

Town of Henniker, New Hampshire



**Report of the  
Solid Waste Disposal Committee  
to the Board of Selectmen**

Final Report  
Presented to the Henniker Board of Selectmen  
July 13, 2010

# Report of The Henniker Solid Waste Disposal Committee

## TABLE OF CONTENTS

I. Introduction .....	3
II. Options for Change .....	8
1 - Unit Pricing for Trash Disposal – Pay-As-You-Throw.....	8
2 - Mandatory Recycling .....	13
3 - Single-Stream Recycling.....	15
4 - Curbside Collection Options .....	18
5 - Eliminate All Recycling.....	21
6 - Steady-As-You-Go – Continue More or Less As We Are.....	24
III. Options Not Considered Viable.....	27
IV. Findings and Discussion.....	28

## APPENDIXES

Appendix 1: The Solid Waste Disposal Committee .....	33
Appendix 2: The Henniker Transfer Station and Recycling Center.....	34
Appendix 3: History of Solid Waste Disposal in Henniker.....	37
Appendix 4: Concord Regional Solid Waste/Resource Recovery Cooperative.....	40
Appendix 5: Transfer Station and Recycling Center Economics .....	42
Appendix 6: Chart of Transfer Station and Recycling Center Data .....	44
Appendix 7: Table of Expenses, Revenues, and Materials Processed .....	45
Appendix 8: Materials Accepted at the Transfer Station & Recycling Center.....	47
Appendix 9: Hazardous Material Disposal.....	48
Appendix 10: What Are Other Towns Doing?.....	50
Appendix 10-A: Solid Waste Disposal And Recycling By Henniker's Neighbors .....	52
Appendix 10-B: Henniker Compared To Towns With High Recycling Rates .....	53
Appendix 11: Glossary of Terms .....	54

## I. INTRODUCTION

On May 6, 2008, the Henniker Board of Selectmen (BOS) created the Henniker Solid Waste Disposal Committee and charged it “with determining the current and projected waste stream for the Town of Henniker.” The specific tasks assigned to the Committee, a recap of its activities, and the list of committee members are discussed in Appendix 1. Please refer to Appendix 11 for a glossary of terms used in this report.

This report is the culmination of the Committee’s work. It makes no recommendations for change, rather it provides information about how solid waste is currently being processed in the Town, and the various options available to make changes in the way solid waste, including recyclable materials, will be processed in the future.

To set the stage, Henniker is a rather typical New England town of 5,164 residents (2008 estimate) ranked 67<sup>th</sup> in 2007 by population among New Hampshire’s incorporated cities and towns<sup>1</sup>. It contains 44.8 square miles (28,500 acres), including 0.7 square miles of inland water area, and has a population density of 115 persons per square mile. Ninety percent of Henniker’s adults age 24 years or older have at least a high school education, which is a reflection in part on the fact that the Town’s two largest full-time employers are educational institutions. New England College has full-time employment of 216, while the Henniker School District employs about 75 people<sup>2</sup>. Two percent of the Town’s families fall below the poverty line, according to New Hampshire Employment Security (NHES) statistics.

Henniker operates a solid waste disposal transfer station and recycling center typical of most New Hampshire communities. It is generally referred to as the Transfer Station, and in this report it will be referenced simply as the “T/S.” For a full description of the T/S, please see Appendix 2. For a history of the T/S and the landfills which preceded it, please see Appendix 3. Title X, Public Health, Chapter 149-M, Solid Waste Management, of New Hampshire’s RSAs sets forth a town’s responsibility for providing solid waste disposal facilities for its citizens.

Solid waste materials fall into two broad categories. The first is municipal solid waste (MSW), which includes waste materials that we generally refer to as trash, as well as a wide variety of recyclable materials, some of which are separated and recycled, some of which remain with the unrecyclable trash. The term “trash” will be used in this report to designate that portion of the Town’s MSW that is trucked (transferred) to the Penacook incinerator for disposal, even though it contains recyclable materials which have not been separated and sent to a recycling facility. Please see Figure 1 below for a depiction of the term “trash” as it will be used in this report. Please see Appendix 4 for a description the Penacook incinerator and the cooperative that administers the contract which governs Henniker’s use of the incinerator.

---

<sup>1</sup> Economic & Labor Market Information Bureau, N.H. Employment Security, 2008 (<http://www.nh.gov/nhes/elmi/htmlprofiles/henniker.html>). The website includes a 2007 population estimate of 5,063 residents. This report assumes, based on 2000-2007 data, that the Town’s population is increasing at two percent per year and that 2008 population was 5,164. This value has been used to calculate the Town’s population density as 115 in 2008, which varies slightly from the 116.1 figure on the NHES website. Henniker’s population estimate includes approximately 850 New England College students living in dormitories and various types of rental properties.

<sup>2</sup> The employment estimate for the Henniker School District is from a SAU 24 staff member in December 2009, and is at variance with the estimate of 400 on the NHES website.



recyclable material. Henniker's recycling rate in 2008 was about 14% for the Town as a whole, and about 31% for the MSW that was processed at the T/S<sup>1</sup>.

When Henniker residents think about the disposal of their MSW, they typically think of the T/S. But in 2008 only about 35% of the trash that was taken from Henniker to the Penacook incinerator passed through the T/S. Approximately 65% was picked up by commercial haulers (commercial trash collection services) and taken directly to the Penacook incinerator. The percentage of the Town's trash that is collected by commercial haulers has increased significantly in the past two years, as it was only 51% in 2006. The fact that commercial haulers handle a majority of the Town's trash has significant implications for the development of any policy which seeks to increase the Town's recycling rate, and for programs that would charge residents for the disposal of their trash.

The Town generated about 3,843 tons of MSW in 2008 (excluding household hazardous waste), for a total of over 21,000 pounds per day, or a little over four pounds per resident per day. That's approximately the national average. Much of the Town's MSW was generated by businesses, but those businesses include apartment complexes, mobile home parks, and New England College. Please see Appendix 5 for an economic analysis of T/S operations, and Appendixes 6 and 7 for a related graph and supporting data.

The Town appropriated \$609,012 for the operation of the T/S in 2008, not including a \$75,000 appropriation for a new 85-cubic-yard trailer used for collecting, compacting, and hauling trash to the Penacook incinerator. The actual operational expenditures for the year were \$564,659, \$44,353 (7%) less than the amount appropriated. Additionally, the T/S generated revenue of \$161,467 from a combination of user fees, recycling revenue, grants, and reimbursements from commercial haulers and the Towns that partner with Henniker for the collection of household hazardous wastes. This resulted in a net cost to the Town's taxpayers of \$403,192, or \$78 per resident, for solid waste disposal operations. These figures do not include the amount paid by residents and businesses for private collection and recycling services.

The net cost per ton for the MSW handled at the T/S in 2008 was about \$218 a ton, over five times the incineration tipping fee of \$42.55<sup>2</sup>. Tipping fees get a lot of attention, but they amount to less than a quarter of T/S expenses. Overhead expenses, including labor, accounted for 64% of T/S expenses in 2008. Much of the expense of operating the T/S is associated with the recycling program.

The Committee found that Henniker has no better alternative for the disposal of the Town's unrecyclable MSW other than trucking it to Penacook for incineration. Disposing of it elsewhere would involve higher disposal and transportation costs. (The Committee did not evaluate the environmental trade-offs of incineration versus burial in a landfill as means of disposal of the Town's trash, but it is State of N.H. policy, RSA 149-M:3, that incineration is preferred to landfilling.)

The Committee did find that the Town has a number of options for the handling and processing of recyclable materials, as well as options in the way T/S operations are funded. There are changes which could be made that would lead to higher recycling rates, including an option to charge for the disposal of trash. Charging for the disposal of trash would reduce the amount of taxpayer funds needed to operate the T/S and would also lead to higher recycling rates (See Option 1). The Town could also institute, at some cost, residential curbside collection of trash and recyclable materials, a program that would work best if the

---

<sup>1</sup> Town of Henniker, New Hampshire 2008 Annual Report, Report of the Transfer Station/Recycling Center.

<sup>2</sup> The \$218/ton figure was calculated by taking the net cost of operating the T/S in 2008 of \$403,192, deducting the landfill monitoring cost of \$9,733, then dividing the result by 1,805, the amount of recycled and incinerated material processed at the T/S. This assumes that the cost of the C&D debris processed was covered by user fees, which is not strictly true.

Town converted to single-stream recycling at the same time (See Options 2 and 3). These options will be discussed in the following sections.

The Town pays the full cost of disposing of all the trash that residents and businesses bring to the T/S for disposal, while those who hire commercial haulers pay not only for the collection service, but also the cost of transportation to Penacook and the incineration fee. Many businesses hire commercial haulers, but those that don't can dispose of their trash at the T/S at no charge, just like any resident. This raises a question of equity.

Despite the fact that some revenue is generated from the sale of recyclable materials, it costs the Town to provide recycling services at the T/S (See Option 5). If that money is being well spent, then there is a question of whether or not the Town should invest in ways to increase the recycling rate for the 65% of the Town's trash that goes directly to Penacook, a recycling rate estimated to be only about 10%<sup>1</sup>.

The term "business" will be used in this report to include educational and other institutions such as New England College, White Birch Community Center, and the Henniker Community School. It will also include multi-dwelling unit apartments and mobile home parks, as the solid waste from these facilities is generally collected by the same commercial haulers that service many of the Town's businesses. However, this definition is not wholly adequate, as some of the Town's businesses are small home-based businesses whose solid waste is generally combined with that of its resident owners.

The primary options for solid waste disposal available to the Town are listed below. Each has advantages and disadvantages, and some might be combined in ways that would provide a benefit greater than the sum of their individual benefits. The options are:

1. Unit Pricing of Trash Disposal, often called Pay-As-You-Throw (PAYT).
2. Mandatory Recycling.
3. Single-Stream Recycling.
4. Curbside Pickup of Trash and Recyclable Materials.
5. Eliminate All Recycling.
6. Steady-As-You-Go – Continue more or less as we are.

Each of these six options would affect important economic, equity, environmental and convenience issues which are addressed in the discussions that follow. One of the biggest of these issues is the question of who should pay for the disposal of MSW, taxpayers as a whole, or those who generate the MSW. Each of the first five options would entail significant change; the last option is to continue without significant change.

This report does not provide hard and fast numbers on which to budget the specific costs and associated revenues of any of these options. It does provide reasonably good estimates for each option which can be used to fairly weigh the relative merits of each option.

---

<sup>1</sup> This is a top-of-the-head estimate. There are no data showing how much of the MSW generated by the customers of the commercial haulers is recycled, so their official recycling rate is zero. But, we do know that some recyclable material makes it way to the T/S where it artificially boosts the recycling rate at the T/S, because the associated trash does not pass through the T/S. We also know that of all the MSW collected by the commercial haulers, approximately 4% is cardboard which is disposed of as recyclable material at the T/S (78 tons annually). The assumption that another 6% is recycled in some manner or another is simply an estimate. This assumption means that the true recycling rate at the T/S is less than the 31% "advertised."

The analyses provided in this report are based primarily on 2008 data. More recent data is now available, and should be used in any further analyses. The year 2009 saw a significant drop in the value of recyclable materials, and 2010 began with a significant increase in incineration fees. Both changes mean higher operating costs at the T/S, but neither change will greatly affect the relative merits of the options discussed in this report.

The analyses in this report don't deal with transportation cost differences between the various options, as all of the MSW generated has to be transported out of Town, one way or another. Regardless of which option is chosen, differences in transportation costs would not be large enough to affect the choice of one option over another.

## II. OPTIONS FOR CHANGE

### Option 1: Unit Pricing For Trash Disposal (Pay-As-You-Throw)

Charging fees for the disposal of municipal solid waste (MSW) is a concept gaining favor across the nation. Disposal fees are typically imposed as per-bag fees, but there are several other models. The term “unit pricing” is used to indicate that a fee is imposed on a unit of trash, be it by bag, by weight, or by trash container. There are currently 46<sup>1</sup> towns and cities in New Hampshire operating under this model, including Concord as of July 6, 2009. Reportedly, no community that has implemented unit pricing for trash disposal has reversed the decision.

Unit pricing of trash disposal is typically implemented as a Pay-As-You-Throw (PAYT) program, in which trash is disposed of in special bags purchased for the purpose. It is sometimes referred to as a Pay-Per-Bag system. It is also promoted in some communities (Hopkinton, this year) as a SMART (Save Money And Reduce Trash) program. The revenue from the sale of the bags is used to offset disposal costs. Weight-based systems are also in effect in some communities.

Recyclable materials which are disposed of in designated recycling containers can generally be disposed of at no charge under a unit pricing program. This provides residents and businesses with an economic incentive to separate their recyclable materials in order to reduce their trash disposal costs.

The primary concept behind unit pricing is that trash disposal services are similar to telephone, water, electric and mail services, and that each person should pay according to the amount of the service used. Those who throw the most away – and presumably those who have the greatest financial resources to buy things which are later thrown away – should pay the most. Those disposing of the least trash should pay the least. This is a philosophy well in tune with our philosophy in N.H. of individual freedom and responsibility.

The counter argument is that trash disposal has historically been provided to residents, and often to businesses, as a service paid for by all the taxpayers, regardless of the amount of trash generated by any individual or business. This is similar to the policy under which we maintain our roads and operate our public schools. The question for the Town is; should it continue to apply this policy to the disposal of our trash? Should residents and businesses pay for trash disposal based on the amount they each throw away, or as a fixed percentage of their property tax bills?

About two-thirds of the trash component of Henniker’s MSW is already being disposed of at the Penacook incinerator under a voluntary unit pricing system. That’s because it is collected by commercial haulers (commercial solid waste collection firms) that take the material directly to the Penacook incinerator. These private firms not only incur the cost of collection and transportation, but under Town regulation Chapter 101-17, which became effective January 1, 2005, they also pay the cost of incineration, which is based on the weight of the trash incinerated. Presumably, both costs are passed on by the commercial haulers to their customers.

---

<sup>1</sup> Per Don Maurer, Supervisor, Solid Waste Technical Assistance at the N.H. Department of Environmental Services. The EPA reported there were 35 PAYT communities in NH in 1999.

On the other hand, Henniker taxpayers pay the cost of both incineration and transportation for the one-third of Henniker's trash which is brought to the T/S by residents and businesses. As mentioned earlier, this raises an equity issue the Town might choose to examine.

Most unit pricing communities don't charge enough to fully offset the operating costs of their transfer stations or landfills. Lebanon does, but it has economies of scale not available to small towns, as its landfill receives MSW from twenty-four neighboring communities.

Henniker currently operates the Cogswell Springs Water Works and the Waste Water Treatment Plant under an arrangement that allows those two entities to operate using only the revenue they generate from users. There are RSA's which authorize a special financial framework for water and waste water treatment districts, but they don't apply to solid waste disposal operations. Nonetheless, the Town could vote to operate the T/S on a financially self-sustaining basis.

If Henniker were to implement some form of unit pricing for MSW disposal, then it would need to decide if the primary purpose would be to completely fund T/S operations from trash disposal and other user fees. A more limited objective of simply offsetting some of the costs while at the same time providing residents and businesses with an economic incentive to throw away less and reuse and recycle more would be easier to implement, but it would not eliminate the use of some tax-payer revenue to fund T/S operations.

Much of the expense of operating the T/S has little to do with the disposal of trash, and everything to do with the handling of recyclable materials and the many other types of material that require special handling. These are materials that cannot be incinerated or buried in a landfill due to policy or regulatory restrictions. There are charges in place to generate revenue from the handling of some special materials, e.g., C&D debris and TVs, but those revenues don't cover the full cost in all cases. Some items requiring special handling are even accepted at no charge. See Appendix 8 for a table of materials handled at the T/S.

If a charge for the disposal of trash is implemented then there is the question of whether or not it should apply to the two-thirds of the Town's trash that is taken to the Penacook incinerator by commercial haulers. The commercial haulers serving the Town don't handle any of the special materials that can be disposed of at the T/S, except for what is inappropriately disposed of as trash, and they only handle a portion of the recyclable materials generated by their customers. Many residents and businesses serviced by commercial haulers still make use of the T/S to dispose of non-trash materials, and some separate and dispose of their recyclable materials at the T/S in order to reduce their trash collection costs or because it is the environmentally-friendly thing to do. Some also use the Swap Shop.

It is useful to look at what it would take to cover all of the T/S's expenses by imposing fees on the disposal of trash. It would have required a total surcharge of \$403,192 to reduce the cost of operating the T/S to zero in 2008. That would have amounted to a charge of \$128 per ton (\$0.06 per pound) on the 3,144 tons that went to the incinerator. Adding \$128 per ton to the tipping fees paid by the commercial haulers would have quadrupled their incineration costs. They and their customers would most likely have resisted. It would have been cheaper for the commercial haulers to take their loads to Lebanon or some other landfill or incinerator than pay the fee to the Town.

If the surcharge were not to apply to commercial haulers, then the charge applied to the trash passing through the T/S would have to be about \$365 per ton (\$0.18 per pound). That would lead to bag costs of around \$1.80 for a 10 pound, 15 gallon bag, and \$3.60 for a 20 pound, 30 gallon bag under a Pay-Per-Bag system. Those prices are about 80% higher than bag prices in most N.H. Pay-Per-Bag communities.

This indicates that the goal of covering all T/S costs by charging for the disposal of trash would be difficult to achieve unless additional charges were implemented for the other disposal and recycling services performed at the T/S, such as the disposal of glass, brush, and the operation of the Swap Shop. It is not an impossible goal.

A unit pricing program similar to other communities, which only covers a portion of T/S expenses, could be beneficial. If Henniker in 2008 had charged bag prices similar to what Concord and other Pay-Per-Bag communities charge of \$1.00 for a small 10 pound bag and \$2.00 for a large 20 pound bag, it would have generated about \$169,000 in revenue on the trash disposed of at the T/S. This assumes a 15%<sup>1</sup> reduction in the amount of trash handled, due to the increased incentive to recycle, and a cost to the Town of ten percent of the sale price for the purchase and distribution of the bags. In most communities the bags are not sold at the transfer station, but rather at Town offices and selected commercial establishments.

In addition to the disposal fee revenue, the Town would have saved \$7,060 dollars in incineration fees and gained approximately \$10,790 in additional recycling revenue. That would have provided the Town with an overall financial benefit of about \$186,880, close to half of the Town's net cost for solid waste disposal operations in 2008<sup>2</sup>. It would have reduced the tax rate by \$0.46 had the savings been projected at the time the 2008 tax rate was set. These figures ignore transportation cost differences, which would not greatly affect the overall results. They also assume that the T/S could deal with any administrative and operational issues arising from a Pay-Per-Bag system, and a 15% increase in the amount of recyclable materials processed, without an increase in labor costs. However, even with increased labor costs, a unit pricing program would still result in a big reduction in net expense of operating the T/S.

An alternative to using special bags for the disposal of trash in a unit pricing program is to use stickers or coupons as a form of payment for each bag of trash or container emptied into the trash hopper. A variety of pricing options and coupon denominations are possible. It should be noted that under a bag-based system, special provisions need to be established for items too large to fit in a standard bag.

Another alternative to a bag-based system is to charge for disposed trash on the basis of its weight, as weight is the basis on which the Town pays for the incineration service. This would have the advantage of not requiring special bags, although coupons might still be used. The downside is that it would be more labor intensive, and it would require an investment in two or three small scales of about 1,000 pounds capacity, along with computers for recording weights. This approach would require a one-time capital investment of about \$30,000 to \$50,000, depending on the level of automation used to perform the accounting functions and the modifications required at the T/S to site the scales.

A weight-based system would have other advantages over a bag-based system. In addition to being more equitable, it eliminates the half-a-bag problem. If a person has a bag that is only half full, does he/she discard it half-full, and buy a new bag, or does he/she keep what might be a smelly bag of trash for another

---

<sup>1</sup> Concord realized a nearly 50% drop in the amount of trash collected during the first three months of its new PAYT program, according to an October 28, 2009 article in the *Concord Monitor*, although it is expected the long-term reduction may not be quite so dramatic. The same article cited U.S. Environmental Protection Administration (EPA) data showing that PAYT programs typically achieve trash reductions of 25 to 45 percent. The EPA PAYT Bulletin: Fall 1997 stated that households generated 15 to 28 percent less trash, on average, the first year of PAYT programs. Fifteen percent seems like a reasonable estimate of what might be achieved at the T/S, given it already has a reasonably good recycling rate.

<sup>2</sup> The \$7,060 reduction in incineration fees would have resulted from 166 (15% of 1,106) fewer tons incinerated at a rate of \$42.55 per ton, and the \$10,790 of additional recycling revenue from an estimated \$66.00 per ton revenue on the additional 166 tons recycled.

week, or more, until the bag becomes full? Also, with a bag-based system, the charge to discard a bag full of packaging “popcorn”, which may weigh less than a pound and compress to something the size of one’s fist, is the same as the charge to discard a bag full of heavy, wet garbage. With a weight-based system the amount charged for these two different types of materials would be very different, and would closely reflect the Town’s cost of incineration.

Another advantage of a weight-based system is that the scales could be used to weigh small quantities of C&D debris, ensuring that those who dispose of small quantities of C&D debris pay the full cost of disposing of the material. (A truck scale would be needed in order to weigh truck-load quantities of C&D debris.)

If the BOS decides to implement some form of a unit pricing program, then the fee schedule for all the materials handled at the T/S should be examined. Consideration might even be given to charging for the disposal of those recyclable materials which cost the Town money, such as glass, which currently costs about \$20.00 per ton in disposal fees.

One of the most consistent objections by taxpayers to unit pricing programs is that they are already paying taxes which cover the cost of disposing of their trash, and that a unit pricing program amounts to a new and additional tax. The argument that eliminating or reducing the cost of operating the T/S is a tax savings is lost on those skeptics who figure, with some historical justification, that the savings will be used to fund other Town expenses, with no net drop in the tax rate. This argument could be countered by depositing all trash disposal fees in a special account used only to pay for T/S operations.

Another argument against unit pricing is that the expense of operating the T/S is currently funded by property taxes, which are deductible expenses on the income tax returns of those who pay income taxes and itemize their deductions. Under a unit pricing system, less of T/S operations would be funded by property taxes, which means some would see an increase in their income taxes as a consequence of their lower property taxes.

A Pay-Per-Bag system of unit pricing of trash disposal is the easiest and initially the least expensive way to charge for the disposal of trash, which is why that method is so popular. But the logic and fairness of a weight-based system is hard to escape. If the Town decides on a unit pricing program, the quandary will be to decide whether or not unit pricing should apply to the trash collected by commercial haulers, who are already paying the incineration fee. RSA 149-M:17 provides the Town with the authority to impose solid waste disposal fees, as well as the authority to require the registration of the Town’s commercial haulers.

In summary, unit pricing breaks with a long tradition of local communities providing for the disposal of trash at no out-of-pocket cost to its residents, and often to its businesses. On the other hand, it helps to reduce municipal budgets and puts the burden of paying for the disposal of trash on those who generate it. Clearly, it is a way of shifting costs from Town taxpayers as a group to individual residents and businesses. It is also a proven way of increasing recycling and lowering the amount of trash which must be incinerated or disposed of in a landfill.

The result of a unit pricing program is that some will end up paying more in taxes and disposal fees combined, and some will pay less. Once implemented, and start-up problems ironed out, unit pricing programs are almost universally considered to be successful. Concord is already declaring success with its PAYT program, as its recycling rate is up from a very low 11% to a respectable 30% in only three months, and the amount of trash collected is down significantly.

The effect of a unit pricing program on the handicapped is likely to be slight, but a per-bag program could make it somewhat more difficult for some to dispose of their solid wastes, especially if they can't easily get out to buy the special bags.

The effect on the elderly would vary, some might have the same problem as the handicapped, but the elderly owners of large family homes would generally see a reduction in their taxes that would be greater than their disposal costs, as the elderly generate less trash than younger people. Low income people would generally incur greater costs, especially renters, as their increased disposal costs would not be offset by lower taxes. The effect on those living in multi-dwelling unit apartments and mobile homes in mobile home parts would depend on just how the program was implemented. Most unit pricing communities provide a limited number of free or reduced-cost bags or disposal coupons to qualifying low income residents.

## **Option 2: Mandatory Recycling**

Mandatory recycling is simple in concept, but difficult in practice. The Town could enact an ordinance requiring that all recyclable materials be recycled and not disposed of as trash. That would undoubtedly increase recycling rates, but the experience of other communities is that it doesn't have an appreciable effect unless there are strong enforcement mechanisms in place. And, the only place it could reasonably be enforced is at the T/S. It would be very difficult to ensure that the customers of the commercial haulers complied with the ordinance, unless some type of recyclables collection service were provided to them. See the discussion on Curbside Collection under Option 4.

It is the Committee's observation that few mandatory recycling communities strictly enforce their mandatory recycling ordinances, although some do. T/S operators dislike being seen as the "trash police" and residents don't like being questioned about what's in their trash. Moreover, it is difficult at a glance to differentiate between a clean plastic container that should be recycled, and one that is contaminated and should be disposed of as trash. Opening bags of trash to conduct such inspections is something most T/S operators do not like doing, and most residents consider such inspections invasive. But it is commonplace in some towns. The mandatory use of clear plastic bags for the disposal of trash is one technique that some mandatory recycling communities use to help achieve compliance.

It is worth noting that city-wide mandatory recycling has been implemented in many cities nation-wide. San Diego and Seattle are two examples. Many communities with effective mandatory recycling ordinances assess fines and penalties on ordinance violators, to help achieve compliance,

Many of those who currently recycle support a mandatory recycling program, thinking that if they are doing it, everybody should. For those people, mandatory recycling is like the proverbial "preaching to the choir." Mandatory recycling does provide a nudge that a few need to begin recycling, but the evidence from other communities is that many residents resent and/or ignore the policy, and do not recycle unless there is strict enforcement.

It is worth noting that in 1993 a joint effort of the Selectmen and the Recycling Committee culminated in a warrant article that called for mandatory separation and recycling of four categories of recyclable materials. The article also included a major update to the Town's landfill regulations, which were then somewhat out of date. The article failed at town meeting. It was approved the next year without the mandatory recycling provision. See Appendix 3 for more details.

It is reasonable to believe that with today's heightened awareness of environmental issues and the benefits of recycling, that a mandatory recycling ordinance might pass at the next Town Meeting. If enacted, would the Town be prepared to enforce the ordinance? And, would it apply to all residents and businesses, or just those who take their trash to the T/S?

If mandatory recycling were to be implemented in Town, it might be most effective if it were combined with other options, notably the options to implement single-stream recycling (#2) and curbside collection (#4).

With no other changes, it is estimated that a mandatory recycling ordinance that applied only at the T/S would, over a year or two, increase the recycling rate from 31% to 45%<sup>1</sup>, a 45% increase in recycling. In 2008, a 45% recycling rate would have reduced the trash taken to the incinerator by 218 tons, and increased recycling by a like amount. This would have resulted in a net benefit of about \$23,680, about six-percent of the net cost of T/S operations<sup>2</sup>. This assumes that the T/S could handle an additional 218 tons of recyclable materials without increasing labor costs. The Com-mittee was unable to determine whether or not this is a reasonable assumption.

---

<sup>1</sup> The average recycling rate of 13 selected N.H. towns with exemplary recycling programs was 50% in 2007. Ten of those towns had mandatory recycling.

<sup>2</sup> A 45% recycling rate would have increased recycling from 507 to 725 tons, an increase of 218 tons. That would have resulted in a reduction in incineration fees of about \$9,280 (218 tons at \$42.55 per ton) and an increase in revenue of about \$14,400 (218 tons at \$66.00 per ton), for a total savings of \$23,680.

### **Option 3: Single-Stream Recycling**

Single-stream (S/S) recycling is another trend that is growing rapidly, especially in larger communities, as it simplifies the process of collecting and disposing of recyclable materials. With S/S recycling, common recyclable materials such as plastics, glass, newsprint, paper, cardboard, tin cans, aluminum beverage cans, and other aluminum containers and materials such as pie pans, are all collected together (commingled) in a single container and taken to a specialized S/S processing facility. There they are sorted by individual commodity and sold for revenue or disposed of at costs that are significantly lower than the cost of incineration or burial in a landfill. Experience in other communities indicates that a switch to single-stream recycling increases recycling rates, but quantifying the increase is difficult as it depends on both the specifics of the system implemented and the system that was in effect before the switch to S/S recycling.

A principal benefit of S/S recycling is convenience, including a reduction in the space and number of containers needed to recycle. Businesses find it to be a big advantage. Currently, many don't recycle because the process of separating recyclable materials is too labor intensive, and often requires more space than is available for the purpose.

The downside of single-stream recycling is that the facilities needed to sort commingled recyclable materials are expensive to build and operate. That means that the net revenue generated from the sale of these materials is considerably less than the revenue generated when residents manually sort recyclable materials themselves and deposit them in the appropriate bins or containers at a transfer station. That allows the T/S to sell each type of recyclable material individually, avoiding the costs of a single-stream sorting facility.

The economics of S/S recycling are complex. Collection and processing costs at a transfer station are less than they are for separated recycling, but the revenue generated from the sale of the recyclable materials is also less or nonexistent. There are savings in trash disposal fees to the extent that S/S recycling leads to increased recycling rates. But, new equipment must be purchased and installed to effectively implement a S/S recycling program. How it all comes out depends on the details.

Estimates from the Concord COOP of revenue per ton for commingled recyclable materials in 2008 was \$10.00 per ton, \$56.00 per ton less than what the Town averaged selling separated recyclable materials. Worse, in 2009, the projected revenue turned into a projected cost of about \$20.00 per ton. That's still an appreciable savings over the cost of incineration, but it would result in the elimination of all recycling revenue except for what is received for scrap metal.

Implementing S/S recycling at the T/S could lead to modest cost savings over the long-term, depending primarily on how much labor costs could be reduced. One plan calls for the purchase and installation of a second compactor, similar but smaller than the one currently being used for trash. Residents would throw all of their common recyclable materials into a new hopper that would feed the new compactor. The added convenience would lead to some increase in recycling, and it would eliminate the labor and other costs associated with the baling and handling of separated recyclable materials.

Without other changes, it is reasonable to assume that S/S recycling at the T/S in 2008 would have resulted in an increase in the recycling rate from 31% to 40%, a 29% increase<sup>1</sup>. That would have led to 138 fewer tons being incinerated (968 versus 1,106) and 138 more tons recycled (645 versus 507). The resulting annual financial impact would have looked like the following:

Reduced tipping fees (138 tons at \$42.55/ton)	\$5,870.00
Reduced labor and personnel costs (25% estimated)	\$73,510.00
Revenue on additional recycling (138 tons at \$10/ton)	\$ 1,380.00
<b>Total financial benefit</b>	<b>\$80,760.00</b>
Reduction in recycling revenue:	
(364 tons at \$10 vs \$66 per ton <sup>2</sup> )	\$20,384.00
Five-year amortization of \$120,000 startup costs	\$24,000.00
<b>Total financial cost</b>	<b>\$44,384.00</b>
<b>Net annual savings</b>	<b>\$36,376.00</b>

This is a simplified analysis. It assumes that scrap metal, white goods, and propane cylinders continue to be collected and recycled separately, with no change in volume. The projected savings is 9% of the net operating cost of the T/S in 2008. A more comprehensive estimate based on 2007 data provided to the Town by the Concord COOP projected a \$34,539 net reduction in costs. It too projected a labor savings of 25%<sup>3</sup>. This estimate does not include any financial carrying costs for startup expenses. On the other hand, the new equipment would be expected to last much longer than five years, and startup costs might actually come in well under \$120,000.

The results would be different if S/S recycling were implemented Town-wide, that is, if provisions were made to collect recyclable materials from the businesses and residents that currently employ commercial haulers. It is fair to assume that a 40% recycling rate is possible for the customers of the commercial haulers, just as it is for those who use the T/S. Assuming they are now recycling at a 10% rate, a 40% recycling rate in 2008 would have resulted in 611 tons of additional recycling. But the economics of that increased recycling are not clear, as the option of switching to S/S recycling at the T/S does not in itself provide for a method for collecting recyclables from the customers of the commercial haulers.

Another important point, is that any savings from increased recycling by the customers of the commercial haulers would accrue primarily to those customers and/or the commercial haulers, not the Town.

The bottom line is that S/S recycling at the T/S, with no other change, is likely to result in modest long-term savings in the years ahead, but a significant investment would be required to achieve that savings.

This analysis ignores a couple of possibilities. With the availability of S/S recycling, the customers of the commercial haulers might voluntarily bring more recyclable materials to the T/S. Just who would benefit from such a trend is hard to forecast. The commercial haulers would have less trash to take to Penacook, but whether or not that would provide an economic benefit to their customers is unknown. Depending on

<sup>1</sup> The estimate of a 40% recycling rate with voluntary S/S recycling is based on the assumption that some non-recycling residents would respond to the added convenience, but that it would not be as effective in increasing recycling rates as an enforced mandatory recycling ordinance.

<sup>2</sup> The figure of 364 tons is the total of 507 tons of "official" recyclable material, less 143 tons for scrap metal, propane tanks and white goods, which could not be disposed of in a S/S recycling program.

<sup>3</sup> The study was authored by Elizabeth Bedard, who was apparently working as a consultant to the Concord COOP at the time.

the market for commingled recyclable materials, the T/S could benefit or it could lose. The only sure thing is that the environment would benefit.

Along this line of thinking, short of offering a Town-wide curbside collection service, if the T/S switched to S/S recycling the Town might strategically place recycling dumpsters around Town, so people could conveniently dispose of their commingled recyclable materials without driving all the way to the T/S.

This suggests that if S/S recycling were to be implemented in Town, that it would be most effective if a curbside collection program were implemented at the same time, but the implementation of curbside collection program would raise its own set of economic issues. See Option 4 for a discussion of how curbside collection might function in conjunction with a switch to S/S recycling.

One advantage of S/S recycling over the current method of separating recyclable materials is more predictable budgeting. S/S sorting facilities generally provide yearly contracts to buy all of a Town's commingled recycled materials at a fixed price (or cost) per ton, whereas the sale prices of individual recycled commodities varies day-by-day and are difficult to predict a year in advance. This would not be reason by itself to implement S/S recycling, but it would be an additional advantage.

An important factor to consider when evaluating the decision to switch to S/S recycling is the Concord Regional Solid Waste Resource/Recovery Cooperative's (The COOP) proposal to build a new S/S sorting and processing facility next to the Wheelabrator incinerator in Penacook. If built, it would most likely provide Henniker with its best option for the disposal of commingled recyclable materials. Additional information about this facility is included in Appendix 4. However, Henniker would not be dependent to the COOP to build a S/S recycling facility were the Town to switch to S/S recycling, as there are facilities available now that could take the Town's commingled recyclable materials.

It is worth noting that even where separated recycling is being practiced, as it is at the T/S, there has been a trend in recent years toward commingling, as the financial benefits of separation are often not worth the cost of sorting. Glass is one example. It was once separated by color (green, brown, clear), but all three colors are now commingled. The commingled glass now has such low value it is used mostly as fill, and there is a charge to dispose of it. White office paper has more value when recycled separately, rather than being combined with "mixed" paper, but the cost of separation is higher than the economic benefit of selling limited quantities of white paper separately. The same applies to newsprint. It is worth more without the glossy supplements, but not enough more to be worth the cost of separation.

In summary, given the front-end investment required, the case for S/S recycling, with no other changes, is not strong, but it would save the Town money over the long-term if it led to predicted savings in labor costs. It should also be recognized that it is one of the trends of the future. And, the idea of combining S/S recycling with curbside collection is an option that would have several advantages.

There would seem to be no disadvantage to either the elderly or those with low incomes to the implementation of S/S processing.

## Option 4: Curbside Collection Options

Curbside collection of MSW is an option for the Town. Currently, 65% of Henniker's trash is collected by commercial haulers (commercial solid waste collection services) and transported directly to the Penacook incinerator. Mostly the haulers service businesses with dumpsters, but some residents also use their services, and one commercial hauler caters to residences and does not handle dumpsters. The remaining 35% of the Town's MSW could be collected with some type of regular curbside collection program, whether operated by the Town or by commercial firms under contract to the Town.

According to a review and analysis prepared by the Northeast Recycling Council (1999), curbside collection becomes cost effective when population densities reach 40-50 persons per square mile. In 2008, Henniker had an estimated population density of about 115 persons per square mile. Goffstown, our closest small neighbor with a municipal curbside collection service, has a population density of approximately 480 persons per square mile. Enfield, a town near Lebanon of similar size to Henniker (4,618 people in 2000), has a curbside collection service for trash only.

There are currently three commercial haulers operating in Henniker, although one only services a couple of businesses. The largest of the other two, Naughton and Son Recycling (NSR), takes about 50% of our trash to the incinerator. The other firm, B&A Waste Disposal, takes about 15% of the Town's trash to the incinerator. Neither firm handles very much recyclable materials, although both collect cardboard from a few customers, which they take to the T/S. Also, as of late 2009, NSR started a weekly area-wide service collecting commingled recyclables from dumpsters. New England College is the only business in Town currently availing itself of that service. Please see Appendix 2 for more information about these firms.

The economics of curbside collection are pretty straightforward. Data collected from commercial haulers indicate that weekly curbside trash collection could be contracted for at a cost of around \$8.00 - \$9.00 per household per week (\$30 to \$40 per month)<sup>1</sup>. A collection service that serviced all of the Town's households for \$30 per month, trash only, no recycling, would cost around \$60,000 per month, or \$720,000 per year. That amount would more than double the current T/S budget if there were no user fees for the service. Whether or not the majority of the Town's residents would want to pay for such a service, either directly or through their taxes, is the \$64 question. Some are doing so now.

It is worth noting that businesses with trash dumpsters generally pay a minimum of \$100 per month to have their dumpsters emptied regularly and the contents taken to the Penacook incinerator, and some businesses that generate a lot of trash pay as much as \$500 per month for this service. New England College pays even more.

Curbside collection would save residents the time and expense of driving to the T/S every week or two. Assuming the labor is free, just the vehicle expense of driving to the T/S regularly adds up, although we tend not to ascribe a cost to individual automobile trips. One thousand trips to the T/S per week, at an average round-trip distance of eight miles at a cost of \$0.23/mile amounts to \$95,680 per year<sup>2 1</sup>. That's a significant amount, but certainly much less than the cost of a municipal curbside collection program.

---

<sup>1</sup> Lower monthly costs may be possible. Dockham Trucking and Rubbish provides residential curbside trash pickup in Hopkinton for under \$20 per month, and less than \$30 per month when recyclables are included..

<sup>2</sup> Vehicle count data are not available at the T/S. In one brief survey there were 57 vehicles per hour during a two hour period mid-day on a Sunday. If that rate held for the 26 hours the T/S is open during winter months, there would be 1,482 visits per week. It seems reasonable to assume total weekly visits average significantly less, say 700 to 1,000 per week. Looked at another

The only commercial collection service currently servicing Henniker that is large enough to implement such a service has stated that it has no interest in providing the Town with residential curbside service. However, larger national solid waste collection firms would be interested in providing such a service, under the right terms. B&A Waste Disposal of Henniker would be willing to consider a proposal to provide a residential curbside trash and commingled recyclable collection service if the arrangement guaranteed it sufficient revenue to allow it to invest in new equipment. Dockham Trucking and Rubbish, the Hopkinton firm that offers curbside collection in Hopkinton, might also be willing to explore the possibility of providing a Town-wide collection service in Henniker.

The Town could operate its own curbside collection service, but that would require a significant investment. Goffstown, population 17,688<sup>2</sup> in 2007, operates its own weekly curbside collection program, and picks up both trash and recyclables. It collects each type of material separately. It makes approximately 5,000 stops and maintains three collection trucks. Two trucks run full-time, the third is a reserve.

To do something similar in Henniker, the Town would have to purchase two automated trucks (ensuring one for back up) at an estimated cost of \$190,000 per truck. Additional costs would include the purchase of Toters (trash/recyclables barrels) for each household, at a rough cost of \$55.00 each. Total start-up costs would be around \$600,000. Operating costs, including the salary of one driver would be additional. These numbers assume the use of automated trucks which collect trash and commingled recyclables at the same time, and can be driven and operated by a single driver,

Many communities with municipal curbside collection programs use contractors to provide the necessary equipment and staff needed to provide the service. This is the case in Concord, which is serviced by Bestway, and it would seem to be the best option for Henniker should the Town decide to provide a Town-wide curbside collection service. For one thing, this approach would avoid big capital expenses that would limit the Town's flexibility to make changes in the future.

The issue of curbside trash collection entwines itself with the issue of recycling. As pointed out earlier, the commercial firms currently operating in Henniker handle very little recyclable materials. If a Town-wide curbside collection program were implemented in Town, it should include the collection of recyclables. That would add to the total cost of the service, but the increased cost would be partially mitigated by lower incineration fees and possibly revenue from the sale of recyclable materials.

But there are a couple of twists. First, it would be more expensive to implement a curbside collection program that included recyclables if residents and businesses were expected to separate the various types of recyclable materials, as they do now when take their recyclables to the T/S. It isn't just that it would require an extra effort by residents and businesses, it's primarily because it would require specially-equipped trucks to collect the separated materials, multiple pickups at each collection point, or increased labor to separate the recyclables at the pickup point.

Implementation of curbside collection would pretty much dictate that the Town switch to S/S recycling at the same time. One of the primary drawing points of S/S recycling is that it greatly improves the economics of curbside collection program of recyclable materials. MSW collection trucks with two sections, one for

---

way, if there was one visit every two weeks from each household, there would be about 1,000 visits per week. One thousand visits a week seems like a reasonable estimate for this particular calculation.

<sup>1</sup> Twenty-three cents a mile is the average of what the IRS allowed as a mileage deduction for taxpayer moves in 2008. It does not include vehicle depreciation.

<sup>2</sup> N.H. Office of Energy and Planning.

trash and the other for commingled recyclable materials, are readily available, and the price estimate of \$190,000 provided above was for this type of truck.

If curbside collection were implemented in conjunction with S/S recycling, the total cost wouldn't necessarily be the total of the two options when considered separately, and could be considerably less. The need for an additional compactor at the T/S for commingled recyclable materials might even be eliminated if the collection trucks included a compactor and they took the recyclable materials directly to a S/S recycling facility, or an intermediary processor.

Another issue that would affect a decision to implement a municipal curbside collection program is the question of whether or not it would include businesses. Trucks designed for residential curbside collection of trash, particularly those which also handle recyclable materials, are of a different design than those built to handle trash-only dumpsters. And for the most part, businesses in Town are already contracting with haulers for the disposal of their trash, and paying for it themselves.

Culture comes into play on this issue. Some residents would very much like the convenience of curbside pickup of their trash and recyclable materials. Others enjoy the social aspects of a trip to the T/S, especially those who frequent the Swap Shop. And, it's been rumored that some -- males, mostly -- use their regular trips to the T/S as justification for the pickup trucks that they otherwise couldn't justify owning.

A Town-wide curbside collection program would be expensive to implement, especially if it were implemented without other changes. But it would provide a very useful service, and would lead to much higher Town-wide recycling rates. One of the comments heard frequently during the Committee's survey of selected businesses was that people want the convenience of curbside collection, but only if it doesn't cost more money (as fees or taxes). That can't happen. Curbside collection costs money.

Curbside collection would lead to a reduction in costs at the T/S, as much if not all of the collected materials would be taken directly to the appropriate disposal sites. The amount of material processed at the T/S would drop dramatically, as would the number of visitors.

The economics of a combined curbside collection service and a S/S recycling program would look something like the following, assuming the service was contracted out to a private firm that disposes of both the trash and recyclables as part of its service. This analysis is based on 2008 data and assumes that the collection service collected all the trash that was taken to the T/S (1,106 tons), all that was collected by B&A Waste (469 tons), and 20% of what was collected by Naughton (314 tons), for a total of 1,889 tons. The \$40 per month service fee is based on the \$30 per month figure given earlier for a trash-only collection service, and the assumption that \$10 per month would cover the additional cost of collecting recyclables.

Curbside collection of trash and S/S recyclables (\$40/month * 2000 households * 12 months)	\$960,000.00
Loss of current recycling revenue	\$46,043.00
<b>Total Expenses</b>	<b>\$913,957.00</b>
Elimination of incineration fees on 1,106 tons	\$47,060.00
Elimination of transportation of trash and recyclables	\$22,000.00
Reduce T/S labor and overhead by 50%	\$177,078.00
<b>Total Savings</b>	<b>\$246,138.00</b>
<b>Net Cost</b>	<b>\$667,819.00</b>

This is a fairly crude analysis, as it doesn't address what might happen to equipment at the T/S that was no longer needed, and the projected savings of labor and overhead is simply an estimate. It does assume that a curbside collection program with S/S recycling could be put in effect without the installation of a new compactor at the T/S. A curbside collection program would be expensive, and offsetting savings would only cover a small portion of the additional expense.

If such a service were to be implemented, a big question would again be the question of who pays? Would the service be funded by the Town using tax revenues, or would it be funded by assessing a collection fee on residents and any businesses that used the service?

Curbside collection of trash and recyclable materials would tend to be helpful to the handicapped, as it would make it easier for them to dispose of the MSW. The impact on low income residents would be dependent on the question just posed above, that of who pays. If the service were paid for by taxpayers, it would tend to favor low income residents, except for those with large property tax bills. If the service was financed by user fees, clearly it would increase costs for low income residents.

## Option 5: Eliminate All Recycling

The option to discontinue the Town's recycling operation is not likely to appeal to many, because of the negative environmental aspects of such a policy, It would be sure to generate bad press for the Town as it would fly against current cultural and social trends, as well as State of New Hampshire policy (RSA 149-M). Nonetheless, the Committee feels the Town should recognize that despite the long-term benefits of recycling, which are impossible to fully quantify, it does cost the Town money operate its recycling operation at the T/S.

If all of the MSW that was recycled in 2008 that could have been incinerated had been sent to the incinerator, the Town could have saved money<sup>1</sup>. Here are the numbers.

Reduction in labor costs (33%) (estimated savings)	<b>\$97,030.00</b>
Increased tipping fees (417 tons at \$42.55/ton)	\$17,443.00
Elimination of all recycling revenue except scrap metal	\$29,743.00
Total of additional cost and revenue reduction	<b>\$47,186.00</b>
Net savings (12% of net costs)	<b>\$49,844.00</b>

This assumes that labor costs could be significantly reduced if all recycling operations except for scrap metal were eliminated at the T/S, and the T/S only functioned to collect trash, C&D materials, and special items that can neither be incinerated nor disposed of in a landfill. It assumes that scrap metal would continue to be recycled, because it is relatively high value and because trash containing significant quantities of scrap metal is not accepted at the incinerator.

Two-thirds of the MSW generated in Town is being disposed of under what approximates a "no recycling" policy, as the commercial haulers in Town offer only limited recycling services. Most of those who opt to pay to have their MSW collected by commercial haulers don't separate their recyclables and take them to the T/S themselves, although some do. The commercial haulers do bring some recyclable materials to the T/S for recycling, principally cardboard, but the quantity is limited. One hauler charges its customers extra for the service, the other does it because it reduces its cost of trash incineration. The Committee's best estimate for the recycling rate for the customers of the commercial haulers is 10%, including approximately 78 tons annually of cardboard which is taken by the commercial haulers to the T/S (4% of the MSW collected).

The point of this is to put in perspective the fact that while the Town does realize revenue from the sale of recyclable materials, and that revenue helps to offset costs, at the end of the day the Town would be money ahead if it did not have a recycling program. That said, it is important to not lose sight of the fact that once a recycling program is in effect, as it is in Henniker, there is money to be made by increasing the recycling rate, provided that the increased quantity of recyclables can be handled without a significant increase in labor costs.

---

<sup>1</sup> This assumes that 417 additional tons of recyclable materials were discarded into the trash hopper. This includes the common recyclable materials (507 tons), plus used clothing and Swap Shop materials (53 tons), less white goods, propane tanks, and scrap metal (143 tons). That would have increased incineration fees by about \$17,743 (417 tons at \$42.55/ton). Of total recycling revenue of \$46,043 in 2008, \$16,300 (35%) was generated from the sale of scrap metal.

Why recycle if it costs us money to do so? First, recycled materials don't need to be incinerated and the resulting ashes land-filled, or land-filled directly without incineration. This results in longer lives for existing landfills and delays costly programs to expand existing landfills, create new ones, and overhaul or build new incineration facilities. Recycling leads to lower costs for the disposal of trash in the future. These long-term savings have not been incorporated into the Committee's analyses, but they are significant.

Second, the mining and extraction of raw natural resources generally has a greater negative environmental impact than the processing needed to reuse recycled materials. Aluminum is the best case example. It takes about one tenth as much electricity to process a pound of recycled aluminum as it does to make a pound of virgin aluminum from bauxite ore.

There is, however, the little understood fact that much of the benefit of increased recycling occurs overseas, principally in China, as most of our recyclable plastic and much of our recyclable paper and cardboard are shipped to China for processing. The fibers contained in the paper and cardboard are of particular value in China, as it has many fewer trees per resident than the United States. Some of that benefit does find its way back to the U.S., in the way of lower prices for products and a cleaner global environment.

Third, and a reason not often discussed, is that many of the products we buy and eventually throw away are made from nonrenewable natural resources that will be needed for hundreds if not thousands of years in the future. The more we recycle and reuse these materials the more we save for future generations.

Unfortunately, the people who will want and need to use these resources in the future have no way of putting a price on them that encourages us to save some for their use. It is our willingness to pay more now to recycle that will result in more of these natural resources being available to future generations. They may thank us for our efforts, just as we thank our Founding Fathers for our constitution.

The Committee believes this option is the easiest of the six to discount, and that the Town should continue its recycling program. The way to save money is to find ways of handling increased quantities of recyclable materials with less labor. One such way would be to implement S/S recycling (Option 3). Another might be a redesign of the T/S (Option 6).

The decision to eliminate all recycling at the T/S would not appear to add any burdens on either the disabled, the elderly, or those with low incomes.

## Option 6: Steady As You Go

The last option is to not make any major policy changes in the way MSW is collected and processed. Under this option it is fairly easy to predict that the net cost (expenses less recycling revenue, grants, and other income sources) to operate the T/S will increase at about 5% a year, from \$388K in 2007, \$403K in 2008, to \$444K in 2010. The current recession could moderate that increase somewhat, as people dispose of less during a recession. On the other hand, recycling revenue is down from past highs, and the incineration rate jumps to \$62.10 per ton in 2010. In the past ten years the cost of operating the T/S has grown at a rate about two-percent higher than the rate of population growth and inflation combined. See Appendix 5 for an economic analysis of T/S operations over the past nine years.

Even under a policy of “no major policy change,” there are a number of things that could be done at the T/S to reduce costs. Some would also be beneficial for Options 1-4, and some would require significant investments. One approach is to simply mount a more aggressive public education program which would include brochures, articles in the *Outlook*, improved signage at the T/S, and more “guidance” by T/S staff, which could result in higher recycling rates. Charts showing the economic impact on the tax rate of increased recycling might be a useful adjunct to any program designed to increase recycling rates. One caveat. This approach would only be successful if the T/S were able to handle increased quantities of recyclable materials without increasing labor costs.

The recycling rate for MSW passing through the T/S is currently about 31%, and there is reason to believe it could be increased to 45% under a voluntary program, but most communities with high recycling rates have implemented one or more of the options discussed earlier in this report. A 45% recycling rate in 2008 would have resulted in overall savings of about \$23,680, assuming the increased volume of recyclable materials could have been handled without a significant increase in labor costs. (See the analysis at the end of Option 2 - Mandatory Recycling.)

An area that might be looked at with an eye to increasing T/S revenue is the imposition of new and increased fees on the disposal of large objects such as furniture, mattresses, and other items that fall outside the scope of normal household trash. Several N.H. towns charge extra for the disposal of mattresses and other large objects. There is a company in Massachusetts that specializes in recycling mattresses, although it charges for the service<sup>1</sup>.

Even with no major changes in the Town’s solid waste disposal policies, more space at the T/S would provide many advantages. Labor costs at the T/S are higher than they would be in a facility designed and constructed with today’s needs in mind. Much has changed since the current facility was built nearly twenty years ago.

The problem is that options for physical change are severely limited by lack of space within the current “footprint” of the T/S. Some land owned by the U.S. Army Corps of Engineers is already being used from time-to-time for trailer and Roll-Off storage. A physical expansion would most likely mean using some of the land available to the Town in the gravel pit immediately north of the T/S. There is also a small amount of land available between Route 114 (Weare Road) and existing T/S buildings which might be adequate for some limited purposes. And, existing structures might be razed to make room for new ones.

---

<sup>1</sup> Conigliaro Industries, Framingham, Massachusetts.

There would be many benefits of more space at the T/S. A larger recycling building would allow for more windows for depositing recyclable materials, larger collection bins, a larger horizontal baler, and a small loader to move recyclable materials from the collection bins to the compactor. (Many N.H. towns have such facilities.) The result would be lower labor costs that would over time offset the investment required. It would take an engineering study to accurately determine the projected payback period.

Another advantage of more space is that a truck scale could be installed, which would allow the T/S staff to compare the weight of outgoing loads of recyclable materials, C&D debris, and trash with the weights recorded at the destination. It would also allow for the accurate weighing of incoming C&D debris, which would mean that those disposing of C&D debris at the T/S would be accurately charged based on the weight of the debris. Towns with truck scales report the scales pay for themselves in increased revenue in anywhere from six months to a couple of years. No estimate for the cost of truck scales is provided here, because the installation of scales would depend on a major construction project, the plans for which are beyond the scope of this report.

Yet another possible advantage of more space at the T/S is that it would allow for a composting operation that would accept both yard trimmings and household garbage<sup>1</sup>. The composting of household garbage could by itself significantly reduce incineration fees, but it is not known by exactly how much. A significant number of residents already do backyard composting, thanks in part to compost barrels sold by the Henniker Recycling Committee, which has reportedly sold over 500 compost barrels over the past ten or so years<sup>2</sup>.

Changes could also be made to the benefit of local building contractors. If local builders could dump their small trucks containing C&D directly into the C&D Roll-Off at the T/S, it would save them the labor required to unload their trucks manually, or the alternative of driving to Concord or some other location to dump their loads. Such a change would only make sense if truck scales are installed, so that the builders could be accurately charged a fee high enough to cover the Town's disposal costs, and perhaps an administrative fee to cover some of the T/S's overhead.

There is a change in policy which might be considered that wouldn't require any changes at the T/S, and that is to allow B&A Waste to resume dumping its trash collection truck in the trash hopper at the T/S. Its truck does not have a compactor, it only carries two to three thousand pounds per load, and is not fuel efficient. This would save B&A Waste a couple of costly trips to Penacook each week, as well as the special insurance required to dump trash at the Penacook incinerator.

B&A Waste could be charged a tipping fee at the T/S that would fully cover the Town's cost of incineration and transportation, plus a modest administrative fee. That would be benefit B&A Waste, and presumably its customers. As was done before, the truck could be weighed at one of the truck scales available in Town, before dumping at the T/S.

The Committee concluded that the T/S is, within the constraints imposed by both space and equipment, well run. The Superintendent, Mr. Bob Pennock, keeps abreast of changes in regulations and the market for recyclable materials, and has made several changes during the period this report was being prepared.

---

<sup>1</sup> An EPA study of municipal waste reduction record-setters nationwide (*Cutting the Waste Stream in Half: Community Record Setters Show How*, EPA-530-R-99-013, June 1999) showed composting rates of 17% to 43% for seventeen communities. Dover, New Hampshire and Portland, Oregon both had composting rates of 17%, at the bottom of the range..

<sup>2</sup> Although the sale of compost bins has nominally been a Henniker Recycling Committee endeavor, it has been spearheaded over the years by Joan O'Connor.

Most recently (July 2009), the T/S started accepting #3 thru #7 plastics, and to make it more convenient for residents, it no longer requires the separation of #1 and #2 plastic materials. The separation of #1s, #2s, and #3 through #7s is now done by T/S staff. Anecdotal information suggests the change has been generally well received by residents, but there is a question of whether or not the new policy has led to an increase in labor costs.

Another change in 2009 at the T/S was the collection of vegetable (cooking) oil, which is now recyclable. This has a side benefit to the extent that it reduces the amount of vegetable oil dumped into the Town's public and private sewer systems. Grease is an enemy at the Wastewater Treatment Plant and in private septic systems,

To conclude this section, Steady-As-You-Go means that the Town can continue to operate its transfer station without embarking on any major policy changes, but the Committee feels that should the Town decide to go this route it should embark on a study on of how changes at the T/S could reduce annual operating costs. The Committee did not feel that a study of T/S operations was within the purview of its charge from the BOS.

### **III. OPTIONS NOT CONSIDERED VIABLE**

The Committee explored two options not included in the list above, but discounted both after an analysis showed that either option would require a very significant capital expenditure and would lead to an increase in annual operating expenses. The resulting economic benefits would be dwarfed by the increase in costs.

#### **New Landfill**

The first option discounted was a new landfill, built in conformance with current environmental regulations. In addition to the difficulty of finding a site in Town for a new landfill, it would cost several million dollars to construct such a facility in conformance with current state and federal environmental standards, and operating costs would be higher than current T/S operating costs. Additionally, in order to mitigate those costs as much as possible, the Town would want to build the facility large enough so that it could handle trash from Henniker's neighbors, as there are significant economies of scale in operating a landfill. The town of Lebanon operates such a landfill, which services 24 N.H. and Vermont communities.

#### **Build and Operate an Incinerator**

The second option discounted was for the Town to build and operate its own solid waste incinerator. Similarly, an analysis showed that this option would involve a multi-million dollar capital investment, with significant ongoing operational costs. The operation and maintenance of the required pollution control devices would be particularly expensive. Additionally, just as in the case of a new landfill, the Town would need to collect and process trash from other communities in order to achieve the volume needed to operate a state-of-the-art incinerator efficiently.

The bottom line is that it takes a cooperative of some sort to make either a sanitary landfill or a trash incinerator economic in rural New Hampshire. A small town can't do it on its own. Moreover, as a member of the Concord COOP, which contracts with the Penacook incinerator, Henniker is already realizing the benefits of membership in just such a cooperative.

## IV. FINDINGS AND DISCUSSION

### Findings

There are four basic questions which should be addressed before the Town grapples with the issue of how to best provide MSW disposal services to its residents and businesses in the future.

- Should the cost of disposal of MSW be borne primarily by the residents and businesses that generate it, or should MSW disposal services be paid for by taxpayers and provided as a community service?
- The Town spends money to encourage and support the recycling of recyclable materials delivered to the T/S. Should it do anything to increase the recycling rate of the residents and businesses served by the commercial haulers?
- Should businesses pay for the disposal of their MSW, or should they be entitled to the same MSW services currently afforded to residents (so long as they take their MSW to the T/S themselves)? Businesses pay about 14% of the Town's taxes, yet they generate from 36% to 55% of the Town's trash. On the other side, their taxes help fund our schools, and some don't send any children to our schools. But others do (apartments, mobile home parks). Much of the trash generated by businesses in Town, as business is defined in this report, originate in the living quarters of Town residents, including college dormitories.
- Does the Town have any interest in doing things which help businesses in Town reduce their cost of disposal of MSW and C&D debris as a way of helping them reduce their cost of doing business, whether by providing greater recycling opportunities or by other changes in policy or T/S operations?

Of the six options, the implementation of some type of unit pricing system for the disposal of trash would be the best way to significantly reduce the T/S budget, as it could cut it in half, or even eliminate it under some scenarios. However, the reduction wouldn't amount to large overall savings. Rather it would result primarily from a shift in cost from the Town as a single entity to the Town's residents and businesses as individuals. Recycling rates would increase significantly, and trash disposal costs would decrease. That would result in overall savings, assuming the cost of handling additional recyclable materials did not drive labor costs up significantly.

At the other end of the spectrum, curbside collection would increase the total cost of solid waste disposal by as much as \$700,000. But it would provide a useful service and would lead to a significant increase in recycling. If it resulted in boosting the Town's overall recycling rate from 14% to 40% (using 2008 data), it would have reduced the amount of trash to be incinerated by 953 tons, and reduced incineration fees by \$40,550. The savings in incineration fees would have risen to \$56,080 if a 50% recycling rate were achieved. As mentioned earlier, the big question is whether residents would want to pay for the service, either directly with user fees, or through taxes.

A summary of each of the six options follows.

1. Unit Pricing
  - Largest reduction in T/S budget. Could reduce it by \$186,880, almost halving it.
  - Would shift costs of disposal from all taxpayers as a group to individuals and businesses.
  - Provides economic incentive to reduce trash and increase recycling. Would increase recycling rate significantly (trash down 15%, recycling rate up 33% (31% to 42%).
  - Puts those who use the T/S on a more equal basis with those who use commercial haulers.
  - Requires initial capital expenditure if disposal prices are based on weight, but a weight-based system would be more equitable.
  - Could be applied to commercial haulers by assessing an incineration fee surcharge.
  - Consistent with N.H. and national trends and policies.
  - Would be compatible with all other options.
2. Mandatory recycling
  - Low cost of implementation, enforcement is an issue.
  - Modest savings of \$23,680 a year with effective enforcement.
  - Would increase recycling rate at the T/S from 31% to 45%.
  - No practical way to apply to customers of commercial haulers.
3. Single-stream recycling
  - Significant capital cost to implement.
  - Savings of \$36,376 a year without curbside collection.
  - Would have greatest effect on recycling rates if curbside collection were also implemented.
  - Consistent with N.H. and national trends and policies.
4. Curbside collection of household and possibly business trash and recyclables.
  - Most expensive option, would cost about \$700,000 per year.
  - Question of whether it would be paid for by taxes or user fees.
  - Would require major capital expense or contract(s) with commercial haulers.
  - Would provide a useful service to residents and perhaps businesses.
  - Would work best if S/S recycling were implemented at the same time.
  - Would increase recycling rate significantly, especially if combined with unit pricing, single-stream recycling, and/or mandatory recycling.
  - Would reduce T/S operational costs significantly (but not enough to offset the cost).
  - Standard service for cities, becoming more common for smaller communities.
  - Might be seen as anti-competitive with existing commercial haulers, especially if the Town ran its own collection system.
5. Eliminate all recycling
  - Could save as much as \$50,000 annually.
  - Negative environmental consequences, undetermined long-term costs.
  - Inconsistent with N.H. and national trends and policies.
  - Would generate bad press for the Town
6. Steady-As-You-Go
  - No savings, continued slow rise in the cost to operate the T/S.
  - Comfortable, many people satisfied with existing system.

- Typical of rural N.H. towns, including our closest neighbors.
- Bucks long-term N.H. and national trends and policies.
- Does not provide any direct incentive for people to recycle more.

The issue of curbside collection is important because the biggest untapped potential for an increase in recycling rates is the capture the recyclable materials currently hauled to the incinerator by the commercial haulers. It will be discussed further in the Discussion section that follows.

The estimates for labor savings shown in this report are rough estimates only. Further study would be needed before a detailed financial plan could be developed for any of the above options. Estimating labor savings at the T/S is complicated by the fact that the T/S and the Parks and Properties Department share the same staff. A reduction in staff at the T/S could affect the Parks and Properties Department, an issue the Committee did not explore<sup>1</sup>. If so, the question of whether some or all of the Parks and Properties duties should be contracted out should be revisited.

## **Discussion**

The Committee failed to identify a “silver bullet” approach to the handling of the Town’s MSW that would result in substantial overall savings for both the Town and the Town’s residents and businesses. But savings are possible, depending on which of the options discussed above are chosen, and also on how those changes are implemented. It is particularly important to understand that other than Option 5, the No Recycling option, none of the other five options are mutually exclusive, and that some combination of Options 1 through 4 and 6 might best serve the Town’s long-term needs. It is also important to emphasize that regardless of which of the six options presented here is (are) chosen, that a capital improvement program at the T/S could yield significant long-term savings.

To a significant extent, the free market is actively at work in Henniker when it comes to the disposal of the Town’s MSW. Two-thirds of the Town’s trash is being taken to the Penacook incinerator at the expense of those who generate it. The major commercial haulers in Town are currently recycling some of their customer’s cardboard, and small amounts of other recyclable materials from a few customers. Naughton now offers a weekly pickup service of commingled (S/S) recyclable materials (currently used only by New England College), and other recycling services are active in Town (See Appendix 2).

With these trends in mind, one idea is that the Town might undertake steps that would facilitate the commercial activity already underway in Town. If the Town converted to single-stream recycling, it might do so in a way that allowed or even encouraged commercial haulers to dispose of their commingled recyclable material at the T/S rather than trucking it out of Town to a recycling processor. That would save them money, and the more recyclable materials they collected the less trash they would have to truck to Penacook. Also, because of consolidation and compaction, total transportation costs for the recyclable materials would be less. Based on the current market for commingled recyclable materials, the Town would want to impose a fee for this service.

Another point to realize is that New England College (NEC) students comprise over fifteen percent of the Town’s residents, and the college generates a substantial amount of the trash taken to the Penacook incinerator by Naughton & Sons Recycling. The college is making efforts to increase its recycling rate, but

---

<sup>1</sup> The Committee did not assess the impact on the cost of solid waste disposal operations of the merging of the Parks and Properties Department and the Transfer Station and Recycling Center Department in the 2010 Town budget.

given the total amount of MSW generated at NEC, it would be useful if the Town engaged the college directly to explore ways in which the Town could help the college achieve significantly higher recycling rates.

Solid waste disposal costs are likely to increase faster than the rate of inflation over the next ten to twenty years, as the costs of building and operating both landfills and incinerators continue to climb due to tougher environmental regulations and land use restrictions. The Concord COOP just increased its incineration fee by 35% (\$45.90/ton to \$62.10/ton, effective 12/1/2009). Although that was an unusually large increase following several years of small increases, future increases are expected to be significant.

More waste materials now require special and sometimes costly handling, and that is a trend that is expected to continue. Clean lumber that once could be burned now has to be buried in a landfill as C&D debris, for fear it might be contaminated. Electronic devices, including video display devices, must now be processed at special facilities. There are questions about whether or not new flat-screen video displays contain chemicals that will require handling different from that accorded older analog cathode ray tube (CRT) displays. And, there are increasing questions about how unused prescription drugs and biological wastes should be disposed. C&D debris is being divided into two categories at some transfer stations, as some debris materials can be disposed of at lower cost than other materials. (New Boston processes two categories of C&D debris.)

A state bottle bill, such as the one that has been introduced perennially in the N.H. legislature in recent years (HB 675 in the 2009 legislature) would affect the Town's recycling program, by diverting beverage bottles to an alternate recycling program. Currently that would save the Town money, but it could cost the Town money if the market for recyclable plastics increased significantly.

There is one thing that could moderate the expected increase in disposal costs. That's legislation that makes the manufacturers of products that can't readily be recycled or disposed of as trash responsible for the cost of properly disposing of these materials. Nineteen states have passed some version of a consumer take-back law. Maine has a take-back law for computer monitors (displays) and televisions. New Hampshire currently does not have any such laws.

Beyond these outside influences, there are things within the control of the Town that could be done to reduce or help contain the cost of operating the T/S. The Committee has witnessed several positive changes and improvements at the T/S during its short tenure, but more could be done in the way of improved signage and public education, for example.

Much of the public education component of the Town's recycling program has fallen to the Henniker Recycling Committee (HRC). It is fair to say that HRC efforts to promote recycling have contributed significantly to the relatively good recycling rate at the T/S. But a more expansive effort is needed. In particular, the pages of the Town's website dedicated to the T/S are outdated and inadequate.

The "Guide to Recycling & Disposal" that was published by the T/S and mailed to all residents in early 2009 was commendable, but it takes a lot of repetition to change public habits. Procedures change, and there needs to be a greater effort to communicate those changes to residents and businesses on a timely basis. Recycling is complicated. Charts which show residents the economic impact of recycling various materials rather than disposing of them as trash might be helpful. (The Committee has an example). They could be published and posted at the T/S.

Related, the HRC is currently dormant and in need of new leadership. The Committee recommends that after the BOS assimilates this report, and makes any policy changes it considers necessary, that the HRC be

reconstituted and provided with the support it needs to carry out its mission of promoting recycling in Town.

Another issue, not explored by the Committee, is that of waste reduction. Many communities nationally have had success not just in raising recycling rates, but in implementing waste reduction programs. There may not be a lot of leverage in Henniker for such a program, but it could help somewhat to reduce waste disposal costs.

A couple of final thoughts. The T/S might realize some small cost savings by staffing the Swap Shop with volunteers, which is how some towns manage their swap shops. Of course, it would take some staff time to organize and train the volunteers, and there is a question of whether or not the Town has a large enough pool of residents willing to volunteer at the Swap Shop on a regular basis.

Good management requires good data, but good data costs money. The Committee was able to locate the data needed to produce this report, but it feels that an increased emphasis on data collection at the T/S would benefit the Town, as more comprehensive data would enable the Town to make better decisions about solid waste disposal in the future.

Simple things like traffic counts by day and time of day could result in a change of hours that would save money, for example. Understanding what ends up going out of the Swap Shop as trash, and what is reused, could help determine if the Swap Shop should receive more or less support. Keeping track of use of the T/S by the customers of the commercial haulers could enable the Town to better assess the recycling rate (and needs) of those residents and businesses. Data which ties the collection of fees for the disposal of specific types of materials with the cost of disposal could lead to adjustments that would contribute to a reduction in the net costs of operating the T/S.

In conclusion, the Committee feels that the Town currently has a good solid waste disposal system, but that there are opportunities, and even some needs, for change that would provide long-term benefits to the Town.

The Committee thanks the Board of Selectmen for the opportunity to look at the issues affecting solid waste disposal in Town, and hopes that this report will stimulate the thought and discussion necessary to address those issues in a direct and forthright manner.

## **APPENDIX 1**

### **The Solid Waste Disposal Committee**

On May 6, 2008, the Henniker Board of Selectmen voted to create the Henniker Solid Waste Disposal Committee, and charged it “with determining the current and projected waste stream for the Town of Henniker.” The Board assigned five tasks to the committee.

1. Based upon these projections, the committee will calculate the initial, short-term and long-term costs of initiating and carrying out various solid waste disposal systems. The study shall include: pay as you throw, mandatory recycling, single stream recycling as well as the maintenance of the current program of solid waste disposal. The study shall include a summary of the advantage and disadvantages of each method that is reviewed.
2. The committee will provide estimates of the costs for curbside collection for all systems where this option would be possible.
3. The committee will provide estimates of the costs that may be associated with the use of any or all of the options currently available or planned by the area Cooperative.
4. The cost estimates should include labor, land, equipment, facilities and any or all other reasonable expenses that may be associated with the specific option.
5. The committee shall consider the specific impact of all options upon local business and industry, public and private educational institutions, all types of residences and any and all other categories that may be faced with unique financial impacts. The committee is also asked to consider the impact of proposals upon the elderly, handicapped and those on low and fixed incomes.

The following residents were appointed to the Committee by the Selectmen:

Donald G. Blanchard  
Bill Christiano  
Michael C. French  
Amanda Gilman  
Lia T. Houk  
John V. Kjellman

Ron Lavallee  
Stephany Marchut Lavallee  
Donna L. MacMillan  
Linda G. Patterson  
Rod Pimentel

John Kjellman was appointed Chairman by the Selectmen. Rod Pimentel was elected Vice Chairman and Amanda Gilman was elected Secretary by the Committee. Ron Lavallee and Stephany Marchut Lavallee resigned from the Committee before this report was completed, but contributed data and information which has been incorporated into this report.

The Committee held its first meeting on July 10, 2008, and met regularly thereafter, through February 18, 2010, for a total of 35 meetings. In addition to inviting experts in various aspects of solid waste disposal and recycling to speak at committee meetings, Committee members traveled on numerous occasions to attend meetings and conferences and to visit other transfer stations, recycling and solid waste disposal facilities. There were approximately 45 such individual trips, many lasting several hours. Committee members also interviewed the owners or managers of over forty of the Town’s businesses, some very small, some quite large.

It is estimated that Committee members spent well over 1,200 hours in support of the Committee’s work, including over 500 hours in Committee meetings. The Committee produced this report without the assistance (and expense) of consultants.

## **APPENDIX 2**

### **The Henniker Transfer Station and Recycling Center (T/S)**

Henniker operates a solid waste disposal transfer station and recycling center typical of most New Hampshire communities. It is located at 1393 Weare Road, on Route 114, about three miles south of the center of Town. It is open to the public four days a week, Tuesdays and Thursdays 12-5 PM, and Saturday and Sundays 9-5 PM. In Spring and Summer (4/21-9/1 in 2009), extended hours are in effect on Tuesdays, when it closes at 8 PM. It is generally referred to simply as the Transfer Station, and in this report it is even more simply referenced as the "T/S." For a history of the T/S, and the landfills which preceded it, please see Appendix 3.

Henniker does not directly dispose of the trash component of its MSW, rather it "transfers" it by truck to a facility in Penacook where it is burned in a waste-to-energy incinerator. The Town is charged a "tipping fee" of \$45.90 a ton (2009) for trash delivered to the incinerator, and also pays the cost of transportation to the facility. (The tipping fee rose to \$62.10 per ton effective 12/1/2009.) For a description of the Penacook incinerator, and the cooperative which administers the contract under which Henniker uses the incinerator, please see Appendix 4.

In an effort to reduce the amount spent disposing of Henniker's MSW, and for environmental reasons, Henniker's transfer station also serves as a recycling center. Residents and businesses are encouraged, but not required, to separate recyclable materials from other solid waste materials so they can be recycled. This reduces the cost of incineration. Whether or not there is a net saving depends on the amount of revenue generated from the sale of the recyclable materials, and the additional labor required to handle the recyclable materials. One thing is certain, every pound recycled is one less pound that needs to be incinerated.

There is no charge to residents for disposing of MSW, including recyclable materials, at the T/S. There is a charge for a number of special items such as TVs, computer monitors, microwaves, propane cylinders, and Construction and Demolition debris. Other materials, such as fluorescent lamps and thermostats which contain mercury, automobile batteries, vegetable and mineral oil, and brush require special handling but are accepted at no charge. Hazardous materials are not accepted at the T/S, but they may be disposed of at no charge at the Highway Department Yard on Ramsdell Road during an annual Household Hazardous Waste Disposal day. See Appendix 8 for the full list of materials handled at the T/S. See Appendix 9 for information on the handling of hazardous materials.

Businesses may bring MSW to the T/S under the same terms as residents, but many hire commercial haulers at their own expense to haul their trash directly to the Penacook incinerator. This material is incinerated under the terms of Henniker's contract with the COOP. Henniker pays the incineration tipping fee to the COOP, but bills the fee back to the commercial haulers, and the fee becomes part of their cost of doing business. Presumably, the cost of incineration is passed on to those who hire the commercial trash haulers.

The commercial haulers operating in Henniker primarily service businesses, but some households also use the services, and the MSW from many apartment dwellers, mobile home residents, and college dormitories is collected by commercial firms. With a few exceptions, the commercial collection firms operating in Henniker do not collect recyclable materials for recycling. This means that in order to recycle their customers need to take their recyclable materials to the T/S or other recycling facilities themselves, or make

other arrangements. This discourages recycling, as it is much easier to simply discard the recyclables with the trash.

Recyclable materials taken to the T/S are separated by residents by type of material and deposited in the appropriate window, bin, or other designated container. The T/S compresses and bales the material, or otherwise prepares it for shipping to a recycler. The advantage to Henniker of handling each type of recycled material separately is that it maximizes revenue. High quality recyclable material of a single type is worth more to recyclers than a mixture of recyclable materials, which must be sorted before they can be used. A disadvantage to both residents and the Town is that it takes more time and space to separate recyclables. The revenue generated from the sale of recyclable materials is a small but significant source of revenue that helps to offset the cost of operating the T/S.

Materials such as scrap metal, electronic waste, white goods, batteries, used clothing, and mineral and vegetable oil are collected in large Roll-offs, Gaylord containers, or other special containers, which are transported to a recycler or other processor when sufficient quantity has been accumulated. Each special type of material presents its own challenges. Used clothing doesn't generate any recycling revenue, but collecting it does result in reuse and also reduces the amount that has to be incinerated. The handling of some items, such as refrigeration devices containing Freon, some types of batteries, and items containing mercury is governed by State and Federal regulations and require special procedures. One of the challenges at the T/S is finding space to store the various types of materials collected while accumulating enough of each type to make transportation economically feasible.

Construction and Demolition (C&D) debris is a special category of material which must be hauled to a landfill and buried. There is a charge for the disposal of C&D material at the T/S. The official price is \$25.00 per 8-foot pickup truck load (level full), except it doubles for sheetrock and shingles. The charge for smaller and greater quantities are "eyeball" estimated based on the official rate. The charge to users is intended to cover the cost of disposal at a landfill of \$85.00 per ton, plus the cost of hauling the material to the landfill. It is possible that C&D debris might be recycled in the future, rather than being dumped in a landfill, but that wouldn't provide a great savings in costs.

The T/S does not do any composting of biodegradable garbage or yard trimmings, but it has made an arrangement with Stonefalls Gardens at 184 Stonefalls Road (off Old Concord Road) for the disposal of yard trimmings, which Stonefalls Gardens composts. Yard trimmings disposed of at Stonefalls Gardens are included in the T/S's recycling statistics.

The T/S also operates a Swap Shop, where residents can dispose of serviceable items that may be of use to their neighbors. Toys, books, tables and chairs, bicycles, and electronic devices are items representative of the type of items left at the Swap Shop. Residents are free to browse the items in the shop and to take with them whatever they find of interest. The Swap Shop is a popular feature of the T/S, and on weekends it is very busy. It is known that some residents take things from the swap shop and later sell them as used items. There is disagreement over whether or not this should be allowed, although it would be difficult to strictly enforce a prohibition on such activity.

There are two benefits to the Swap Shop. First, residents save money when they find something they need at the Swap Shop, as it saves them from buying similar new or used items. Second, anything that is picked up at the swap shop that might otherwise be thrown away as trash saves the Town the cost of incineration and transportation. Some materials left at the Swap Shop do end up as trash. Some are recycled.

The Committee identified three businesses which provide solid waste collection and disposal services to Henniker residents and businesses. The first is Naughton and Son Recycling of Bradford, which took 1,569

tons of trash to the Penacook incinerator in 2008, 50% of the total amount incinerated. The second is B&A Waste Disposal of Henniker, which took 469 tons to the incinerator in 2008, 15% of the total. The third firm, Monadnock Disposal Service (MDS) of Jaffery, takes trash collected from two downtown business and disposes of it somewhere other than at the Penacook incinerator. The Committee estimates that MDS collects about 20 tons of trash in Henniker per year, less than one-percent of the total. MDS primarily services communities to the west of Henniker.

These commercial firms handle a limited amount of recyclable materials, discounting recyclables included in the trash they take to Penacook. But both Naughton and B&A Waste do one pickup a week of cardboard from selected businesses, which they dispose of at the T/S. B&A Waste also collects recyclable from a limited number of its customers, one of which is Henniker Community School, which it also disposes of at the T/S.

Naughton has instituted a weekly service collecting commingled recyclable materials that are disposed of in dumpsters, but currently in Henniker only New England College is using the service.

It is important note that as a consequence of the commercial haulers operating in Henniker, only 35% of the Town's trash is actually processed at the T/S, 65% goes directly to Penacook.

There are a number of other commercial services which also operate in Henniker to collect specific types of recyclable material. Included are Larry's Salvage and Construction of Bradford, which collects scrap metals, American Energy Independence Company (AMENICO) which collects used vegetable oil, and Empire Recycling of Nashua which picks up cardboard and mixed paper from the Post Office and baled paper and cardboard from the T/S. Advanced Liquids Recycling, headquartered in Meriden, Connecticut, is known to collect used motor oils and fluids from at least one automobile repair shop, and several businesses save scrap metal which they take to Schnitzer Steel Industries in Concord for recycling.

The T/S makes some arrangements for the sale of recycled materials directly with its network of recyclers, but largely it depends on the Northeast Resource Recovery Association (NRRA), which is headquartered in Epson, to broker the best deal available at the time. The price realized for recycled materials varies widely depending on market conditions, and also by commodity. Aluminum cans were at one time generating over \$2,000.00 per ton (it does take a lot of cans), while scrap metal typically fetches around \$100 per ton, as does cardboard. However, it can actually cost money to recycle some commodities. It typically costs about \$20 per ton to dispose of glass, for example. The savings comes from not having to pay \$42.50 (in 2008) to send it to the incinerator, a savings of \$22.50 per ton of glass.

Plastic bottles (#1 PETE and #2 HDPE) typically yield a few hundred dollars a ton, but during the collapse of recycling market that occurred in late 2007 and early 2008, it cost a small amount per ton to get rid of these materials. Again, the saving was one of cost avoidance of the much higher cost of incineration.

In a recent change (Fall 2009), the T/S started accepting all seven categories of recyclable plastic materials. The staff now separates and bales the #1s and #2s manually, and combines the #3 through #7s as a third category. This was done in part to increase recycling revenue, but also to reduce the amount of trash that has to be incinerated. It was also thought that more people might voluntarily recycle plastic materials if it became easier to do so.

In summary, the T/S is a busy and complex operation that performs a valuable community service. It does much more than simply dispose of trash and common recyclable materials.

## **APPENDIX 3**

### **History of Solid Waste Disposal and Recycling in Henniker**

In the “old days,” the common way of disposing of waste material no longer of use was to bring it to the Town’s landfill (The Dump). Burnable material was burned, which generated a lot of noxious smoke. Waste material was sometimes covered with dirt, to reduce odor and discourage birds, rodents and other pests, but largely it was exposed to the elements. In addition to reducing the volume, burning did have the advantage of disposing of some volatile organic compounds which might otherwise have seeped into the ground water.

One of the Town’s first landfills (may or may not have the first) was located on the north side of Old Concord Road, near Amey Brook, just east of the athletic fields. It was in use until the late 1930’s. A new landfill was then established on the south side of Old Concord Road, just south of the present softball diamond, and just east of the rear portion of New Cemetery. This location became unusable in the early 1960’s when the Hopkinton flood control dam was constructed on the Contoocook River, as the lower portion was located within the 100-year flood plain.

The next landfill was constructed on the site of the current T/S, on what was then a pit used for materials during the reconstruction and relocation of Weare Road (Route 114), which occurred as part of the Hopkinton dam project in the late 50’s and early 60’s. It became operative in the early 1970’s. It started as a burning dump, but was later converted to a sanitary landfill, meaning burnable material wasn’t burned, rather waste material was covered regularly with a layer of cover material (dirt) taken from adjacent areas. The primary purpose of the cover material was to protect against rodents and odor.

In the late 1970’s, long-time concerns about air pollution were expanding into concerns about water pollution (ground water, and rivers, streams, ponds, and lakes), and new Federal regulations for the handling of solid waste materials were enacted. Of great concern was the negative impact landfills were having on ground water, as toxic chemicals were leaching out of landfills into the ground. The new regulations precluded the continued long-term use of Henniker’s sanitary landfill. One solution would have been to build a new landfill properly lined at the bottom, so that all the leachates were captured and prevented from entering the underlying soil. A better solution presented itself.

In 1985 the Concord Regional Solid Waste/Resource Recovery Cooperative (COOP) was formed, for the purpose of constructing and operating a waste-to-energy incinerator to be used to incinerate the solid waste of member communities. Henniker was one of 24 towns and 3 cities to become members of the COOP. The facility became operational in 1989, and the Town has been transferring its trash to the incinerator ever since. See Appendix 4 for a description of the COOP and the Penacook incinerator.

The ability to transfer solid waste to the COOP’s incinerator didn’t end the landfill issue in Henniker. The existing landfill, which continued to be used until late 1989 for MSW, and even longer for C&D debris, eventually had to be capped in accordance with new environmental regulations. The cap was needed to prevent rain and melted snow water from seeping through the buried trash, leaching out toxic chemicals that would eventually find their way into the ground water. It was finally closed and capped in 1998. Test wells have been drilled and are regularly monitored to ensure that toxic chemicals are not into the ground water. (If that happens, Henniker could be faced with the expense of a big remediation project to stop the seepage.) The cost of monitoring the test wells is included in the T/S’s annual budget.

The elimination of the old landfill, and the start of the transfer station, resulted in a big jump in the cost of solid waste disposal. In 1985, the budget for landfill operations was \$15,000 per year. In 1992 the budget for transfer station operations was \$171,000 per year.

Another trend that was developing during this same period was increased interest in recycling. Sometime in the 1980's, scrap metals and lead-acid batteries were separated for recycling on a mandatory basis, and recycling of aluminum and cardboard was started on a voluntary basis. The recycling effort was helped along by the Lion's Club, which built a collection shed at the T/S for the materials. It sold the aluminum as a fund raiser for its organization for several years, but that was stopped in 2005.

In 1989 the Recycling Committee was formed to "study recycling and expand the recycling program in Henniker to recycle as many wastes as possible." That led to increased recycling and in 1991 a new building was constructed and new equipment purchased to support the growing amount of recycled materials.

At the same time, the Recycling Committee conducted an informal survey of townspeople to get their views on recycling. One hundred sixty-six forms were collected, and the results indicated that 72% of the population would recycle more items if they were accepted, and 96% indicated that they believed the Town should recycle as many materials as possible. Sixty-eight percent said they favored mandatory recycling. This was not a scientific random survey, but it did indicate that many citizens favored increased recycling.

The issue of recycling was brought before the Town in 1992 in the form of an ordinance that would have made recycling mandatory at the T/S. It had strong public support, but not enough to overcome the objections of those who didn't want to be told they had to recycle, and those who did not like the idea that violators could be fined. It failed on a voice vote at the 1993 Town Meeting. Supporters of the ordinance said later that there had not been enough public education about the ordinance in advance of the meeting. The ordinance, which also updated the Town's 1988 landfill regulations, passed at Town Meeting the following year, after the mandatory recycling requirement was stricken.

There were continuing discussions during the 1990's, and into the 2000's about ways to increase recycling and reduce the amount of trash transported to the incinerator. The Recycling Committee took the lead on most of these efforts and various proposals were submitted to the Board of Selectmen. They included new proposals for mandatory recycling, and proposals for some type of Pay-As-You-Throw (PAYT) program.

The Northeast Resource Recovery Association (NRRA) was hired to forecast the impact that a PAYT program would have in Henniker. The report, authored by Liz Bedard of NRRA, was delivered in September 2005. It showed that a PAYT program would double the amount of recycling revenue being generated and would reduce the amount of trash being incinerated by 26%, based on experience at other PAYT communities. Nonetheless, it did not lead to a change in policy at that time. It did serve to keep the issue alive, especially by Recycling Committee members. It seems fair to say that the Recycling Committee's continued efforts to promote recycling have led to increased recycling in Town, even without a PAYT program or a mandatory recycling ordinance.

Town regulation Chapter 101-17 went into effect on January 1, 2005. It requires commercial haulers to pay the incineration fee for all the trash that they deliver to the Penacook incinerator. Prior to this change, the Town paid the incineration fee for all trash originating from Henniker.

A principal reason for this change was to ensure that trash originating outside of Henniker isn't incinerated at Henniker's expense, as the Town has no control over where the commercial haulers make their collections. The effect was to lower the net cost of operating the T/S.

The Henniker Solid Waste Disposal Committee was created in May 2008, to once again look at the issue of solid waste disposal and recycling in Town (See Appendix 1).

## **APPENDIX 4**

### **Concord Regional Solid Waste/Resource Recovery Cooperative (Penacook waste to energy incinerator and Franklin ash landfill)**

The Concord Regional Solid Waste/Resource Recovery Cooperative (COOP) was formed in 1985 to provide for the long-term disposal of the MSW waste generated by its member cities and towns. It is a non-profit corporation designated as a political subdivision of the State which carries out a public purpose and an essential government function. Its members comprise three cities (Concord, Laconia and Franklin), and twenty-four towns, one of which is Henniker. All of Henniker's immediate neighbors are members of the COOP.

The COOP disposes of solid waste by sending it to a waste-to-energy incinerator near the Merrimack River in Penacook, designed, built and owned by the Wheelabrator Concord Company, a subsidiary of Waste Management, Inc. It is incinerated there under the terms of the COOP's contract with Wheelabrator. The incinerator became operational in 1989.

A waste-to-energy incinerator is one that uses the heat from incineration to create steam which can be used for heat and/or the generation of electricity. The Wheelabrator incinerator uses the heat of incineration to power a 14 megawatt electric generator. Some of the electricity is used internally to operate the incinerator, most is sold to Public Service of N.H. under the terms of a long-term contract. The incinerator is capable of processing 500 tons of trash a day and operates twenty-four hours a day, seven days a week. It was operating at less than 400 tons per day in mid-2009. Electricity sales cover about one-third the cost of operating the facility. The incineration ash, about 10% by volume of the amount incinerated, is trucked to an ash landfill in Franklin owned and operated by the COOP.

The incineration of trash results in numerous toxins, heavy metals, and particulates in the exhaust gases. Most are removed by a series of filters and scrubbers before the exhaust gases are released to the atmosphere at the top of a tall stack (chimney). Contaminants remaining in the exhaust gases must be concentrations less than limits specified in State (Department of Environmental Services) and Federal regulations. Pollution control monitoring equipment sounds alarms when any of those limits are close to being exceeded.

Henniker is required under the terms of its contract with the COOP to send all its trash to the Penacook incinerator for incineration, However, absent the contract, there is no alternative for the disposal of the Town's trash that is less expensive than the Penacook incinerator. Moreover, the contract is an advantage to the Town as it guarantees a way to dispose of its trash for at least the next ten years. The current (2009) "tipping fee" of \$45.90 per ton is considerably less than the over \$60 per ton disposal fee at the two closest landfills (Lebanon and Rochester), both of which would also involve higher transportation fees. Also, COOP "profits" are invested and available for future COOP projects, such as a proposed single-stream recycling facility.

The Town's contract with the COOP includes an annually-negotiated Guaranteed Annual Tonnage (GAT) figure. If the Town exceeds the GAT, it can "tip" the overage at a reduced tipping fee that excludes the COOP's administrative fee. On the other hand, if it sends less trash to the incinerator, it is liable to the COOP for the COOP's fee on the shortfall. In short, it fixes the COOP's revenue each year at a predetermined amount.

The COOP increased the tipping fee significantly, to \$62.10 per ton, beginning 12/1/2009, in response to an increase in fees imposed by Concord Wheelabrator Company. Further increases are expected in the future, although yearly increases will most likely be less than this year's increase, which follows many years of modest increases. The tipping fee was \$36.45 per ton when the COOP was first formed.

Tipping fees collected by the COOP are used to cover the cost of incineration (54%), the cost of operating the landfill (38%), and COOP administrative costs (8%). The COOP has plans to build a single-stream (S/S) recycling facility next to the incinerator in Penacook, but those plans are on hold for economic reasons. The current low prices for recycled materials means the facility would not generate as much revenue as was initially expected. Also, the COOP has been unable to get a guarantee from member and other Southern New Hampshire cities and towns for the amount of recycled materials needed to achieve the volume needed to operate the facility efficiently. Both situations could become more favorable in the months and years ahead.

The Town will not be required to switch to S/S recycling if the COOP carries through with its plan to build a S/S processing facility, but the COOP would very much like Henniker "to come onboard" if the facility is built. The greater the volume of recyclable materials processed, the greater the economic efficiency of the facility. However, once Henniker signs a contract with the COOP for the delivery of its recyclable materials, it becomes a binding contract for fifteen years, with limited escape clauses.

## **APPENDIX 5**

### **Transfer Station and Recycling Center Economics**

The Transfer Station and Recycling Center (T/S) is funded by a combination of Town (taxpayer) funds approved annually at town meeting, revenue from the sale of recyclable materials, user fees, reimbursements from commercial haulers and hazardous waste disposal partner towns, and grants. The costs of operating the T/S are fairly predictable on a year-to-year basis, but annual revenue is more difficult to forecast, owing to the volatility of the market for recycled materials.

Revenue generated by the T/S does not flow directly to the T/S, rather it becomes part of the Town's general fund. This means that the T/S must operate within the fiscal constraints of the money authorized each year at Town Meeting, regardless of how much or how little revenue it generates during the year. Nonetheless, any revenue generated by the T/S, from whatever source, helps reduce the amount of money needed to be raised each year from taxpayers, and thus it contributes directly to a lower tax rate.

Looked at over a nine-year period, 1999 thru 2008, the total amount spent each year has increased about 91%, from \$295,189 to \$564,659 per year. That's an annual rate of about 6.7%, compound-ed. But that increase should be looked at in the context of population growth, which grew from 4,433 in 2000 to 5,053 in 1998, an annual increase of about 1.9%, and the Consumer Price Index, which grew at an average annual rate of 2.5% during the same period. Expenses grew at a rate that was about fifty percent greater than population growth and inflation. There are a lot of reasons for that growth.

The picture looks better when one looks at the net cost to the Town of operating the T/S, as revenue from all sources increased from \$39,030 in 1999 to \$161,467 in 2008, an annual increase of about 13.5%. That lead to a net cost (expenses after all revenue sources credited to the T/S) of \$256,159 in 1999 to 403,192 in 2008, an annual increase of about 5.2%, higher than population growth and inflation combined, but under the 6.7% increase in total expenses.

The average increase in revenue of 13.5% a year over a nine-year period doesn't paint an accurate picture of the long-term trend in revenue growth, however, as much of the increase occurred in 2005 as a result of the newly-instituted requirement for commercial haulers to reimburse the Town for the cost of incinerating the trash picked up from their customers. That cost shift, from taxpayers to the customers of the commercial haulers, netted the T/S \$64,185, and by itself very nearly doubled the prior year's revenues. From 2005 onward, T/S revenues increased only moderately.

It is important to understand that of \$161,467 in revenue in 2008, only \$46,043 was from the sale of recyclable materials (28%). Of the total cost of operating the T/S, \$564,659, only 8% was covered by the sale of recyclable materials. That figure is expected go down in 2009 and probably will stay down in 2010, due to the recession. If the avoided cost of incineration (\$21,570: 507 tons at 42.55/ton) is added to recycling revenue, it results in a total financial benefit of recycling of \$67,613 in 2008, 12% of total operating costs. That neglects any of the costs associated with recycling operations, which are not insignificant.

What this says is that in order to reduce the overall cost of operating the T/S, there is more leverage in reducing operating costs than there is in increasing recycling revenue. (This ignores the environmental benefits of increased recycling.)

In order to evaluate options for changes in operations and policy at the T/S, it is useful to examine T/S expenses. In 2008, of total expenses of \$570,061, using figures from the Town Finance Office, \$363,889 (64%) could be considered as overhead expenses, the largest component of which is labor and benefits (52%), at \$294,037. Direct costs such as incineration tipping fees, transportation, landfill charges for C&D debris, and the like, amounted to \$206,172, 36% of the total. Not much can be done about these direct costs, and they can be expected to increase in the years ahead. The only area where big savings might be made is in a reduction in labor costs.

These numbers suggest another way of looking at the situation. Much is made of the tipping fee of \$42.55 per ton for trash (\$45.90 in 2009, \$62.10 in 2010). But if one looks at the total tons of material processed by the T/S each year, the net cost to the Town amounts to about \$218 per ton. This number is derived by taking the net operating cost of the T/S of \$403,192, deducting the landfill monitoring cost of \$9,733, then dividing the result by 1,805 tons, the amount of trash and recyclable materials handled by the T/S in 2008. This assumes that the cost of processing C&D debris is fully offset by user fees, which is not strictly the case.

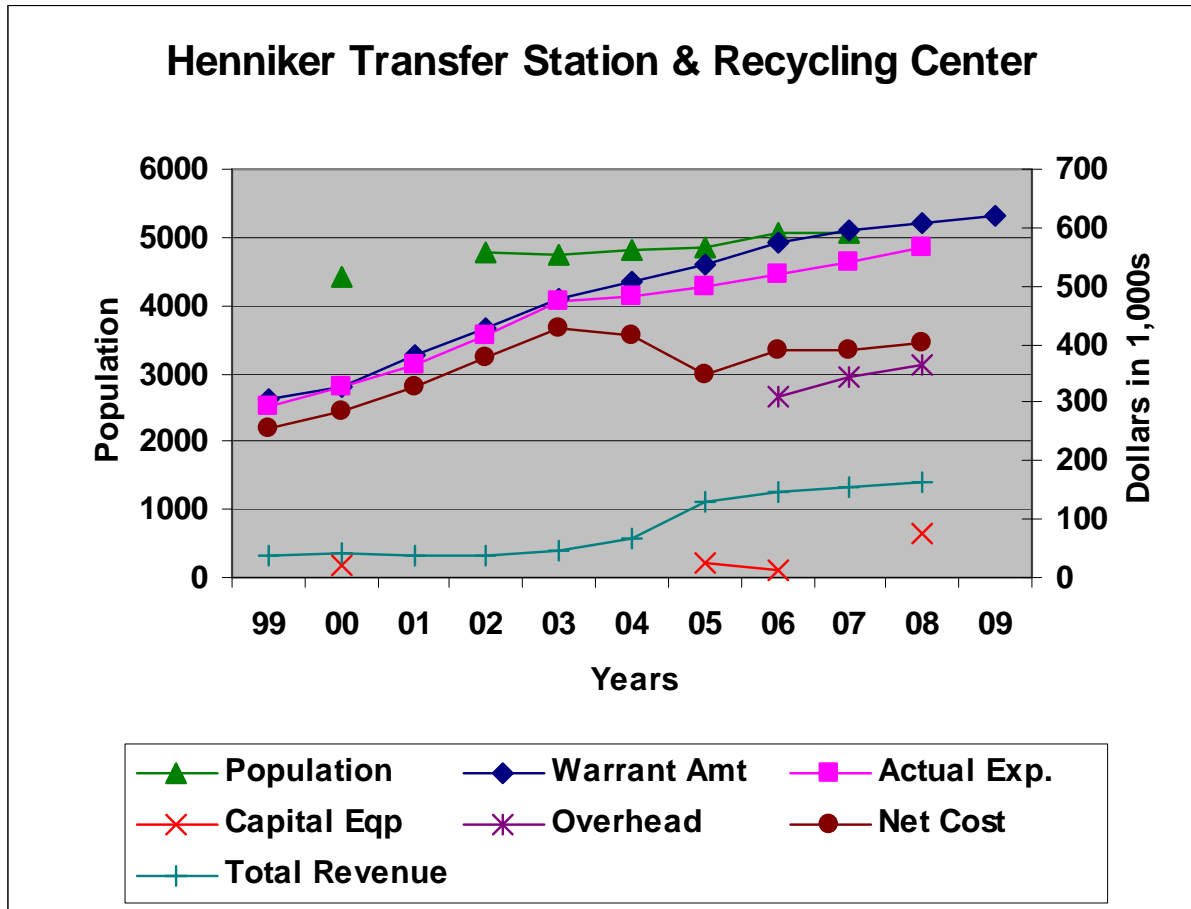
The net cost per ton reflect both the expenses associated with incineration, landfill disposal of C&D debris, transportation, and other disposal costs, offset by recycling, incineration reimbursements, and other revenues, including grants. Included in the expenses are the costs of operating the Swap Shop, costs associated with processing and handling recyclable materials, and costs associated with handling special items such as electronic waste, batteries of all types, items containing mercury, vegetable and mineral oils, and other special materials.

It is very difficult to develop gross costs per ton for the disposal of trash, as there is no good way to allocate T/S overhead between trash disposal operations and all the other functions performed at the T/S. But one crude measure may be instructive. In 2008 the Town spent a total of \$564,659 disposing of 4,198 tons of MSW and other materials, including C&D debris and trash hauled to the incinerator by commercial haulers, for an average cost per ton of \$134.50.

It is also interesting to look at these numbers on a per capita basis, as there are industry-wide data with which to compare. In 2008, Henniker generated a little over four pounds of MSW per person per day (excludes C&D), which is just about the national average. The net cost per Henniker resident of disposing of all this material was about \$78 per person in 2008. This neglects any out-of-pocket expenses of individuals and businesses for commercial hauler fees, C&D debris disposal fees, and fees for the disposal of other special items such as TVs and refrigeration equipment. The total cost to the people of Henniker for solid waste disposal services was certainly more than \$78 per person.

For a graphical depiction of some of these numbers, please refer to Appendix 6. The revenue numbers used in the chart for 2006-2008 are those reported by the T/S. They vary slightly from those reported by the Town Finance Office, due it is presumed to timing differences in when some revenues are reported. The differences are insignificant for the purposes of this analysis.

**APPENDIX 6**  
**Chart of Transfer Station and Recycling Center Economics**



This graph shows changes in T/S revenues and expenses over a ten-year period, as well as population growth during the period. The Warrant Amounts are the amounts authorized at Town Meeting to be spent during the year. Actual Expenses are those that were incurred. Net Costs are Actual Expenses less Total Revenue. Total revenue includes revenue from all sources. It includes recycling revenue, grants, C&D fees, T/S sticker fees, and incineration reimbursement fees from commercial haulers and payments from neighboring towns that co-host Household Hazardous Waste Day with us. Note the big jump in Net Revenue, and the corresponding drop in Net Cost, in 2005, the year commercial haulers started paying the incineration fee for the trash they collect.

Data for overhead costs was only conveniently available for the years 2006 through 2008. Capital Equipment costs reflect separate warrant article amounts for the purchase of specific pieces of equipment to be used at the T/S, and do not include any revenue that might have been generated by the sale of the equipment that was replaced. Capital Equipment expenses are not included in the Warrant Amount or Actual Expenses amounts.

**APPENDIX 7**  
**Henniker Transfer Station and Recycling Center**  
**Expenses, Revenues, and Materials Processed 1999 to 2009**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Warrant Amount</b>	306,313	324,916	382,746	427,981	476,745	508,939	537,208	574,140	596,072	609,012	622,335	688,355
<b>Actual Expenditures</b>	<b>295,189</b>	<b>325,404</b>	<b>364,171</b>	<b>414,629</b>	<b>472,284</b>	<b>482,028</b>	<b>497,939</b>	<b>521,372</b>	<b>541,813</b>	<b>564,659</b>		
<b>Annual Change in Exp.</b>		10%	12%	14%	14%	2%	3%	5%	4%	4%		
<b>Total Revenues</b>	<b>39,030</b>	<b>40,922</b>	<b>37,583</b>	<b>35,711</b>	<b>46,769</b>	<b>65,912</b>	<b>148,401</b>	<b>131,716</b>	<b>153,982</b>	<b>161,467</b>		
<b>Net Cost to Town</b>	<b>256,159</b>	<b>284,482</b>	<b>326,588</b>	<b>378,918</b>	<b>425,515</b>	<b>416,116</b>	<b>349,538</b>	<b>389,656</b>	<b>387,831</b>	<b>403,192</b>		
<b>Annual Change Net \$</b>		11%	15%	16%	12%	-2%	-16%	11%	0%	4%		
<b>Recycling Revenue</b>	<b>12,024</b>	<b>14,887</b>	<b>7,328</b>	<b>11,915</b>	<b>19,199</b>	<b>31,929</b>	<b>25,965</b>	<b>30,631</b>		<b>46,043</b>		
<b>R/C Rev Pcnt Tot Rev</b>	31%	36%	19%	33%	41%	48%	17%	23%		29%		
<b>R/C Rev Pcnt Act Exp</b>	4%	5%	2%	3%	4%	7%	5%	6%		8%		
<b>Labor &amp; Benefits</b>								253,885	272,317	294,037		
<b>Labor Pcnt of Act Exp</b>								49%	50%	52%		
<b>Other Overhead Exp</b>								55,237	69,474	69,852		
<b>Total Overhead</b>								309,122	341,791	363,889		
<b>O/H Pcnt of Act Exp</b>								59%	63%	64%		
<b>Direct Costs</b>								216,348	200,782	206,172		
<b>Population</b>		4433		4763	4757	4817	4867	5081	5063	5164		
<b>Cost per Person (\$)</b>		64		80	89	86	72	77	77	78		
<b>Tons Incinerated:</b>												
<b>From T/S</b>								1,523	1,331	1,106		
<b>Com'l Haulers</b>								1,604	1,733	2,038		
<b>Total Tons</b>		<b>2,783</b>	<b>2,822</b>	<b>2,939</b>	<b>3,075</b>	<b>3,068</b>		<b>3,128</b>	<b>3,064</b>	<b>3,144</b>		
<b>Tipping Fee (\$/ton)</b>						37.15	38.65		42.50	42.55	45.90	62.10
<b>Tons Recycled:</b>												
<b>Cardboard</b>		127	98	90	104							

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cardboard/Newsprint					116	116	162	152		144		
Newspappers/Mag	109	119	91	146								
Magazines/Mixed Paper					146	147	92	80		87		
Glass	48	55	48	58	80	86	92	102		94		
Plastics	8	8	12	13	15	19	9	16		17		
Aluminum Cans	4	4	4	5	5	5	5	4		6		
Scrap Metal						254	162	125		107		
Tin Cans						12	12	11		11		
Metal & Tin Cans	159	194	252	212	239							
Propane Tanks (20#)	2	2	2	4		4	3	5		5		
Propane Tanks (1#)	0	0	0	0	0	0	0	0		0		
White Goods						23	27	30		31		
Auto/Hsehd Batt	1	2	2	2	2	2	3	5		5		
Subtotal Official R/C	458	482	501	544	603	668	567	530		507		
Computer/Display/TV					4	22	24	18		18		
Clothing (used)	8	12	15	16	18	21	25	27		24		
Swap Shop (est)	5	5	7	8	11	23	20	30		29		
Brush/Cln Wood (est)				72	75	81	95	105		105		
Leaves	10	3	6	6	6	6	8	7		7		
Used Oil (tons)	8	8	8	8	8	8	9	7		9		
Subtotal Unofficial R/C	31	28	36	110	122	161	181	194		192		
Total Tons Recycled	489	510	537	654	725	829	748	724	766	699		
R/C Revenue/Ton	25	29	14	18	26	39	35	42		66		
Total MSW T/S Only								2,247	2,097	1,805		
Total MSW in Tons		3,293	3,359	3,593	3,800	3,897		3,852	3,830	3,843		
Recycle Rate (official)												
Town as Whole		15%	15%	16%	16%	18%		14%	20%	14%		
At Transfer Station								26%	37%	31%		
Tons of C&D Debris		199	257	260	324	362	357	349	283	355		
Tot MSW & C&D @T/S								2,596	2,380	2,160		

## APPENDIX 8

### Materials Accepted At The Transfer Station And Recycling Center

<b>Material: Recyclable MSW</b>	<b>Description</b>	<b>Special Handling</b>	<b>Disposal Fee</b>	<b>Disposition</b>
Aluminum	Beverage cans (soda, beer) only	Baled	No	Recycled
Aluminum	Cat food cans, foil, pie plates, etc	Baled with Tin Cans	No	Recycled
Cardboard	Corrugated & non-corrugated (no grease)	Baled	No	Recycled
Clothing	Clean & bagged. No rags.	Special Container	No	Reused
Glass & Ceramics	Bottles, mirrors, windows (no auto), ceramics	Special Container	No	Used as fill
Miscellaneous	Household goods, books, toys (no clothes)	Swap Shop (reusable items only)	No	Residents
Newspapers	Newsprint, can incl. glossy supplements	Baled, more valuable w/o supplements	No	Recycled
Paper	Mixed paper, junk mail, no tissue paper	Baled, clean white is most valuable	No	Recycled
Plastics	#1 PETE (beverage containers with neck)	Separated and baled	No	Recycled
Plastics	#2 HDPE (milk, detergent containers w/neck)	Separated and baled	No	Recycled
Plastics	#3 thru #7, incl some bags, no-neck #1 & #2	Separated from #1 & #2 and baled	No	Recycled
Scrap Metal	Appliances, bicycles, mowers, frames, rims	Roll-Off Container	No	Recycled
Tin Cans	Tin cans, non-beverage Aluminum	Container	No	Recycled
Vegetable Oil	Non-hydrogenated only	Special Container	No	Biofuel
<b>Other Items</b>				
Appliances w/Freon	Refrigerators, air conditioners	Freon removed, appliances in scrap metal	\$10	Special
Ashes	Ashes from clean wood fires	Special Container (\$20 for first 20 gallons)	\$20	Landfill
Batteries, Household	Alkaline batteries	Trash hopper	No	Incinerator
Batteries, Lead	Primarily automobile batteries	Palletized	No	Recycled
Batteries, Rechargeable	Lithium, Nicad, Button	Special Handling	No	Recycled
Brush, clean lumber	Clean wood less 5" diameter	Burned, weather OK. No lumber after 12/31/10.	No	Burned
Cell Phones	Cell phones	Special Handling (w/rechargeable batteries)	No	Recycled
Computer/TV Monitors	Greater than 4 in.	Special Handling (E-Waste)	\$7	Disposal Fee
C&D Debris	Construction & Demolition debris (general)	Roll-Off Container (\$25 per 8' pickup truck load)	By Wt.	Landfill
C&D Debris	Sheetrock, shingles	Roll-Off Container (\$50 per 8' pickup truck load)	By Wt.	Landfill
Electronics	Computers, misc. electronics	Special Handling (E-Waste)	No	Special
Furniture	Metal frames removed	Trash hopper, limits to qty. Frames to scrap metal	No	Incinerator
Garbage	Food wastes	Trash hopper	No	Incinerator
Leaves & Grass Clippings	Compostable yard waste	Not accepted, self-haul to Stone Falls Gardens	No	Stone Falls
Fluorescent lamps	Fluorescent lamps	Edmund's Department Store accepts	No	Edmunds
Mattresses	Mattresses	Trash hopper	No	Incinerator
Microwaves	Microwave ovens	Special Handling (E-Waste)	\$5	Disposal Fee
Motor Oil	Oil, kerosene, hydraulic fl. (non-synthetic)	Special container, used for heat at T/S	No	Burned at T/S
Propane Cylinders	11lb, 20lb, 30lb	Palletized	\$1,\$3,\$5	Disposal Fee
Tires	Car and light truck tires (no rims)	Trash hopper, limits to quantity	\$2	Incinerator
Thermostats	Items containing mercury (old thermometers)	Special Handling	No	Special
Trash	General household trash	Trash hopper	No	Incinerator
<b>Notes:</b>				
<b>1: C&amp;D Debris includes painted and treated lumber, wall board, shingles, linoleum, and other similar materials</b>				
<b>2: Hazardous materials, other than those included in the above items, are never accepted at the T/S.</b>				

## **APPENDIX 9**

### **Hazardous Material Disposal**

The T/S does not accept or process hazardous materials, with the exception of a few selected items that contain small amounts of specific hazardous materials. Special processing procedures have been established for these items. Examples are fluorescent lamps, thermometers, and thermostats containing mercury, which are accepted and sent to processing facilities where the mercury is safely removed. It's a similar story for lead acid batteries and refrigeration units containing Freon.

Many residents accumulate small quantities of hazardous and toxic materials that cannot be safely handled at T/S. It is in the Town's interest that these materials be disposed of properly. Accordingly, each fall the T/S designates one Saturday morning as Hazardous Waste Collection Day. On that morning residents can bring their hazardous materials to a special receiving area at the Waste Water Treatment Plant on Ramsdell Road for disposal. There, personnel qualified and certified to handle hazardous materials inspect and classify the materials, and then put them into appropriate containers. The containers are removed at the end of the day, and taken to a hazardous materials processing facility. Each resident is limited to approximately 10 gallons (20 pounds) of material.

Household Hazardous Waste Day (HHWD) is funded in part by a grant from the State of New Hampshire, and is open not only to the residents of Henniker, but also residents of Bradford, Hopkinton, Sutton and Webster. These neighboring communities each contribute \$1,800 to the cost of hosting HHWD. Businesses are allowed to take advantage of HHWD, but only if there is sufficient capacity remaining at the end of day, they pay an appropriate disposal fee, and they make advance arrangements. Henniker generally realizes a small "profit" each year from HHWD, ignoring the labor costs of T/S personnel.

The holding of Hazardous Waste Collection Day is a service the T/S (and the Town) provides to residents, but it is a service provided with an important underlying thought. If residents don't have any means of disposing of their hazardous materials, these materials are likely to be dumped in the ground or the sewer system, where they would contaminate the environment and could end up in our drinking water, or in the trash where they would either end up in the ash landfill or in the exhaust gases of the incinerator.

In 2008, 171 vehicles from Henniker, representing 205 households, brought hazardous materials for disposal to the collection area. A survey indicated many come every year, but some come less often. An annual collection day is adequate for most people, but a few indicated they would prefer semiannual hazardous waste collection days.

The following is a list of the types of hazardous materials that are accepted at HHWD. A few of these items can also be disposed of at the T/S, notably motor oil, automobile batteries, items containing mercury, and household batteries.

#### **From the Workbench**

Oil-based paints  
Stains & Varnishes  
Paint Strippers/Thinners  
Solvent Adhesives

#### **From the Yard**

Poisons, Insecticides  
Fungicides, Weed Killers  
**(No more than 10 gallons)**

**(No more than 10 gallons)**

**From the Garage**

Fuels/Kerosene/Gasoline  
Engine Degreaser  
Brake/Transmission Fluid  
Driveway Sealer  
Motor Oil  
Antifreeze  
Automobile Batteries

**From the House**

Rubber Cement  
Airplane Glue  
Chemistry Sets  
Furniture Polish  
Fluorescent Lamps  
Floor Polish  
Rechargeable Batteries

Rug & Upholstery Cleaner  
Hobby & Artist Supplies  
Photographic Chemicals  
Mercury Thermometers  
Oven Cleaner  
Metal Polish

The following items are not accepted at HHWD.

Aerosol Containers (empty)	Dispose in trash
Ammo, Fireworks, Explosives	Not accepted
Asbestos Shingles or Siding	Not accepted
Batteries (household alkaline)	Dispose in trash
Commercial or Industrial Waste	Not accepted
Latex Paint (non-hazardous)	Dry until solid, then dispose in trash
Infectious or Biological Wastes	Not accepted
Radioactive Waste, Smoke Detectors	Not accepted
Penta Brand Wood Preservatives	Not accepted
Pesticides containing 2,4,5 -T, Silvex	Not accepted
Prescription Medicines, Syringes	Not accepted
Propane Tanks	Dispose at T/S for a fee
Railroad Ties	Not accepted

Household Hazardous Waste Day is a valuable and useful service, but it should be noted that it still leaves residents with no convenient way to properly dispose of some hazardous or dangerous materials. These include asbestos (sometimes encountered in old buildings), ammunition and explosives, and radioactive materials. Infectious and biological wastes and prescription drugs are typically disposed of in toilets (sewer system and waste water treatment plant) these days, but there is increasing concern about this method of disposal, and new regulations governing the disposal of these materials can be expected in the future.

## **APPENDIX 10**

### **What Are Other Towns Doing?**

Most small N.H. communities operate transfer stations and recycling centers similar to Henniker's. They send their trash to incinerators or landfills, they separate their recyclable materials and sell them to generate revenue, and they don't offer any type of municipal trash collection service. There are commercial trash haulers which operate in these communities available to businesses on a fee basis, and in some communities those services are also available to residents.

The N.H. Department of Environmental Services collects, maintains, and publishes a great deal of information about the solid waste disposal and recycling operations of every N.H. town and city. One of the measures it calculates that is talked about a lot these days is each community's recycling rate, and some communities take great pride in boasting of relatively high recycling rates. The Committee thought it would be useful to measure Henniker's recycling rate with the recycling rates of surrounding communities. However, after studying the data it became clear that there are differences between communities that skew recycling rate data in ways that make comparisons based strictly on reported recycling rates questionable. The problem is compounded by the fact that the way recycling data is collected, maintained and reported varies between communities.

The situation in Henniker illustrates one of the problems. Henniker's "official" DES recycling rate in 2007 was 16.2%, which was not too different from the 19.9% reported in the Town's 2007 "Annual Report." That's not a good rate, by either State or National goals and standards. However, this rate includes all the trash collected by the commercial haulers in town (two-thirds of the total), very little of which is recycled. When the commercially-collected trash is deducted, the recycling rate of the MSW passing through the T/S in 2007 jumped to about 36%. That's a respectable, but not great, recycling rate. As reported earlier, it was 31% in 2008. Recycling rates are dependent on what is and is not included in the calculations.

Despite these limitations, there are ways to make useful comparisons between towns, and to learn something from our neighbors and other N.H. towns with well-run solid waste disposal operations. The Committee took two approaches to seeing what it could learn from other towns.

First, Committee members studied the NH DES data on our immediate neighbors, and then they visited the transfer stations of each one, where they interviewed staff members, usually the manager. They also visited the transfer stations of two communities which are not immediate neighbors, Peterborough and Plymouth, because both have a reputation of being exemplary transfer stations. A spreadsheet highlighting the findings, including recycling rates, is attached as Appendix 10A.

In brief, it was observed that most of our immediate neighbors have a mandatory recycling ordinance in effect, but enforcement tends to be loose, and compliance tends to depend mostly on the extent to which a recycling culture has been inculcated in the community. The transfer station for Hillsboro, Deering and Windsor requires that trash be disposed of in clear plastic bags, which are sold for about twenty-five cents each, as way of achieving relatively good compliance with its mandatory recycling ordinance.

Our larger neighbors, Goffstown and Concord, both offer residential curbside pickup of trash and commingled recyclable materials (single-stream).

Except for Goffstown, all our neighbors operate some type of swap shop, and it is clear that swap shops are popular with residents. The facilities and staffing afforded to swap shops vary quite widely, and some are operated by volunteers. Henniker's small but fully-enclosed, non-heated, swap shop is often staffed and is better than what's available in most communities, although space is limited.

Unit pricing for the disposal of trash (PAYT) is not in effect in any of the small communities surrounding Henniker, but it was just implemented in Concord, and it was narrowly defeated in Hopkinton at its 2009 town meeting. It is on the warrant in Hopkinton again this year, and billed as a SMART (Save Money And Reduce Trash) program. The big impediment to passage last year seemed to relate to the fact that Webster, which uses Hopkinton's transfer station, was not willing to switch to PAYT at the same time. The proposal in Hopkinton was for a traditional pay-per-bag system. A similar proposal in Bow was defeated rather solidly at last year's (2009) town meeting.

A big difference between Henniker and many surrounding communities is Henniker's lack of a truck scale for weighing outgoing loads and incoming C&D debris. Goffstown, Hillsboro (and Deering and Windsor), Hopkinton, and Washington all have truck scales.

The transfer stations of two N.H. communities stood out to the Committee, although they are not immediate neighbors. Peterborough is a mandatory recycling, Pay-Per-Bag community with a higher than average recycling rate. Plymouth has a mandatory recycling ordinance, and claims an unusually high recycling rate of over 70%. However, special circumstances are at work in Plymouth, as it does not accept any trash from businesses, but it does get a lot of recyclable cardboard from Plymouth State University, which boosts its recycling rate.

What stands out at these two facilities is an efficient flow of traffic, clear signage and other information designed to encourage recycling, and friendly, actively engaged staffs. Both facilities are clean and attractive. Peterborough's transfer station has a park-like area with gardens, birdfeeders and benches. Both facilities have truck scales. These two facilities are deserving of further study should Henniker embark on a redesign of its T/S.

The second approach the Committee took to comparing recycling rates between communities was to calculate rationalized recycling rates for a number of N.H. towns. The rationalized rates were calculated by assuming the total MSW generated in a community is the amount that would result if each resident generated the "standard" amount of about four pounds per person per day, and the amount actually recycled was as reported to the NH DES. These calculated rationalized recycling rates seemed to the Committee to be more reasonable for use for comparison purposes than the NH DES reported rates

The computed rationalized recycling rates were then compared with the rates reported by the NH DES, and thirteen communities were identified as having above average recycling rates. The reported recycling rates for these thirteen exemplary communities ranged from 35% to 71%, with an unweighted average of 49%. The rationalized rates ranged from 18% to 45%, with an unweighted average of 26%.

It is striking that the average rationalized recycling rate of the thirteen N.H. communities with the highest recycling rates is 26%, almost double Henniker's overall recycling rate in 2008 of 14%. This reinforces the point made earlier in this report that there is a potential for significantly higher recycling rates in Henniker. A spreadsheet with this data is attached as Appendix 10B.

**APPENDIX 10-A**  
**Solid Waste Disposal And Recycling By Henniker's Neighbors**

town	population 2007*	NHDES estimate: persons per sq mile water area not incld.	recycle plan	recycle rate 2007 as reported by NHDES	recycle rate 2007 w/o comm as reported by NHDES	recycle rate 2007 as reported by center mgrs.	solid waste plan	truck scale	swap shop
Antrim	2626	73.6	mandatory	25.27%	25.27%	no info reported	no charge for clear bags/\$1 for dark bags	no	yes
Bradford	1576	44.8	mandatory	39.11%	39.11%	60% 2007	co-op	no	yes
Goffstown	17688	476	mandatory but not enforceable curbside pickup town wide	34.89%	34.89%	32% 2008	single stream since 2004	yes	no
Henniker	2083 G 4922 includes 656 G	111.6	voluntary	16.18%	16.18%	36% @T/S 20% of total S.W. 2007	co-op	no	yes
Hillsboro Deering Windsor	5779 2065 200 tot = 8044	132.2 67.5 24.4	mandatory	10.75%	16.82%	26-28% 2007	co-op clear bags \$5.50/25 bags; 55 gal.	yes	yes
Hopkinton Webster	5590 1774 tot = 7364	129.1 62.7	voluntary	22.64%	22.64%	15.10% 2007	co-op	yes	yes plan to add building
Peterborough	6186	162.8	mandatory	51.34%	51.34%	77% 2007	PAYT \$15/10 bags; 33 gal. truck to Bethlehem Landfill	yes	yes "mini mall"
Plymouth	6473 includes 2142 Grp	229.5	mandatory	71.17%	74.87%	73.00% 2007	refuse commercial waste truck to Bethlehem Landfill	yes	"precycle" area a.k.a. "home depot"
Warner	2938 includes 109G	53.2	mandatory	20.25%	20.25%	19.19% 2007	co-op	no	yes
Washinton	980 1200 more in summer	21.5	voluntary	35.04%	35.04%	36% 2007		yes	yes "Washington Mall"
Weare	8952	151.5	Mandatory since 1992	16.39%	16.39%	28% 2008	Co-op Also research own deals & prices	Small set of scales up to 5000 lbs	Yes Trading Post

**APPENDIX 10-B**  
**Henniker Compared To Towns With High Recycling Rates**

Town	Rationalized Unrecycled MSW	Reported Recycled MSW	Rationalized Total MSW	MSW and Recycling Program	Rationalized Recycling Rate (%)	Reported Recycling Rate (%)	2007 Census population estimate
------	-----------------------------	-----------------------	------------------------	---------------------------	---------------------------------	-----------------------------	---------------------------------

*All data for 2007 except Henniker and New Boston*

	Tons per year	Tons per year	Tons per year		(Compare to Henniker overall rate of 14)	(Compare to Henniker T/S rate of 31)	
Henniker (2008)	3144 (Henniker data reported not rationalized)	507	3651	Voluntary	14.0	14 overall 31 at T/S only	5063
Plymouth	2579	2125	4704	Mandatory	45.2	71	6534
Peterborough	4003	871	4874	Mandatory Pay Per Bag	17.9	51	6770
Portsmouth	12763	2861	15624	Mandatory Dual Stream Curbside	18.3	54	21700
Rye	2917	1036	3953	Mandatory	26.2	41	5490
Goffstown	10551	2701	13252	Mandatory Single Stream Pay Per Bag	20.4	35	18406
New Boston (2008)	2732	898	3630	Mandatory	24.7	46	5042
Lancaster	1593	717	2310	Mandatory Pay Per Bag	31.0	62	3208
Canterbury	1243	422	1665	Pay Per Bag	25.4	40.3	2312
Exeter	8862	1970	10832	Single Stream Pay Per Bag Curbside	18.2	41	15044
Conway	5477	2030	7507	Mandatory	27.0	40	10426
Wolfeboro	3717	1228	4945	Mandatory	24.8	48	6868
Littleton	3061	1471	4532	Pay Per Bag	32.5	71	6294
Lee	2623	662	3285	Mandatory	20.2	36	4562

***These averages exclude Henniker***

Average  
**25.5**  
 This is 82% higher than Henniker's 14% overall rate

Average  
**48.9**  
 This is 57% higher than Henniker's 31% rate at T/S

**APPENDIX 11**  
**Glossary Of Terms**  
(Many are specific to this report)

BOS	Henniker’s Board of Selectmen
Business	For the purpose of this report, refers not only to conventional business establishments, but also to public and private educational institutions, recreational facilities, and other institutions such as White Birch Community Center in the town of Henniker. It also refers to apartment complexes and mobile home parks that typically hire commercial collection firms to dispose of their trash.
Commingled	A term used in conjunction with the term single-stream recycling. Single-stream recycling involves the mingling of various types of recyclable materials, such as paper, cardboard, plastics and aluminum beverage containers in a single container.
Commercial haulers	This term is used in this report to refer to the privately-owned commercial MSW collection firms that operate in Henniker. Town Regulation Chapter 101-17, which requires “commercial haulers” to reimburse the Town the cost of incineration of the trash they deliver to the Penacook incinerator.
Dual-stream recycling	A precursor to single-stream recycling, and a method falling out of favor. With dual-stream recycling all paper products, including cardboard, are collected in one container, and all plastic, glass and aluminum containers in a second container.
HDPE	High-density polyethylene is a polyethylene thermoplastic made from petroleum used to make liquid containers. It is used frequently for milk and liquid detergent containers. Classified as #2 for recycling purposes.
LDPE	Low-density polyethylene is a thermoplastic made from petroleum. It has excellent resistance to attack by acids and alcohol. Classified as #4 for recycling purposes.
Materials Recovery Facility (MRF)	Term commonly applied to a single-stream recycling facility, where the various types of recyclable materials are sorted and prepared for shipping.

Municipal Solid Waste (MSW)	Refers to wastes such as durable goods, nondurable goods, containers and packaging, food scraps, yard trimmings, and miscellaneous inorganic wastes from residential, commercial, institutional, and industrial sources, such as appliances, automobile tires, old newspapers, clothing, disposable tableware, office and classroom paper, wood pallets, and cafeteria wastes. <i>Excludes</i> solid wastes from other sources, such as construction and demolition debris, autobodies, municipal sludges, combustion ash, and industrial process wastes that might also be disposed of in municipal waste landfills or incinerators. (U.S. EPA, 1996b)
Number 7 Plastics	Miscellaneous plastics not classified as #1 thru #6. It is sometimes used for 3- and 5-gallon water bottles, sun glasses, and some food containers. Classified as #7 for recycling purposes, although it is not recycled often.
PAYT	Abbreviation for Pay-As-You-Throw, a program where residents are charged a fee for the trash they throw away at a landfill or transfer station. Typically there is a set fee per bag of trash disposed (Pay-Per-Bag), but weight-based and other payment systems are in use.
Pay-Per-Bag	A specific type of PAYT program, where trash disposal fees are assessed on the bags which must be purchased and used for the disposal of trash.
PETE	Polyethylene terephthalate, a thermoplastic polymer resin of the polyester family used to make food and beverage containers. Used frequently for juice and bottled water. Classified as #1 for recycling purposes.
PP	Polypropylene is a thermoplastic polymer used in a variety of applications, including packaging, textiles, ropes, and carpeting. Classified as #5 for recycling purposes.
PS	Polystyrene is an aromatic polymer that is one of the most widely used kinds of plastic. It is used to make disposable cutlery and CD & DVD cases, and is seen often in an expanded form as Styrofoam packaging and hot drink cups. Classified as #6 for recycling purposes.

PVC	Polyvinyl chloride is a thermoplastic polymer is often used in construction, especially for piping, because it is cheap and durable. Releases toxins when burned, Classified as #3 for recycling purposes, but it is not recycled often.
Recyclables	Materials recovered from the solid waste stream and transported to a processor or end-user for recycling. (National Recycling Coalition, 1995)
Recycling:	Refers to the series of activities by which discarded materials are collected, sorted, processed, and converted into raw materials and used in the production of new products. <i>Excludes</i> the use of these materials as a fuel substitute or for energy production. (National Recycling Coalition, 1995)
Recycling Rate	Refers to the percentage of the total municipal solid waste which is recycled, by weight (amount recycled divided by total of amount recycled plus amount discarded as trash). Does not include any C&D material, or many other special types of material.
SMART	Acronym used for Save Money And Reduce Trash programs, which are generally some type of PAYT program, in which a charge is imposed on the disposal of solid waste that ends up at an incinerator or landfill.
Solid waste stream	Refers to the flow of municipal solid waste materials from the point where they are initially discarded to the point where they are either disposed of as waste materials, usually by incineration or burial in a landfill, or processed as recyclable materials.
Single-stream recycling	A recycling system in which all common recyclable materials (cardboard, paper, plastics, aluminum, tin cans, glass) are collected in a single container at the source. They are then taken to a special facility where the various types of recyclable material are sorted through a combination of manual and automated processes so that each type of recyclable material can be sent to the appropriate recycling facility.
S/S	Abbreviation for the term single-stream recycling.
trash	Refers to all MSW taken to the Penacook incinerator for disposal, for the purposes of this report. It is solid waste which includes recyclable materials, to the extent they haven't been removed for recycling.

Tipping fee	The fee charged per ton of material dumped, or “tipped”, at the Penacook incinerator or other solid waste disposal or recycling facility.
Town	The Town of Henniker, for the purposes of this report.
T/S	Abbreviation used in this report for the Henniker Transfer Station and Recycling Center
unit pricing	A term used to indicate that there is a price (fee) imposed on the disposal of trash, based on some unit of measure, be it by bag, by weight, or by trash container.
white goods	A term, somewhat out of usage these days, used to describe heavy consumable durables such as stoves and refrigerators, which traditionally were almost always painted white. (The term is also used to describe things made from white cotton or linen fabrics.)

Note: Many of the definitions listed in this appendix are from Measuring Recycling: A Guide for State and Local Governments, published by the U.S. Environmental Protection Agency, EPA530-R-97-011, September 1997.