Hatch Hill Regional Recycling Plan

Final Report
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Presented By:

Renaissance Planning Associates
And
The Hatch Hill Regional Recycling Planning Committee

Table of Contents

Executive Summary

Background

This study was funded by a Regional Efficiencies Grant from the State of Maine Division of Purchases, with matching funds provided by the City of Augusta through the Hatch Hill Enterprise Fund. Its purpose is to evaluate the current recycling collection and processing systems used by the nine communities sending waste to the Hatch Hill Solid Waste and Recycling Facility (hereinafter referred to as Hatch Hill), and to suggest strategies that will improve recycling throughout the region. Each community was asked to appoint a representative to an oversight committee, which met monthly over the twelve-month study period to review and discuss the work compiled by the consultant. This report presents the findings and recommendations of the committee.

In the early 1990's Maine was at the forefront of efforts to establish municipal recycling programs. State grants provided many municipalities with funding to purchase collection vehicles and processing equipment. This, and a strong commitment to environmental protection, contributed to Maine's achieving recycling rates that were among the nation's highest. Since then, recycling rates in many communities have waned, equipment reached the end of its useful life, and both state and local government currently lack the funding needed to revive local programs.

Many people question whether recycling still makes economic sense and is worth the effort. Today, current economic and environmental conditions provide more reasons that ever for recycling. Numerous studies have documented the benefits of recycling – cost savings, job creation, economic development, energy savings, natural resource conservation, pollution prevention, and lessening of our carbon footprint.

Current Conditions and Issues

Currently the solid waste and recycling collection system in the region is highly fragmented and inefficient. Each community has an agreement with Hatch Hill to dispose of waste at the landfill, but how the waste is transported is left to the community. Augusta is the only one of the nine communities that provides curbside collection of its residents' solid waste and recycling. The remaining towns rely on private haulers; residents individually select a hauler or may transport waste to Hatch Hill on their own. Several (though not all) of the haulers offer curbside collection of recyclables.

Augusta collects recyclables from residents once per month. The city also provides a drop-off trailer for residents at the public works facility and the landfill. Three other communities – Hallowell, Pittston and Whitefield – provide a central recycling drop-off site. Residents in the remaining communities must either transport recycling themselves or rely on private haulers.

As a result, household recycling rates in the region are very low and fall below state averages. The region exceeds state averages for recycling wood, bulky waste and leaves; this is largely because the Hatch Hill Facility has established a ban on disposing of these items in the landfill.

In addition, residents who depend on private haulers for collection are paying a premium for the service – they pay approximately double the cost of households in communities where a single, municipal hauler provides collection. Most residents of the region use private haulers for solid waste collection. There are a number of components to the cost of the solid waste disposal and recycling systems in the region. These components are Hatch Hill disposal fees and collection costs.

Hatch Hill fees are divided into two parts. Each municipality pays an annual host fee to access services at the facility; the cost of this is $15 per person. This fee comes out of municipal property taxes. Hatch Hill

also charges a tipping fee to all customers who bring in trash or recyclables; the cost is $70 per ton for all solid waste, and $30 per ton for recyclables. In addition, residents who transport their own waste must first purchase a permit which costs $15 and is valid for two years.

Residents who rely on private haulers to collect and transport their waste pay the hauler directly for the service. An average household pays approximately $4.50 per week (or approximately $235 per year), which covers both the cost of collection and the tipping fee that the private hauler pays to Hatch Hill.

The current structure of waste collection in this region creates a variety of opportunities for improving recycling and decreasing overall costs. Regionalizing collection and processing holds the greatest potential for achieving these results. However, the nine communities using Hatch Hill vary widely in their enthusiasm for recycling and their capacity to assume additional solid waste and recycling collection responsibilities. Thus, in structuring our recommendations, the committee believes that it is essential to offer municipalities a selection of options to achieve the goals outlined herein.

In addition, changes to the current system must incorporate financial incentives that make recycling more attractive. Municipalities have a heavy burden of existing mandates and financial obligations, and will likely be unwilling to voluntarily create a recycling infrastructure if it means additional cost outlays. Haulers too, need incentives, as the additional time spent collecting recycling is often viewed by private haulers as a burden. It will be important to educate municipal officials about the need to extend the current landfill life. Landfill expansions are very expensive, and over the long term, it is far more cost-effective for municipalities to find ways to extend the landfill's life.

Recommendations

<u>Goal</u>: Increase recycling fivefold over a five-year period. The quantity collected would rise from 601 tons currently collected to 3067 tons annually, bringing the region up to the current average state-wide recycling rate.

Each community would be assigned an annual target goal based upon their population.

<u>Method</u>:

A. Establish a two-tier committee structure that would organize, implement and oversee the plan.

- **At the municipal level, each town would establish a local recycling committee that would work to develop a recycling collection program acceptable to the town, and educate residents about the benefits of recycling and the need to meet recycling targets.**

  Several towns already have existing committees in place.

  Each community would be responsible for developing a recycling collection strategy capable of reaching its target recycling goals. Communities may select their own collection strategy or participate in a regional program with other communities.

- **One person from each local committee would be appointed as a representative to serve on a regional committee. The regional committee would work to increase recycling in the region, evaluate whether individual municipalities have met their annual targets, oversee establishment of a regional processing facility, and offer recommendations about the distribution of funds dedicated to improving recycling collection and processing.**

The increased volume of materials will require changes to the existing processing system. Currently, Hatch Hill accepts #2 plastic, tin, glass and newspaper. The facility has a compactor for collecting cardboard, and a vertical baler. Most materials are transported loose (not baled) and are brokered through CF Goodwin, a Scarborough-based subsidiary of Casella Waste Systems.

The volume of recyclables that would be generated if regional goals are met would support the costs of operating a non-profit recycling processing facility like those operated by Lincoln County or Sandy River. It could take a number of years to reach the point where this is feasible.

In the interim, a phased plan is offered to handle increased recycling collections until a new processing center is developed.

B. Establish financial incentives.

To generate motivation for increased regional recycling and assist with funding the new program, the costs of solid waste disposal and collection need to be restructured, with built-in incentives for recycling. To do this we recommend the following:

- **Adjust the host fees.** The host fee paid directly by municipalities could be increased for towns not willing to develop a recycling program.

- **Adjust the tipping fees.** The current tipping fees could be revised to provide an incentive for recycling. We recommend reducing the current $30 recyclable tipping fee and increasing the MSW tipping fee.

- **Improve the current collection and processing systems.** For instance, municipalities could put out RFP's for recycling and/or trash collection to manage costs. The money saved could be redirected to improve the recycling system in the community.

C. Other components of the plan include:

- Establish and promote a regional recycling identity

- Establish a uniform list of acceptable materials

- Develop an effective education, promotion and outreach program.

The committee believes that the single most effective method for increasing recycling is to adopt a pay-as-you-throw/pay-by-the-bag type of system accompanied by curbside collection of recyclables, and recommends that municipalities seriously consider adopting such a system.

Not all towns in the region may be able to shift to this system; thus additional methods to increase recycling are provided.

The committee views the recommendations offered in this report as a starting point, a first step towards waste reduction. A number of people on the committee wanted to include additional recommendations addressing small business and institutional recycling and composting. All agreed that first it was essential to establish a basic recycling infrastructure which the region currently lacks. Once the recommendations offered here have been implemented, additional efforts should be directed to improving recycling among small businesses and institutions, and encouraging residents, institutions and applicable businesses to compost.

Section 1 Introduction

Objectives of the Study

The City of Augusta initiated this Regional Efficiencies planning study, funded by the State of Maine, to evaluate recycling at the Hatch Hill Solid Waste and Recycling Facility and within the nine communities using the facility. The overall goal of the study is to develop a plan to improve and expand municipal recycling within the region.

The recommendations outlined herein touch on all components of the recycling program, including education and outreach, the quantity and range of items collected, processing improvements, and the development of recycling goals and incentives for municipalities and private haulers. Together, these recommendations offer practical, feasible and proven methods to increase recycling rates throughout the region.

It is important to recognize the existing bulky item recycling operation at Hatch Hill, which in 2006 diverted 14,462 tons of metals, leaves and yard waste, demo debris and wood from being landfilled. This rate of material recycling, along with recycling from the commercial sector has primarily been responsible for the region's recycling rate of 47.60 %.

Participants

Each of the nine municipalities using the Hatch Hill facility (Augusta, Chelsea, Farmingdale, Gardiner, Hallowell, Manchester, Pittston, Randolph and Whitefield) was asked to appoint a representative to the committee. The study was conducted with the active participation of the following committee members:

Jeremy Pare – Manchester Representative
Ruth Botkin – Randolph Representative
Scott Laliberty – Augusta Representative and Owner/Operator of Riverside Disposal
Joel Davis – Hallowell Representative
Judy Dorsey – Gardiner Representative
Celeste Turner- Chelsea Representative
Earnest Plummer – Pittston Representative
Lesley Jones – Solid Waste Director, Augusta Public Works
John Charest – Director, Augusta Public Works

The committee participated fully in the development of this report and helped to refine and customize the final recommendations. Meetings were held monthly for a nine-month period and included tours of the following recycling facilities: Bangor Area Recycling, University of Maine at Orono, Sandy River Recycling, Lincoln County Recycling, Eco-Maine, and the Hatch Hill facility.

The commitment and enthusiasm of all the committee participants was a critical component in the process of drafting this study. Because committee members were drawn from the communities in which they live, they understand the unique character of their towns. Their input has resulted in practical, feasible recommendations for improving recycling in the region, and should lead to future success in putting the recommendations into action.

Recycling Study Planning Process

Over the past nine months the Recycling Committee has researched, explored, and discussed many strategies to promote recycling. A great deal of data was generated and many options were reviewed before a final set of recommendations was created. Throughout this planning process, members of the committee heard from many anxious citizens and municipal leaders who were ready to put into action local plans to improve recycling. The committee was also keenly interested in developing a workable recycling plan as quickly as possible. The results of the Recycling Committee's hard work are a number of reasonable recommendations to improve recycling throughout the region. Although many strategies and ideas were discussed, the final plan sets forth a workable recycling strategy.

An appendix is available which contains a summary of the strategies considered and data used to develop the study.

There still remain some future organizing and planning steps before communities can roll up their sleeves and begin a new recycling program. However, for those citizens ready to go, the remaining organizing steps are practical and involved with actually implementing the recommendations of this plan.

How the Study is Organized

The study identifies a number of goals developed by the committee which were used to select the final recommendations for improving recycling within the region. The vision and specific goals for regional recycling are presented in Section 2 of the plan.

A summary of the nine municipalities in the region is described in Section 3 of the plan. The summary outlines how each community currently deals with both municipal trash and recycling collection. A description of the existing recycling operation at the Hatch Hill Facility is also provided. An analysis is provided of the future trash and recycling cost if the Hatch Hill Landfill is closed, to illustrate the benefits of the landfill operation.

The recommendations are described in Section 4 of the study and are organized in the following categories:

- General Recommendations
- Recycling Recommendations for Outreach and Education
- Recycling Collection Recommendations
- Recycling Processing Recommendations

Municipalities are also provided with a number of recycling collection options in Section 5 in the event a community does not wish to select the primary collection recommendation. The options are presented to respect the diverse character of the nine member communities.

An implementation schedule is provided in Section 6 which provides a timetable for putting this plan into action over the next decade.

An appendix containing data collected to support and inform the committee's work is provided in a separate document.

Recycling Benefits

The overall objective of this study is to establish a plan to increase recycling. Many people will take the premise of this objective --that more recycling is beneficial --as self-evident. Although a significant number of people understand the benefits of recycling, some question whether it is really worth the effort. Therefore, it is still valuable to list why recycling can be beneficial to both households and municipalities. The following are some of the key benefits to increased recycling in the region.

- There is a positive environmental benefit for reusing material rather than turning it into trash.
- Recycling takes a waste product and turns it into a valuable commodity.
- The reuse of material avoids the cost of processing virgin materials. Extracting and processing virgin materials damages natural areas, creates more pollution and uses more energy than recycling the same material. As a result, recycling conserves natural resources and reduces our impact on global warming.
- Recycling creates jobs. Labor is needed to collect, process and transport materials.
- Recycling can create revenue by selling the materials. A well run recycling program saves most communities money, and in some cases can generate a profit for municipal budgets.
- Disposal cost for recycling is less than for trash. The current tipping fee for trash is $70 per ton as compared to $30 per ton for recyclables.
- Recycling will extend the life of the Hatch Hill Landfill. If the nine communities using Hatch Hill reach their annual target recycling goal of 3,067 tons in 5 years this will result in a five-fold increase over the current recycling rate. At this rate, one year of landfill life is saved for every 10 years of operation. Thus, recycling 3,067 tons of materials annually over the next 14 years (which is the anticipated life span of the landfill) will extend the life of the landfill another 1.4 years. Each year of extended landfill life saves two to three million dollars in bond payments alone. By helping to extend the life of the landfill future costs for disposal alternatives can be delayed. Costs to transition from a landfill to a transfer facility will be expensive.
- Depending upon how future fees and recycling incentives are designed, both households and municipalities will see lower overall disposal costs.

Future Steps

The Recycling Study provides a great deal of information and lists a number of recommendations for improving recycling in the region. The success of the plan should be measured by how the nine communities using the Hatch Hill Facility decide to implement these recommendations. The next immediate task will be to solicit community support for this plan and a commitment among the public and municipal leaders to put this plan into action.

Hatch Hill will begin the implementation process by creating a common list of recyclables to be collected and expanding the types of recyclable materials. The next step will be to create a regional recycling committee to begin the process of making the plan a reality. It is also recommended that each community form a local recycling committee to coordinate with the regional group and implement local recycling strategies.

Definitions of Common Terms

The field of recycling and solid waste uses a number of terms and definitions that might not be self-evident to the casual reader. Listed below are definitions for some of the key terms used in this study.

Adjusted Recycling Rate- This is the base recycling rate plus a returned bottle credit and a compost credit as calculated by the State Planning Office.

Base Recycling Rate- This is the total tons of recyclable items divided by total tons of MSW.

Bulky Waste- These are solid wastes that do not typically fit into a 30-gallon trash container, and may include such items as furniture, mattresses, wood, and large appliances.

Construction/Demolition Debris (CDD)- These are wastes generated by building, construction, remodeling and/or destruction activities and may include such wastes as wood and wood products, concrete and brick, gypsum board, shingles, and other common components of buildings.

Household Hazardous Wastes- These are items generated by households that are corrosive, toxic, ignitable, or reactive, and as such are hazardous to humans and/or the environment if disposed improperly.

Municipal Recyclables- These are items recycled from households such as newspaper, cardboard, boxboard, office paper, magazines, books, tin cans, glass, and plastic containers.

Municipal Solid Waste (MSW) - this is solid waste emanating from household and normal commercial activities.

Single/Sole Hauler- This is one hauling company contracted by the town to collect municipal trash and/or recyclables throughout the municipality.

Tipping Fee – The fee charged by disposal facilities to dispose of waste, which is typically assessed based upon weight or volume.

Total MSW- This includes municipal solid waste, bulky waste and recyclable goods.

Universal Wastes- This category of wastes includes: nickel cadmium batteries, small sealed lead acid batteries, lamps (fluorescent tubes, sodium high pressure, metal halide, high intensity discharge, neon, mercury vapor), cathode ray tubes (CRT) in TV's and computer monitors, non-leaking light ballasts containing PCB's and mercury-containing products including thermostats, scientific and medical devices, electrical switches and relays.

Section 2 Vision and Goals

Vision

A vision statement is presented to illustrate the overall goal and direction for recycling in the region. The vision statement provides the region with a sense of where we would like to be within the next ten to twenty years and hints on how to get there.

Recycling in the region will increase dramatically over the next five years and the nine communities using the Hatch Hill Facility will forge a strong regional recycling alliance. The nine Hatch Hill communities will be committed to improving and enhancing recycling, creating financial and environmental benefits for our inhabitants. Some of the specific elements of our vision include the following:

- ***Recycling becomes a priority throughout the region;***
- ***Communities actively promote and encourage recycling;***
- ***Recycling reduces solid waste disposal cost;***
- ***Recycling extends the life of the landfill;***
- ***A common regional recycling program will eventually be created for the participating Hatch Hill Communities; and***
- ***The participating communities operate and administer the recycling program.***

Opportunities

The nine communities are in a unique position to consider making a bold initiative to improve municipal recycling. A number of advantageous conditions have presented themselves which could enable the nine communities to forge a new, effective and efficient recycling system. Some of these conditions include the following:

- The City of Augusta and the communities using Hatch Hill are interested in improving recycling;
- A growing environmental awareness, fueled by national events, has generated renewed interest in conserving resources and reducing waste;
- The current prices for recyclable commodities are at a cyclical high and have made recycling economically attractive once again;
- A regional recycling strategy would create long-term cost efficiencies and improve recycling;
- The efficacy of regional programs is currently being discussed throughout the state in areas of education and other municipal shared services;
- Public interest in increasing recycling is very high in a number of the region's communities;
- Improved recycling can extend the life of the Hatch Hill Landfill;
- Improvements and enhancements in recycling are already taking place throughout the region, including in the communities of Belgrade, Oakland, and Monmouth;
- The communities of Hallowell, Whitefield and Pittstown have each already created a local recycling drop-off program; and
- Many options are open to communities, since the region's current municipal recycling amounts are low.

The recommendations presented in this plan are easily suitable for a regional recycling program. The goals established in the plan to increase the total annual tonnage of municipal recycling from 601 tons to 3,067 tons within a five-year period are achievable and will make it viable to create a regional processing

facility. A regional system can make achieving the recycling goals easier for each municipality as opposed to each municipality creating their own local recycling collection strategy.

To take advantage of this opportunity, a commitment from each community will be required. It may take some towns a while to develop a consensus on this. Likewise, the communities will need to organize and agree on a regional system.

The following strategy should be seriously considered by the region:

- Communities should be encouraged to form a formal recycling committee to create a regional recycling program. The committee should choose a name that emphasizes the regional nature of the program. We suggest the new title of the Kennebec Communities Recycling Region.
- If the communities decide to phase in a recycling program or to create their own local options then they should still be encouraged to continue to discuss moving toward a common regional program.
- A short-term recycling effort could be implemented while the communities hash out a common recycling program which may take up to two years to plan and implement.
- Communities should consider different solid waste collection options to reduce the costs and improve efficiency. The current system of multiple haulers provides a great deal of customer choice and individual service options but it can be inefficient and costly as compared to a sole hauler system.

Goals

The following goals provide the basis for selecting the recommendations contained in this study.

1. Develop a cost-efficient recycling collection and processing system which will be readily accepted by both residents and small businesses and is adaptable to the widely varying capacity in each community.
2. Increase the amount of municipal recyclable materials collected and recycled.
3. Accept more types of recyclable materials.
4. Over the next 5 years increase the lifespan of the Hatch Hill Landfill by increasing the total amount of recyclable materials collected to 3,067 tons each year. (500% increase)
5. Continue and expand the existing recycling programs for demolition debris, leaves and brush, asphalt shingles and wood.
6. Develop an effective recycling educational outreach and promotion program.
7. Develop a re-use strategy to divert additional materials from the waste stream.
8. Develop incentives for participating municipalities to increase recycling.
9. Develop regional partnerships to reduce costs and increase efficiencies.
10. Increase the level of recycling among commercial and other non-residential users by improving convenience and access to recycling services/drop-off.
11. Develop an accurate system for measuring the amount of recycling in each municipality.

Issues

The following is a list of major issues and conditions which have affected how the recommendations for this study were selected and developed.

- Rising energy prices will affect the cost of transportation. Efficiencies in collection and transport to end users will need to be identified to maintain a cost-effective system for the collection of trash and recycling.

- Disposal at the Hatch Hill Landfill offers municipalities in the region a comparatively cost-effective means for solid waste disposal. The alternatives would cost significantly more. It is therefore in each municipality's best interests to extend the life of the landfill for as long as possible.

- Single-stream recycling is expected to grow in popularity, especially in Southern Maine. The Eco-Maine single-stream facility in South Portland provides area communities a cost-effective alternative to conventional recycling programs. Future opportunities for using a single-stream system in the region should be examined periodically.

- The existing inefficiencies of multiple private haulers serving a municipality will be exacerbated by the higher fuel costs. Municipalities may explore using a sole contractor for curbside collection to reduce collection costs.

- Eight of the Hatch Hill communities use private haulers; however only three require haulers to obtain a license from the municipality. Trash collection methods vary widely among communities.

- Recycling is not offered in the same manner to all households throughout the region and depends upon the community and the individual private hauler.

- Recycling is not widely promoted in the Hatch Hill communities. Augusta is the exception, since it provides residents with municipal curbside recyclable collection at least once a month.

- Private haulers generally dislike having to collect separated recyclables at the curb because they take more time to pick-up and take to the recycling center at Hatch Hill or elsewhere. This adds to their costs.

- The area does not have a coordinated recycling promotion or educational program.

- The Hatch Hill region's recycling rate for municipal recyclables such as paper, plastic, and tin is low compared to the state average.

- The Hatch Hill region exceeds state averages for recycling metals, cardboard, wood, and other bulky items.

- Revenues from recyclable materials are at cyclical highs. However, prices fluctuate widely over time based upon economic demand for a particular material. The rapid growth of the Chinese economy is contributing to the high commodity prices, and a large percentage of US recyclables are shipped to China. However, the cost to get recyclables from place of generation to recycling markets is increasing, especially to distant markets.

- The current rise in energy costs will make recycled items a valuable commodity, since it is often less expensive to process recycled materials as compared to raw materials. This is particularly true for materials derived from petroleum such as plastics and asphalt. Biomaterials such as wood waste are likely to become a valuable commodity for businesses and utilities that have biomass boilers, and for wood pellet manufacturing. In addition, rising cost for asphalt road pavement could make other types of base material recycled from roof shingles and construction debris a valuable commodity.

- Recycling options are limited since some types of materials such as plastics # 1 & 3-7 are not currently collected.

Section 3 A Summary of the Hatch Hill Communities

Description of the Hatch Hill Region:

Population Source: U.S. Census and State Planning Office

Actual						Projected	
1960	1970	1980	1990	2000	2006	2010	2020
40,693	41,782	43,519	44,493	41,785	42,682	43,651	45,902

Total Housing Units Source: U.S Census and State Planning Office

Actual		Projected	
2000	2007	2010	2020
19,563	20,384	20,724	21,734

General Trends
The nine-town region has seen a modest and steady increase in population and housing units over the past forty years. This trend is expected to continue for the next fifteen years. The general pattern of growth has tended to be dispersed into both suburban and rural areas of the region.

Seasonal Population
While there are seasonal cottages present throughout the region, particularly in those communities with lakes and ponds, the seasonal population has a small impact on the region. Because the economy of this region is dominated by government and affiliated services, the region does not experience the seasonal population fluctuations found in other, more tourism-oriented areas of the state.

Daily Population Fluctuations (Augusta)
The population in Augusta can increase by 19,263 persons from workers commuting into the city for work. Other impacts include people coming into the city to shop or use other services.

Commercial and Institutional Activities in the Region
The region has experienced a decrease in manufacturing activity, and consequently, a decrease in the generation of manufacturing solid waste. Retail, state offices, industry, hospitals, and commercial activities of all types now dominate the local economy and generate solid waste and recyclable materials. Some of these materials are disposed at Hatch Hill, others are transported to disposal sites outside of the Capitol region.

Private Commercial Haulers
Augusta provides municipal trash and recyclable pick-up, but all other municipalities use private haulers. The following is a table of some of the private haulers used in the region and the towns they serve.

Commercial Hauler	Chelsea	Farmingdale	Gardiner	Manchester	Pittston	Randolph	Hallowell	Whitefield
Riverside	X	X	X	X	X	X	X	X
Pine Tree	X	X	X					
D&PJ Enterprise		X	X					
Waste Management		X	X					
Worthings		X	X	X	X	X	X	
Kennebec Disposal								
Tibbits		X						
Kevin Smith		X			X			
Main Squeeze		X			X	X	X	
Troiano								
Bolsters								
Central Maine Regional Disposal								X
J.Simmons trucking				X				
Bruce Soucy				X				
Dave Brown					X			
Pat Weeks								X

The following communities do not license or regulate private haulers: Farmingdale, Whitefield, Chelsea, Randolph, & Pittston.
The following communities license private haulers: Gardiner, Hallowell, & Manchester.

Private Hauler Fees
Private hauler fees vary among vendors and some do not include recycling. Some typical pricing includes:

- $20 per month for weekly collection
- $15 per month for twice a month collection
- $5 per week for weekly collection
- $4 per week for weekly collection
- $1.50 per bag for weekly collection

Recycling Collection
Most of the private haulers offer to collect recyclable materials. However, this service is not used by all residents, and haulers do not actively promote this. Haulers view curbside recyclables collection as a burden, increasing the time spent on collection and increasing their costs. They prefer that their customers use a drop-off trailer. Residents from several towns questioned whether materials placed at curbside were actually recycled; several noted that they had seen haulers toss recyclables in with regular trash.

The following collection systems are used in the Hatch Hill region:

- The City of Augusta provides curbside trash and recycling collection, which is funded through municipal property taxes.
- The eight participating municipalities using Hatch Hill all use private haulers selected by residents. Recycling collection is offered by some private haulers.
- Municipal recycling bins are located at the Hatch Hill Facility. All residents of the region can take materials to Hatch Hill with a permit.

- Four municipalities provide a central drop-off site for their residents. Augusta residents can deposit recyclables at Augusta Public works; Hallowell residents have the North Bay recycling center; Pittston provides drop-off bins at the Town Hall, and Whitefield collects recyclables at a drop-off site for disposal at the Lincoln County Recycling Center.

The City of Augusta provides curbside trash collection three times per month and recyclables are collected once per month. The city serves 7,000 households and collects 362 tons of recyclables and 5,285 tons of trash. The total annual cost per household, including both curbside collection and disposal, is $107.79. The collection portion is $47.21 per household. Due to the efficiency of the collection system, this is substantially less than most households pay to private haulers in the rest of the region.

The estimated recyclable collection totals from the drop-off bins in Hallowell, Whitefield and Pittston are:

Whitefield:	103 tons
Hallowell:	70 tons (estimated)
Pittston:	70 tons (estimated)

Some residents from these communities also leave recyclables for hauler collection or take them directly to Hatch Hill.

The other eight Hatch Hill communities use private haulers selected by residents to collect trash, or residents take materials directly to Hatch Hill. Private hauler collection is offered weekly or bi-monthly depending upon the company. Recycling collection depends upon the private hauler and the willingness of the resident to recycle. Despite the fact that Hatch Hill charges 50% less for recyclable tipping, most haulers view curbside recyclable collection as a burden, increasing the time spent on collection and adding to their costs. Moreover, the rear-loading compactor trucks are efficient for trash collection, but are not easily retrofitted to accommodate various separated recyclable streams. Several private haulers have offered to set up a single drop-off trailer in municipalities; the Town of Manchester is currently evaluating this option. One hauler transports the materials collected at the Hallowell recycling center; he does not charge the town for this service, but keeps any revenue from the sale of materials. (Hallowell recently developed a different recycling arrangement.) Based upon the region's recycling rates it is evident that a very low percentage of households are recycling.

Curbside trash and recyclables collection is one of the most effective collection methods. However, recycling rates are low in the region. Despite a dedicated monthly pick-up, Augusta's curbside rates are also low. The existing curbside collection systems have the potential to help improve recycling but only after significant changes are implemented.

The eight municipalities using the Hatch Hill Landfill pay an annual host community fee to use the facility. All other costs for solid waste, including recycling collection and disposal, are paid directly by households. The host community fee is set at $15.00 per person calculated using the 2000 Census population data. The collective charge for all eight communities to use the Hatch Hill Landfill is $348,375.00. The municipal portion of providing solid waste service to residents appears very reasonable since it does not include tipping fees, transportation or collection costs. However, the true costs are significantly higher since residents bear the costs of actual trash disposal and recycling.

Estimated Household Cost for Trash Disposal

Each household in the eight communities pays the major share of solid waste costs. The table below shows the estimated household cost in each community based upon private hauler usage. Some direct collection at the Hatch Hill facility was also considered.

The average annual cost paid by households is $217.00 and ranges from a high of $260 to a low of $180. This average annual cost was used to estimate the total annual cost of trash removal, as noted in the table below. The total number of households from the 2000 Census was used as the base rate of users in each community. It was estimated that at least 90% of households from each community contract with a private hauler and the remaining 10% of households take their materials directly to Hatch Hill.

The costs for the estimated 10% of households taking materials to Hatch Hill are as follows:

- The annual Hatch Hill permit Fee is $ 7.50. (½ of the $15 two year permit)
- Each household makes an estimated 32 trips to Hatch Hill.
- Individuals are estimated to take advantage of the $3.00 fee for taking both trash and recyclables.
- The estimated annual cost is $103.50 per household.
- Transportation costs and time spent by residents were not factored in.

Estimated Annual Household Costs for Trash Removal Source: Survey Data

Town	Total Households	90% of households (x) average removal fee	10% of households (x) estimated Hatch Hill disposal fee	Costs for household collection & disposal	Host Fee	Total SW disposal
Chelsea	959	860 x $217 = $186,620	96 x $103.50 = $9,936	$196,556	$38,385	$234,941
Farmingdale	1,202	1,082 x $217 =$234,794	120 x $103.50 =$12,420	$247,214	$42,060	$289,274
Gardiner	2,510	2,259 x $217 = $490,203	251 x $103.50 =$25,978.50	$516,181.50	$92,970	$609,151
Hallowell	1,145	1,030 x $217 = $223,510	115 x $103.50 = $11,902.50	$235,412.50	$37,005	$272,417
Manchester	977	879 x $217 = $190,743	98 x $103.50 = $10,143	$200,886	$36,975	$237,861
Pittston	1,010	909 x $217 = $ 197,253	101 x $103.50 = $10,453.50	$207,706.50	$38,220	$245,926
Randolph	829	746 x $217 = $161,882	83 x $103.50 =$8,590.50	$170,472.50	$28,665	$199,137
Whitefield	844	760 x $217 = $ 164,920	84 x $103.50 = $8,694	$173,614	$34,095	$207,709

The table illustrates the high cost paid by households for solid waste disposal in the region. The municipal agreement fees are only a fraction of the complete costs. Each household contracting for collection and disposal is paying an average of $232.00 (including the $15 per capita fee), which is significantly higher than Augusta's municipal collection and disposal fee of $107.79 per household. The Comparison of Selected Municipal Collection Programs table in the Appendix of this report also illustrates the comparative costs for municipal collection provided by a municipality or a private contractor. Only a few Maine communities directly provide solid waste curbside collection. Most communities with curbside collection contract with a private company for this service.

Hatch Hill Facility
The Hatch Hill facility is located on Route 105 in the City of Augusta. The landfill was expanded in 2001 and will have the capacity to operate for an additional 14 years based upon current usage.
A description of the City of Augusta Solid Waste Bureau is included in the Appendix.
A copy of the Hatch Hill rules is included in the Appendix.

Estimated Costs If Hatch Hill Closes
If the Hatch Hill Landfill were to close now, the region would have two possible alternatives for waste disposal: open a new landfill in the region, or establish a transfer station where waste would be consolidated before being transported for final disposal at one of several disposal sites in the state.

Currently operating disposal sites closest to the Augusta region are:

Mid-Maine Waste Action Incinerator in Auburn (MMWAC)	32 miles one way
Crossroads Landfill in Norridgewock (Waste Management Inc)	36 miles
Regional Waste System Incinerator in South Portland (EcoMaine)	60 miles
PERC Incinerator in Orrington	71 miles

Constructing a transfer station would cost the region approximately $610,000 based upon the following components:

<u>Design and Permitting</u>

Site work (Range $150,000 - $400,000)	$250,000
Buildings (Range $50,000 - $250,000)	$150,000
Waste compactor	$120,000
Containers compatible with compactor	$30,000
Vehicle for transport	$60,000

Annual costs of operation for the region would be approximately $2,644,091, based upon the following:

Routine operations (electrical, heat, phone, supplies, etc.)	$8,000
Equipment Maintenance	$20,000
Staff salaries	$140,000
1 Manager @ $40,000/year plus benefits	
4 laborers @ $25,000/year plus benefits	
Disposal tipping fees @ $65 per ton, 31,815 tons/year	$2,067,975
Hauling costs	
Transport (2,272 trips/year, 72 miles round trip, $1.80/mi)	$294,516
Labor (2,272 trips/year, 2 hrs roundtrip, $25/hour)	$113,600

The figures presented above are likely at the low end of cost estimates. While solid waste disposal costs may seem expensive today, costs would increase substantially if the Hatch Hill Landfill were no longer in operation.

Recycling Rates

The following table shows the municipal and bulky waste recyclables collected between 2004 and 2006 for the Hatch Hill region.

Hatch Hill Recyclables Collected between 2004 and 2006 Source: State Planning Office

Municipal Recyclables			
	2004	2005	2006
Cardboard	58 tons	77 tons	71 tons
Newspaper	456 tons	461 tons	413 tons
Mixed paper	-	11.6 tons	16.4 tons
Glass	38 tons	40.45 tons	30.34 tons
Tin cans	45 tons	49 tons	35 tons
Plastics #2	16 tons	15 tons	17 tons
Other materials	-	-	3 tons
Universal wastes	9.87 tons	2.47 tons	15 tons
Totals	622.87 tons	626.52 tons	601 tons

Bulky Recyclables			
	2004	2005	2006
Leaves & yard waste	448 tons	442 tons	705 tons
Metals	428 tons	655 tons	443 tons
Tires	360 tons	114 tons	144 tons
Demo Waste	982 tons	1,171 tons	1,592 tons
Wood	2,141 tons	1,264 tons	2,014
Brown goods, furniture		-	2,128 tons
Total	6,487 tons	3,646 tons	4,898 tons
Totals municipal and bulky recyclables	7,109.87 tons	4,272.52 tons	5,498.74 tons

These figures do not include materials collected in Hallowell, Whitefield and Pittston since they are not deposited at Hatch Hill and are not included in the region's recycling rates. The additional recycling amounts for these three towns total 243 tons according to the following:

- Whitefield collects 103 tons, which are taken to Lincoln County Recycling;
- Hallowell collects an estimated 70 tons which are taken to the Skills Recycling Center in Waterville;
- Pittston collects an estimated 70 tons, which are also taken to Skills.

(The recycling amounts from Whitefield, Hallowell and Pittston will be included in the 2007 State Planning Office report for Hatch Hill.)
Municipal recyclables remained constant during this three-year period while bulky recyclables have gone down since 2004.

The City of Augusta curbside collection accounts for at least 60% of the total municipal recyclables collected in the region. However, after factoring in the additional 243 tons collected in Hallowell, Whitefield and Pittston, the City of Augusta accounts for 43% of municipal recyclables.

Recycling Rates Compared to State Averages
The following table compares the 2006 recycling rates for Hatch Hill with the state averages based upon the 2000 population levels for the State and the Hatch Hill region.

2006 Recycling Rate Comparison Tables Between Hatch Hill and State Averages
Source: State Planning Office

	2006 Hatch Hill	2006 State Average	Difference
Municipal Trash	31,147 tons	18,575 tons	(+ 12,572) tons
Municipal Recyclables	601 tons	3,232 tons	(-2,631) tons
Bulky Recyclables	4,898 tons	4,912 tons	(-14) tons
Total MSW	46,210 tons	30,068 tons	(+16,142) tons

2006 Per-Capita Recycling Rate Comparison between Hatch Hill and State Averages
Source: State Planning Office

	2006 Hatch Hill Per Capita rates	2006 State Per Capita rates	Difference (tons)
Municipal Trash	0.7454 tons	0.4352 tons	(+0.3102)
Municipal Recyclables	0.0144 tons	0.0734 tons	(-0.059)
Bulky Recyclables	0.1172 tons	0.1151 tons	(+0.0021)
Total MSW	1.1059 tons	0.7190 tons	(+0.3869)

Compared to the state average the Hatch Hill region is collecting bulky recyclables slightly above the average. Municipal recyclables are 2,631 tons below the state average. The region also collects significantly more municipal trash (12,572 tons) than the state average. Some of the difference is attributable to the lower municipal recycling rate. The higher rate of municipal trash also could be accounted for by non-household trash from commercial entities and multi-family units.

Overview of the Kennebec Region

The nine communities using the Hatch Hill facility are part of a wider region encompassing Kennebec County and adjacent towns in neighboring counties. Solid waste is consolidated at a number of transfer stations, where materials are sent to one of several disposal facilities: Waste Management in Norridgewock, the Penobscot Energy Recovery Corp (PERC) facility in Orrington, or the Mid-Maine Waste Action Corp (MMWAC) incinerator in Auburn.

Recycling is typically collected at community-operated transfer stations. However, the following larger regional facilities are also used by a few communities: the Jay Transfer Station, Sandy River Recycling in Farmington, Skills in Waterville, and Lincoln County in Wiscasset.

Solid waste and recycling collection and processing in the wider region is generally not organized on a regional basis, though a few towns share facilities. While none of the Hatch Hill communities operates a municipal transfer station, there are numerous facilities in the wider Kennebec region. Many of these facilities have the capacity to handle additional demand. The area would benefit by taking advantage of the regional efficiencies offered through use of these existing, underutilized operations, thereby reducing extra capacity and eliminating capital investments and expansions of individual facilities.

Description of the Hatch Hill Municipalities

Augusta:

- 2000 population of 18,560 persons (Daytime population can increase by 19,263 persons)
- Housing units (2000 Census) 9,325 units
- Municipal trash and recycling pick-up provided to all single-family and multi-family housing of four units or less. (Trash is collected at least three times a month and recycling is picked once a month.)
- Average household costs for municipal trash collection and recycling, including tipping fees, are $108.

Chelsea

- 2000 population of 2,559 persons
- Housing units (2000 Census) 1,015 units
- Private haulers collect trash.
- There are no recycling services provided by the town. Residents must arrange for recycling with their private hauler.
- The current Hatch Hill Agreement fee is $38,385.

Farmingdale

- 2000 population of 2,804 persons
- Housing Units (2000 Census) 1,273 units
- Private haulers collect trash.
- There are no recycling services provided by the town. Residents must arrange for recycling with their private hauler.
- The current Hatch Hill Agreement fee is $42,060.

Gardiner

- 2000 population of 6,198 persons
- Housing units (2000 Census) 2,702 units
- Private haulers collect trash.
- The City has a private hauler ordinance and currently licenses five haulers. Haulers are required to offer recycling collection at least one a month.
- The City operates a fall curbside clean-up. Residents are required to purchase a ticket. Fees fund the program.
- The current Hatch Hill Agreement fee is $ 92,970.

Hallowell

- 2000 population of 2,467 persons
- Housing units (2000 Census) 1,243 units
- Private haulers collect trash.
- The City requires private haulers to be licensed. Three haulers are currently licensed.
- A recycling drop-off is offered at the North Bay Recycling Center. Materials are transported by a private hauler at no charge to the Skills Recycling Facility in Waterville. The hauler retains any revenue from the sale of these materials. (Hallowell recently developed a different arrangement to handle recyclables.)

- The City is currently exploring alternative methods for handling recyclables.
- An estimated 70 tons of recyclables are collected annually at the North Bay facility.
- A yard and leaf collection is offered for a limited period in the fall. Residents may drop off brush at the Hallowell Reservoir.
- The current Hatch Hill Agreement fee is $37,005.

Manchester

- 2000 population of 2,465 persons
- Housing units (2000 Census) 1,181 units
- Private haulers collect trash.
- The Town requires private haulers to obtain a town license.
- The town is in the process of locating a recycling trailer for residential drop-off.
- The current Hatch Hill Agreement fee is $36,975.

Pittston

- 2000 population is 2,548 persons
- Housing units (2000 Census) 1,070 units
- Private haulers collect trash.
- The Town has a recycling drop-off site available for residents to deposit items.
- An estimated 70 tons of recyclables are collected annually.
- The current Hatch Hill Agreement fee is $38,220.

Randolph

- 2000 population is 1,911 persons
- Housing units (2000 Census) 884 units
- Private haulers collect trash.
- There are no recycling services provided by the town. Residents must arrange for recycling with their private hauler.
- The town provides a spring clean-up, collecting certain materials such as tires and bulky waste for a fee.
- The current Hatch Hill Agreement fee is $28,665.

Whitefield

- 2000 population is 2,273 persons
- Housing units (2000 Census) 870 units
- Private haulers collect trash.
- The town collects recyclable materials at a drop-off location. Materials are taken to Lincoln County Recycling.
- The town collects 103 tons of recyclables annually.
- The current Hatch Hill Agreement fee is $34,095.

Section 4 Recommendations

Introduction

The recommendations presented lay out a specific strategy to dramatically increase recycling in the Capitol area. The recommendations are offered in four parts:

- General Recommendations
- Recommendations for Marketing Outreach and Education
- Recommendations for Collection
- Recommendations for Processing

Optional collection recommendations are also contained in Section 5 to provide municipalities with some choices for local recycling strategies.

The cornerstone of the recommendations is establishing specific recycling targets for the region and each community over a five-year period. The other key element is offering financial incentives to enhance and promote recycling in each community. Although our primary recommendation to increase recycling collection is the one we believe offers the greatest potential for increased recycling, we have offered other options that communities may find more feasible to implement.

Once collected, recyclable materials must be processed by compacting and baling to receive the highest price. Processing also minimizes transportation costs to destination markets. Recommendations for optimizing the processing of recycled materials are offered with an emphasis upon efficiency and maximizing profit from the sale of recycled materials.

The offering of financial incentives to help communities implement recycling programs and choices for collection strategies should help create interest in a renewed recycling strategy for the region. The most critical component for these recommendations to become reality is, however, the participation, interest and commitment by both citizens and their municipal officials to making a serious improvement in recycling.

The recommendations are offered to help the citizens and municipal leaders in the region to focus on selecting concrete strategies to improve recycling. To make these tasks achievable, whenever possible choices were offered and incentives rather than regulatory steps are recommended. Despite these enhancements, any plan which poses new directions and offers a new course of action will meet with some resistance. The best strategy to overcome resistance or a lack of inertia to change is to focus upon the cornerstone of these recommendations: the establishment of target recycling goals which will lead to a reduction in trash, provide income from the sale of recycled materials, help to extend the life of the landfill, and reduce the cost of solid waste disposal in the future.

Some of the changes required to increase recycling in the region include the following:

- A commitment from each municipality in the Capitol region to improve recycling;
- Implementation of a comprehensive ongoing recycling educational and outreach program;
- A new recycling collection plan with established recycling goals;
- Financial incentives or long-term cost savings for municipalities to recycle;
- Creation of a cost-efficient system for trash and recycling collection;
- Increased recycling options;
- Awareness of total costs and inefficiencies of the existing collection system; and
- A willingness among public officials and residents to look at different collection systems which can reduce overall household costs, improve recycling and reduce long-term disposal costs.

General Recommendations

The general recommendations are a series of general strategies and actions which are designed to complement and enhance the selected plan to improve recycling regardless of which method is ultimately selected. These general recommendations address a wide range of issues that must be considered as the City of Augusta and its partner municipalities put the recycling plan into action.

Establish an Identity
Currently the eight municipalities with agreements to use the Hatch Hill Landfill are sometimes referred to as the Hatch Hill Communities. A possible new name to match the objectives of the recycling plan would be to call all the participating municipalities the "Kennebec Communities Recycling Region". A new name is important because it signals to both municipal officials and the citizens that a plan is in place to improve recycling, and that it is regional in scope, with all communities participating. It also allows for the addition of other communities in the future, if desired.

Expand the Type of Municipal Recyclables
Expanding the type of recyclable materials will help to increase recycling and reduce material going into the landfill. It is also important to collect as many recyclable materials in a category as feasible to make it easy for the public to understand and participate. An example is to accept all types of plastics (1-7) even though there may only be markets for # 1 and 2 plastics. The overall volume of plastic recycled will increase if the public is allowed to place all types of plastic in the bin instead of worrying about which types are acceptable.

In addition to the materials currently collected (aluminum cans, newspapers, magazines, #2 plastic, mixed paper and glass), the list of recycled materials collected should be expanded to include all recyclable plastics # 1 through 7, and office paper.

Develop a Common List of Recycled Items
Each of the nine communities should accept a common set of recyclables to help create a user-friendly system throughout the region. Communities using the landfill, in cooperation with Hatch Hill should develop a common list of recyclables and expand the types of materials collected as described in the recommendation listed above. This recommendation can be quickly accomplished with the leadership provided by Hatch Hill. This approach will promote a regional education and outreach program and eliminate public confusion about which types of materials are accepted in each community. If the community does not have the capacity to collect all types of materials, instructions should be provided on where additional types of materials can be taken.

Form a Regional Recycling Committee
Create a regional recycling committee made up of representatives from each of the nine communities. The committee would have the task of putting into action the recommendations contained in this plan in concert with Hatch Hill. Some of the initial tasks of the committee will be to:

- Organize the committee and select operating rules and priorities.
- Work with each municipality to identify a recycling strategy.
- Develop and implement an outreach, marketing and education program.
- Initiate a discussion among communities to create a regional recycling strategy.
- Develop a 5-year work plan.

Form Local Recycling Committees in Each Community
Each of the nine communities should develop a local recycling committee to promote recycling and the objectives of the plan within the community. The local committee is essential to communicating the importance of increased recycling and monitoring progress in the first years of using this recycling plan. Their role is also to communicate with the regional committee and help to advocate for local concerns from their citizens and municipal leaders. Some of the initial tasks of each local recycling committee will be to:

- Discuss the recycling plan with their neighbors and municipal leaders.
- Help their community to identify and create a recycling strategy.
- Take part in discussions about creating a regional recycling strategy.
- Help to create a recycling outreach, marketing and education program.
- Monitor progress and resolve problems that develop.

Discuss Creating a Regional Recycling Program
The communities in the Capitol Area have a unique opportunity to create a regional recycling collection and processing program. The establishment of recycling goals for each community and the region will require each municipality to discuss how they wish to improve recycling. Instead of having nine potentially different recycling collection strategies, it is possible to develop a common recycling collection system which could be cost efficient and user friendly, and would address the diversity of the region.

Increase Municipal Recycling
A goal is to increase the total amount of residential recyclable materials over a five –year period to 3,057 tons annually. This will eventually begin to decrease the amount of trash going into the landfill and over time increase its lifespan. This is a significant goal which will require major increases in municipal recyclables and other materials such as metals, wood and demolition debris, as well as an increase in the types of recyclables collected.

Develop a Private Hauler License Program
Each community using private haulers should develop a private hauler license program which establishes the responsibilities and standards for solid waste and recycling collection. It would be preferable for all the communities using haulers to use a common license agreement. The license program should include the following components:

- Annual license and application fee.
- Mandatory reporting of solid waste and recycling collection quantities.
- Mandatory recycling collection (This will depend upon the selected recycling strategy)
- Mandatory reporting of the number of households served in the municipality.
- Submittal of fee schedule.

The license program will need to be customized based upon the recycling strategy selected by each community.

Anticipate and Respond to High Energy and Transportation Costs
The high cost of energy affects fuel prices for transportation, and processing costs for handling recyclable materials but also may offer new opportunities for marketing some recycled materials. It is prudent to anticipate how high energy costs will affect current levels of service and practices and to make plans to switch to cost-effective solutions. Some of the following specific ideas should be considered:

- Bi-monthly curbside collection of MSW may become necessary to reduce fuel costs and still offer reasonable service.

- The existing private hauler system used in eight communities is highly inefficient because multiple haulers make duplicative trips throughout a town. Some smaller haulers may choose not to remain in business because of high fuel prices, some may choose not to serve certain towns if they have only a few customers and many will be forced to increase prices or switch to a bi-monthly collection schedule. The economics of using a single hauler to provide curbside collection will become more attractive to municipalities.

- Private haulers could increase their revenues to offset higher fuel costs by encouraging recycling, since recyclable materials are charged a lower tipping fee at the Hatch Hill Facility. Most will need to modify their vehicles to accomplish this.

- Electrical generation from trash-burning facilities may become more cost-competitive and create a need for increased materials. Incentives from these facilities should be considered as a strategy to divert materials from the landfill if it will result in cost savings.

- Wood recycling will become more important as a fuel for biomass boilers and the growing wood pellet industry. Wood recycling is already mandatory at the Hatch Hill facility. However, a significant amount of wood waste is still landfilled.

- Road base materials from asphalt shingles, glass, sheetrock, and masonry rubble will increase in value due to the high cost of oil used to make bituminous concrete. Efforts to increase the collection of these materials should be encouraged.

Assess the Future Potential for a Single-Stream System

Single-stream recycling appears to be the future trend for recycling collection and processing. Single-stream refers to the practice of combining all household recyclables in a single container for collection and transport to a specialized sorting and processing facility. These facilities have mechanical equipment that is able to sort the materials into separate streams. The EcoMaine single-stream facility located in South Portland provides area communities with a cost-effective recycling option. Transportation costs and reduced income from the sale of recyclables do not currently provide a cost-effective opportunity for the Hatch Hill region to switch to a single-stream program. This situation may change in the future, especially if another single-stream facility is constructed closer to Augusta.

The Hatch Hill region should periodically explore opportunities to use a single-stream system if a cost-effective system can be developed. It is also worthy to explore the use of a partial single-stream system to process some recyclable materials. One possibility is to collect and process glass, tin, aluminum, and plastics as a single stream.

Establish a Re-Use Center

Re-use activity accounts for 4% of the total tonnage of recyclable materials collected throughout the state. Re-use materials diverted from the waste stream actually account for a greater percentage than glass (3%), plastics (2.5%), and tin (2.7%). Creating a way to divert materials that still have a useable life would help to increase recycling.

Most re-use centers are located at transfer stations or landfills. However, other alternatives could include working with local non-profit groups to collect and market the materials. Drop-off bins may be located at the landfill or at some other secure location to eliminate nuisance dumping. The drop-off sites need to be staffed to make sure the materials are usable.

Another possibility is to link the Hatch Hill Recycling website to various reuse websites such as Freecycle (www.freecycle.org). This is a very effective means of encouraging reuse without the need to construct additional storage facilities.

Increase Bulky Waste Recycling
The Hatch Hill facility already does a good job of recycling a variety of bulky materials including metals, wood, leaf and brush, and tires. A renewed effort should be made to make sure that all of these materials are being diverted from the landfill and new opportunities should be explored to increase the bulky waste collection whenever feasible.

Update and Revise the Recycling Plan
The recycling plan should be revised and updated on a regular basis at least every five to ten years to respond to new trends, concerns, financial pressures and changing goals. The regional recycling committee should periodically review the plan, especially recycling goals, and modify the plan to respond to new circumstances.

Be Open to Regional Partnerships
The nine Hatch Hill communities should be open to developing other regional partnerships to reduce costs, increase efficiency and improve services. Some activities are already regional such as household hazardous waste collection drop-off days..

Pursue Grants and Other Funding Opportunities
State, federal and private grants should be sought whenever available to meet recycling goals and to improve programs. Currently the State of Maine is offering a regional grant to promote a variety of multi-town strategies to deliver services and improve efficiency (which was used to fund this study).

Increase Commercial Recycling
The Capitol Area is a significant Labor Market Area and commercial activities generate a considerable amount of solid waste. Some of the waste can easily be recycled, such as office paper, newspaper and cardboard. Other materials could include food waste, which can be composted instead of landfilled. A concentrated effort should be made to convene a series of meetings on a regular basis to promote recycling. A number of promotion ideas to encourage commercial recycling are contained in the Outreach, Marketing and Education recommendations below.

Recommendations for Outreach, Marketing and Education

A recommendation for ongoing recycling outreach, marketing and education is listed as a separate item to signify its importance to improving and maintaining a successful recycling program. The success of a recycling program depends upon how effectively the public is made aware of the importance of recycling

and how each household can participate. The regional and local recycling committees should be given the responsibility of operating an on-going educational and outreach program.

Develop an educational and promotion program.
Develop an educational and marketing strategy to promote recycling throughout the region. Public outreach and promotion efforts should be ongoing to inform residents about recycling and to reinforce their own recycling efforts. The strategy should include a variety of techniques to keep the public informed and to increase recycling rates. One key element of the education program should address common myths and misconceptions that many people hold about recycling, such as more energy is used collecting recyclables than is saved, or that washing containers shortens the life of residential septic systems. In addition, materials should be developed that address the common obstacles that residents give for not recycling, such as lack of space for storing materials.

Recycling should be promoted in ways which households can easily relate to and understand. The recycling goals should be translated in terms which a typical family can understand such as the number of pounds of common materials which can be set aside each week for recycling. The message also needs to be varied to provide new information over time.

The overall purpose of the educational and outreach strategy is to promote a recycling habit among residents, organizations, businesses, and municipalities.

Some Strategies to Consider:

- Create a simple one-page recycling handout describing our recycling program and the materials accepted.
- At least once a year distribute a recycling brochure to all residents.
- Require all haulers to distribute a recycling brochure at least once a year.
- Place a recycling notice in the newspapers at least once a year.
- Develop recycling posters and place throughout the community.
- Link each town web site to recycling information.
- Distribute recycling information to town clerks
- Develop a recycling promotion program which highlights individual, business and community efforts.
- Educate households about the benefits of recycling and highlight links to national events
- Hold an annual recycling award ceremony to recognize recycling efforts in the region.
- Recognize recycling efforts from business, schools, state government, communities, and individuals.
- Recognize recycling efforts among the haulers.
- Develop a reward/prize program to award coupons or prizes to people dropping off recyclables. Operate this on a random basis.
- Work with SPO to promote its educational program in area schools.
- Hold a business-to-business recycling breakfast to share ideas for increasing recycling.
- Encourage households not currently recycling to begin by recycling one material type, such as newspaper. Encourage recycling households to consider additional items.

Costs
The costs for this strategy are generally low compared with other strategies and would include costs for creation and distribution of educational material, advertisements, and brochures, and staff time for promotions awards and other program development.

A modest budget for an on-going recycling outreach program could range between $5,000 and $9,000 per year. The first-year budget would need to be higher to provide for additional outreach efforts to inform residents about the new recycling programs. An estimated first-year budget would be $15,000. Grant funds should be sought to initiate the recycling outreach program; possible sources may include the State Planning Office and the State Regional Grant Program.

Ongoing funding for the recycling outreach program could be taken from the annual municipal agreement fees, or a special fee could be assessed to each municipality for the program. The annual fee for each municipality could range between $560.00 and $1,000.00.

The recycling outreach program is essential to promote recycling and to maintain participation. It is a wise and effective investment for a very small cost.

Advantages

- Keeps the public informed about recycling.
- Promotes recycling and reinforces recycling for participating households.
- Keeps the public informed about changes and other interesting data.
- Informs new residents about recycling.

Recycling Collection Recommendation

Curbside Recycling Collection

The primary recommendation for recycling collection is to create a curbside collection program. This strategy can be accomplished in a number of ways and is ideally suited to the individual needs of each of the nine Hatch Hill communities. This strategy was selected as the primary recycling recommendation because in the long term it has the highest potential of sustaining a high rate of municipal recycling.

The convenience of placing recycling materials at the curb instead of taking materials to drop-off locations can produce a higher rate of recycling especially if combined with a number of other strategies such as a promotion and educational program, an extensive list of acceptable recyclable materials and a financial incentive program.

A curbside program can be designed as a regional program or it can be operated by each community. Collection can be provided by a regional group, by municipalities or through a contract with a private hauler.

The ideal arrangement to maximize recycling would be to couple curbside recycling collection with a pay-per-bag system. Households would not pay to dispose of recyclables. A fee per bag would only apply to trash disposal. A pay-per-bag system is sometimes resisted by households; however, it does provide immediate cost savings to households that recycle and allows each household to choose between cost savings and trash disposal convenience. A pay-per-bag option is included in Section 5 as an option for communities to consider because it is one of the best strategies to promote recycling.

The following table displays the estimated costs for operating a curbside recycling collection program. The costs are based upon programs in the state using a private contractor to provide curbside collection. Three different costs are shown because the frequency and operation can vary depending upon the final design of the program. The total annual cost for all households in each community is displayed.

Estimated Cost Table: Cost based upon $20, $25, and $35 per household/ per year.

Town	Households	$20 per household	$25 per household	$35 per household
Augusta	7,000	$140,000	$175,000	$245,000
Chelsea	959	$19,180	$23,975	$33,565
Farmingdale	1,202	$24,040	$30,050	$42,070
Gardiner	2,510	$50,200	$62,750	$87,850
Hallowell	1,145	$22,900	$28,625	$40,075
Manchester	977	$19,540	$24,425	$34,195
Pittston	1,010	$20,200	$25,250	$35,350
Randolph	829	$16,580	$$20,725	$29,015
Whitefield	844	$16,880	$21,100	$29,540
Totals	**16,476**	**$329,520**	**$411,900**	**$576,660**

Collection Frequency

Collection frequency refers to how often recyclables would be collected from each household. The following is a discussion of some options for choosing a collection schedule.

Weekly recycling collection is ideal; however, the costs for a weekly program will be expensive. A bi-monthly collection schedule (26 pick-ups a year) would be more cost effective. Another option is to offer monthly collection (12 pick-ups a year). The monthly option could be used to initiate the collection system with the option to increase the frequency in future years. A monthly collection could also be connected with a recyclable drop-off location to provide households a place to bring materials which may pile up in their homes.

The City of Augusta currently provides monthly curbside recyclable collection. Trash collection is provided at least three weeks a month and households have an option to pay for a fourth week of trash collection. They collect over 362 tons of municipal recyclables. However, the city will need to increase recycling to meet target recycling goals.

Promotion and Education

The success of a curbside recycling collection strategy is dependent upon developing an effective promotion and educational program. The elements of a complementary promotion and education program should contain the following:

- A common list of acceptable recycling materials should be developed for the region.
- A full range of materials in each recyclable category should be accepted. An example would be to accept all recyclable plastics # 1 through 7.
- Each household should receive a simple recycling handout describing the program.
- The curbside program should be promoted on a regular basis in the newspaper and other media.
- Community progress reaching their target recycling goals should be advertised on a regular basis.

Operations

The following are some components of the program which will need to be developed.

- Will collection be limited to only public roads? Residents along private roads may be required to bring materials to public road.
- What types of materials will be collected -- cans, paper, cardboard, all plastics, and all glass, etc.?
- Will recycling containers be offered to each household?
- How should recyclables be packaged and prepared by the customer?
- What type of sorting will need to occur at the collection truck?

- What type of sorting will occur upon delivery at the processing center?

Options
The following are some options for the curbside program:

- Communities have an option to use the City of Augusta recycling truck.
- Communities may contract with a private hauler to collect recyclables.
- Communities may jointly purchase/lease a recycling truck and operate the recycling collection.
- Communities may use a separate recycling entity to collect and process recyclables.
- Curbside recycling collection could be used together with drop-off recycling locations.
- Curbside recycling collection could be used with a pay per-bag system.

Recycling Goals

The goal for the region is to increase the annual per-person recycling rate from the current rate of 0.0144 tons per person (28.8 lbs.) to the state average rate of 0.0734 tons per person (146.8 lbs). The time line for meeting this goal is over a five-year period. The current municipal recycling tonnage of 601 tons will increase from 601 tons to 3,067 tons. The following table establishes a recycling goal for each community over a five-year period, beginning in 2009.
The goal for the first year is very modest since it will take time for communities to implement recycling strategies. The recycling rates in some communities such as Whitefield, Augusta, Hallowell, and Pittston currently exceed the first year goal.

Community Recycling Goals Tons per municipality per year

Municipality	1st year	2nd year	3rd year	4th year	5th year
Gardiner	91	182	273	364	455
Hallowell	36.2	72.4	108.6	144.8	181
Chelsea	37.6	75.2	112.8	150.4	188
Farmingdale	41.2	82.4	123.6	164.8	206
Manchester	36.2	72.4	108.6	144.8	181
Pittston	37.4	74.8	112.2	149.6	187
Randolph	28	56	84	112	140
Whitefield	33.4	66.8	100.2	133.6	167
Augusta	272.4	544.8	817.2	1,089.6	1,362
Region totals	613.4	1,226.8	1,840.2	2,453.6	3,067

The following two tables show the pounds per household and per person which will be required to meet these recycling goals. The number of pounds is displayed in pounds per year and in pounds per week over the five-year period. Breaking down the yearly recycling targets in pounds per year and pounds per week is more understandable to the general public.

Community Recycling Goals Pounds per household shown per year and per week
Total households 16,476

	1st year	2nd Year	3rd year	4th year	5th year

Total pounds per year per household	74.5 pounds	149 pounds	223.4 pounds	298 pounds	372.3 pounds
Total pounds per week per household	1.4 pounds	2.9 pounds	4.3 pounds	5.7 pounds	7.2 pounds

Community Recycling Goals Pounds per person shown per year and per week
Total population 41,785 persons

	1st year	2nd year	3 rd year	4th year	5th year
Total pounds per year per person	29.4 pounds	58.7 pounds	88 pounds	117.4 pounds	146.8 pounds
Total pounds per week per person	0.57 pounds	1.1 pounds	1.7 pounds	2.3 pounds	2.8 pounds

Financial Incentives for Recycling

Introduction
In order to generate motivation for increasing regional recycling and assist with funding the new program, the costs of solid waste disposal and collection need to be restructured, with built-in incentives for recycling. There are three ways to pay for the recycling program: adjust the tipping fees, adjust the host fees and incur savings by improving the current collection and processing systems.

- The host fee paid directly by municipalities could be increased for towns not willing to develop a recycling program.
- The current tipping fees could be revised to provide an incentive for recycling. One option would be to eliminate the current $30 recyclable tipping fee and increase the MSW tipping fee.
- Municipalities could put out RFP's for recycling and/or trash collection to decrease resident costs. The money saved would be redirected to improve the recycling system in the community

Using a combination of all three of the above listed incentives can be employed. This approach will help to spread the impact more fairly among municipalities, residents and haulers.

Adjusting the Host Fee
This option recommends that the per capita fee paid by towns to Hatch Hill for use of the landfill should be increased for towns that do not implement a recycling program. Municipalities typically make decisions based upon costs and benefits. With budgets stretched to the limit, municipalities are unlikely to implement recycling programs unless financial incentives are established. This is particularly true for towns that rely on private haulers, since the cost is shouldered directly by the resident.

This option gives towns a choice, and can easily be justified. Since one of the goals is to extend the life of the landfill, towns unwilling to contribute to this goal should pay a premium for "consuming" the landfill capacity at a faster rate. A $5.00 increase in the per capita fee would increase costs for each town as follows:

Chelsea	$12,795
Farmingdale	$14,020
Gardiner	$30,990
Hallowell	$12,335

Manchester	$14,020
Pittston	$12,740
Randolph	$ 9,555
Whitefield	$11,365

These amounts are more than the town would spend by purchasing a portable collection trailer.
Towns should be provided with reasonable advance notice, perhaps a year, to give them time to develop a recycling program. The additional money generated from towns that do not achieve the recycling goal for their community should be earmarked for improvements in the regional recycling program, with oversight from the regional recycling committee.

A number of opportunities are possible using this strategy and include the following:

- A municipality meeting certain recycling goals could receive a rebate in their agreement fee or a share in recycling revenues.
- The higher agreement fee could be structured with a sliding scale based upon the recycling plan in each municipality.
- The higher fees could be dedicated towards the landfill expansion costs.

Advantages

- Provides municipalities with a financial incentive to establish a recycling collection program.
- Allows municipalities to customize programs to their needs
- Allows municipalities to use private haulers

Adjusting the Tipping Fees

The current $30 recycling tipping fee could be reduced or eliminated. This would send a strong message that recycling is encouraged. However, processing recycled materials at Hatch Hill still involves a cost which will need to be addressed. The solution would be to increase the current $70 MSW tipping fee to cover the cost of handling recyclables.

An increase in the MSW tipping fee will address the need for funding recycling processing and provide an incentive to residents and haulers to increase recycling. The tipping fee could be raised to a set fee all at once or it could be gradually increased over a period of five years. An increase between $5 and $10 is recommended.

Identifying Cost Savings

The current collection system in eight of the communities uses multiple private haulers selected by residents. Fees, levels of service and recycling collection vary among haulers. The use of multiple haulers in a community also means duplicative collection routes. The average cost per year for this fragmented system is estimated at $217 per household.

An estimated cost to provide weekly trash and recyclable collection per year could be $189 per household if the municipality developed an RFP and bid for trash and recycling collection. (The $189 estimate is based upon the average collection cost for 6 other communities and a MSW tipping fee of $75 per ton.) The potential cost savings per household would be an 8% decrease as compared to the current fee. Actual savings would vary depending upon the collection schedule and the size of the municipality.

Recommendations for Recycling Processing

An increase in recycling will require the current recycling system to be changed and expanded. The Hatch Hill Landfill does not presently have sufficient storage capacity to handle the increase in materials. The region's target recycling goal of 3,067 tons of municipal recyclables within five years will justify the creation of a regional processing facility once those volumes are met on a consistent basis. Currently the Lincoln County Recycling Center processes over 2,800 tons of materials and the Sandy River Facility in Farmington handles over 2,300 tons. A recycling facility designed to process sorted recyclable materials will require a significant financial investment: however, the facility will typically create income from selling the recycled materials.

The Hatch Hill communities are in a good position to select a processing system because the current system needs to be expanded. The cost to develop a new processing facility will be at least $441,000. An analysis of the costs is presented below. The proposal to develop a regional recycling processing facility includes a phased plan and a strategy to seek state or federal grants to supplement development. A local funding mechanism will also need to be developed.

The operations of the recycling processing facility should be the responsibility of a regional group comprised of the nine Hatch Hill communities. An ad-hoc committee created by the regional recycling committee should be created to focus solely upon creating a regional processing facility. This ad-hoc committee will need to develop an organizational and operation plan in addition to searching for the best site for the facility. Another critical task will be to identify both grant and local funding for the project.

The first task for this committee will be to initiate a phase plan with Hatch Hill to process the growing amount of recycled materials until the new facility is in operation. A number of recommendations for the phase processing plan are presented below.

Phased Processing Plan

The Hatch Hill facility will need to implement a phased processing plan to handle the increased tonnage of recycled materials until a recycling facility is developed. The following recommendations for the phased plan use the existing recycling facilities at Hatch Hill and regional processing facilities in the area. It is important to note that recycling revenues will be modest until a recycling facility is created. The primary reason for modest revenues will be because some recycled materials will be delivered to other processing facilities.

Components of the phased recycling processing plan include the following:

- Create a committee to spearhead the recycling processing recommendations;
- Begin to explore state and federal funding for a regional recycling facility;
- Create community interest and support for a regional processing facility including local funding shares;
- Develop a phased recycling processing plan with Hatch Hill until a facility can be developed;
- Coordinate any capital investments for the phased plan with the final facility plan;
- Purchase a trailer to store an overflow of cardboard if the existing cardboard compactor is filled. This will ensure that cardboard is not put into the landfill;
- Create an outside container storage area for a full range of plastics # 1 through 7;
- Develop a system to sort and bale all plastic materials using the existing vertical baler;
- Develop a system to collect glass to be crushed for road fill and similar uses; all colors of glass could be collected;

- Purchase additional collection containers for a full range of paper including mixed paper and office paper. Arrange for bulk paper containers to be delivered to a nearby regional recycling facility such as Lincoln County for processing;
- Use the existing vertical baler to process tin cans and store outside for re-sale; and
- Develop a reuse center to divert some useable materials from the landfill.

A Note about Single-Stream Recycling

The Regional Study Committee spent a great deal of time discussing and exploring the benefits of a single-stream recycling program. The committee toured the EcoMaine facility in South Portland and was impressed with both the facility and the way single stream can improve the volume of recyclable materials collected. A strong positive feature of the single-stream process is that it is easy for both the customer and the collection system because materials can be all placed into a single container. Recycling rates have improved in many communities using single stream especially when combined with a curbside collection and/or pay-per-bag system.

Projected costs:

Single-stream collection is feasible if the materials can be compacted for shipment to EcoMaine. A compaction system is proposed to collect materials into a compacted container weighing a minimum of 14 tons for transport.

The following is an estimate to install a compaction unit.

Item	Cost
Compaction Unit	$120,000
Containers	$30,000
Vehicle	$60,000
Total Costs	$210,000

<u>Projected Annual Operating Costs for a Single-Stream Compactor</u>

Transportation costs are based upon 3,067 tons.

Item	Cost
Transportation @ $220 for 219 trips	$48,180
Labor & overhead for one employee	$52,000
Operations (Electrical, heat.etc.)	$5,000
Equipment maintenance & replacement	$20,000
Infrastructure payment	$20,666
Total Costs	$145,846

Net cost per ton = $47.55

Single stream was not recommended despite its positive features for the following reasons:

- The location of the EcoMaine facility in South Portland would entail high transportation costs.
- Transportation cost would be prohibitive without the use of a compaction system, which would allow recyclable materials to be transported in a 14-ton container. A compaction unit, vehicle and facility would need to be developed.

- A total of over 200 annual trips would be required to transport the 14-ton containers to the South Portland facility.
- Recycling revenues would not be received for materials.
- The cost to construct and operate a regional recycling facility, factoring in the recyclable revenue, is less than the single-stream processing option.

Future Opportunities for Single-Stream
Single-stream recycling appears to be a significant future trend in recycling collection and processing. Transportation costs and the lack of recycling revenues currently do not make single-stream collection cost-effective in this area when compared with other processing options. However, this situation may change in the future and it is recommended that Hatch Hill periodically review the feasibility of a single-stream system.

Another possibility is to employ single-stream collection for a limited number of items collected at curbside. Materials such as glass, plastic, tin and aluminum could be placed in a single bin and transported to EcoMaine. A total of 300 tons of these items could be collected if the region meets its recycling goals after five years. A minimum of 37 trips per year would be required to transport the materials at an annual cost of $8,700. (Transportation cost only, at 8 ton loads per trip.)

Recycling Processing Facility Cost Estimate

Following are the estimated costs for a recycling facility building:

Item		Cost
5,000 square-foot building & site work		$325,000
Horizontal baler		$100,000
Four storage trailers @ $4,000 each	(material storage)	$16,000
Total:		$441,000

Design Modifications:
The estimated cost may be reduced by using the following options:
- Purchase or lease an existing building.
- Substitute a smaller horizontal baler for approximately $50,000.
- Substitute two vertical balers for a total of $40,000. (Hatch Hill already has a vertical baler.)

Potential Recycling Income Table

The potential recycling income table displays the potential income which could be realized from recyclables over the course of five years, which corresponds to the targeted recycling goals. The list of recycled materials assumes that a full range of plastics and paper will be collected. Glass and universal waste are not factored in.
The potential income is based upon the following prices over the entire 5-year period: newspaper at $80 per ton, mixed paper at $ 50 per ton, cardboard at $80 per ton, a mix of plastic at $300 per ton, and tin at $70 per ton. These are relatively conservative figures and are lower than current commodity prices, though higher than prices seen during cyclical downturns over the past 10 years.

The table illustrates how the sale of recycled material can offset the cost of the processing facility. The actual income from the sale of materials will vary due to market price changes and the total amount and

type of recycled materials actually collected. Recycling revenues should be substantial, depending upon how the Hatch Hill communities increase recycling rates and on a favorable market.

Potential Recycling Income Over a Five-year Period

Material	1st year Tons/income	2nd year Tons/income	3rd year Tons/income	4th year Tons/income	5th year Tons/income
Newspaper	413/ $33,040	826/$66,080	1,270/$101,600	1,692/$135360	2,116/$169,280
Mixed paper	16.4/$820	33/$1,650	50/$2,500	67/$3,350	83/$4,150
Cardboard	71/$5,680	147/$11,760	220/$17,600	294/$23,520	368/$29,40
Tin	35/$2,450	71/$4,970	107/$7,490	142/$9,940	178/$12,460
Plastic	17/45,100	34/$10,200	52/$15,600	69/$20,700	86/$25,800
Total Income	$47,090	$94,660	$144,790	$192,870	$241,130

Estimated Recycling Facility Annual Operating Costs

Item	Cost
Transportation (3,067 tons @ $15.00 per ton)	$46,005
Labor and overhead for two employees	$104,000
Operations (Electrical, heat, phone etc)	$30,000
Equipment maintenance and replacement	$60,000
Infrastructure payment	$33,333
Total Costs	$273,005

Less projected revenue of $241,130 in year 5 is $31,875

Net cost per ton = $10.39

Public Private Partnership

An option for the recycling processing facility is to develop a public private partnership for the development and/or operation of the facility. Using the capital and expertise from both municipalities and private companies could be a cost-effective solution to build and operate the facility. The recycling facility committee should be asked to explore this option with both local and other investors.

Section 5 Other Recycling Collection Options

Introduction

The following recycling collection options are offered so communities may choose other strategies to increase recycling and achieve the recycling goals established in this plan. The nine communities which comprise the Capitol Area Recycling Region are diverse and may wish to craft a unique recycling plan to meet their particular needs and citizen expectations. Each of the options described in this section offers an alternative way to increase recycling. The advantages and disadvantages are also discussed.

Option: Implement a Pay-per-Bag/Pay As You Throw Program

Description

Pay-per-bag/Pay as you throw (PAYT) charges residents a fee for each bag of trash that they dispose of, while recyclables are taken at no charge. This creates a financial incentive for residents to recycle; the more they recycle, the fewer trash bags they will need to use. It also allocates the cost of disposal to those generating the most waste.

There are a wide variety of ways to structure a program, and numerous options that can be customized to a specific community. Towns have to decide whether to use bags or stickers, how much to charge per bag, and whether there will be different sized bags. For communities that currently cover both collection and disposal costs within the municipal budget, we recommend providing all households with a set number of bags/stickers at no cost (for example one bag per week). Residents pay out of their own pockets for any additional bags. This provides all residents with an equal level of service, while those generating more waste shoulder more of the cost burden. A significant amount of planning would be required to coordinate the program in the region due to multiple private haulers.

Pay-per-bag systems are frequently resisted by residents when first proposed; however, over time residents usually become more familiar with the system and eventually accept it. The system is widely used across Maine – a recent State Planning Office report indicated that in 2006, 144 communities use Pay-per-bag programs.

Some residents in the Hatch Hill region that use private haulers are already paying by the bag. There is a wealth of evidence showing that PAYT programs increase recycling in communities where it is adopted. Most recently, the Town of Brunswick adopted PAYT. The first quarter's results show that the tonnage of solid waste generated declined by 45%, while the tonnage of recyclables increased by 55%. The system could extend to the entire region or only be used in communities using private haulers. A pay-per-bag system would work best if it were imposed upon the entire region.

It is absolutely essential with PAYT to make recycling as convenient as possible. This can include curbside collection of recyclables, portable trailers available in convenient locations, or arrangements with private businesses to accept recyclables.

A promotion program would need to be developed to make sure all residents are informed. Multiple places to purchase bags or stickers will also need to be developed. An enforcement process will need to be developed. A simple procedure is not to collect trash without the appropriate sticker.

Pay-per-bag programs can potentially result in an increase in illegal dumping or backyard burn barrels, particularly in more rural areas. Typically, this occurs early in the program implementation. To minimize this problem, well publicized enforcement and penalties help to deter illegal dumping, and information on the dangers of backyard waste burning should be distributed.

Opportunities:

- The system could be imposed throughout the region or only in communities using haulers.
- The per-bag fee could cover the cost of both collection and disposal.
- This system can work effectively with a sole collection contract in a municipality.
- The system could work using multiple haulers.

Estimated Costs

- Bags or stickers would need to be purchased, which should be factored into the bag fee. Likewise, a promotion program would need to be developed to educate the public about the pay-per-bag system.

Advantages

- Recycling would increase.
- Trash volumes would decrease.
- A regional approach would provide a consistent collection system.
- Recycling households would pay less.
- Disposal costs are allocated more fairly, those generating more waste pay more.

Disadvantages

- Communities may resist the system
- Haulers would need to be educated about the system.
- How the fees would be used needs to be considered.
- Fee increases would be resisted.
- Enforcement may be an issue.

Option: Regional Recycling Drop-off

Description

This option envisions that the City of Augusta will continue to offer its existing curbside collection of solid waste and recycling and other communities will offer curbside recycling collection provided by private haulers. Recycling drop-off containers will be available at key locations.

Drop-off containers will be strategically placed at key locations, with a minimum of 6 sites in the region. The recycling containers will accept the following materials: cardboard, mixed paper, tin, glass and plastics. Drop-off containers should be placed in the following general locations: Augusta west side, Augusta east side, Manchester, Gardiner, Randolph/Pittston, and Hallowell. The specific site chosen should be one that is highly visible from the road and easily accessible. Ideally, the site should be fenced and an inexpensive, motion-activated surveillance camera installed to prevent trash dumping. A regular transportation schedule will need to be established to ensure the drop-off sites are kept clean.

Another option is to place the drop-off containers at the three Hannaford stores, Shaw's, the IGA in Pittston and at Walmart. These locations are ideal if the respective companies and property owners would agree because households in the region regularly shop at these stores.

The municipalities using private haulers will be encouraged to develop a common set of hauling agreements and license requirements which require haulers to provide a minimum of bi-monthly recycling collection and accept set materials. Haulers will also be required to annually report their collection totals and provide a total number of households served in each community.

The recycled materials will be processed at the Hatch Hill facility as follows:

- Paper will continue to be collected and transported in containers.
- Plastics will be sorted, baled and stored outside. Additional sorting containers will be required for # 1 plastic, and #3-7 plastics.
- Glass should be crushed and used as road fill. A glass crusher would need to be purchased.
- Cardboard will be transported after being compacted. A portable, at-grade trailer will be required to store the higher volume of cardboard until it can be compacted and shipped.
- Tin should be baled and stored outside. An additional vertical baler may be required.
- Additional staff time will be required to transport the collection containers and for extra processing and material sorting.
- A minimum of 6 containers will be required. A one-ton vehicle is required to transport the containers.

Estimated Costs

- Six recycling trailers would range in total price between $48,000 and $56,000.
- A vertical baler would range between $18,000 and $23,000 including installation.
- A small glass crusher designed to fit over a 55-gallon drum would range between $1,500 and $2,000.
- Three portable, 40-foot, at-grade trailers for storage would cost between $12,000 and $15,000.
- Additional staff time to transport and process the recycling trailers is estimated to require between 20 to 30 hours per week and would cost between $600 and $900 per week.

The total equipment cost would range between $79,500 and $96,000. Annual staff costs would range between $31,200 and $46,800. (Recycling trailer transportation costs need to be determined.)

This option requires a minimum capital investment and does not significantly change or alter the existing system. The ability of this option to make a dramatic increase in recycling rates is limited and is dependent upon the willingness of private haulers to fully comply with the recycling requirements. The other contributing factor to the success of this option is an effective recycling promotion program.

Advantages

- The existing collection and processing is utilized with minimal changes.
- Initial equipment costs are low.
- Residents in eight communities would continue to use their own private haulers.
- Residents would have an option to place recyclables at 6 drop-off locations.
- Private hauler licensing and operations would be uniform throughout the region.
- Haulers would be required to offer bi-monthly recycling.
- Additional recyclable materials could be accepted at drop-off locations in the future.

Disadvantages

- This option is unlikely to meet the target goals of increasing recyclables to 3,067 tons annually over a five-year period. Additional strategies will need to be used or added.
- Two separate recycling collection methods are offered which duplicate some collection costs.
- Curbside recycling can be one of the most effective collection strategies but it is not being fully promoted with this option.
- Recycling collection by private haulers currently varies greatly among vendors. Municipal enforcement may be necessary to make sure haulers are complying with the recycling requirements.
- Extra transportation costs are incurred for handling the drop-off containers.
- The drop-off sites will requires regular maintenance.
- Materials from outside the region may be placed in the recycling bins.
- The costs for handling and processing the recycling materials will need to be taken from the budget. Municipal fees may need to be raised to pay for the additional processing.
- The proposed processing system will likely need to be expanded if recycling rates increase.

Option: Local Recycling Drop-off

Description

This option envisions a local recycling drop-off container in each municipality. Unlike the regional drop-off option, each community would be responsible for operating their own recycling drop-off facility. Currently Augusta, Whitefield, Hallowell and Pittston already have a recycling drop-off location available for residents. Except for Augusta's materials, these materials are taken to other regional recycling processing facilities.

The communities of Gardiner, Randolph, Chelsea, Farmingdale and Manchester would need to develop a local recycling drop-off facility in each of their communities. Communities will need to address the following issues:

- A location will need to be selected.
- Hours for the site need to be established.
- The facility could be open to the public if located in a visible and monitored site.
- The site could have set hours of operation.
- The site could be staffed.
- Transportation to Hatch Hill will need to be arranged.
- A transport schedule to Hatch Hill needs to be established based upon container capacity.
- A list of acceptable materials would need to be developed.

The recycled materials could be processed at Hatch Hill similar to the recommendation for a regional recycling drop-off option. Each community drop-off should collect the same types of materials. A common list of acceptable recyclables will make the system more user-friendly and allow for a regional education and promotion program.

Communities are encouraged to develop a license requirement for all private haulers and require that haulers continue to offer recycling collection. It would also be advisable that a minimum list of acceptable recyclable materials be developed for haulers throughout the region. The hauler collection list does not have to be as extensive as the items collected at the drop-off. Haulers should be required to take all of their recyclable materials directly to Hatch Hill.

Estimated Costs

- Two recycling trailers per community would cost a total of $16,000 to $18,000.
- Site work for the drop-off location will vary depending upon the location. Cost may only involve road striping or could include fencing, lighting and similar features.
- Transportation to Hatch Hill will need to be arranged. Most trailers can be transported with a one-ton truck.
- Labor for transport and sorting at Hatch Hill will be required. An estimated cost could range between $200 and $300 assuming transportation and 4 hours of labor per trip.

Advantages

- Only five communities would need to implement this option.
- A possibility exists for a small regional drop-off with the communities of Gardiner, Farmingdale and Randolph.
- This option could be quickly implemented while the region plans a more comprehensive recycling collection strategy.
- Municipal investment in equipment, maintenance and operation is low.

Disadvantages

- This option is unlikely to meet the target goals of increasing recycling to 3,067 tons annually over a five-year period.
- Regional drop-off containers placed at key locations is a more cost-efficient strategy.
- Drop-off containers can attract trash and debris which will need to be removed at a cost to the municipality.

Section 6 Implementation Schedule

The recommendations proposed in the report are separated into specific objectives. Each objective is placed in the implementation schedule in order of priority based upon the plan recommendations.
The overall timeframe of this recycling plan is a five-year period so the various plan objectives are scheduled to be completed between 2009 and 2013.

The implementation schedule provides a guide to both organize the plan and to measure its progress. This schedule will need to be revised based upon the rate of progress and unforeseen circumstances.

The different completion timelines established for each objective recognize that the recycling plan will take time to put into action. The objectives are sequenced recognizing the following criteria:

- Support from the public and municipal officials will take time to develop.
- Some objectives are achievable with minimal effort and costs.
- Some objectives require significant departures from current practices.
- Funds needed to implement some objectives will take time to appropriate.
- Funding sources such as grants may be needed.

Implementation Actions: 2009 – 2013

Action Item	Responsible Party	Completion Date
Designate the nine communities using Hatch Hill for recycling as the Kennebec Community Recycling Region	Member communities	2009
Expand the type of recyclables to be collected and create a common set of recyclables for the region	Hatch Hill	2009
Create a regional recycling committee	Municipal leaders	2009
Create local recycling committees	Municipal leaders	2009
Discuss a regional recycling program among the nine communities	Regional recycling committee	2009
Establish a regional /and/or local recycling strategies for each community	Regional and local recycling committees	2009
Develop a recycling financial incentive strategy to promote recycling	Regional recycling committee & Hatch Hill	2009
Develop an recycling educational and promotion program to be used annually.	Regional and local recycling committees	2009 Annually
Establish a recycling processing committee to develop a plan for a regional recycling facility.	Regional Recycling committee and member communities	2009
Develop a phase plan to handle the increased amount of recyclable materials	Regional Facility committee	2009
Implement a recycling financial incentive strategy	Regional recycling committee	2010
Implement a recycling processing phase plan	Regional facility	2010

- Purchase a storage trailer for cardboard overflow - Develop an agreement with regional processing center for paper - Purchase containers for plastic and paper storage	committee	
Identify grant and local funding for a regional recycling facility	Regional facility committee	2010
Monitor and improve the recycling collection program	Regional and local recycling committees	On-going
Explore new ways to increase bulky material recycling	Regional recycling committee	2010
Develop plans and funding for the regional recycling facility	Regional recycling committee	2012
Begin work on the regional recycling facility	Regional recycling committee	2013
Evaluate the recycling financial program and modify as necessary	Regional recycling committee	2013
Evaluate the recycling plan and revise as necessary	Regional recycling committee	2013

Conclusion

The committee views the recommendations offered in this report as a starting point, a first step towards waste reduction. A number of people on the committee wanted to include additional recommendations addressing small business and institutional recycling and composting. All agreed that first it was essential to establish a basic recycling infrastructure which the region currently lacks. Once the recommendations offered here have been implemented, additional efforts should be directed to improving recycling among small businesses and institutions, and encouraging residents, institutions and applicable businesses to compost.