



January 4, 2000

Mr. Norb Kendall
Supervisor
Wilmington Township
R.D. #5, Box 469
New Castle, PA 16105

Subject: Evaluation of Wilmington Township's Drop-off Recycling Program and Planning for Use of New Recycling Vehicle

Dear Norb:

This letter is to provide Wilmington Township with the results of R.W. Beck's evaluation of the Township's existing drop-off recycling program and suggestions concerning the use of a new recycling vehicle to be purchased by Lawrence County for multi-municipal use. This request came about because of problems the Township has encountered with its monthly recycling collection. The goal is to address these problems in the short run with an eye toward long term resolution that results in a program that maximizes collection while minimizing the time required for operation.

This analysis considers a range of issues related to the monthly drop-off collection days conducted by the Township, the effect of elimination of certain materials collected in the City of New Castle Rescue Mission's recycling program, allocation of the new recycling vehicle being purchased by the County, and long term solutions that may reduce or end the need for the monthly drop-off program.

EVALUATION OF WILMINGTON TOWNSHIP'S DROP-OFF RECYCLING PROGRAM

This evaluation considers the following:

- Issues related to conducting the Township's drop-off recycling program, and review of options to address these issues, including:
 - Shortages of volunteer help
 - Inappropriate dumping of materials—both waste and recyclables—before and during collection events

- Contamination in recyclables
 - Traffic problems during collection events
 - Use of the existing vehicle
 - Marketing options
 - Public education
- How changes to the City Rescue Mission's recycling efforts may affect the Township's recycling program

WILMINGTON TOWNSHIP'S CURRENT DROP-OFF PROGRAM

Wilmington Township, with a population of 2,467 as of the 1990 Census, was not mandated to implement a recycling program under the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988 (Act 101). However, for several years the Township has conducted a monthly drop-off recycling day on every second Saturday. The program, operated using volunteer help, accepts all containers (aluminum, steel, glass and plastic), newsprint and magazines, and corrugated cardboard. Currently, the program works as follows:

- Most materials are collected in a compartmentalized vehicle owned by the New Castle City Rescue Mission, sorted as follows:
 - Plastics in a compactor compartment
 - Commingled containers, which includes overflow plastic
 - Newsprint and magazines
 - Corrugated cardboard
- Materials collected in the compartmentalized vehicle are marketed at Metalife Resources (formerly Franklin Township Recycling Center)
- Aluminum is collected and marketed separately

The program has had to adjust over the years because of changes in markets serving western Pennsylvania. Previously, LAS Recycling provided containers at the Township and processed and marketed the materials, but LAS ceased operations in 1998.

CHALLENGES TO THE WILMINGTON TOWNSHIP PROGRAM

The Township reports that the program is in jeopardy because of some of the problems encountered in the recent past. Some of these problems were discussed in some detail in a meeting involving Wilmington Township and Lawrence County officials in late October.

SHORTAGES OF VOLUNTEER HELP

Finding volunteer help to assist on recycling day was relatively easy in the early stages of the drop-off program. However, like most programs of this type, there is usually a dedicated core group of volunteers that are always there, and finding others willing to

commit is difficult. Therefore, as past volunteers have discontinued their participation, there have not been new volunteers to replace them. This is a problem because the program has continued to grow over time, and fewer and fewer volunteers are left to manage more and more recyclers on recycling day. It was reported that sometimes volunteers would be scheduled and then would not show up, leaving a couple of Township representatives to try to direct traffic, prevent dumping, check for contaminants, etc. The problem will probably continue to grow over time, and may become worse if the Township begins to receive materials once delivered to the Rescue Mission and/or if an increased educational effort boosts the flow of materials to the program.

There is no easy solution to this problem, however, there are several potential remedies that can help. Some of the options to consider are as follows:

- More and more high schools are instituting community service requirements for students. This usually requires that a student complete some set number of hours in endeavors that are acceptable to the school. Such students have been used successfully in other programs in Pennsylvania, including at the City of Bethlehem's drop-off facility.
- Counties generally have programs that involve assigning persons found guilty of certain crimes—generally non-violent crimes such as driving under the influence—to some number of hours of community service. Such persons have been used in some public materials recovery facilities throughout Pennsylvania, and have been used in special collection programs as well (Allegheny County used youth offenders for this purpose in the early 1990s).
- Some service organizations—both civic and school-related—are looking for projects to help the community. Unfortunately, some programs have reported that sometimes the student organizations may be somewhat disorganized and unreliable. These organizations may be more willing to participate if there is some benefit to their participation such as positive publicity or financial gain.
- Some environmental organizations are willing to participate in recycling efforts, and in some areas, other groups like the League of Women Voters have had some involvement in recycling. As with service organizations, positive publicity may be an incentive to participate.
- Community centers for senior citizens may be another option for volunteers, at least for duties that do not require a lot of strenuous activity such as directing traffic.
- Some churches place a strong emphasis on community activities, and may provide another source of volunteers.
- Larger employers in some areas also coordinate participation in community activities. It may be worthwhile to contact the Human Resources department of any large employers in the area to find out if they have this kind of program.

One comment is that it may be easier to get volunteers if the service is limited in some way—that is, if the same volunteers are not expected to participate every month. Use of different volunteers for each collection presents a different challenge because new volunteers will need to be trained each time, but it will reduce the dependence and the stress on a handful of volunteers and Township personnel. If several organizations can be enlisted to take turns, however, this would also reduce the need to provide monthly training.

INAPPROPRIATE DUMPING

The Township has reported that there have been problems with materials being dropped off prior to the set up of equipment and volunteers each month. Some of the materials that are dropped off are appropriate materials, but often trash and contaminants are dropped off. This presents two main problems: (1) volunteers must move and sort through the materials that were dropped off in advance, which may be time consuming; and (2) the Township is responsible for disposing of any waste and contaminants, which involves cost to the Township.

Township personnel have reported that the Township has had some success in simply posting a sign warning persons not to leave materials at the site prior to collection time. However, it was also noted that during collections, some participants become impatient when the site becomes busy and simply pull in and drop off materials and leave.

One way of addressing this is through the use of local law enforcement officials—having a local police officer or security guard available on collection day as a visible warning not to dump materials. This may be too “heavy-handed,” however, and there are more important duties that officers are needed to fulfill. More volunteers might help, though some patrons may not respect the role of these volunteers, as has been demonstrated occasionally in other programs, according to county and local officials around Pennsylvania. The other method is through better traffic control. Some possible approaches to traffic control will be addressed in a separate section below.

CONTAMINATION

It was reported that there have been problems with various contaminants that some patrons try to bury in bags of materials brought to the drop-off site. Also, plastic bags are a problem for the Metalife Resources facility, the current market for the Township’s materials.

This appears to be under control, however, due to a change in procedures on collection day. Patrons are asked to empty their containers into plastic laundry baskets so that volunteers can do a visual inspection before the materials are dumped into the recycling vehicle. The patrons are then given bags and undesirable materials to take away from the site. This is good from two perspectives: (1) it eliminates nearly all contamination that may cause problems for the processor; and (2) it provides an opportunity for very direct education of patrons. One potential issue is that it can slow traffic through the site, which may become a

problem during heavy traffic periods. Over time, however, this may be less of a problem as regular users learn to bring contaminant-free loads.

There are two other ideas that may also help to prevent contamination. The Township may want to consider preparing a one page flyer or brochure that describes the most common undesirable materials and explains why they cause problems for recycling. These could be given to patrons of the site as they drive through. The other is to enlist the help of a local newspaper to have a representative on site to observe, and then to write an article about this issue so that the public begins to understand the reasons why certain materials are undesirable.

TRAFFIC CONTROL

Traffic was already cited as a problem with regard to dumping of materials. However, it is also a problem as it relates to access of the drop-off area. There are two main roads that intersect at the municipal building where collection takes place, and patrons can enter from both roads. This means that cars are coming in from several directions, and this makes traffic flow problematic.

Minus a natural flow pattern into and out of the site, the Township could create its own traffic flow pattern using some fairly inexpensive equipment and good signage. Once the most desirable pattern is determined, it could be designated through the placement of traffic cones, sawhorses or flags, with the entrance and exit clearly delineated by signs. Most patrons will not attempt to drive around or otherwise act to avoid the established pattern.

Traffic cones are relatively inexpensive and are available with recycled content. The same may be true for sawhorses. The flags (similar to what is used at businesses to draw attention to a sale or just to get people to stop) would require some type of anchors at strategic points to hold them in place. The cost of any of these items could be covered through a Section 902 recycling program grant.

Local sponsors, particularly local media such as radio stations, could also potentially provide flags or banners to help delineate traffic patterns. Radio stations often get involved in local promotions, and this could also provide opportunities for education, which will be discussed further below.

COLLECTION VEHICLE

The Township is currently using a compartmentalized recycling vehicle owned by the New Castle City Rescue Mission. This vehicle is divided into four compartments, designated as follows: (1) mixed plastics in a section fitted with a compactor; (2) commingled containers, including glass, steel, and overflow plastics (aluminum is collected and sold separately); (3) newsprint and magazines; and (4) corrugated cardboard.

The Township has reported that loading is a problem because the openings are too high and volunteers have difficulty reaching the openings to deposit materials. Since the Township will have access to a new compartmentalized vehicle purchased through Lawrence County under a multi-municipal Section 902 grant application, probably the best means for dealing with this problem is to assemble an inexpensive platform that can be used to reach the openings. It should be constructed in such a way as to be easily moved and stored between collection events, but sturdy and large enough so that there is no risk to volunteers who use it.

MARKET OPTIONS

Since the closing of LAS, materials have been marketed through Metalife Resources. The materials are accepted at no cost, but there is also no revenue. Delivery to Metalife may be the easiest method for now, because market options are somewhat limited. However, over time, with changes in the program and additional materials generated by new municipalities coming on line, other market options that result in revenue may become available. If revenues outweigh the costs of delivering certain materials to other markets, then the Township should consider taking the materials to these markets.

There has been some discussion of a County-wide drop-off program that might make use of a system manufactured by Haul-All. This system is already in use in other counties and has generally been viewed as successful. Crawford and Mercer Counties have already applied for this equipment, and efforts are underway in Crawford County/West Mead Township to consider the construction of a new regional facility that would be able to accept deliveries of materials collected using this system. While it is unlikely that such a facility will pay for the materials, the cost to operate the Haul-All system is less than most other systems that involve the use of roll-off containers, because collection can be done on a route system rather than by hauling individual roll-offs one by one.

Periodic review of markets makes good business sense. Anything the Township can do to reduce program costs and possibly bring in revenues is certainly to the Township's advantage and helps assure the long-term sustainability of the program.

PUBLIC EDUCATION

Public education may be the most important component of any program. A comprehensive educational program should help in addressing the problems cited for this drop-off program.

Several ideas have already been raised in earlier sections, and these will be incorporated into the list of potential educational activities/methods presented below:

- **Direct education of drop-off site patrons.** Some ideas have already been mentioned in previous sections. Strategies could include the following:

- Handouts of printed educational materials, such as the information on contaminants as cited earlier, will probably have more direct impact than printed materials distributed in other ways.
- Signage can direct patrons on how to move through the site and provide general information and instructions. The messages should be kept brief, however, or they will probably not be read or heeded.
- Activities such as inspection of materials, with patrons required to take back undesirable items or other contaminants, provide direct and graphic education, and may be the best tool for changing undesirable behavior.
- **Media efforts.** The degree of public education that can be conveyed through the media is highly dependent on the media's willingness to provide an outlet and the program's effectiveness in drawing media attention. Some ideas for the media include:
 - Newspaper, radio and/or television station sponsorship of collection events, as mentioned earlier, can draw attention to activities on the site (assuming the presence of station representatives, banners, broadcasts from the site, and/or sponsored prizes and activities). It can also mean free pre-event publicity as the sponsor promotes the event while promoting its participation. Ideally, a combination of different media sponsors is best to ensure more outlets for publicity.
 - Placement of paid advertising and/or public service announcements in local media, in combination, can reach a broad range of people. These need to be simple messages, and should probably focus on the dates and times of the events and contact information, rather than specifics.
 - Cultivation of local media representatives who will provide positive, or at least objective coverage of the program can help to get the word out about the collection events and issues related to the program (such as contamination, what happens with recyclables, diversion rates, etc.). Particularly for newspapers, preparation of news releases and feature articles that can be used as is will make the reporter's task easy.
 - Contests and/or fun activities can draw media attention to the program. Slogan or artwork contests, name the character contests, creative uses of recyclables (such as Christmas decorations or useful items) etc., get children involved and children's involvement sometimes provokes media coverage. Contests that involve donated prizes for every 500th (or whatever number seems appropriate) patron to deliver materials to the site can also provide incentive for residents to participate in the program.
- **Education in the schools.** Recycling is usually included in environmental curriculum in schools throughout Pennsylvania. To the extent that the local school district will participate, the Township could provide program information to be distributed to students and/or programs on recycling (there are several performing groups that tour

schools and their costs are eligible for Section 902 grant funding). As mentioned earlier, high school students could be sought as volunteers for collection events, especially if there is a program in place that requires public service as a graduation requirement. The contests suggested above could also be conducted through the schools.

CHANGES TO THE NEW CASTLE RESCUE MISSION RECYCLING PROGRAM

The New Castle Rescue Mission recently announced that it is discontinuing collection of all materials except for newsprint from its recycling program. The changes to this program may result in an additional influx of materials to the Township’s collection events, and the Township should be prepared for this. Some estimates of volumes, based on all materials attributed to the Township in its 1997 annual recycling report, are presented in the next section.

ALLOCATING USE OF NEW MULTI-MUNICIPAL RECYCLING VEHICLE

As noted above, Lawrence County has applied for a new 31 cubic yard compartmentalized recycling vehicle to be used by four Lawrence County municipalities and one Mercer County municipality. To help in planning how the vehicle may need to be allocated among the municipalities, an analysis was conducted to estimate expected volumes of materials to be delivered to each drop-off location.

The following considerations apply:

- Estimates are based on previous generation and the possible influx of materials previously accepted by the Rescue Mission.
- Compartments will be configured as they are now—plastics, other mixed containers, newsprint and magazines, and cardboard.
- Aluminum cans will continue to be collected and sold separately.

Table 1 estimates tonnages and volumes for the two existing drop-off programs. Table 2 estimates tonnages and volumes for the two planned drop-off programs. No estimates have been provided for Wilmington Township-Mercer County.

TABLE 1
VOLUMES REQUIRED FOR EXISTING DROP-OFF PROGRAMS – LAWRENCE COUNTY

Material	Pulaski Township			Wilmington Township		
	Tons*	Pounds*	Volume Required**	Tons*	Pounds*	Volume Required**
Mixed Glass	4.99	9,980	20	19.26	38,520	77.04
HDPE	1.04	2,080	52	3.51	7,020	175.50

PET	0.56	1,120	32	2.07	4,140	118.29
Steel Cans	2.45	4,900	61	10.26	20,520	256.50
Aluminum Cans	0.38	760	15	1.61	3,220	64.40
Newsprint	15.00	30,000	75	25.00	50,000	125.00
Magazines	0.60	1,200	2	0.94	1,880	3.76
Corrugated	2.00	4,000	44	4.00	8,000	88.89
Totals	27.02	54,040		66.65	133,300	

NOTE: 1997 tonnages used because of difficulties in collecting 1998 data.

TABLE 2
VOLUMES ESTIMATED FOR PLANNED DROP-OFF PROGRAMS – LAWRENCE COUNTY

Material	Hickory Township			Volant Borough		
	Tons*	Pounds*	Volume Required**	Tons*	Pounds*	Volume Required**
Mixed Glass	9.54	19,086	38	0.63	1,252	2.50
HDPE	1.98	3,961	99	0.13	260	6.50
PET	1.08	2,161	62	0.07	142	4.05
Steel Cans	4.68	9,363	117	0.31	614	7.68
Aluminum Cans	0.72	1,440	29	0.05	94	1.89
Newsprint	15.61	31,226	78	1.02	2,049	5.12
Magazines	0.60	1,202	2	0.04	79	0.16
Corrugated	2.34	4,684	52	0.15	307	3.41
Totals	36.56	73,124		2.40	4,797	

*Commingled materials allocated using percentages determined from West Mead (Crawford County) drop-off program. Actual tonnages used or included when available.

**Based on the following: Glass-500 lbs./cu.yd.; HDPE-40 lbs./cu.yd.; PET-35 lbs./cu.yd.; Steel cans-80 lbs./cu.yd.; Aluminum cans-50 lbs./cu.yd.; ONP-400 lbs./cu.yd.; Magazines-500 lbs./cu.yd.; Corrugated-90 lbs./cu.yd. (from VQuip collection data)

NOTE: Estimates based on average tonnage per household for each material for Pulaski and Wilmington Townships

Table 3 estimates the average volume required each month for each material.

TABLE 3
AVERAGE VOLUME PER MONTH BY MUNICIPALITY

Material	Average Volume per Month			
	Hickory Township	Pulaski Township	Volant Borough	Wilmington Township
Mixed Glass	3.18	1.66	0.21	6.42
HDPE	8.25	4.33	0.54	14.63
PET	5.14	2.67	0.34	9.86
Steel Cans	9.75	5.10	0.64	21.38
Aluminum Cans	2.40	1.27	0.16	5.37
Newsprint	6.51	6.25	0.43	10.42
Magazines	0.20	0.20	0.01	0.31
Corrugated	4.34	3.70	0.28	7.41
Totals	39.78	25.19	2.61	75.78

In the case of Pulaski Township and Volant Borough, it appears that the vehicle will be more than adequate for the materials being generated, particularly if aluminum continues to be collected separately.

However, the volumes estimated for Hickory and Wilmington Townships (particularly Wilmington) far exceed the 31 cubic yard capacity of the vehicle to be purchased. However, it should be noted that the volume of steel cans appears to be excessive. As noted in Tables 1 and 2, the volume is based on 80 pounds of material per cubic yard. If this assumption is incorrect and the weight per cubic yard is much higher, these estimated volumes are high.

Even if the estimates are high, these programs should be prepared to address the capacity issue. One option is to collect newsprint and magazines in a separate container. An enclosed rolloff type container would probably provide more than adequate capacity for these materials. Also, since aluminum has been collected separately (and it is assumed that this will continue to be the practice), this volume should be subtracted from the total. Once these materials are subtracted, the estimated monthly volume for Hickory Township is reduced to 30.64 cubic yards and the volume for Wilmington Township is reduced to 59.68 cubic yards. Assuming the estimated volume for steel cans may be high, there should be adequate capacity for Hickory Township's monthly collection, but not for Wilmington Township. Wilmington Township would need to conduct at least two collection events per month—perhaps a Saturday-Sunday or first and third or second and fourth Saturdays, for example--to manage the estimated volume of materials cited above, unless it determined some means of limiting the material brought to the site.

Reducing service once it has been available, however, is difficult. It would require significant reeducation and would probably provoke many complaints from loyal patrons of the drop-off program.

While the new vehicle will be an improvement over the existing vehicle that Wilmington Township has been using, it still is not the best method for boosting diversion over the long term in Wilmington and the other municipalities that will be using the new vehicle. A lot of materials do not get recycled because it is inconvenient for residents to make a special trip to drop off materials on one set day each month—if they miss the collection day, they must either hold the materials for another month or dispose of them. The County should be encouraged to consider a longer term solution that would make recycling more convenient and available to more County residents. One option is to implement a permanent County-wide drop-off program. Crawford and Mercer Counties have already submitted grants for County-wide drop-off recycling using the Haul-All system. This system is more efficient to service, can be placed in high visibility areas, is attractive and configured to limit contamination. It is a system the County may wish to consider.

CONCLUSIONS

- Wilmington Township's monthly drop-off recycling program has been successful, but is experiencing problems that threaten continuation of the program.
- Changes to the New Castle City Rescue Mission's recycling program may increase the amount of material delivered to the Wilmington Township program.
- Lawrence County is purchasing a new compartmentalized recycling collection vehicle to be used by Wilmington Township and four other municipalities (including one in Mercer County).
- Based on the projected volumes of material, the new vehicle will not be adequate to serve Wilmington Township for a one day monthly collection.
- A permanent, County-wide drop-off system would make recycling more convenient and available to more County residents.

RECOMMENDATIONS

- Wilmington Township should look to more creative methods for boosting volunteer participation, including use of persons required to perform community service, volunteer recognition, and sharing of responsibility among organizations.
- The Township should obtain appropriate materials and signage to manage traffic flow on collection days to avoid congestion on access roads and reduce opportunities for inappropriate dumping of materials before and during the collection event.

- Until the County acquires a new collection vehicle that will be shared by the Township and several other municipalities, the Township should provide for a safe means for volunteers to load materials into the current collection vehicle.
- The Township should develop a public education plan that addresses the problems of inappropriate dumping and contamination and raises the visibility of the program to increase the amount of materials delivered to the site.
- The Township should prepare immediately for the possible increase in materials on collection day as a result of the changes to the New Castle City Rescue Mission's recycling program.
- The Township should consider options and determine the best approach for managing the estimated volume of materials expected to be delivered to the site in the future.
- The Township should work with the County to develop long-term solutions that will reduce the time and effort required by the Township for monthly collection events and make recycling more convenient for more County residents.

The current program has, to date, been popular and successful. The Township's efforts should be directed at addressing the problems constructively to preserve this status, while working toward long-term solutions--with the County—that guarantee long-term success and greater convenience and access to recycling for all County residents.

Sincerely,
R.W. BECK, INC.

Sandra L. Strauss
Environmental Analyst

Cc: Kathleen Kilbane, SWANA
Carl Hursh, DEP
Debbie Miller, R.W. Beck
Amy Jo Labi-Carando, Lawrence County