

March 11, 2008



Ms. Ilene Eckhart
Manager
Allen Township
4714 Indian Trail Rd
Northampton, PA18067

Subject: Technical Assistance Project – Final Report

Dear Ilene:

This letter summarizes R. W. Beck's analysis of the budget and the logistics of the operation of and municipal contributions to the First Regional Compost Authority's new yard waste compost facility ("the facility"). This effort was undertaken as part of the Recycling Technical Assistance program sponsored by the Pennsylvania Department of Environmental Protection (DEP) and the Solid Waste Association of North America (SWANA).

The report is divided into the following sections, which correspond with the Tasks described in the project scope.

- Background;
- Material Supply Logistics;
- Financial Analysis; and
- Conclusions and Recommendations.

Executive Summary

Allen Township is a member of the newly created inter-municipal authority named the First Regional Compost Authority. This entity includes the Townships of Allen, East Allen, Bushkill, Lehigh and Moore. The purpose of the Authority is to provide regional yard waste recycling and composting at a newly developed regional processing facility which has been developed on a five acre site in Weaversville in East Allen Township. The facility is permitted to manage 12,000 cubic yards of material annually.

Allen Township, as the lead municipality, is interested in an economic evaluation of its initial capital and operating budget for the Authority and the logistics of management and participation in the regional composting facility for each initial member municipality, as well as potential future participating communities.

R.W. Beck performed the economic analysis and logistics review and developed the following recommendations for Allen Township:

- Based on budgetary information provided by the Authority, and analysis of expected operating costs, the \$3.00 per capita initial fee can most likely be reduced to \$1.50 per capita for the founding municipalities and \$1.90 per capita for the additional participants.
- User fees charged must cover the operating costs of the facility, but further consideration should be given to future funding for equipment replacement. This will allow the Authority to accrue equipment replacement funds for use in the future when the current equipment reaches the end of its useful life. The Authority might consider issuing a rebate to municipalities if the replacement fund became excessive.
- An additional estimated \$1.30 per capita charged across the board would provide a basis for funding future equipment replacement, bringing the total per-capita user fees to \$2.80 per capita for founding municipalities and \$3.20 per capita for other municipalities.
- Based on an analysis of the logistics of each municipality delivering its yard waste contribution to the Weaversville site, the total estimated transportation cost per cubic yard of material expected to be delivered by the municipalities ranges from a low of \$3.15 per cubic yard for Northampton Borough (East Allen Township, as facility host, has minimal transportation costs) to a high of \$8.64 per cubic yard for Plainfield Township. These delivery costs could be greatly reduced by encouraging municipalities to both save fuel and reduce the number of trips by either combining loads in larger, more efficient trucks or investing in their own larger capacity trucks.
- To further maximize facility utilization, the Authority may wish to consider allowing private landscaping and other contractors to bring their tree and brush trimmings to the facility. Additional income could be realized by charging these users a separate fee that would be designed to encourage them to use the facility (i.e. not set too high), to cover costs of processing the additional material, and to provide additional revenue to the Authority. Additionally, a portion of the processed material could be sold back to these private entities to generate more income.
- Total annual per-capita costs to founding municipalities, including transfer of the material to the facility, range from \$1.93 per capita for East Allen Township (which has minimal transfer costs as the facility is located in the Township) to \$3.80 per capita for Bushkill Township, if the Authority decides to depreciate equipment based on 10 percent of total costs. If the Authority assesses fees based on 100 percent of equipment being funded by the Authority, then per-capita annual fees range from \$3.23 for East Allen Township to \$5.10 for Bushkill Township.
- The composting facility is currently well below its permitted capacity, however the potential exists that the founding municipalities will increase their yard waste generation to nearly reach that limit. The Authority might have to limit other municipalities' joining the Authority based on its limited capacity, or may consider the possibility of expanding the site and the permitted capacity.

Background Information

Allen Township is a founding member of the newly created inter-municipal authority named the First Regional Compost Authority. This entity includes the Townships of Allen, East Allen, Bushkill, Lehigh and Moore. The purpose of the Authority is to provide regional yard waste recycling and composting at a newly developed regional processing site. The facility was developed from a concept outlined in a 2001 feasibility study performed by R.W. Beck and received permitting assistance from Environmental Resource Associates (ERA). These studies were also performed under the DEP/SWANA technical assistance program.

The regional composting facility is located in Weaversville in East Allen Township. At five acres in size, the facility is permitted to receive and process 12,000 cubic yards of material annually. Allen Township, as the lead municipality, has prepared a budget for the facility that includes all capital and operational expenses, both ongoing and planned. The Authority has purchased equipment, and the site is under construction.

Initial Budget

Current members of the Authority contributed the capital initially required to build the facility and purchase necessary equipment, assisted by three grants from the DEP. The operating budget so far has been funded by these grants along with cash contributions and in-kind contributions from the founding members of the Authority. The Authority's 2007/2008 operating budget is presented as Table 1.

Table 1
First Regional Compost Authority Budget, 2007/2008

REVENUES		
I	MUNICIPAL CASH CONTRIBUTIONS	<u>\$152,519.00</u>
	Subtotal	\$152,519.00
II	MUNICIPAL IN-KIND CONTRIBUTIONS (Personnel)	<u>\$17,680.00</u>
	Subtotal ¹	\$17,680.00
III	GRANTS	
	DEP Grant under agreement	\$309,438.00
	DEP Grant pending approval	<u>\$463,500.00</u>
	Subtotal	\$772,938.00
	TOTAL GLOBAL REVENUES:	<u>\$943,137.00</u>

¹ Not reflected in this budget is an additional contribution from East Allen Township of a 99-year lease for the land that is the site of the compost facility. This lease is valued at \$20,000 per year.

COSTS		
I	OPERATIONS/MAINTENANCE	<u>\$86,645.00</u>
	Subtotal	\$86,645.00
II	EQUIPMENT	
	1 Skid Steer	\$35,000.00
	1 Truck Chassis	\$88,500.00
	1 Truck Body	\$63,541.00
	1 Alt Body Parts (Truck Assembly)	\$20,470.00
	6 Containers	\$22,248.00
	6 Leaf Vacuums	\$90,054.00
	8 Leaf Collection Boxes	<u>\$24,008.00</u>
	Subtotal	\$343,821.00
III	CENTRAL SITE CONSTRUCTION - BALANCE PHASE I	
	Site Work (Imperial Contract)	<u>134,671.00</u>
	Subtotal	\$134,671.00
IV	CENTRAL SITE CONSTRUCTION - PHASE II	
	Paving Compost Area	\$164,480.00
	Access Driveway	\$42,150.00
	Completion of PennDOT Entrance	\$21,590.00
	Fencing	\$29,780.00
	Engineering	<u>\$40,000.00</u>
	Subtotal	\$298,000.00
V	CENTRAL SITE CONSTRUCTION - PHASE III	
	Site Electrical/Lighting	\$10,000.00
	Site Well/Water	\$10,000.00
	Site Fuel Storage and Site Building/Shelter	\$25,000.00
	Site Landscaping	\$10,000.00
	Engineering	<u>\$20,000.00</u>
	Subtotal	\$75,000.00

COSTS		
VI	SIGNAGE	
	Entrance	\$2,500.00
	Security	\$1,000.00
	Direction/Instructional	\$1,500.00
	Subtotal	\$5,000.00
TOTAL GLOBAL EXPENSES:		\$943,137.00

Yard Waste Generation

The Authority is also interested in possibly providing yard waste management services to additional surrounding municipalities at the composting site. Municipalities that have expressed interest in utilizing the site include Bath Borough, Lower Nazareth Township, Nazareth Borough, North Catasauqua Borough, Northampton Borough, Plainfield Township and Upper Nazareth Township. In order to cover the operating costs of the facility, each participating municipality will need to provide an annual financial contribution. The initial contribution from the founding five municipalities was based on a fee of \$3.00 per person living in each municipality. This figure was based on an estimated generation rate of one-third (0.3) of a cubic yard of yard waste annually. These calculations were presented in the initial 2001 R. W. Beck technical assistance report to the compost authority. Yard waste generation figures for the report were obtained from Lehigh County and verified by comparison with other studies conducted by R.W. Beck. The yard waste generation table from this previous report is presented as Table 2 below, updated to reflect new municipal populations.

Table 2
Estimated Yard Waste Generation – Volume in Cubic Yards
Based on 2006 Population Estimates

	Population (2006 est.)	Estimated YW Generated
Founding Municipalities		
Allen Township	4,000	1,200
Bushkill Township	8,000	2,400
East Allen Township	5,500	1,650
Moore Township	9,500	2,850
Lehigh Township	<u>10,500</u>	<u>3,150</u>
Subtotal – Founding Municipalities	37,500	11,250

	Population (2006 est.)	Estimated YW Generated
Potential Additional Municipalities		
Bath Borough	2,768	830
Lower Nazareth Township	5,654	1,696
Nazareth Borough	6,023	1,807
North Catasauqua Borough	2,863	859
Northampton Borough	9,699	2,910
Plainfield Township	6,055	1,817
Upper Nazareth Township	<u>5,313</u>	<u>1,594</u>
Subtotal –		
Potential Additional Municipalities	38,375	11,513
POTENTIAL TOTAL GENERATION	75,875	22,763

It should be noted that the calculated generation rate for the founding municipalities, 11,250 cubic yards per year, approaches the permitted capacity of 12,000 cubic yards per year for the facility. Currently the facility is in its start-up phase, and actual contributions from each municipality are not yet known and are much less than the calculated potential generation. However, the capacity of the facility will likely be a limiting factor in the long-run, and the Authority will have to consider the needs of its founding municipalities and allocate capacity to additional municipalities or the private sector on an as-available basis.

Logistics

As part of the cost analysis, R.W. Beck analyzed the logistics of how each municipality would transfer its yard waste to the Weaversville site, and what the associated transportation costs would be. The logistics were examined for both the founding municipalities and potential future participants. It is expected that each municipality would pay the cost associated with transporting their yard waste to the site, and therefore these costs would not be included in the per-capita fees the Authority would charge each municipality. Identifying these costs, however, assists in helping municipalities plan, and can identify communities that may not be willing to participate, due to high estimated transportation costs to the site. A preliminary analysis was conducted as part of the 2001 feasibility study, and included a survey of representatives from the founding and potential additional municipalities to determine the amount of yard waste they generated, the location of its accumulation, and their willingness to deliver material to the new facility. The results of this preliminary survey were used and updated where the municipalities were able to provide new data. Table 3 presents the results of the logistics analysis, including transportation costs, for each participating or potential municipality.

Table 3 assumes that the yard waste would be hauled from one location in each municipality. This location would be the point of consolidation of yard waste, if known, or the administrative center of the municipality, if not known. The trucks that haul the yard waste are assumed to have a six cubic yard capacity and consume an average of six miles per gallon of fuel. Fuel is assumed to cost \$3.50 per gallon.

Table 3
Logistics and Cost of Yard Waste Transport for the Municipalities

Municipality	Cubic Yards Annually	Annual Fuel Cost	Hours Annually	Estimated Labor Cost ¹	Total Transportation Cost	Transportation Cost (\$/CY)
Founding Municipalities						
Allen Township	1,200	\$933	200	\$3,200	\$4,133	\$3.44
Bushkill Township	2,400	\$5,600	800	\$12,800	\$18,400	\$7.67
East Allen Township	1,650	\$160	138	\$2,200	\$2,360	\$1.43
Lehigh Township	3,150	\$6,125	788	\$12,608	\$18,733	\$5.95
Moore Township	2,850	\$4,988	713	\$11,408	\$16,396	\$5.75
Additional Potential Municipalities						
Bath Borough	830	\$847	138	\$2,208	\$3,055	\$3.68
Lower Nazareth Township	1,696	\$2,144	283	\$4,528	\$6,672	\$3.93
Nazareth Borough	1,807	\$3,865	602	\$9,632	\$13,497	\$7.47
North Catasauqua Borough	859	\$543	143	\$2,288	\$2,831	\$3.30
Northampton Borough	2,910	\$1,415	485	\$7,760	\$9,175	\$3.15
Plainfield Township	1,817	\$6,006	606	\$9,696	\$15,702	\$8.64
Upper Nazareth Township	1,594	\$3,719	532	\$8,512	\$12,231	\$7.67

¹ Assumes an average labor cost of \$16 per hour.

The use of small-capacity trucks with low fuel efficiency has a significant impact on the logistics costs, especially for communities that are relatively far from the facility and have large amounts of material to deliver. For example, Bushkill Township, Moore Township, Lehigh Township and Northampton Borough will all be required to make more than one trip, on average, per day to deliver their material to the facility in six cubic yard trucks. In actuality, during months of high yard waste generation, these communities might require a full-time staff person dedicated solely to transporting yard waste to the facility on a continuing basis.

The Authority should investigate the feasibility of saving on both fuel and labor costs by using the following possible approaches:

- Combining loads from outlying communities in bigger trucks; or
- Encouraging or incentivizing the outlying communities to purchase their own larger trucks that are more fuel-efficient.

It is possible that the high costs and complex logistics of material delivery could negatively impact certain communities' decisions to participate in the facility, depending on their other yard waste processing options.

As an example, an upgrade to 20 cubic yard-capacity trucks with a fuel economy of 10 miles per gallon would result in the alternative cost scenario presented in Table 4.

Table 4
Logistics and Cost of Yard Waste Transport for the Municipalities
Alternative Scenario: 20 Cubic Yard Trucks at 10 Miles per Gallon

Municipality	Cubic Yards Annually	Annual Fuel Cost	Hours Annually	Estimated Labor Cost ¹	Total Transportation Cost	Transportation Cost (\$/CY)
Founding Municipalities						
Allen Township	1,200	\$168	60	\$960	\$1,128	\$0.94
Bushkill Township	2,400	\$1,008	240	\$3,840	\$4,848	\$2.02
East Allen Township	1,650	\$29	41.5	\$664	\$693	\$0.42
Lehigh Township	3,150	\$995	237	\$3,792	\$4,787	\$1.52
Moore Township	2,850	\$998	215	\$3,440	\$4,438	\$1.56

Municipality	Cubic Yards Annually	Annual Fuel Cost	Hours Annually	Estimated Labor Cost ¹	Total Transportation Cost	Transportation Cost (\$/CY)
Additional Potential Municipalities						
Bath Borough	830	\$153	42	\$672	\$825	\$0.99
Lower Nazareth Township	1,696	\$386	85	\$1,360	\$1,746	\$1.03
Nazareth Borough	1,807	\$695	180	\$2,880	\$3,575	\$1.98
North Catasauqua Borough	859	\$98	43	\$688	\$786	\$0.92
Northampton Borough	2,910	\$260	146	\$2,336	\$2,596	\$0.89
Plainfield Township	1,817	\$1,082	182	\$2,912	\$3,994	\$2.20
Upper Nazareth Township	1,594	\$670	160	\$2,560	\$3,230	\$2.03

¹ Assumes an average labor cost of \$16 per hour.

As the results of Table 4 show, communities could save as much as \$6.44 per cubic yard in transportation costs if they were able to use a more efficient vehicle than that which is described in Table 3. It is possible that the use of even more efficient collection vehicles, and sharing transportation, could result in even more significant cost savings.

Financial Analysis

R. W. Beck used existing information and, based on discussions with Authority representatives, adjusted the initial budget to reflect relatively recent decisions that would have an impact on annual costs. The methodology and results are described below.

Estimated Annual Costs

The Authority based its initial budget on a \$3.00 per-capita contribution to the facility's costs, payable by each participating municipality. The Authority is interested in assessing whether this amount will cover the ongoing costs of the facility, and how to set fees equitably. It may be more equitable, for example, to charge the founding municipalities a discounted per-capita rate over new participants, due to the fact that they have been contributing to the set-up costs of the Authority and establishment of the yard waste facility.

Using information supplied by the Authority's administrator, R.W. Beck adjusted the original annual budget to reflect the following factors:

- The authority plans to hire a part-time administrator;
- The grant obligation note will be paid off, and not carried forward;
- The municipalities will not provide in-kind operations labor in perpetuity, and this expense should be budgeted for future years; and
- Annual depreciation for the equipment owned by the authority should be accounted for.

Taking these updates into consideration, Table 5 describes the annual operating budget for the facility.

**Table 5
 Adjusted Estimated Annual Operating Costs**

Budget Item	Annual Cost
Operations and Maintenance	\$36,921
■ Fuel	\$6,000
■ Other supplies and equipment	\$10,000
■ Utilities	\$10,000
■ Equipment Maintenance and Repair *	\$10,921
Administration	\$14,100
■ Administrator	\$5,000
■ Advertising	\$2,000
■ Legal	\$2,500
■ Office Supplies	\$500
■ Mailing/Newsletter Costs	\$4,000
■ Long Distance Telephone	\$100
■ Grant Obligation Note (\$350K @ 4.62% per annum), M&T Bank **	\$0
Insurance	\$6,195
■ General, Auto & Public Officials Liability	\$2,717
■ Property	\$2,694
■ Treasurer's Bond	\$384
■ Miscellaneous	\$400

Budget Item	Annual Cost
Equipment Depreciation * * *	\$10,921
■ Peterson Pacific (2006) 4700B	\$3,683
■ Wildcat (2006) 516 Cougar Trommel Screen	\$1,312
■ John Deere (2006) 544J 4-WD Loader w/5 Yd LM Bucket and JRB 3 Yd Grapple Bucket	\$1,415
■ Wildcat (2006) 514 Compost Turner	\$1,073
■ Other Misc. Equipment	\$3,438
Labor	\$41,080
■ Operator (Full Time @ 20 hours per week to facility)	\$22,880
■ Laborer (Part Time @ 12 hours per week)	\$9,984
■ Fringe Benefits	\$8,216
Miscellaneous and Contingency (10 percent)	\$10,922
TOTAL ANNUAL OPERATING EXPENSES	<u>\$120,169</u>

* Budgeted at 10 percent of equipment value

** This line item is an artifact only; original note paid off

*** Straight-line depreciation, 10 years, on Authority's portion of costs

In estimating depreciation costs, R. W. Beck used the portion of the equipment costs that the Authority paid toward the equipment, which was 10 percent, as they received a grant from DEP for 90 percent of the equipment costs. The cost estimates also assume a 10-year lifecycle for the equipment.

It may be beneficial for the Authority to budget for depreciation of 100 percent of the equipment costs. This is a conservative approach to provide a means for the Authority to set aside equipment replacement costs on an ongoing basis in the event that equipment can not be funded through DEP grants in the future. Planning for equipment replacement would result in a more sustainable program, as DEP grants are not guaranteed, and the program is competitive. However, annual costs would be significantly higher if this methodology were adopted. Also, the Authority should investigate whether there is a maximum dollar amount they can retain, by law, and discuss with the member municipalities how they would handle excess revenues (e.g., a rebate to communities, or reduction of future fees).

Table 6 presents the annualized equipment costs calculated under both assumptions – both with DEP funding 90 percent of the equipment costs, and with the Authority purchasing the equipment without assistance from DEP.

Table 6
 Estimated Annual Equipment Costs

Equipment	Estimated Cost	Annualized, Full-Cost ¹	Annualized Authority Cost, Assuming DEP Grant Funds Available	Annualized Cost Difference
Peterson Pacific (2006) 4700B	\$368,235	\$36,824	\$3,682	\$33,135
Wildcat (2006) 516 Cougar Trommel Screen	131,250	\$13,125	\$1,312	\$11,813
John Deere (2006) 544J 4-WD Loader w/5 Yd LM Bucket and JRB 3 Yd Grapple Bucket	141,574	\$14,157	\$1,416	\$12,742
Wildcat (2006) 514 Compost Turner	107,310	\$10,731	\$1,073	\$9,334
Other Misc. Equipment	\$343,821	\$34,382	\$3,438	\$30,944
Totals	\$1,092,190	\$109,219	\$10,921	\$98,298

¹ Based on straight-line depreciation, and a 10-year lifespan for all equipment. No interest is assumed.

As Table 6 shows, if the Authority decides to base annual equipment depreciation costs on the full cost of the equipment, then an additional \$98,298 annually should be appropriated for equipment replacement. Based on the expected total cubic yards to be processed by the facility (and not taking into account growth that will occur), these funds could be established by an additional assessment of approximately \$1.30 per capita per year, including the populations of both the founding and the additional municipalities.

Estimated Annual Revenues

The Authority is committed to funding the compost facility's operations using a per-capita fee levied on the municipalities that will use the facility. The Authority believes this is the most equitable way of spreading the costs among users, and will encourage use of the facility. Systems that charge gate fees or "tipping fees" based on the tonnage delivered are more difficult to administer and may act as a disincentive to greater use of the facility. In addition, revenues are less certain when processing fees charged at the gate are the only source (or primary source) of revenue.

In order to cover the costs outlined in the expense budget above, a revenue budget was developed. Using the expense budget and the initial municipal fee of \$3.00 per cubic yard, R .W. Beck conducted a sensitivity analysis using various fee options to yield estimated user

fees that would be reasonable, and that would possibly provide a discounted rate going forward to the founding municipalities while still charging additional municipalities fairly.

R. W. Beck also developed two versions of the revenue budget – one for current operating costs, including just 10 percent of the equipment costs (e.g., assuming DEP grants would be available in the future, referred to as Scenario 1); and one that would include full equipment replacement costs, referred to as Scenario 2.

In performing the sensitivity analysis to determine fee options, R.W. Beck attempted to balance the need for recognition of the founding municipalities' significant initial contributions to establishing the Authority and the composting facility, and the need for additional municipalities to be charged an amount they would perceive as fair and non-discriminatory. These calculations resulted in two fee options.

The first option presents potential fees of \$1.60 per capita per year for founding municipalities and \$1.80 for additional municipalities to cover estimated operating costs, with annualized equipment costs assessed on only the 10 percent municipal contribution, after grants, to equipment purchases. The extended scenario, covering full equipment replacement costs, resulted in fees of \$2.90 per capita and \$3.10 per capita, respectively.

The second option presents potential fees of \$1.50 per capita for founding municipalities and \$1.90 for additional municipalities to cover estimated operating costs, with annualized equipment costs assessed on only the 10 percent municipal contribution, after grants, to equipment purchases. The extended scenario, covering full equipment replacement costs, resulted in fees of \$2.80 per capita and \$3.20 per capita, respectively.

These calculations consider both fairness and a return of the net present value of the initial contribution made by the founding municipalities. A 20-cent discount per-capita from the rate that would be charged to municipalities joining later represents a cash value of approximately \$7,500 (\$0.20 multiplied by the population of 37,000). Over a 20-year period at a 5 percent interest rate, this cash value represents a present value of \$93,467. A 40-cent discount, with a cash value of \$15,000, would have a net present value of \$186,933 over 20 years at a 5 percent interest rate. This is a close approximation of the initial contribution of the founding municipalities to the formation of the Authority and the establishment of the composting facility. Table 7 presents the municipal contributions at a 20-cent differential and Table 8 presents the municipal contributions at a 40-cent differential between founding and other municipalities, for comparison purposes. The larger differential, shown as Option 2 in Table 8, was used to calculate the overall operating budget in Table 9.

Table 7
 Compost Facility Budget – Annual Revenues Option 1

Municipality	Scenario 1 10% Equipment Replacement ¹	Scenario 2 100% Equipment Replacement
Founding Municipalities		
	\$1.60 per capita	\$2.90 per capita
Allen Township	\$6,400	\$11,600
Bushkill Township	\$12,800	\$23,200
East Allen Township	\$8,800	\$15,950
Moore Township	\$15,200	\$27,550
Lehigh Township	<u>\$16,800</u>	<u>\$30,450</u>
Total Founding Municipalities' Estimated Annual Revenues	\$60,000	\$108,750
Potential Additional Municipalities		
	\$1.80 per capita	\$3.10 per capita
Bath Borough	\$4,982	\$8,581
Lower Nazareth Township	\$10,177	\$17,527
Nazareth Borough	\$10,841	\$18,671
North Catasauqua Borough	\$5,153	\$8,875
Northampton Borough	\$17,458	\$30,067
Plainfield Township	\$10,899	\$18,771
Upper Nazareth Township	<u>\$9,563</u>	<u>\$16,470</u>
Total Potential Additional Users' Estimated Annual Revenues	\$69,075	\$118,963
TOTAL POTENTIAL ANNUAL REVENUES	\$129,075	\$227,713

Table 8
 Compost Facility Budget – Annual Revenues Option 2

Municipality	Scenario 1 10% Equipment Replacement ¹	Scenario 2 100% Equipment Replacement
Founding Municipalities		
	\$1.50 per capita	\$2.80 per capita
Allen Township	\$6,000	\$11,200
Bushkill Township	\$12,000	\$22,400
East Allen Township	\$8,250	\$15,400
Moore Township	\$14,250	\$26,600
Lehigh Township	\$15,750	\$29,400
Total Founding Municipalities' Estimated Annual Revenues	\$56,250	\$105,000
Potential Additional Municipalities		
	\$1.90 per capita	\$3.20 per capita
Bath Borough	\$5,259	\$8,858
Lower Nazareth Township	\$10,743	\$18,093
Nazareth Borough	\$11,444	\$19,274
North Catasauqua Borough	\$5,440	\$9,162
Northampton Borough	\$18,428	\$31,037
Plainfield Township	\$11,505	\$19,376
Upper Nazareth Township	\$10,095	\$17,002
Total Potential Additional Users' Estimated Annual Revenues	\$72,913	\$122,800
TOTAL POTENTIAL ANNUAL REVENUES	\$129,163	\$227,800

Population Growth

The Lehigh County Planning Commission's Municipal Population Forecasts for Lehigh and Northampton Counties, dated June, 2007 predicts an average of approximately 10 percent growth in population for the municipalities expected to participate in the composting facility, including both founding and additional municipalities. Accordingly, in 2015 the combined population will have grown to approximately 84,592 from the 2006 estimate of 75,875. This growth should be accounted for in budgeting for the facility.

Using the yard waste generation rate of 0.3 cubic yards per person annually, this population increase is expected to result in an additional 2,615 cubic yards to manage. If the expenses of operating the composting facility also increase by approximately 10 percent an additional \$11,978 will be needed to cover the increase. If both the founding and the additional municipalities actually experience 10 percent population growth over this time period, at either the rates of \$1.60 and \$1.80 per cubic yard, respectively, or \$1.50 and \$1.90 per cubic yard, there will be sufficient funds to cover increased expenses.

Total Annual Estimated Budget

The total estimated annual budget for the authority's facility, including expenses and revenues and including participation by the additional municipalities is presented as Table 9 below. This budget reflects the \$1.50 and \$1.90 per-capita annual contributions by founding and additional municipalities, respectively. The Authority management believes that the 40-cent per-capita difference between fees paid by founding municipalities vs. other municipalities is more reflective of the founding municipalities' initial contributions, yet is not so high as to discourage other municipalities from joining.

**Table 9
 Combined Overall Facility Budget**

Compost Facility Operating Costs	
Operations and Maintenance	\$36,921
■ Fuel	\$6,000
■ Other supplies and equipment	\$10,000
■ Utilities	\$10,000
■ Equipment Maintenance and Repair *	\$10,921
Administration	\$14,100
■ Administrator	\$5,000
■ Advertising	\$2,000
■ Legal	\$2,500
■ Office Supplies	\$500
■ Mailing/Newsletter Costs	\$4,000
■ Long Distance Telephone	\$100
■ Grant Obligation Note (\$350K @ 4.62% per annum), M&T Bank	\$0

Compost Facility Operating Costs	
Insurance	\$6,195
■ General, Auto & Public Officials Liability	\$2,717
■ Property	\$2,694
■ Treasurer's Bond	\$384
■ Miscellaneous	\$400
Equipment Depreciation * *	\$10,921
■ Peterson Pacific (2006) 4700B	\$3,683
■ Wildcat (2006) 516 Cougar Trommel Screen	\$1,312
■ John Deere (2006) 544J 4-WD Loader w/5 Yd LM Bucket and JRB 3 Yd Grapple Bucket	\$1,415
■ Wildcat (2006) 514 Compost Turner	\$1,073
■ Other Misc. Equipment	\$3,438
Labor	\$41,080
■ Operator (Full Time @ 20 hours per week to the facility)	\$22,880
■ Laborer (Part Time @ 12 hours per week)	\$9,984
■ Fringe Benefits	\$8,216
Miscellaneous and Contingency (10 percent)	\$10,922
TOTAL COSTS	\$120,169
Compost Facility Revenues	
Founding Municipal Contributions (\$1.50 per capita)	\$56,250
■ Allen Township	\$6,000
■ Bushkill Township	\$12,000
■ East Allen Township	\$8,250
■ Moore Township	\$14,250
■ Lehigh Township	\$15,750

Compost Facility Revenues	
Additional Municipal Contributions (\$1.90 per capita)	\$72,913
■ Bath Borough	\$5,259
■ Lower Nazareth Township	\$10,743
■ Nazareth Borough	\$11,444
■ North Catasauqua Borough	\$5,440
■ Northampton Borough	\$18,428
■ Plainfield Township	\$11,505
■ Upper Nazareth Township	\$10,095
TOTAL REVENUES	\$129,163
Surplus Revenues:	\$8,994

As illustrated in Tables 7 and 8, R.W. Beck's sensitivity analysis results in an estimated annual per-capita payment of \$1.50 for founding municipalities and \$1.90 for additional municipalities to provide an estimated \$129,163 for the annual operating costs of the yard waste facility. This option results in an estimated revenue surplus of \$8,994 per year, as indicated. While costs and revenues should ideally balance in the operating budget, R.W. Beck believes that for this relatively new regional facility some uncertainties exist that justify the generation of a surplus. For example, there is the risk that some additional municipalities may not join right away. If all of the municipalities do join, the surplus may be able to be applied to an equipment replacement fund, or could be used to provide some incentives for the municipalities located farther away to reduce their transportation costs of participating by some cooperative arrangements.

The figures of \$1.50 and \$1.90 also seem fair in the sense that a reduced rate applied to the founding municipalities would serve to acknowledge their initial contributions in establishing the facility, while the additional 40 cents per capita charged to the additional municipalities is not so excessive as to be considered punitive or discriminatory in nature. Similar revenue projections resulted from per-capita rates of \$1.25 for founding members and \$1.95 for additional municipalities, for example, but the larger 70-cent per-capita difference could be negatively perceived by the additional municipalities, which could hinder their likelihood of joining.

When transportation costs to the site and processing costs for material are considered on a per-capita basis, total annual costs per capita are as summarized in Table 10.

Table 10
 Estimated Annual Per-Capita Total Yard Waste Transfer and Processing Costs

Municipality	Total Transportation Cost	Total Estimated Processing Cost ¹	Total Cost to Municipality	Total Estimated Per-Capita Annual Cost to Municipality – Scenario 1 ²	Total Estimated Per-Capita Annual Cost to Municipality – Scenario 2 ³
Founding Municipalities					
Allen Township	\$4,133	\$6,000	\$10,533	\$2.53	\$3.83
Bushkill Township	\$18,400	\$12,000	\$31,200	\$3.80	\$5.10
East Allen Township	\$2,360	\$8,250	\$11,160	\$1.93	\$3.23
Lehigh Township	\$18,733	\$14,250	\$33,933	\$3.14	\$4.44
Moore Township	\$16,396	\$15,750	\$33,196	\$3.38	\$4.68
Additional Potential Municipalities					
Bath Borough	\$3,055	\$5,259	\$8,315	\$3.00	\$4.30
Lower Nazareth Township	\$6,672	\$10,743	\$17,414	\$3.08	\$4.38
Nazareth Borough	\$13,497	\$11,444	\$24,940	\$4.14	\$5.44
North Catasauqua Borough	\$2,831	\$5,440	\$8,270	\$2.89	\$4.19
Northampton Borough	\$9,175	\$18,428	\$27,603	\$2.85	\$4.15
Plainfield Township	\$15,702	\$11,505	\$27,205	\$4.49	\$5.79
Upper Nazareth Township	\$12,231	\$10,095	\$22,326	\$4.20	\$5.50

¹ Need this footnote

²Based on depreciation cost of 10 percent of cost of equipment per year, assuming that DEP grants will be available to fund 90 percent of equipment costs in the future.

³Assumes 100 percent of equipment costs depreciated – e.g., that DEP grants will not be available to fund equipment in the future.

Observations and Recommendations

In summary, we can conclude:

- The First Regional Compost Authority has established its yard waste processing facility in Weaversville using a combination of cash funds, in-kind contributions of land and labor from founding municipalities, and generous DEP grant funding. The Authority has received

expressions of interest from seven municipalities, in addition to the founders, that wish to transport their material to the facility for processing.

- The user fee rates to support the facility, particularly with regard to capital costs, depend heavily on obtaining the support of as many of the potential communities as possible. Fully utilizing the facility will help ensure that equipment is more fully utilized, and will result in lower costs per capita for all communities. The Authority should continue to develop and maintain relationships with the surrounding communities to ensure that they are aware of the facility and the benefits of the facility, and to solicit membership or use of the facility by those municipalities.
- To further maximize facility utilization, the Authority may wish to consider allowing private landscaping and other contractors to bring their tree and brush trimmings to the facility. Additional income could be realized by charging these users a separate fee that would be designed to encourage them to use the facility (i.e. not set too high), to cover costs of processing the additional material, and to provide additional revenue to the Authority. Additionally, a portion of the processed material could be sold back to these private entities to generate more income.
- For a sustainable facility to operate and grow, the participating municipalities must be charged a fair and equitable user fee that will encourage their continuing participation. An equitable user fee may involve the founding municipalities' per-capita user fees being slightly lower than other communities, as the Authority believes that a fair system would charge the founding municipalities a slightly reduced rate as compensation for their initial risk in supporting the facility. At some point in the future, the Authority might consider revisiting this rate structure, allowing for the same rate to be charged to all communities.
- The Authority believes per-capita user fees assessed to all municipalities that will use the facility are an equitable means of funding the program. In addition, funding the facility by this means lowers the risk of non payment, is less cumbersome than charging each vehicle that delivers materials to the facility, and provides a certain stream of revenues to the Authority.
- User fees charged must cover the operating costs of the facility, but further consideration should be given to future funding for equipment replacement. This will allow the Authority to accrue equipment replacement funds for use in the future when the current equipment reaches the end of its useful life. The Authority might consider issuing a rebate to municipalities if the replacement fund became excessive.
- Based on budgetary information provided by the Authority, and analysis of expected operating costs, the \$3.00 per capita initial fee can most likely be reduced to \$1.50 per capita for the founding municipalities and \$1.90 per capita for the additional participants. An additional estimated \$1.30 per capita charged across the board would provide a basis for funding future equipment replacement, bringing the total per- capita user fees to \$2.80 and \$3.20 respectively.

- Based on an analysis of the logistics of each municipality delivering its yard waste contribution to the Weaversville site and some common assumptions, the total estimated transportation cost per cubic yard of material expected to be delivered by the municipalities ranges from a low of \$3.15 per cubic yard for Northampton Borough (East Allen Township, as facility host, has minimal transportation costs) to a high of \$8.64 per cubic yard for Plainfield Township. These delivery costs could be greatly reduced by encouraging municipalities to both save fuel and reduce the number of trips by either combining loads in larger, more efficient trucks or investing in their own larger capacity trucks.
- Total annual per-capita costs to founding municipalities, including transfer of the material to the facility, range from \$1.93 per capita for East Allen Township (which has minimal transfer costs as the facility is located in the Township) to \$3.80 per capita for Bushkill Township, if the Authority decides to depreciate equipment based on 10 percent of total costs. If the Authority assesses fees based on 100 percent of equipment being funded by the Authority, then per-capita annual fees range from \$3.23 for East Allen Township to \$5.10 for Bushkill Township.
- East Allen Township is contributing a long-term land lease to the Authority for the composting facility. The value of this lease is \$20,000 per year, or \$3.64 per capita to the residents of East Allen Township (population approximately 5,500). To provide consideration in this entire amount to East Allen Township would be impractical and likely viewed as inequitable by other facility participants; however the Authority may wish to consider some future arrangement, such as allowing East Allen Township to retain any revenues from the sale of the compost products, as compensation.
- Total annual per-capita costs to potential member municipalities, including transfer of the material to the facility, range from \$2.85 per capita for Northampton Borough to \$4.49 per capita for Plainfield Township, if the Authority decides to depreciate equipment based on 10 percent of total costs. If the Authority assesses fees based on 100 percent of equipment being funded by the Authority, then per-capita annual fees range from \$4.15 for Northampton Borough to \$5.79 for Plainfield Township.
- The composting facility is currently well below its permitted capacity, however the potential exists that the founding municipalities will increase their yard waste generation to nearly reach that limit. The Authority might have to limit other municipalities' joining the Authority based on its limited capacity, or may consider the possibility of expanding the site and the permitted capacity.

Ms. Ilene Eckhart
Allen Township
February 6, 2008
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We appreciate the opportunity to work with the Authority on this project. Please do not hesitate to contact me at (828) 231-1873 or schilds@rwbeck.com if you have any questions.

Very truly yours,

R. W. BECK, INC.

A handwritten signature in black ink that reads "Sandi M. Childs". The signature is written in a cursive style with a large initial 'S'.

Sandi M. Childs
Consultant
Water and Waste Resources

SC:ls