

September 28, 2006



Ms. Joan Baskin
Secretary
Ralpho Township
30 S Market St.
Elysburg, PA 17824

Dear Joan,

This letter summarizes the findings of our evaluation of recycling program options in Ralpho Township, Pennsylvania. The evaluation was performed as a Recycling Technical Assistance Program project administered by the Pennsylvania Department of Environmental Protection (DEP) through the Solid Waste Association of North America (SWANA).

Executive Summary

Ralpho Township is located in Northumberland County, Pennsylvania. Although the Township is not required to operate a municipal recycling program under Act 101, it wants to offer its residents the opportunity to recycle through a low cost recycling program as they do not currently have access to either curbside or drop-off collection of residential recyclables.

Four recycling collection program options were evaluated:

- Contracted curbside collection (monthly): This would entail procuring private recycling collection from a private hauler, with once per month collection.
- Contracted curbside collection (bi-weekly): This would entail procuring private recycling collection from a private hauler. Bi-weekly collection would result in higher levels of participation and recovery compared to a monthly program.
- Unstaffed permanent drop-off: Entails establishing a permanent drop-off location where recyclables could be dropped off. The drop-off location would not be staffed, which would result in higher levels of contamination than other program options. The Township would need to provide daily housekeeping and deliver recyclables to a processor.
- Staffed temporary drop-off (weekly): This option would entail procuring a private recycler to deliver a mobile recycling truck/trailer combination to the municipal complex on a once per week basis, assisting customers in properly sorting their recyclables and ensuring contaminants are minimized.

Although the staffed temporary drop-off is projected to recover less materials than the other program options, it is the recommended program because it best meets Ralpho Township's desire for a low-cost recycling program with minimal staff involvement. A further benefit of the recommended program is that it enhances the Township's ability to hold periodic special collection events for such items as tires, white goods, electronics, or household hazardous waste that could be paired with the staffed recyclables drop-off. Further details of the recycling program options and our analysis are provided in the sections following this summary.

Background

Ralpho Township is located in Northumberland County, which is in central Pennsylvania. The Township has a population of approximately 3,900. Because of its small population and low population density, the Township is not required to operate a municipal recycling program under Act 101 and Township residents do not currently have access to either curbside or drop-off collection of residential recyclables. Ralpho Township, however, would like to provide to its citizens the opportunity to recycle if a financially and operationally sustainable municipal recycling program can be established.

Solid waste collection in Ralpho Township is subscription-based, meaning that individual householders arrange for collection of solid waste from their residences by a private hauler of their own choosing. Ralpho Township does not franchise or otherwise regulate the haulers who collect solid waste in the township, nor does it require that haulers provide certain service options, such as recyclables collection. Haulers are licensed by Northumberland County.

Ralpho Township provides solid waste management services in the form of occasional special event collections for particular materials. For example, the Township operates an annual leaf waste collection program each fall using Streets Department staff and equipment. The Township also conducted a very successful pilot tire recycling collection event in June 2006, which resulted in the recovery of five tons of tires. The Township also has an interest in conducting a pilot "appliance day" collection event in the future. Ralpho Township has not previously attempted residential recyclables collection.

Ralpho Township funds its annual leaf collection from its general fund and the cost of providing the service is subsumed in the Street Department section of the budget. The Township relied on grant funds for its tire recycling pilot collection event. Ralpho Township maintains a balanced budget, therefore significant capital and operating expenses associated with a proposed recycling program would require identification of revenue sources to support the program. Because funds are limited, Ralpho is most interested in a recycling program that provides access to recycling for standard residential recyclables generated by its citizens at minimal cost.

Comparison of Recycling Program Options

Four major recycling collection program options were evaluated as follows:

- Contracted curbside collection (monthly): This would entail procuring private recycling collection from a private hauler, with once per month collection.
- Contracted curbside collection (bi-weekly): This would entail procuring private recycling collection from a private hauler. Bi-weekly collection would result in higher levels of participation and recovery compared to a monthly program.
- Unstaffed permanent drop-off: Entails establishing a permanent drop-off location where recyclables could be dropped off. The drop-off location would not be staffed, which would

result in higher levels of contamination than other program options. The Township would need to provide daily housekeeping and deliver recyclables to a processor.

- Staffed temporary drop-off (weekly): This option would entail procuring a private recycler to deliver a mobile recycling truck/trailer combination to the municipal complex on a once per week basis, assisting customers in properly sorting their recyclables and ensuring contaminants are minimized.

Before committing to any of the four options listed above, Ralpho Township can conduct a pilot evaluation to better gauge program interest and participation. For example, Ralpho Township could conduct a pilot unstaffed permanent drop-off in cooperation with a private recycler before making an investment and commitment to purchasing equipment for the drop-off.

Program Effectiveness

The effectiveness of recycling programs in recovering materials is closely correlated with convenience of the programs for participants. Collecting recyclables at the front street curb of individual residences is more convenient than a drop-off program that requires people to drive their recyclables to a collection site, thus higher participation occurs with curbside collection programs. Similarly, more frequent curbside collection or longer access hours for drop-offs increase program convenience, resulting in greater participation.

Table 1 provides estimates of the amounts of recyclable materials that could be collected by each recycling program option considered for this evaluation. Participation rates and recovery tonnages are R. W. Beck’s best estimate based on other programs across Pennsylvania and the U.S., and Ralpho Township’s results may vary from these estimates. The tonnage estimate is based on the collection of newspapers, glass (clear, green, and brown), aluminum cans, steel cans, and PET and HDPE plastic bottles.

**Table 1
 Maximum Estimated
 Recyclables Recovery for Program Options ¹**

Options	Participation Rate	Annual Tonnage	Annual Tons/ Total Units	Annual Tons/ Participating Unit
Curbside contract - biweekly	55%	170	0.11	0.21
Curbside contract - monthly	45%	140	0.09	0.21
Unstaffed permanent drop-off	20%	55	0.04	0.18
Staffed temporary drop-off	10%	23	0.02	0.15

¹ Based on 1,500 residential units in Ralpho Township

Table 1 shows that a bi-weekly curbside collection program is expected to result in the highest participation rate and tonnage, followed by a monthly curbside collection program. An unstaffed drop-off program that is continually available would be next most effective.

Although it would not be staffed, it would require a nominal number of staff hours to keep the site clean and deliver collected materials to a processor. A staffed temporary mobile drop-off program performed on a consistent once-per-week basis would be expected to result in the recovery of the least amount of recyclables.

The drop-off programs offer an advantage over curbside programs that may not be immediately obvious. Because of the fixed location of the unstaffed and staffed drop-offs, special collection events can be paired with the regular recyclables drop-off. Special collection events for such items as tires, white goods, electronics, or household hazardous waste could occur at the drop-off location. Paired events often result in higher participation and capture of targeted materials than if the locations are kept separate.

Program Costs

Costs for the program options are composed of initial start-up costs for capital purchase items and ongoing operations costs. Section 902 of Act 101 allows municipalities to receive up to 90 percent funding for eligible start-up costs for the following:

- Development of a drop-off site;
- Planning and implementation to establish a recyclables collection program;
- Purchase of recycling education materials, including brochures, flyers, etc.; and
- Containers and equipment required to operate a collection program or drop-off site.

Estimates of capital costs for each recycling program option are shown in Table 2.

Table 2
Estimated Capital Costs for Recycling Program Options

Options	Bins	Carts	Recycling Trailer	Total Capital Cost	DEP Grant Funding	Township Contribution
Curbside contract – bi-weekly	\$7,500	N/A	N/A	\$7,500	\$6,750	\$750
Curbside contract - monthly	\$7,500	N/A	N/A	\$8,204	\$6,750	\$750
Unstaffed permanent drop-off	N/A	\$500	\$17,500- \$26,000	\$18,000- \$26,500	\$16,200- \$23,350	\$1,800- \$2,650
Staffed temporary drop-off	N/A	N/A	N/A	N/A	N/A	N/A

N/A = Not Applicable

Specific notes about the capital costs for each option are described below.

- For all options, DEP grant applications may be submitted for purchases of all recycling equipment, with grant funding assumed to reimburse 90 percent of the total purchase price.

- Contract curbside options: 1,500 recycling bins will be purchased and delivered to all residences, with all other collection responsibilities born by (and fees for collection charged by) a private hauler. Costs can be reduced by only giving bins to households that request them.
- Unstaffed permanent drop-off option: a compartmentalized recycling trailer will be purchased, with the trailer towed by a pick-up truck or dump truck already owned by the Township. Trailers can vary, depending on capacity (cubic yards), number of compartments, means of dumping/emptying, and other features, so a price range is shown. Six carts for spare collection capacity will also be purchased.
- Staffed temporary drop-off option: a hauler would be hired to provide the recycling trailer once per month and staff the site during drop-off hours.

Assuming that recycling grants remain available through the DEP to cover the cost of capital purchases, the capital cost for new recycling equipment will be minimal for the Township. It is expected that the Township's contribution will be no greater than \$2,650.

If the Township elects to purchase a recycling trailer, several vendors offer a variety of products. Two are shown in Figures 1 and 2, to illustrate some of the equipment styles and features that are available.

Figure 1
Recycling Trailer from Dempster Industries, Inc.



Figure 2
Recycling Trailer from Pro-Tainer, Inc.



Table 3 shows the estimated annual operating cost for the recycling program options.

Table 3
Estimated Annual Operating Costs and Revenues

Options	Ralpo Operating Cost	Contract Cost	Material Revenues	Net Annual Cost
Curbside contract - biweekly	N/A	\$27,000	N/A	\$27,000
Curbside contract - monthly	N/A	\$18,000	N/A	\$18,000
Unstaffed permanent drop-off	\$1,500-6,100 ¹	N/A	\$1,100 ²	\$400-\$5,000
Staffed temporary drop-off	N/A	\$4,800	N/A	\$4,800

N/A = Not Applicable

¹ Assumes four hours per week at a labor rate of \$16.50 per hour and a benefits rate of 35 percent for a labor cost of \$4,600 per year and a truck operating cost of \$1,500 per year. The low end of the range is only for equipment operating costs, and would assume that Ralpo can service the site at no additional labor cost.

² Assumes 55 tons per year delivered to a processor, and average material revenue of \$20 per ton.

The following assumptions were used to generate the results in Table 3:

- **Contract curbside options:** The contract cost for curbside recycling collection was estimated from program costs for other curbside collection programs in the surrounding region. Due to population density and the local competitive environment, actual costs may vary. These options assume no material revenue share for the Township.

- Unstaffed permanent drop-off option: This option assumes one Streets Department laborer working two hours per week to keep the site clean and empty a trash can, plus two hours per week to tow the recycling trailer to market. If existing staff can perform these tasks at no additional cost to the Township, the low end of the range should be equipment operating cost only, with no additional labor cost.
- Staffed temporary drop-off option: In this option a contractor provides a trailer for recyclables and operates the site one day per week at a cost of \$400 per month. This option assumes no material revenue share for the Township.

Recycling Performance Grants can offset some of the ongoing operational costs shown in Table 3. Section 904 of Act 101 rewards municipalities for diverting recyclables from the municipal solid waste stream. The amount of the grants is formula based, with \$5 per ton for the weight of recyclables diverted, plus additional dollars per ton depending on the recycling rate for the Township. Because of the uncertainty of the recycling program effectiveness and Township recycling rate, the impact of Performance grants is not formally included in the cost analysis of this report. As an informal estimate, the performance grants would likely range between \$5-\$10 per ton, or from approximately \$100 per year for the staffed drop-off option up to as much as \$1,700 per year for the bi-weekly curbside collection option.

Table 4 summarizes the overall cost differences for the four proposed recycling program options. The total costs are shown on an annual basis, on a per-household basis and on a per-ton basis.

Table 4
Comparison of Recycling Program Costs

Options	Est. Tons	Annual Capital Cost ¹	Annual Operating Cost	Total Annual Cost	Annual Cost per Household	Annual Cost per Ton
Curbside contract - biweekly	170	\$250	\$27,000	\$27,250	\$18.17	\$160
Curbside contract - monthly	140	\$250	\$18,000	\$18,250	\$12.17	\$130
Unstaffed permanent drop-off	55	\$267-\$388	\$400-\$5,000	\$667 - \$5,388	\$0.44 -3.59	\$12-\$98
Staffed temporary drop-off	23	N/A	\$4,800	\$4,800	\$3.20	\$209

¹ Township portion only, with bin or cart costs depreciated over three years and the recycling trailer depreciated over seven years

As shown in Table 4, both of the curbside collection options, as well as the staffed drop-off option, are the most costly on a per-ton basis. This is consistent with recycling programs across Pennsylvania and the country. Both the unstaffed permanent drop-off and the staffed temporary drop-off options are relatively inexpensive to operate on a per-household basis. However, the unstaffed drop-off option is the least costly on a per-ton basis, as well as on a per-

household basis if no additional labor costs are accrued. If additional labor costs are accrued, the weekly staffed drop-off would be the overall least cost option.

The costs shown in Table 4 are minimum fixed costs for the programs. In addition to these costs, there may be administrative costs associated with contracting with a service provider, processing invoices/billing, record-keeping, and grant application preparation. Most importantly, the initial and ongoing programs will require promotion so that people are aware of the new program. These costs can vary from municipality to municipality, so R. W. Beck has not provided an estimate of these administrative and program promotional costs. Additional information about education program costs can be found in the Public Education section of this report.

The advantage of curbside collection from the residential standpoint is that it is typically the most convenient type of program – thus the higher participation rate. More frequent collection results in higher levels of material recovery, in general. The disadvantage of this type of program is the cost, and the fact that it is unlikely to receive a revenue share for these materials, at least in the Township's region.

The advantage of the permanent unstaffed drop-off option relative to the weekly staffed drop-off option is that residents can drop off their recyclable materials when it is convenient for them – not at a specific date. Also, because the site is available continuously, there does not tend to be a wait time to use the site. The disadvantage of an unstaffed site is that residents may leave items other than recyclable materials, such as garbage or special waste items such as tires, at the site. Some Townships and Boroughs in Pennsylvania have mitigated this by:

- 1) Placing drop-off sites outside of Township offices;
- 2) Locking sites behind fences when Township offices are closed;
- 3) Installing video cameras at the site and/or signs indicating that there are video cameras monitoring the site.

Temporary sites can be scheduled at inconvenient times for residents, resulting in decreased participation. They tend to result in less contaminated recyclables, however, and minimize the deposit of non-recyclable materials at the site.

Collection Contractor and Processor Options

Several contractors in the local area offer recycling services. These companies, which could be potential bidders on either a curbside collection contract or on a staffed mobile drop-off program, include:

- Hartzell's Disposal Service;
- JAWS Recycling;
- J P Mascaro & Sons;

- R D Recycling & Waste Disposal Service;
- Swisher Disposal; and
- Ted Heaps Container Service.

The above list is not exclusive, and other refuse haulers may also be interested in providing the service as well.

Ralpho Township has the good fortune to have several processors located in reasonably close proximity. The capabilities of these processors in terms of the materials they accept, their ability to sort mixed recyclables, and their ability to receive and weigh recyclables delivered by truck dictate to a great degree the details of recycling program options that Ralpho can consider. Table 5 lists four local processors, the approximate distance from Elysburg to their locations, and a summary of their capabilities or limitations.

**Table 5
 Processor Options**

Processors	Distance (Miles)	Summary
Coal Township Recycling Center	7	<ul style="list-style-type: none"> ■ Wants material from other programs ■ Currently, no ability to weigh ■ Currently, little to no revenue share
JAWS Recycling	7	<ul style="list-style-type: none"> ■ Mature private recycler interested in additional material ■ Pays a scrap value for delivered recyclables ■ Requires PET and HDPE bottles to be collected separately
Bloomsburg Recycling Center	15	<ul style="list-style-type: none"> ■ Able to accept material from other local governments (currently processes material from neighboring townships) ■ Little or no revenue share
Northumberland - Liberty Recycling Center	17	<ul style="list-style-type: none"> ■ No ability to weigh ■ No revenue share ■ Only open six hours per week ■ Unable to accept significant additional material (currently use volunteer labor for processing)

All of the processors listed above lack the ability to receive commingled recyclables, so in all cases recyclables must be sorted during collection into the following categories:

- Newspapers;
- Clear glass containers;
- Green glass containers;
- Brown glass containers;
- Aluminum cans;
- Steel cans;
- PET and HDPE plastic bottles (except for JAWS, which requires PET bottles to be collected separately from HDPE bottles).

Other public and private processors that accept a comprehensive list of recyclables are located a further distance away (i.e., over 40 miles). For example, Schuylkill County operates a publicly owned and operated processing facility and drop-off collection system. Their system utilizes equipment supplied by Haul-All, which provides attractive drop-off sites that have proven to minimize contamination. Schuylkill County with its collection vehicles could service a drop-off in Ralpho Township that uses the Haul All technology.

In addition to the processors listed above in Table 5, there are several processors that specialize in limited streams of materials. If Ralpho Township wishes to consider those processors, it would have to deliver different materials to different markets, which would result in more travel time and thus increased costs; however, the Township would likely receive greater revenues for its delivered recyclables, which may make doing so worthwhile. Some nearby processors of selected materials are:

- Jeff's Auto Body and Recycling – Paxinos (5 miles) – processes metals and plastic bottles.
- S&G Salvage and Metal – Catawissa (7 miles) – processes metals.

Public Education

A key difference between award-winning and lackluster recycling programs is that award-winning programs typically devote a significant amount of effort and resources to public education and awareness campaigns for their recycling programs. This section discusses public education considerations. Ultimately, well-educated citizens will recycle more material with minimized contamination.

Ralpho Township is small and as such has limited resources for an extensive public education program. This small size, however, can be an advantage because residents are often more willing to participate if they believe that their participation is for the good of the community. This community ethic is harder to instill in larger, more transient communities.

As mentioned above, Section 902 Program Development and Implementation Grants could potentially be obtained to offset up to 90 percent of public education and outreach costs for new recycling programs, so Ralpho Township should consider a substantive initial education and awareness campaign if it chooses to implement a recycling program.

The Township will need a targeted approach to build enthusiasm that will boost participation in the recycling program. To accomplish this, R. W. Beck researched a variety of educational, promotional, and advertising alternatives and recommends the following approach.

- Mail inserts;
- Refrigerator magnets;
- Public outreach; and
- Education in the schools.

Mail Inserts

R. W. Beck recommends including mail inserts in periodic local mailings, such as property tax bills or utility bills. Rates can be as inexpensive as \$100 for a township the size of Ralpho Township. These types of mailings are more cost-effective than other types of “advertisement” mailings because they are included in utility bills. A limitation is that the insert must be printed on thin slips of paper to keep the weight of the entire envelope contents low.

If refrigerator magnets need to be mailed, or a more substantive brochure is desired, a dedicated mailing would need to be investigated, at costs of \$300 - \$500 and up, depending on the cost of printing and reproduction (number of colors), envelopes, and addressing/sorting/postage.

Refrigerator Magnets

Refrigerator magnets should be considered if Ralpho chooses a curbside collection program. After the initial notification stage, residents will need to be constantly reminded about the collection schedule, what materials are accepted for recycling, and how materials should be prepared to facilitate collection. R. W. Beck recommends that the Township use 3” x 5” refrigerator magnets to accomplish this because they are:

- 1) Durable;
- 2) Large enough to provide schedule, accepted materials, and preparation information; and
- 3) Regularly seen by the intended target audience.

R. W. Beck estimates the cost for two-color 3”x 5” refrigerator magnets to be approximately \$2,000 for 1,500 magnets. Figure 3 shows a sample magnet used by Mechanicsburg Borough, Cumberland County.

Figure 3
Mechanicsburg Borough Refrigerator Magnet



Miscellaneous Outreach

The Township could also engage in a variety of other activities that bring attention to the recycling program. Some potential public outreach activities for consideration might include:

Signs and Banners

A particularly effective way to advertise the location of a new drop-off location is to place a permanent sign, temporary sign, or hang temporary banners to point the way to the new program site. Permanent signs should be limited to a permanent drop-off, but temporary signs and banners can be used with the Attended Mobile Drop-Off option.

Contests

An advantage of contests is that they tend to attract attention from the local newspaper, which may be willing to do a short community interest article on the contest and the new recycling program. Two types of contests are discussed here, one where a slogan, logo, or recycling mascot is chosen, and the second is an art show where recycled materials are used in the creations.

Many recycling programs have a slogan, logo or mascot associated with their recycling program and Ralpho Township may want to have a contest to select one as well. Having one or more of these things that identify the program would help to increase program visibility. Residents would be asked to submit a slogan, a logo, and/or a mascot to be considered for use by the Township, with the winning entry incorporated into future educational materials used by the Township. If the Township is unsure of which vehicle might be preferred, it could solicit entries in all three categories and choose a single winner from one category, or one from each

category. The winner or winners would be recognized by the Township in some way, and given some type of reward for their effort. Prizes could be donated by local businesses.

A second type of contest would be a community sponsored art show using recycled materials. As with the slogan, logo, mascot contest, the point is to generate publicity, so it would be particularly helpful to have a local sponsor or sponsors—including a media outlet—to provide funding, awards, and publicity.

Education in the Schools

Educating students in grades K-12 may be a very effective way of reaching Township residents both now and for the future. Students often become the strongest advocates of recycling, and will ensure that recycling is happening in their homes.

Because school districts do not match with jurisdictional boundaries, the Township may want to work cooperatively with other communities to educate students and promote recycling in a more general manner. Of course, teachers often struggle just to teach their traditional curriculum, so the Township must be sensitive and willing to assist in school-based efforts.

Conclusion

Ralpho Township would like to provide the opportunity for its citizens to recycle. Because individuals select their hauler in a system of open competition, the Township is not well situated to incorporate curbside recycling and its user fee costs into a system of integrated solid waste management. All recycling program costs, with the exception of grant funds, will have to be paid out of the Township's general fund under its existing revenue structure.

Curbside programs are the most effective at diverting material, because they are the most convenient. However, they are also the most costly, particularly given the rural nature of Ralpho Township. Drop-off programs vary considerably in cost depending on whether they are staffed or unstaffed, and whether they are permanent or temporary, and if they are temporary, on the frequency with which they are available. The unstaffed permanent drop-off program, while not diverting as much as curbside programs, does divert material at a low per-household and low per-ton cost relative to all other options, and a low overall program cost. The least costly option, assuming there is an additional labor cost associated with the unstaffed permanent drop-off option, is the staffed temporary drop-off option. The staffed drop-off option evaluated in this report is for a weekly collection. If minimal cost is a requirement, some costs may be able to be saved if the temporary mobile drop-off is only available once per month; however, participation and recovery would be less than it is estimated to be for the weekly option that is proposed.

R. W. Beck recommends that Ralpho consider implementing the staffed temporary drop-off option because it best meets Ralpho Township's desire for a low-cost recycling program with minimal involvement of Township staff. R. W. Beck also recommends that sufficient funds be reserved for education and awareness of the new program. Up to 90 percent of the program

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initiation costs are reimbursable under the Section 902 Program Development and Implementation. Periodic reminders should follow the initial education and awareness campaign for the duration of the program (at least quarterly to no longer than annually), otherwise recycling participation has a tendency to decline.

We have appreciated the opportunity to work with Ralpho Township on this project. Please contact me at (407) 422-4911 should you have any questions.

Sincerely,

R. W. BECK, INC.



Timothy M. Buwalda
Project Manager