January 16, 2004

Mr. Robert Grimm
North Fayette Township
400 North Branch Road
Oakdale, PA 15071

Subject: **Implementing a Leaf/Yard Waste Recycling Program and Improving Efficiency in North Fayette Township's Refuse and Recycling Program**

Dear Bob:

North Fayette Township retained R. W. Beck to develop a cost effective program for the curbside collection of leaf and yard waste, and to evaluate the current waste and recycling program in an effort to determine how to increase the program's efficiency and cost effectiveness. The evaluation was performed as part of the Pennsylvania Recycling Technical Assistance program available from the Department of Environmental Protection.

This letter report summarizes the findings of R. W. Beck's evaluation and provides recommendations for the Township to consider. The report is divided into the following sections:

- Current System Description;
- Estimation of Waste Streams;
- Collection System Recommendations;
- Results; and
- Conclusions

Current System Description

Demographics

North Fayette Township is a suburb of Pittsburgh. Once a sparsely populated rural township, over the last few years the Township has grown at a rate of about three percent annually, or roughly 100 new homes per year, to approximately 4,000 residential households. The demographics are changing as well; many of the new residents are younger, middle class families that believe recycling is important for the environment, and they support a refuse and recycling program that will increase recycling in the Township.

Collection Services and Quantities

The Township has a publicly operated waste and recycling collection program that provides weekly unlimited refuse collection from residents and a few small businesses. Yard/leaf waste is currently collected mixed with the refuse. It also provides biweekly collection of glass,

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aluminum, bimetal and steel cans, and #1 and #2 plastic containers from residents, and collects corrugated cardboard, office paper and aluminum from 76 businesses in alternating weeks. Township crews collected a total of 6,151 tons of residential materials and 60 tons of commercial recyclables in FY 2002, as illustrated in Table 1. Refuse is disposed at the BFI Imperial Landfill located approximately seven miles from the center of the Township, and recyclables are delivered to Unipaper Recycling, located approximately eight miles from the center of the Township.

Table 1
Residential Refuse and Recycling Tonnage Summary

	Residential	Commercial
Refuse Collected (tons) [2]	5,947 [1]	Unknown
Recyclables Collected (tons)	204	60
Total Tons Collected (tons)	6,151	Unknown
Customers	4,000	76
Average Annual Tons per Customer	1.54 [1]	0.82

[1] This tonnage includes some waste from small businesses.

[2] There are no separate collections for bulky waste or yard waste in the current system—these materials are collected together with refuse.

It should be noted that North Fayette's average annual generation of 1.54 tons per household is higher than expected. A portion of this higher figure is attributable to the few small businesses collected by the Township. However, it is likely that some of the additional tonnage can also be attributed to the unlimited set-outs allowed by the Township, which provide no incentive to minimize or divert waste.

Collection Operations

The Township operates three residential refuse routes each weekday, staffed by three-person crews. The crews use 20 cubic yard rear load packer trucks to collect bulky material, yard waste, and refuse manually in a single pass. Each route is designed to pass by 267 households per day. This statistic is very revealing. Based on numerous benchmarks with comparable collection systems, the Township's system is designed to pass by less than half the number of households on a given route than would be expected. Suburban routes in areas of similar population density are usually designed to pass by 600 to 650 households per day. Even allowing for unlimited bulky waste set-outs, which take more time to collect, a reasonable route would probably include a minimum of 500 pass bys per day per route, or nearly double the current route size.

The Township also operates one recycling route per day. A two-person crew uses a 20 cubic yard packer truck to collect commingled recyclables every other week from an average of 400 units per day. This productivity statistic is also low when benchmarked with other similar

municipal recycling collection programs. Routes in areas of similar population density would be expected to average at least 800 pass-bys per day using a two-compartment truck collecting commingled containers and newspaper.

During alternating weeks, the recycling crew collects cardboard and paper from 76 commercial establishments located in the Township. Cardboard is collected loose while paper is collected in 90-gallon carts.

Summary statistics of the current collection routes are provided in Table 2.

Table 2
Route Analysis

Collection System	Total Customers Served	Collection Frequency	Routes per Day	Collection Days per Week	Pass-bys per Day per Route
Residential Refuse	4,000	Weekly	3	5	267
Residential Recyclables	4,000	Bi-weekly [1]	1	5	400
Commercial Recyclables	76	Bi-weekly [1]	1	5	8

[1] The recycling truck alternates each week between residential and commercial recyclables collection.

Program Costs

The cost to collect residential refuse and recycling is paid through the Township's general fund. Actual costs for 1998 through 2001, as well as the 2002 and 2003 budgeted expenditures, are shown in Table 3, with a detailed breakdown provided in Attachment 1. The annual collection cost increased significantly in 2002 with the addition of another collection crew, and is projected to be $209.44 per unit in 2003. The increase was also driven by several large capital expenditures treated as purchases in 2002 and 2003 (rather than as an annualized cost), and a tip fee increase at the landfill. This cost is at the high end of the expected range for a municipality of this size.

Table 3
Cost Summary

Expense Category	Actual 1998	Actual 1999	Actual 2000	Actual 2001	Budget 2002	Budget 2003
Annual Expenditures	$497,678	$579,650	$625,732	$590,659	$785,172	$837,746
Estimated Units	3,500	3,600	3,700	3,800	3,900	4,000
Annual Cost per Unit	$142.19	$161.01	$169.12	$155.44	$201.33	$209.44
Monthly Cost	$11.85	$13.42	$14.09	$12.95	$16.78	$17.45
Percent Increase		12%	5%	-9%	23%	4%

Estimation of Waste Streams

Aggregate Waste Composition

In order to improve the Township's collection operations and add a yard waste collection program, it is necessary to calculate the expected quantities of material that could be diverted. DEP recently completed a statewide project to characterize the composition of disposed waste in Pennsylvania. Table 4 provides the estimated composition of the Township's disposed waste by percentage and by weight, based on sorting that took place at the Imperial Landfill (which is where waste from North Fayette is disposed) over the period of one year, beginning in the summer of 2001 and ending in the spring of 2002.

Table 4
Estimated Composition of Disposed MSW

Material	Percentage Composition	Composition by Weight
Newspaper	6.6%	392.5
Corrugated Cardboard	6.9%	410.3
Office	2.4%	142.7
Magazine/Glossy	2.4%	142.7
Polycoated/ Aseptic Containers	0.4%	23.8
Mixed (Other Recyclable)	4.4%	261.7
Other (Non-recyclable)	9.1%	541.2
#1 PET Bottles	1.1%	65.4
#2 HDPE Bottles	1.0%	59.5
#3-#7 Bottles	0.2%	11.9
Expanded Polystyrene	0.7%	41.6
Film Plastic	4.3%	255.7
Other Rigid Plastic	3.3%	196.3
Clear Glass	1.3%	77.3
Green Glass	0.2%	11.9
Amber Glass	0.4%	23.8
Other Glass	0.3%	17.8
Steel Cans	1.4%	83.3
Aluminum Cans	0.4%	23.8
Other Ferrous	4.4%	261.7
Other Aluminum	0.7%	41.6
Other Non-Ferrous	0.6%	35.7
Yard Waste- Grass	5.5%	327.1
Yard Waste- Other	3.5%	208.1
Wood- Unpainted	3.9%	231.9
Wood- Painted	2.2%	130.8
Food Waste	10.8%	642.3
Textiles	5.1%	303.3
Diapers	2.4%	142.7
Fines	1.2%	71.4
Other Organics	1.6%	95.2
Brown Goods	1.6%	95.2
Carpet	1.5%	89.2
Drywall	0.4%	23.8
Other C&D	2.5%	148.7
HHW	0.3%	17.8
Other Inorganics	4.9%	291.4
Furniture	0.1%	5.9
Total Waste	**100.0%**	**5,947**

Recycling Rates and Recyclables Generation

Table 5 uses this data to estimate the amounts of recyclable fiber and containers in the Township's waste stream that are potentially available for recycling.

Table 5
Generation of Recyclable Materials in North Fayette Township

Recyclable Material in waste stream	Quantity (tons)
Recyclables in Disposed MSW	
Newspaper	392.5
Cardboard	410.3
Office paper	142.7
#1 PET Bottles	65.4
#2 HDPE Bottles	59.5
Clear Glass	77.3
Green Glass	11.9
Amber Glass	23.8
Steel Cans	83.3
Aluminum Cans	23.8
A) Subtotal—Disposed Recyclables	*1,290.5*
Recycling Collection (Current Programs)	
Residential Recyclables	204
Commercial Recyclables	60
B) Subtotal—Current Recycling Collection	*264*
C) Total generation of recyclable material (A + B)	1,554.5
D) Total Generation	6,211
Current Recycling Rate (B ÷ D)	4.2%
Current Recycling Capture Rate (B ÷ C)	17.0%

The Table shows the Township's 4.2 percent recycling rate. It further indicates that in addition to the 264 tons of fiber and containers being collected and recycled in the Township under the current system, there are an estimated 1,290.5 tons of additional potentially recyclable materials

being disposed. This suggests that the Township's current recycling program is only capturing 17 percent of the recyclables that are potentially available to be recovered. The Township may want to consider increasing public education to increase the recovered percentage.

Leaf/Yard Waste Diversion Potential

Table 6 illustrates the amount of yard waste that is estimated to be disposed in the Township. As shown, roughly nine percent of all disposed waste is estimated to be yard waste. This represents 554 tons of leaves, grass, yard trimmings and brush that could be diverted each year if a separate yard waste collection program were in place.

Table 6
Estimated Yard Waste Quantities

Recyclable Material	Estimated Composition by Percentage	Estimated Composition by Weight
Yard Waste- Grass	5.5%	338.3
Yard Waste- Other	3.5%	215.3
Total Yard Waste	9.0%	553.6

Most of the yard waste that is being disposed is composed of leaves and small piles or containers of yard trimmings and prunings. However, some of the yard waste consists of large piles of brush that is difficult or impossible to collect with the rearloader. It is estimated that 70 percent of the yard waste, or 387.7 tons, would consist of small containers of leaves, trimmings, and prunings, as well as small bundles of brush. The remaining 30 percent (166.2 tons) would be large piles of brush that are not efficiently collected by a rearload crew.

Bulky Waste Diversion Potential

We noted in the first section of this letter report that the Township currently collects all yard waste and bulky waste along with the regular refuse, and that the unit generation rate is 1.54 tons per year, which is on the high end of the expected range. Based on discussions with Township operational personnel and on visual observations, it has been identified that the Township collects a significant amount of bulky waste items (such as furniture, residential construction and renovation waste, appliances and scrap metal) and bulky brush. In order to optimize the Township's collection system and maximize the diversion of recyclable material, it is necessary to estimate the quantity and composition of bulky material.

Table 7 illustrates the amount of those materials in the waste stream that generally include the most bulky material. As shown, roughly 21 percent of all disposed waste is estimated to be bulky in nature (although much of this would still be collected in a rearloader—see the next section). This represents 1,260 tons of material, some of which could be diverted to a scrap metal recycler if it were to be collected separately.

Table 7
Estimated Quantities of Bulky Waste

Recyclable Material	Estimated Composition by Percentage	Estimated Composition by Weight
Metal		
Other Ferrous	4.4%	261.7
Other Aluminum	0.7%	41.6
Other Non-Ferrous	0.6%	35.7
Subtotal Metal	5.7%	339.0
Waste		
Wood- Unpainted	3.9%	231.9
Wood- Painted	2.2%	130.8
Carpet	1.5%	89.2
Drywall	0.4%	23.8
Other C&D	2.5%	148.7
Other Inorganics	4.9%	291.4
Furniture	0.1%	5.9
Subtotal Waste	15.5%	921.8
Total Bulky Waste	21.2%	1,260.8

Because not all of the material above is bulky, and because some of it is small enough to be easily collected in a rearload vehicle, Table 8 estimates the fraction of the material above that is oversized and would significantly impact the collection efficiency of a rearload crew. As shown, it is estimated that 75 percent of all scrap metal and 50 percent of the bulky waste is truly oversized and not well-suited to rearload collection.

Table 8
Bulky Waste that Cannot Be Efficiently Collected Via Rearloader

Bulky Waste Material	Total Tons in Waste Stream	Fraction that is Too Large for Efficient Rearload Collection	Expected Bulky Waste Collection System Quantity
Metal	339.0	75%	254.2
Bulky Waste	921.8	50%	460.9
Total	1,260.8	56.7%	715.1

Material Summary

Based on the analysis of material quantities in the previous sections, Table 9 breaks down the Township's waste stream in terms of how a more efficient, recycling-oriented collection system would be configured.

Table 9
Waste Stream Summary

Material	Tons	Percent
Refuse	4,697	76%
Yard Waste—Leaves/Trimmings	375	6%
Bulky Wastes		
Yard Waste—Brush	161	3%
Scrap Metal/Appliances	254	4%
Bulky Waste	461	7%
Subtotal—Bulky Waste	876	14%
Recycling	264	4%
Total	6,211	100%

As shown in the table, the yard waste, scrap metal, and bulky waste make up 20 percent of the waste that is currently collected by the Township in their rearloader system. Yard waste, including both the bulky and non-bulky fractions, makes up nine percent.

Collection System Recommendations

Given the material breakdown shown in Table 9, it appears that the Township could greatly increase recycling diversion with only a minimal increase in current costs and collection resources. Specifically, it is recommended that the Township adapt their collection system as follows:

- Implement a 39-week yard/leaf waste collection route;
- Implement a bulky waste collection program to divert brush (i.e., that which is too large for collection via rearloader) and scrap metal;
- After making the preceding changes, increase refuse and recycling collection productivity levels to meet reasonable industry performance standards and consequently increase route size; and
- Revise the Township's solid waste ordinance to improve material definitions and implement a fee system for the collection of bulky wastes.

Details of how to implement these recommendations, as well as cost impacts, are described below.

Implement a Yard/Leaf Waste Collection System

There are three common options for the curbside collection of leaves:

- Using a rearload packer truck to collect bagged leaves;

- Using a rubber-tired loader and dump truck to collect loose leaf piles; or
- Using a vacuum truck to collect loose leaf piles.

There are also a variety of scheduling options. Some municipalities have collection once or twice during the fall. Others collect weekly during the six weeks of leaf season.

Based on the cost factors, available equipment, and other operational factors, it is recommended that the Township implement a 39 week-per-year comprehensive yard waste collection program using one of its existing rearload packer trucks and crews. This program would not only collect leaves during the fall season, but also grass, Christmas trees, and other yard waste debris while in service. This type of program would run concurrently with the weekly refuse collection program. Attachment 2 provides a list of permitted compost facilities in Allegheny County that are available to accept yard and leaf waste if the Township were to collect this material separately.

The Township would use one of its existing rearloaders and collection crews to collect yard waste. See below for a description of how this truck/crew would be freed up from refuse collection to perform this task. By utilizing its existing collection vehicles and crews, this option does not require any additional operational expenses.

Implement a Bulky Waste Collection Program

The unlimited collection of bulky waste, much of which is bulky brush and yard waste, has been a significant problem for the Township. To address this waste stream, and increase diversion of bulky brush materials as well as scrap metal and appliances, the Township should purchase a grapple/boom truck with a 30 cubic yard dump body for collection of bulky waste. Grapple trucks significantly increase efficiency for the collection of large piles of brush, bulky waste, and appliances.

Brush (tree-trimming waste) could be collected separately and diverted to a compost facility to be managed. Scrap metal and appliances could also be collected separately and delivered to a scrap metal recycler. Only the bulky wastes, which are largely residential renovation material and household clean-outs, would be disposed at the landfill.

By requiring productivity gains in the Township's recycling route (discussed below), we believe it is reasonable to staff the grapple routes with the current recycling crews. In other words, the same crew would collect both recyclables and the range of bulky wastes on the current bi-weekly schedule. On the days when recyclables were being collected, the grapple truck would sit idle. On the days when the grapple truck was in operation, the recycling truck would sit idle. Preventive maintenance and most repairs would be performed on these vehicles on their down days.

Table 10 depicts how the recycling and grapple routes might be operated with the same crews across the bi-weekly schedule for recycling collection. Check marks in the table indicate what truck type and targeted material will be collected by a single crew each day of a bi-weekly

routed system (this table contains one possible allocation of services to specific days, although many other combinations are also possible).

Table 10
Bi-Weekly Recycling/Grapple Truck Utilization

System	Residential Recycling	Commercial Recycling	Grapple-Brush	Grapple-Metal	Grapple-Bulky Waste
Week 1					
Monday	✓				
Tuesday	✓				
Wednesday	✓				
Thursday	✓				
Friday				✓	
Week 2					
Monday		✓			
Tuesday		✓			
Wednesday					✓
Thursday			✓		
Friday			✓		
Average Days/Week [1]	2	1	1	0.5	0.5

[1] Average days per week are calculated by summing the total number of days worked in a two week period and dividing by 2.

As shown, over any given two week period, the Township's current recycling crew will spend four days on residential recycling collection; two days on commercial recycling collection, and four days on the grapple truck (divided between brush, bulky waste and scrap metal). This will result in some idle time for both the recycling truck and the grapple truck, which should allow a high level of maintenance and eliminate the need for spare trucks.

All bulky waste (including brush and appliances/scrap metal) will be collected on a call-in basis and should be completed in the regular eight hour day.

The Department of Environmental Protection offers grants for the acquisition of recycling equipment. Because the grapple truck will be targeted 50 percent of the time to collect brush, which is a qualified recyclable material under Act 101, it is recommended that the Township explore the availability of grant funds for 45 percent of the cost of the new grapple truck (calculated as 90 percent grant funding times 50 percent of the total cost). At a cost of $90,000, this means the Township should pursue grant funding for $40,500.

In order to cover the remaining costs of purchasing the grapple truck as well as ongoing operating costs, we recommend that the Township implement a bulky waste fee that is tied to the amount of bulky waste set out by residents. In establishing the rates to be charged for bulky waste collection, we have attempted to be competitive with the rates charged in other local communities. A comparison of bulky waste rates is shown in Attachment 3. As shown in the

Attachment, other communities customarily charge $10 to $15 per white good and $5 to $20 per bulky collection. We recommend that the Township charge $10 per item for white goods (appliance) collection, and $15 for the first two cubic yards of bulky waste, plus $10 for each additional cubic yard. These rates are comparable to those charged by other local jurisdictions that offer bulky waste collection.

Table 11 shows the estimated revenue that would be generated if the Township implements the suggested bulky waste rates. Based on the calculation in Table 9, it is assumed that 40 percent of total bulky collections would be of white goods and 60 percent would be other bulky collections. At these rates, the Township could pay off the cost of the grapple truck in two years.

Table 11
Projected Revenues from Bulky Waste Collection Fees

Type of Bulky Waste Collection	Total Bulky Collections	Charge per Collection	Bulky Collection Revenue
White Goods Collections	832	$10.00	$8,320
Remaining Bulky Waste Collections	1,248	$15.00	$18,720
Totals	2,080		$27,040

Increasing Productivity of Current System

We have relied on industry-average collection system metrics to model the hypothetical collection system where these materials are collected separately from the regular refuse (which will still be collected in the Township's rearloaders). Table 12 summarizes the metrics for the current system, as well as the assumptions we used to formulate our analysis for the optimized system.

Table 12
Current vs. Optimized System Collection Assumptions

Collection System	Households/ Route	Hours Worked per Day	Set-out Rate	Annual Tons Collected	Pounds per Stop
Current System					
Combined Refuse/Bulky/Yard Waste	267	6	95%	5,947	60.2
Residential Recycling	400	6	75%	264	6.8
Totals—Current System				6,211	
Optimized Collection System					
Refuse	400	7	95%	4,697	42.1
Recycling	800	7	75%	264	6.8
Bulky Waste/Brush/Appliances	800	7.5	4%	876	526
Yard Waste (Leaves/Grass)	800	7.5	50%	375	9.8
Totals—Optimized System				6,211	

It is of interest to note that the current system pounds per stop is so high. This supports anecdotal information and visual observation that the current rearloaders are collecting from a small fraction of households that set out very large piles of waste, yard waste, and bulk/appliances. These large piles reduce the number of homes that can be served each day, and also increase the pounds per stop. By shifting yard waste, bulky waste, brush and appliances to an alternative collection system, the pounds per stop will be reduced to a more reasonable level based on industry benchmarks.

It is also of interest that the recycling crew and three residential refuse collection crews are working an average of only six hours per day, while being paid for eight hours per day. As municipal budgets are being constricted and governments are becoming more focused on cost, it will be necessary to identify and improve areas where a full day of productivity is not being attained. Many communities across the nation have examined the length of the workday for their collection crews, and are taking steps to increase the productive hours worked per day.

We are proposing that the Township implement an optimized collection system that incorporates the following components:

- Reducing the number of rearload refuse routes from three to two. These routes would operate five days per week, and be held to higher productivity standards (which will be more easily achievable because the bulky materials will no longer be the responsibility of these crews). The length of the work day will be increased to seven hours from six;

- Shifting the third rearloader to collect leaves and small yard waste (working five-day weeks) for 39 weeks out of the year, and to serve as an all-purpose spare for the remaining weeks of the year;
- Increasing recycling collection productivity levels and increase the length of the work day to increase route size and free up time for the recycling crews to operate bulky waste routes using a grapple truck (as described in the previous section); and
- Procuring a grapple truck that will be operated by the current recycling crews up to three days per week (while the recycling truck remains idle, as described in the previous section).

This system will have no impact on staffing, as the new collections for bulky materials (including brush) can be performed by existing crews. As described previously, the Township will need to procure a grapple truck, however. The grapple truck will be idle an average of three days per week when the recycling crews are on route.

Recommended Ordinance Revisions

RW Beck has reviewed the Township's ordinances number 240, 241, and 247 related to solid waste. While R. W. Beck does not employ professional attorneys and cannot ensure the legal validity of our review, we have extensive experience with successful ordinances in use in other municipalities. We offer the following suggestions and sample language for the consideration of the Township. This language supports the analysis described above.

Problem: The ordinance currently has no definition of yard waste and a poor definition of bulky waste. The current definition of bulky waste is too all-encompassing, and the yard waste definition needs to be aligned with Pennsylvania's Act 101 definition of leaf/yard waste.

Proposed Revision: The following definitions should be added to Ordinance 241, Section II, "Definitions:"

Bulky Waste means all household items or yard waste too large to fit in or too heavy to be transported in a closed thirty-two-gallon container or a sealed box or plastic bag, or that is bundled in a size greater than four (4) feet, including but not limited to appliances, large auto parts, furniture and large trees and branches which require collection other than by conventional compactor refuse collection vehicles.

Yard Waste means leaves, garden residues, shrubbery, tree trimmings, and similar material, but not including grass clippings.

Problem: There will also need to be an improved description of set-out requirements to assure that the new collection system can be implemented.

Proposed Revision: The following set-out limitations should be added to Ordinance 241:

Bulky Waste shall be placed within three (3) feet from a public or private way for collection no earlier than 24 hours prior to their scheduled collection. Brush and yard debris shall be segregated in a separate pile. White goods shall be segregated in a separate pile.

Yard waste that does not exceed four (4) feet in length and forty (40) pounds in weight, and which is susceptible to normal loading and collection into rear loading, "packer type" sanitation equipment used for regular collection from residential household, may be placed at the curbside for regular weekly residential pick up. Yard waste consisting of bundled or loose limbs or tree trunks exceeding four feet in length or forty (40) pounds in weight will be considered Bulky Waste and will be subject to the set-out requirements governing Bulky Waste.

Problem: There is currently no ability for the Township to charge for bulky waste collections—such charges would allow the bulk program to be self-supportive. Additionally, there is no requirement for residents to separate bulky wastes at the curb for separate pick up.

Proposed Revision: The following two paragraphs should be added to Ordinance 241, Section V.

1. The Municipality shall charge for all bulky waste collections as required in Ordinance 240, Section V. 4. The Township shall charge $15.00 for the first 2 cubic yards of bulky waste and $10.00 for each additional 2 cubic yards. The charge for White Goods will be $10.00 each.

2. The Municipality will require residents that wish to dispose of bulky waste to call the Township office to schedule a collection. Collections will be divided into three separate groups to promote recycling. Metal and yard waste will be scheduled on defined days so material can be routed to the proper recycling facilities. Other bulky material will be collected on the remaining days. Material shall not be placed at the curb prior to 24 hours before the scheduled collection.

Results

By making the changes described above, the Township will achieve the following results.

Cost Savings

The labor cost remains the same as no new employees are added for the yard waste and leaf collection. However, the Township will be setting daily labor productivity standards that require a longer work day from collection crews. The daily number of routes in service each day will not change, although one collection crew will now be splitting time between a recycling truck and the grapple boom truck. It is possible there may be a slight increase in maintenance costs with the increase of the new vehicle, although operating costs should not increase since only one or the other truck will be in service on any given day of the week. We have not attempted to estimate the increase in maintenance cost, other than to assume it will be very low the first few years with a new grapple truck.

There will be some minor savings related to disposal cost. As shown in Table 13, a savings of approximately $13,000 will be realized from reduced tonnage disposed of at Imperial Landfill. There will be a diversion of 254 tons of appliances/scrap metal which will be sent to a scrap salvage yard. The scrap yard will not charge for metal or white goods as long as all refrigerants

have been removed and the item certified. The cost of the yard waste disposal at a compost facility is estimated to be $20 per ton. The savings from the disposal cost would be expected to further offset the cost of the grapple truck.

Table 13
Disposal Cost Savings

System	Current System			Proposed System		
	Material Collected	Tip Fee	Disposal Cost	Material Collected	Tip Fee	Disposal Cost
MSW Collection						
Rearload MSW	5,947	$30.38	$180,670	4,697	$30.38	$142,695
Grapple Bulky Waste	0	NA	$0	461	$30.38	$14,005
Total MSW	5,947		$180,670	5,158		$156,700
Recyclables						
Fiber/Containers	264	$0	$0	264	$0	$0
Scrap metal/appliances	0	NA	$0	254	$0	$0
Rearload Yard Waste	0	NA	$0	375	$20.00	$7,500
Grapple Yard Waste	0	NA	$0	161	$20.00	$3,220
Total Recyclables	264	$0	$0	1,053		$10,720
Grand Total	6,211		$180,670	6,211		$167,420
Cost Savings						$13,250

Recycling Rate

Table 14 illustrates the estimated recycling rate for the current and proposed collection systems. By implementing the proposed system, the recycling percentage can be tripled from four percent to almost 13 percent. Although that is a large increase, the Township should also consider additional public education to help increase the curbside recycling participation rate and tons recovered.

Table 14
Recycling Rate Comparison

System	Current System		Proposed System	
	Material Collected	Percentage	Material Collected	Percentage
MSW Collection	5,947	96%	5,424	87.3%
Recyclables				
Fiber/Container Recyclables	264	4%	264	4.2%
Bulk—Scrap Metal/Appliances	0	0%	254	2.3%
Yard Waste/Brush	0	0%	535	6.2%
Total Recyclables/Recycling Rate	264	4%	1,053	12.7%
Total	6,211	100%	6,211	100%

Conclusion

In conclusion, the Township has the opportunity to make significant increases in recycling at only minimal cost, which can be recouped via the establishment of reasonable fees for the new bulky waste collection system. Specifically, the Township should:

- Implement a 39-week yard/leaf waste collection route;
- Implement a bulky waste collection program to divert brush (i.e., that which is too large for collection via rearloader) and scrap metal;
- After making the preceding changes, increase refuse and recycling collection productivity levels to meet reasonable industry performance standards and consequently increase route size; and
- Revise the Township's solid waste ordinance to improve material definitions and implement a fee system for the collection of bulky wastes.

With extensive productivity gains that are possible in the Township's current collection system, the addition of separate yard waste and bulky brush collection will increase the Township's recycling rate from it's current four percent to 12.7 percent, while minimizing the impact on the budget. Existing collection crews may balk initially at the increased work requirement, but this increase will still leave the Township's productivity levels at the midpoint (or lower) of industry productivity standards. Additionally, by establishing fees for bulky waste collection, the Township will be able to align rates more equitably with the level of waste generation by individual households.

We appreciate the opportunity to work with the Township on this project. Please contact me at (301) 607-6428 should you have any questions.

Very truly yours,

R. W. BECK, INC.

Walt Davenport
Special Projects Director

WD/ls

Attachment 1 FY 2003 Sanitation Budget

Expense Category	Actual 1998	Actual 1999	Actual 2000	Actual 2001	Budget 2002	Budget 2003
Saleries	$ 231,364	$ 264,748	$ 274,307	$ 255,314	$ 342,354	$ 358,122
Overtime	$ 10,741	$ 11,460	$ 13,243	$ 8,877	$ 12,000	$ 20,400
Medical Benefits	$ 38,618	$ 42,845	$ 55,287	$ 66,411	$ 79,666	$ 78,652
Payroll Taxes	$ 18,522	$ 2,113	$ 20,434	$ 20,211	$ 27,108	$ 28,964
Other Insurance	$ 7,192	$ 9,118	$ 6,114	$ 6,983	$ 10,560	$ 12,560
Workmans Comp	$ 15,709	$ 15,689	$ 15,666	$ 17,127	$ 24,364	$ 32,228
Other Fringe	$ -	$ 118	$ 365	$ 382	$ 500	$ 500
Uniforms	$ 1,400	$ 1,500	$ 1,500	$ 1,750	$ 2,250	$ 2,250
Total Labor	$ 323,546	$ 347,591	$ 386,916	$ 377,055	$ 498,802	$ 533,676
Office supplies	$ 509	$ 1,461	$ 939	$ 1,072	$ 1,600	$ 1,600
Postage	$ 2,160	$ 2,660	$ 2,333	$ 2,606	$ 3,700	$ 3,700
Bad Dept	$ -	$ -	$ -	$ -	$ 1,050	$ 1,050
Misc	$ 466	$ 335	$ 275	$ 220	$ 500	$ 500
Total Overhead	$ 3,135	$ 4,456	$ 3,547	$ 3,898	$ 6,850	$ 6,850
Vehicle Fuel	$ 5,516	$ 6,161	$ 10,476	$ 10,400	$ 16,000	$ 13,000
Vehicle Oil	$ 1,960	$ 1,692	$ 1,870	$ 1,847	$ 2,300	$ 2,300
Maintenance Suplies	$ 270	$ 157	$ 746	$ 1,123	$ 1,500	$ 1,500
Vehicle Maintenance	$ 11,865	$ 14,308	$ 22,625	$ 16,991	$ 22,000	$ 22,000
Radio Equipment	$ -	$ -	$ -	$ 569	$ 1,300	$ 1,320
Total Maintenance	$ 19,611	$ 22,318	$ 35,717	$ 30,930	$ 43,100	$ 40,120
Landfille fees	$ 151,386	$ 155,816	$ 164,900	$ 164,502	$ 172,420	$ 218,100
Capital purchases	$ -	$ 49,469	$ 34,652	$ 14,274	$ 64,000	$ 39,000
Total Sanitation Cost	$ 497,678	$ 579,650	$ 625,732	$ 590,659	$ 785,172	$ 837,746

Cost per Unit

Expense Category	Actual 1998	Actual 1999	Actual 2000	Actual 2001	Budget 2002	Budget 2003
Estimated Units	3500	3600	3700	3800	3900	4000
Annual Cost per Unit	$ 142.19	$ 161.01	$ 169.12	$ 155.44	$ 201.33	$ 209.44
Monthly Cost	$ 11.85	$ 13.42	$ 14.09	$ 12.95	$ 16.78	$ 17.45
Percent Increase		12%	5%	-9%	23%	4%

ATTACHMENT 2

YARD WASTE COMPOSTING SITES – ALLEGHENY COUNTY

FACILITY	LOCATION	ADDRESS	CONTACT PERSON	PHONE #
Seppi & Sons	6200 Olivant Street, Pittsburgh	Seppi & Sons 6200 Olivant Street Pittsburgh, PA 15206	Edward Seppi	(412) 362-6447
Truckley Landscaping	Frey Road, Penn Hills	Truckley Landscaping 3174 Meadowbrook Road Murrysville, PA 15668	Tim Truckley	(412) 793-7373
Upper St. Clair	Boyce Park, Upper St. Clair	Township of upper St. Clair McLaughlin Run Road Pittsburgh, PA 15241	Mark Mansfield	(412) 831-9000
Wilkins Township	Linhart Park	Township of Wilkins 110 Peffer Road Turtle Creek, PA 15145	Bruce Jamison	(412) 824-6650
Wilkinsburg Borough	Hunter Field	Borough of Wilkinsburg 605 Ross Street Pittsburgh, PA 15221	John Marquart	(412) 244-2900
Meinert Brothers, Inc.	325 Dorseyville Road Pittsburgh	Meinert Brothers, Inc. 325 Dorseyville Road Pittsburgh, PA 15215	Alan Meinert	(412) 781-9099
Monroeville	200 Starr Drive (behind Public Works building)	Municipality of Monroeville 2700 Monroeville Blvd., Monroeville, PA 15146	Bucky Communate	(412) 856-3339
Moon Township	Ewing Road	Township of Moon 1000 Beaver Grade Road Moon Township, PA 15108	Jim Henkemeyer	(412) 262-1704

FACILITY	LOCATION	ADDRESS	CONTACT PERSON	PHONE #
Mt. Lebanon	2 sites – Golf Course & Robb Hollow	Municipality of Mt. Lebanon 710 Washington Road Pittsburgh, PA 15228	Mike Rodman	(412) 343-3859
North Fayette Compost Co.	599 Kelso Road, North Fayette township	North Fayette Compost Company 419 Highland Ave., Oakdale, PA 15071	Jim Wise	(412) 693-9390
North Park/North Hills COG	Allegheny co., North park, McCandless Twp.	North Hills Council of Governments 9800 McKnight Road Pittsburgh, PA 15237	Wayne Roller	(412) 422-2900
Penn Hills	Memorial Park Drive	Municipality of Penn Hills 12245 Frankstown Road Pittsburgh, PA 15235	Harry McIndoe	(412) 795-3500
Plum Borough	4575 New Texas Road (behind Municipal Bldg.)	Borough of Plum 4575 New Texas Rd., Pittsburgh, PA 15239	Martha Perego	(412) 795-6800
Reilly's Summer Seat Farm	1120 Roosevelt Road, Ohio Township	Reilly's Summer Seat Farm 1120 Roosevelt Rd., Pittsburgh, PA 15237	Mike Reilly	(412) 364-8662
Robinson Township	5001 Leona Lane	Township of Robinson 100 Church Hill Road Pittsburgh, PA 15205-9006	Bernie Dudash	(412) 788-8120

ATTACHMENT 3

BULKY WASTE/WHILE GOODS SERVICE FEES

COMMUNITY	FEE
Ann Arbor	$15 per white good; $20 per 2CY bulk; $20 per 5 bags
Cambridge	$15 per white good; $10 for seniors. Also accepts electronics
East Lansing	$5.00 per bulky collection; $10 for appliance; $45 for Freon removal
Grand Rapids	$5.00 per bulky collection; $10 for appliance