 are:

- ◆ 6.9% drop in tonnage between 1998 and 1999 (32.5% increase without Keene)
- ◆ 12.4% drop in tonnage between 1999 and 2000 (22.7% increase without Keene)

Correlations

The purpose of this correlations table is to depict a causal relationship between the primary problem of increased cost and one or more independent variable (such as: “% used for MSW”, “operating budget”, “where does it go”, and “who picks up”). In a 1-tailed T test a causal

relationship is indicated with a .05 statistic or lower, denoting a 95% chance that the relationship is causal. Anything greater than .06 is usually attributed to coincidence – the higher the number; the more likely the relationship can be accredited to chance.

Correlations

		primary problem	% used for MSW in 2001	operating budget	where does it go	who picks up
Pearson Correlation	primary problem	1.000	-.393	.770	.	.
	% used for MSW in 2001	-.393	1.000	-.747	.	.
	operating budget	.770	-.747	1.000	.	.
	where does it go	.	.	.	1.000	.
	who picks up	1.000
Sig. (1-tailed)	primary problem	.	.304	.115	.000	.000
	% used for MSW in 2001	.304	.	.126	.000	.000
	operating budget	.115	.126	.	.000	.000
	where does it go	.000	.000	.000	.	.000
	who picks up	.000	.000	.000	.000	.
N	primary problem	4	4	4	4	4
	% used for MSW in 2001	4	4	4	4	4
	operating budget	4	4	4	4	4
	where does it go	4	4	4	4	4
	who picks up	4	4	4	4	4

In this 1-tailed T test, a .000 relationship exists between “where does it go”, “who picks up”, and the problem of increased cost. This signifies that there is a greater than 99% possibility that “who picks up” waste and “where it goes” is affecting the problem identified as “disposal costs”. Out of 20 respondents, 13 use private contractors for “pickup”, and 18 out of 20 respondents answered out-of-town as to “where it goes”. Of the variables used, haulers and disposal locations are the two most significant factors that influence cost.

It is important to note that only a few independent variables were tested against the problem of “disposal costs”. Granted, the causal relationship between private contractors and exporting waste is quite significant, but it should be noted that other variables might have an effect upon disposal costs in the event they can be identified and tested. It would be unfair to label the private contractors as the sole problem for escalating costs without further research. It is for this reason that more detailed information and statistics would prove to be helpful in defining the problem of disposal costs for each of Cheshire County’s municipalities. The secondary problem of “landfill space” could not be tested due to a lack of pertinent independent variables. Additional detailed statistics could facilitate a test on landfill space as a dependent variable, as well as further define the disposal costs problems.

Analysis of Successful Solid Waste Management Plans

Among the three plans, recycling, reduction, public awareness, long-term planning and public/private partnerships are common features. Cheshire County should consider some of these characteristics. Differences, such as waste to energy, pay-per-bag, or yard waste recycling must be considered as well. The following analysis looks to extrapolate the useful features that Cheshire County could consider in an integrated solid waste management plan.

Pierce County Solid Waste Management System

The Pierce County solid waste management plan is a coordinated effort between public and private sectors, towns, city, county, civilian and military. Citizen participation is extremely important as all stakeholders are represented in the decision-making process via a planning committee. The long-range plan is reviewed every five years with a primary focus upon recycling, waste stream reduction, and the separation of waste. The plan is flexible through an amendment process, allowing for adaptation and change, and it focuses on preserving the environment while respecting local autonomy and planning. This model has several things to offer Cheshire County.

First, the aspect of local autonomy would be important in any proposal Cheshire could devise. Towns, cities, and unincorporated areas all enter into the plan with a written agreement. Localities also reserve the right to opt out of the agreement if they so desired. Pierce County maintains membership in the plan by establishing incentives that make participating more worthwhile than not (collaborated efforts lower costs by sharing fees). Localities that participate have lower costs and decreased waste streams from which the environment and landfill space benefit.

Second, the plan takes the private sector's participation into consideration. Many of the communities in Cheshire County rely on private firms to deal with their waste streams and this arrangement must be considered – the private contractors are more familiar with solid waste management than most governments. Although the state of Washington has regulated pricing for these companies, a similar public/private cooperative approach might be an alternative for Cheshire County. In Cheshire, where no state pricing regulation is present, market forces could keep price down by frequent bidding.

Third, the commitment to recycling and reduction so prevalent in the Pierce County model has a direct effect on both costs and landfill space. Monetary incentives such as lower user fees via increased recycling are a big part of it. By reducing the waste stream, the county and its localities lower tipping fee costs and extend the life of their landfills. Also, a successful recycling program can pay for itself, or in some cases, even become profitable. With the recycling center in Keene already operational, a countywide recycling program could be an option. In any event, public/private partnerships must be considered.

Pinellas County Solid Waste Management

Pinellas County provides an example of a countywide solid waste management system that can be profitable, as it uses a waste-to-energy plant. It echoes the commitment to recycling, reduction, health and environment safety, and public/private partnerships, but it also includes the business-like aspect of profitability in the form of their waste-to-energy-plant (WTE). The Pinellas County WTE plant provides roughly 25 million dollars to the county in excess revenue.

Cheshire County's total solid waste tonnage is about one third of that generated in Pinellas, and it could not support an operation similar in size. However, a smaller countywide incinerator or a larger regional plant could be possible (a consultant could determine this). Environmental concerns, potential legal restrictions to such a combustion operation, and citizen opposition would all have to be considered, in addition to waste stream tonnage to determine how feasible a waste-to-energy plant could be. Pinellas' example is that there can be profitability in a countywide solid waste management system. A profitable solid waste management system in Cheshire County could include recycling or even gas containment at landfills (the City of Keene currently employs a gas collection program). Further research on the part of a consultant could help to determine if there is a possibility for profit in any solid waste management plan Cheshire County proposes.

Lane County Solid Waste System

Lane County provides an excellent example of a system that is both urban and rural, and cooperative at many levels of government – possibly the result of a strong legislative commitment to regional government. Oregon is quite progressive and committed to regional government solutions and county-controlled solid waste management is a natural byproduct of such a political conviction. The Lane County example illustrates how an integrated solid waste management system can operate. A series of transfer stations feeding a single, in-county landfill can sustain itself via user fees. Also, Lane County's commitment to "special waste" initiatives can only serve to further the objective of health and environment safety. Other aspects of the Lane County example to note are the commitment to reduction, recycling, education, and citizen/private sector involvement.

The implications of the Lane County example are similar to the other examples with one difference. The similarities are commitments to (1) reduction goals, (2) recycling, (3) citizen education, (4) citizen participation in the form of a planning/policy committee, (5) a commitment to citizen and environmental health, and (6) the need for a consultant to help with the planning process. The difference is that Oregon has the strongest level of state mandates on solid waste management among the models.

Strong state legislation can be a catalyst to initiate a countywide (or regional) solid waste management plan. Oregon law exceeds the other examples in that it goes beyond mandating statewide reduction goals (as Pierce does); it specifically tells Lane County it needs to reduce the waste stream by 45% in 2005, and 54% by 2009. The cumulative effect of Lane as well as Pinellas and Pierce is that such legislation can serve to be a catalyst for county or regional cooperation.

El Paso County

El Paso County, Texas, depicts the usefulness of a grant for research purposes. Upon securing a grant, El Paso hired an engineering consulting firm to conduct a study that could serve as the basis for the county's solid waste management plan. The granting agency was a byproduct of the North American Free Trade Agreement (NAFTA): the North American Development Bank (NADBank). NADBank is a financial agency that funds infrastructure for the border region between the United States and Mexico. El Paso can create a clearer picture of a study and research process with the goal of an integrated solid waste management plan.

It is difficult for a policy maker to become an expert on solid waste management given the many other tasks requiring their time and attention. With so many variables involved, researching a specific plan would take years of constant devotion that the policy maker simply does not have. Consultants are the experts in the field who can devise an appropriate integrated solid waste management plan. In El Paso County, the consultants are the ones who actually devise the plan from economics to logistics. Spending the money to hire a consultant is where the county would cross the Rubicon to commit itself to devising a formal plan of action. Once the consultant devises a plan, the realization of a countywide or regional solid waste management solution becomes one step closer to reality – it legitimizes the research efforts. With such a plan in hand, the county could move from “thinking” to “doing”.

Each of the models depicts lessons for Cheshire County. For one, the similarities among the 4 models echo the recommendations that the state of New Hampshire presently has in its statutes and laws. Those were the hierarchy and goals of reducing, reusing, and recycling before disposing. They all echo a participatory process involving citizens and the private sector. Given the current role of private contractors in Cheshire County's solid waste climate, any solution should consider the role of these companies.

The lessons for Cheshire are that monetary incentives and recycling can reduce waste streams and possibly cost (Pierce), a solid waste management system can be profitable (Pinellas), an integrated network of transfer stations and a central landfill could be an option (Lane), a grant and consultant services need to be considered to finalize a project (El Paso), and state legislation can

serve as a catalyst (all four). These four models, by reinforcing some key commonalities and presenting other alternatives, should serve to inspire a questioning and comparison process about situations in Cheshire County.

Southwest Regional Planning Grant Efforts

Southwest Region Planning (SWRP) took a proactive role in much of the previous attempt to research and develop a course of action for a county or regional solid waste management program, and these efforts have been instrumental in this research paper. The two primary aspects of SWRP's efforts were the survey and their attempt to secure a grant. SWRP has been, and should continue to be a critical partner in any efforts by Cheshire County to establish a solid waste management plan.

The grant that SWRP applied for was going to be used to hire a consultant in an effort to conduct further research and possibly establish a formal plan. The grant was for federal assistance under 10.762 (Solid Waste Management), section 310 B, and it was from the Department of Agriculture and Rural Utilities Service. The amount requested was \$ 30,000. The reasons for denial were: "The preapplication does not have priority necessary for further consideration at this time due to a lack of funds" (USDA Notice of Preapplication Review Action). Pierce Rigrod, Principal Planner at the NH Department of Environmental Services, felt that this lack of priority stems from the grant application's lack of a defined plan of action. Mr. Rigrod felt that the grant depicted a generalization of what will be done, but lacked a more focused explanation of planning details.

Recommendations

Based on the findings of this report, two factors are evident. First is the fact that municipalities are paying too much for solid waste disposal. Second, 17 out of 17 communities have indicated an interest in a countywide or regional solid waste management system. Based on these findings, three recommendations should be enacted by Cheshire County.

Cheshire County Should:

- A. Establish a countywide or regional solid waste management system.
- B. Conduct more research to detail the specific needs of each municipality in order to develop a solid waste management plan.
- C. Secure a grant for the purpose of retaining an engineering consultant to help to devise a solid waste management plan.

A plan of action will facilitate the employment of these recommendations.

Plan of Action:

1. Secure updated letters of support from each town.
2. Establish a permanent solid waste advisory committee representative of the various municipalities for the purpose of overseeing the process.
3. Identify who will be working on the research.
4. Conduct further research that will determine the exact needs of each town. The research should be conducted town by town in an interview format with key people (waste manager, budget personnel, Selectmen etc.). Questions should consider other examples across the country for comparison purposes.

Conclusion

These steps will further many of the goals aforementioned. Focused analysis of the local problem will make hiring a consultant easier by strengthening the grant application. It will also lay a foundation for building a coalition, and it could show an increased desire for regional approaches to solid waste management, which could help to influence state legislators by looking at each individual problem. Light could be shed upon potential solutions and options as well. In any event, the County needs to take the lead in furthering these goals; this next step will do just that. Cheshire County, in addition to its towns and city, need to work together to solve their collective problems of effective, efficient, and economic solid waste management and continued research will further this goal.

Bibliography & Appendix

Due to the number of sources used in the production of this report, all sources are listed in a separate bibliography and appendix that can be reviewed at the office of the Cheshire County Commissioners.