

V. **Waste Reduction and Restricted Waste Streams - Management Strategies and Projections [ORC Section 3734.53(A)(6)]**

This section provides detailed waste reduction strategies which the District plans to implement and projections of the amount(s) of solid waste reduced or recycled by these programs.

Waste reduction is generally taken on voluntarily by the residential/commercial and industrial sectors of Mercer County through recycling at drop-off centers, curbside programs, and through waste reduction efforts and better management practices enacted at places of manufacture.

In this Section, and throughout the Plan, the Mercer County Solid Waste Management District intends to implement several programs and activities directed at reduction of the waste stream in all sectors. However, planning for all contingencies is not practical, especially in today's constantly changing economic conditions. Programs may prove not to be economically feasible, or will prove to be ineffective. To be able to change as the District needs change in the future, the District reserves the right of flexibility; to make reasonable changes with implementation strategies and projected starting dates as the needs of the District changes, keeping with the intended goal and objectives of the Plan. Minor changes will be made as matter of the annual budgeting exercise, while moderate changes will be conducted in consultation with the Ohio EPA and the District Policy Committee. These consultations will be used to determine if the proposed changes are significant and will (first) require a Plan amendment. However, the intent of proposed changes will be to achieve the goals stated (cost-effectively) herein.

A. **Source Reduction**

Source Reduction in all sectors is a vital part of the District's strategy to reduce landfill reliance. This method has a preferred place in the system because it eliminates waste and despite the notorious problem of measuring program success. The District has monitored the historical evidence of source reduction in the industrial community and used this information to project future progress by continuing the observed trends. In the residential community, volume-based incentive-fee collection systems in other similar communities as well as the raw potential for Mercer County were used to project that source reduction will account for approximately half of all future progress toward residential waste diversion.

Source Reduction is the most preferred method of waste reduction since, unlike recycling, source reduction eliminates the generation of waste material. The resources typically required for recycling (facility capacity, time, funds, energy, water) are preserved and are, therefore, available for other uses.

However, the most notoriously difficult aspects of source reduction is measuring its effects. Every waste stream would have to be monitored so closely that the cost-effectiveness is lost since you are attempting to prove that **something didn't happen**.

The District used a combination of case studies and trend analysis to project the product of future source reduction efforts. Case studies allowed the District to project the potential gains of programs or activities that are new to the county whereas source reduction trend analysis is simply a measure

of what has been observed in the county's past that is not directly attributable to other factors, such as changing employment base, macroeconomic swings, and lifestyle changes generally unrelated to source reduction strategies.

Furthermore, the majority of future source reduction is projected in the residential and commercial sectors, where opportunities remain largely unexploited (unlike the manufacturing sector) **and** where conversion to incentive-based collection systems is fundamental to the revised Plan, not only to encourage recycling, but to encourage a decrease in waste generated.

In large part, source reduction efforts will be focused in the residential sector. During the first five years of revised Plan implementation, source reduction in the residential/ commercial sector will account for approximately 25% of the total residential/commercial waste reduction, or 6-7% of the residential/commercial waste generation. In personal communication with Dr. Lisa Skumatz (Principal-SERA, Seattle, WA) innovator and USEPA Handbook author on Variable Rate Systems, 7% source reduction is a reasonable expectation for programs in communities similar to Mercer County.

However, as indicated in a 1992 Duke University study (Daniel Blume, for OMB) of 14 cities with variable rate systems, a general lack of tracking systems can compromise the validity of reduction estimates (an average of 44% reduction in landfill reliance was observed).

Surveys from State of Iowa indicated an 11-80% reduction in landfill reliance (average 38%).

Case studies in the Northeast have indicated that approximately half of the observed reductions are from recycling activity; the remainder in source reduction types of activity.

B. Existing Reference Year Source Reduction and Recycling

1. Residential/Commercial Sector.

The Mercer County Solid Waste Management District has had experienced numerous challenges in the early years of Plan implementation. Being a single county District with no generation fee, the District has been dependent upon the disposal fees at the local landfill for their funding. The landfill closed; there was no disposal fee revenue, and the District was forced to cease most programming; closing the District office less than two years after their original Plan was approved. The landfill has been operating again and the revenue stream has been reestablished and allowed the County to get back on track.

Education and awareness activities were the mainstay of the program in the original Solid Waste Management Plan for the District. The District was able to institute some of these programs before the in-District landfill closed and funding ceased. Prior to the landfill closure, some education work was accomplished, mostly in the schools and distribution of general information at public activities (i.e. county fair, etc.).

Before the revenue stream forced the closure of the District office, the District developed a "Pay-As-You-Throw" program for the District. The entire county has access to a "bag program" which was voluntarily instituted by most of the solid waste haulers, cities and

villages operating in the District. The bag system is self-sustaining and thus survived the lack of District funding.

In late 1994 the landfill reopened and revenue started to flow to the District once again. The District office was able to reopen and started its plan revision. In 1996 the District and was able to reimburse the Department of Health for waste enforcement (as stated in their original Plan). The District was also able to make recycling subsidies according to the Grant process outlined in their original Plan.

Since the ratification of the original Plan there have been many changes in the District. The District surveyed industrial manufacturers, recyclers, and solid waste haulers in the District. The results from these surveys are in this Section.

In order to eliminate all double counting of recyclables processed for the residential and commercial waste stream for the reference year, the recycling surveys distributed by the District asked each recycler to list any materials bought or sold to other recyclers. The tons for specific materials given were subtracted from the other recyclers to whom the recyclables were sold. The adjusted totals were then added and placed in Table V-1 below

Table V-1. Reference Year Residential/Commercial Source Reduction and Recycling in the District¹

Type of Waste Reduced	TPY	Type of Waste Recycled	TPY
Cardboard	1,173	Non-Ferrous Metals	123.16
Newsprint	60.00	Bi-Metal Cans	113.01
Office Paper	0.00	Plastics	57.61
Other Paper	688.55	Glass	259.75
Aluminum Cans	248.71	White Goods	28.25
Ferrous	577.00	Tires	12.14
Copper	5.00	Aluminum	58.00
Lead-acid Batteries	27.48	Other (mixed, unreported)	1,041.31
Totals			4,473

¹ Data from Table III-4 was used to complete this table. All double counting of recycled amounts has been eliminated.

Sample Calculation:

Assumptions:

2. Industrial Sector.

The Mercer County Solid Waste District does not have any industrial recycling strategies in place at the present time. Most of the industries in the District have already realized the benefits of managing their waste stream, recycling, and source reducing where ever possible in their manufacturing process. Information from the industrial surveys was used to complete table V-2.

Table V-2. Reference Year Industrial Source Reduction and Recycling by SIC Category¹

SIC Category	Type of Material(s)	Year of Waste Reduction Program Initiation	Tons Reduced Prior to 1/1/85	Tons Reduced in Reference Year
20	Cardboard, pallets, ferrous, non-ferrous, plastics, concrete, animal by-products	1985-1995	0.00	507.00
22				0.00
23				0.00
24	Cardboard, paper, pallets, wood scrap, aluminum	1985-1995		19.30
25				0.00
26	Cardboard, pallets, wood scrap, ferrous	1985-1995		4.50
27	Cardboard, paper, pallets, aluminum, non-ferrous, plastics, film,	1985-1995		3,283.36
28	Cardboard, paper, pallets, wood scrap, aluminum, ferrous, non-ferrous, glass, plastics	1985-1995		29.95
29				0.00
30				0.00
31				0.00
32	Cardboard, paper, pallets, wood scrap, aluminum, stone, ferrous metals, concrete, sludge	1985-1995	0.00	82.00
33				0.00
34	Cardboard, paper, pallets, wood scrap, aluminum, ferrous, non-ferrous, plastic	1985-1995	5,328.00	11,146.20
35	Cardboard, paper, pallets, aluminum, ferrous, non-ferrous	1985-1995	0.00	2,295.34
36				0.00
37	Cardboard, paper, pallets, wood scrap, aluminum, ferrous, non-ferrous, plastics, sludge, non-haz chemicals, batteries	1985-1995	0.00	5,598.40
38				0.00
39	Cardboard, paper, pallets, wood scrap, aluminum, ferrous, stone/clay/sand	1985-1995		280.90
			5,328.00	23,246.95

¹ This table was completed using data from Table III-4 and the industrial surveys. All double-counting of recycled amounts were eliminated before entering the values in the column "Tons Reduced in Reference Year".

Sample Calculation:

Assumptions:

Elimination of Double-Counting for Industrial Recyclables

Eliminating double-counting for industrial waste is a detailed process. The steps taken are as follows:

1. All information contained in the industrial surveys was entered into a spreadsheet showing the disposition of materials from each category by that industry by 4 methods: 1) Recycling/reuse on-site; 2) Recycling/reuse off-site; 3) Incineration; and 4) Landfilling.
2. The industries were instructed to enter the name of the recycler and the tons sent to that recycler for each material recycled off-site.
3. A database was prepared for all recyclers used by the district, including those recyclers listed in the industrial surveys. For each recycler named by an industry, the tons for that specific material were entered in the recycler database.
4. The industrial surveys and the recycler's surveys were compared for accuracy of industrial tons recycled by that recycler.
 - a. The tons of a specific material reported by the industry sent to a specific recycler were subtracted from the industrial tons for that material recycled by that recycler as reported by the recycler.
 - b. If the recycler did not distinguish between residential, commercial, or industrial tons, the totals reported by the industry for that material were subtracted from the totals tons in that category as listed by the recycler.
 - c. After subtracting tons recycled from each recycler's totals as reported by industries, if there were any tons remaining for industrial materials, those remaining tons were added to the industrial totals. (This assumes the recycler received materials from an industry that did not return a survey.)
 - d. After subtracting tons recycled from each recycler's totals as reported by industries, if there were more tons reported recycled by the industries than received by the recycler, each case was considered individually for adjustments. If possible, the tons reported by the industries were subtracted from similar materials, i.e., paper and cardboard or metals. If no elimination of double-counting could be found in an individual case, the smaller number was used and the industries totals were adjusted. (This assumes that the recycler has more accurate numbers than the industries because the recycler sells his materials by weight whereas the industry estimates in some cases by cubic yards.)
5. Finally, if an industry did not name a recycler for a specific material, the industries were called to identify the markets and adjustments were made as described above. If the recycler could not be identified and the amount and material was small enough to subtract from a local recycler, the amount was subtracted from the recycler. If the amount and the material were large amounts and could not be subtracted from any known recycler, it was assumed to be sent out-of-District and was left in the industrial totals for recycling.

C. Source Reduction and Recycling Strategies

Source reduction and recycling strategies may encompass a wide variety of activities in the District. A lack of funding due to temporary closure of the landfill caused many of the activities and programs outlined in the original plan not to be implemented. Being a mostly rural community, the District's main concern is making sure that fair and equitable solid waste service is available to all District residents at cost effective prices. As an ongoing concern, the re-opening of the landfill has provided only temporary relief. During the 2006 Planning Year, the landfill is expected to close again, unless another expansion permit is obtained. In the event the local Allied Waste Inc. Landfill expansion is not approved before the existing facility exhausts (or nearly exhausts) its existing capacity, the Mercer County Solid Waste District will lose its existing (Disposal Fee) funding and will not be able to replace it entirely with alternate funding. Therefore, the Solid Waste District is presenting a scaled-back primary program strategy to meet the minimum of funding availability.

Calculations have shown that, in the baseline year, at over 30 percent of the solid waste generated in Mercer County was reduced, reused, or recycled. A large portion of the reduction is attributable to industrial activities. Industries recycle primarily for the purpose of efficiency (ease in handling) as well as to realize a landfill avoidance benefit (cost). If the landfill closes, disposal costs will increase significantly due to increased handling and transportations costs. As an outcome, higher disposal costs will drive businesses and residents toward recycling to avoid the cost of disposal. They will be willing to pay user fees for recycling service which has not been feasible in the past.

Despite the current overall rate of recycling, the District recognizes that a large quantity of recyclable material could be remaining in the residential/commercial waste stream, presenting significant potential for reduction in landfill reliance. To this end, the District will use the strategies outlined in this Plan to significantly increase the rate of residential and commercial recycling, and to target some specific recyclable materials that are still being landfilled by industry. The primary difference from previous plans is that there is a stronger "voluntary" component. Higher disposal fees provide a stronger financial incentive to recycle, and recycling is voluntarily moved forward. The district will better integrate available services in the community and "leverage" District contributions more effectively toward user fees, other grant opportunities and donations. If the landfill does not close, or re-opens, and more funds are available, the Board may use those funds as it best sees fit: to lower user fees, or to supplement grants and donations. The non-recoverable cost to the District is \$150,000 per year, but the programs' values are much higher (approximately \$250,000) as follows:

Administration and Education:

\$90,000 per year

Source of Funding: \$45,000 from District Funding and \$45,000 from ODNR grants

The Solid Waste District will continue all current education and administrative functions. However, the District will formally merge and integrate the functions and budgets of the ODNR-funded Litter Prevention and Recycling Grant with the District. The new, integrated function will be more efficient: eliminating redundancy between the two programs, allowing more effective prioritization and use of limited resources.

All District activity is coordinated by the Office of Recycling and Waste Management (ORWM).

This office will be funded from the District Disposal Fees and from the Ohio Department of Natural Resources (ODNR) in the form of annual grant awards. The ORWM will be targeted for a significant increase in funding in order to carry out a wide variety of functions. Reporting to the District Board of Directors, the Office will be administered by the Coordinator. The ORWM will be primarily responsible for implementing the approved Plan. Functions for this office will include, but not be limited to:

- Coordinate contract, and subsidize residential recycling;
- Coordinate haulers and local governments with a (District-franchised) recycling service provider in a new, fee-based curbside residential program
- Investigate, and assist with the development of local drop-off programs
- Develop and administer a District Special Grant program to facilitate cooperative ventures between the district and local businesses, haulers and governments
- Develop and administer a District assistance program to provide limited technical and legal advice to local governments throughout the county.
- Network waste generators (businesses, local governments and industries) with service providers;
- Develop and implement voluntary, fee-based commercial and institutional recycling programs
- Develop, update, print and distribute educational brochures on solid waste and proper ways to handle special waste (oil, lead-acid batteries, yard waste, etc.)
- Public education and awareness programs for recycling, yard waste minimization, and composting, household hazardous waste issues, etc;
- Coordinate and administer services and contracts and publicize seasonal and, periodic household hazardous waste collection events;
- Coordination or recycling contest and promotion for all events, activities, and programs;
- Assure that no proposed program or facility directly interferes with the viability of any existing facility;
- Provide day-to-day administrative assistance and recommendations to the Board of Directors for District subsidies;
- Monitor (quarterly) the progress toward the recycling goal, evaluating and reporting to the Board of Directors on the unit costs of each program (cost per pound of material recovered). This will include improved data collection techniques and better analysis of available data.

The ORWM will prepare and keep current flyers for distribution with information on local recycling opportunities, how to prepare the recyclables, the hours of operation or pick-up, events and include telephone numbers and addresses for local contacts. The District Coordinator will be responsible for preparation and maintenance of current flyers to be distributed to residents. The ORWM will also keep information on hand about household hazardous waste (HHW), possible non-toxic alternatives to potentially dangerous household products, the disposal options and opportunities for HHW, and information on any upcoming HHW collection events.

The ORWM may also contract with other entities throughout the District to conduct further education activities for recycling. The ORWM will cooperate with both public and private recycling activities, and will promote awareness of any new or expanded recycling opportunity in the community served (i.e. new curbside programs, a hauler starts taking source-separated recyclables at no charge, etc.).

As funding becomes available (and there is an explicit need), the District will allocate funds so that

the ORWM can hire a part time Solid Waste Educator. The Educator would be responsible for the school and civic programming. The Educator may work only part time solely in Mercer County; or the District may “match” funds for regional Educator (to be shared with an adjacent district) where the Educator will spend a portion of their time in Mercer County, and the remainder in the cooperating district. If the need becomes great enough, the District may grant for a full time local education program.

1. Residential/Commercial Sector.

Plan Monitoring, Legal Review and Assistance

\$15,000 per year

In addition to all the normal Plan review functions of data collection, analysis, reporting and updating, the District will initiate a limited program to bring greater clarity, consistency, and technical coherence to local government’s solid waste collection contracts. The District Board will make \$5,000 available each year to provide Special Counsel, staff and technical advisors to local governments during their franchising, bid preparation and contracting process. This process will bring specialized legal advice to the local governments and offer the District the opportunity to better integrate local programs with the District’s goals.

Special Grants to local buyers/sellers of recycling services

\$42,500 per year

For cooperative programs to take hold between businesses, haulers, local governments and the District, the Board is authorized to make special grant awards, in amounts not to exceed \$7,100 each. These grants are to support capital expenses necessary to make these cooperative ventures successful, both seen and unforeseen at the time this Plan was compiled. Some examples follow:

Example #1: A local business is willing to host a new drop-off location for residential recyclables and commercial cardboard. A local government is willing to pay user fees and a hauler will provide the transport but containers must be purchased and fencing must be installed. The District can award a grant for the container(s) and/or fencing.

Example #2: A village waste water treatment operator is willing to collect paint, oil and batteries at a village-owned location, and the District is able to receive the materials for re-use and recycling, but a trailer and spill prevention equipment is needed. The District can issue a grant to make these purchases.

Example #3: An industry is willing to institute can recycling in the employee cafeteria but they cannot make the initial purchase of recycling containers. The Board can support these purchases with a grant.

FACILITY CAPACITY:

Under current expanding and changing market conditions, the designation of a primary recycling facility that can meet all of the District’s needs is highly speculative. Collectively there is recycling capacity within the District sufficient to exceed District goals. Private investment interest and market forces will maintain this capacity over the planning period. However, the existence of any long term facility in today’s fluid conditions is questionable.

In the past there have been three dominant in-District facilities known to the District that process the District-targeted materials. Ohio Recycling, which is located in Chickasaw, is a buy-back center which also took drop-offs from local residents. Ohio Recycling took over 3,000 tons of recyclable material from in-District sources (residential, industrial, and commercial) in the reference year. Maharg's Trash Service operates recycling collections in conjunction with their trash hauling business. Maharg's collects recyclables from residential, commercial, and primarily industrial sources, and processed more than 2000 tons of recyclables from in-District sources in the reference year. The third facility was a non-profit recycling facility (now defunct) that had processed recyclables from the District, which is the Mercer County Recycling (MCR). It accepted all District-targeted materials and publicly markets them. MCR received over 1,000 tons of recyclable materials from the residential sources in the reference year. Recyclables of commercial or industrial origin were also handled by MCR.

Ohio Recycling is now the District-subsidized recycler.

In addition to existing recycling facilities, the District has a county-wide "Bag Program" (i.e. Variable Rate System). This system was introduced to District haulers in 1993. Its District asked all haulers charge residential customers "by the bag", and to offer the option of recycling services (by subscription) along with trash service at to charge. Haulers could then take the recyclable material to MCR at no charge. Most of the haulers work in voluntary compliance with the program.

The City of Celina has also instituted a curbside recycling program, which continues to do well.

The District does not intend to change these programs; rather, it plans to expand on the spirit of this program. But for any program to succeed, the amount of recyclable materials gathered from the residential and commercial sectors must increase. As more materials are collected, the more can be marketed, and the recycling program in Mercer County can be self-sustaining.

Cumulatively, materials from residential recycling are anticipated to fulfill slightly more than 50 percent of the commercial and residential goals, while consuming the majority of the District funds for recycling--approximately three-quarters for curbside collection subsidies. This is a direct result of the need to provide the Mercer County residents with an incentive which focuses on **ease of handling**. While this is an expensive proposition, it is considered the most effective way to achieve the desired participation rates in the District, sufficient to meet District goals for recycling.

It is initially anticipated that the District will be required to subsidize recycling programs. If the District considers it necessary and economically prudent, and the funds are available, the District may institute drop-off centers strategically placed to serve those residents without the option of curbside recycling service and do not want the optional recycling subscription. Any drop-offs should require less assistance, as most drop-off

facilities served by the District are privately owned and operated, or are buy-back centers.

A plan revision to demonstrate recycling will only be necessary in the event that a majority of the identified facilities become unavailable to such an extent that the District is unable to collect and process materials sufficient to reach its goals. If this should occur, the plan will be amended to designate and potentially support a new or out-of-District facility capable of meeting the District's goals.

The following is an explanation of the residential strategies the District intends to implement during the planning period.

a. General (District Wide) Education and Awareness

The goals of the educational programming will be two-fold: (1) to inform people of all ages as to the benefits of wise solid waste management practices, specifically recycling over landfilling or littering, and (2) to provide the public with the information necessary to successfully carry out recycling.

The District believes that in rural communities like Mercer County, education is the key to successfully meeting recycling goals; *and* that most residents think recycling is a good thing to do as long as it is convenient. These will be the primary foci for the District's educational and awareness programs and informational materials (brochures, up-to-date listings of alternatives to disposal available in-District, etc.). These educational materials are intended to briefly describe the problems, suggest disposal methods, and identify alternative, non-hazardous products. Additionally, recycling of hazardous products and the complete use of existing stocks of household products will also be encouraged.

The Board of Directors has continued to work toward these goals as the opportunities have presented themselves, despite the sudden lack of funding experienced in 1994. Some education and awareness activities in the original Plan were designed to be area-specific and be "custom made" to fit the particular needs for that fraction of the District. The District intends to continue to use this approach. While some of the programs have been modified to meet the current and changing needs of the District, the basic premise and goals of each strategy remain the same. All E&A activities are expected to begin in late 1998.

The general campaign will be directed toward educating school children and, hence, their parents, about the benefits of recycling, waste reduction, and wise solid waste management in the household. Most of the education will take place in the schools and, during the summer months, at youth camps and the county fair. All educational activities targeted toward recycling and waste reduction will also include other topics of wise solid waste management, such as household hazardous waste, composting, open dumping, litter, and hierarchy of solid waste management techniques.

The District will use these educational materials to the extent possible to not only inform residents, but local community leaders as well. Further, as needed, the District will

supplement them with materials that are specific to the District which include information such as key contact people and their phone numbers and specific waste exchange and collection opportunities in the immediate area.

As a specific awareness program, the District will disseminate education materials and information regarding responsible household hazardous waste management. Information will include who to contact to obtain additional information on specific materials (i.e. used motor oil). Target audiences for this campaign include:

School children (grades K-12)

Adults

Community leaders

Local government officials

Many adults will be reached via their school-aged children and the school educational programs. However, others may not have children in school. The District will reach these residents through District participation in civic functions, community meetings, and social group meetings (Kiwanis, local gardening clubs, etc.). Additionally, as requested, the District will send representatives to meetings of private groups interested in learning about proper waste management. Educational materials prepared on waste management (i.e. HHW, alternative buying habits, buying recycled or recycled content materials, etc.) will be distributed at these meetings.

To ensure that all government officials are aware of the program, the District will request that an item be placed on the agendas of each of the local communities to coordinate information dissemination and to answer any questions that the local governments may have. Further, should any of these communities have specific suggestions to improve the program, these meetings will provide a public forum to hear these recommendations and incorporate them into the plan as appropriate. As requested by the local subdivisions, a representative from the District will be present at the meetings; however, ideally, each community will establish a person who will head the program, and the person will represent the District at local meetings. Again, this effort will be included in the workshops being given to public officials and civic groups as part of the District's publicity program.

The District coordinator will be responsible for preparation and maintenance of current flyers for distribution to residents informing them of local recycling opportunities, how to prepare the recyclables for collection, the hours of operation or pick-up, events and include telephone numbers and addresses for local contacts.

The Coordinator may also contract with other entities throughout the District to conduct further education activities for recycling. The Coordinator will also cooperate with both public and private recycling activities; and will schedule neighborhood presentations to promote awareness of any new or expanded recycling opportunity in the community served. These neighborhood presentations are expected to be funded, in part, through the educational requirement of the District Recycling Grant Program.

The District believes that it will reach the majority of its residents via at least one of the

education mechanisms. It should be noted that studies have shown that publicity must be maintained to hold public interest and participation in any program, and the District intends to continue its public information campaign to achieve continued citizen participation.

b. Publicity Program

A publicity program will be developed and implemented for the entire solid waste management program proposed for the District as part of the education and awareness efforts of the ORWM. The Publicity Program is not just for recycling options, but to publicize the entire solid waste networking program in the District. This program will include:

Public official workshop;
Teacher's workshop
Civic group workshops

The District will prepare a presentation targeted for various civic organizations and local neighborhood associations in the District. Working in cooperation with local environmental groups and solid waste managers, the presentation will target the same objectives as education programs in the schools, but will be geared toward the intended adult audience.

The Publicity Program will also collect and publicize the educational tools/resources available through the Ohio EPA, Ohio Department of Natural Resources, professional solid waste handlers, and/or the District reference library, for use throughout the District. In addition to sponsoring specific workshops, where ever prudent and feasible, the District will foster the use of alternatives to disposal and wise solid waste practices.

To meet the education and promotional needs of the District, the ORWM may hire a part-time Educator. The Educator may work only part time solely in Mercer County; or the District may enter into a cooperative agreement with an adjoining District to share an Educator who will spend a portion of their time in Mercer County. The Educator would be responsible the school and civic programming.

c. District Mailing

Once a year, the District will do a "State of the District" mailing. Funds will be allocated for an annual mailing which will generally address all elements of solid waste management in the District. This mailing will tackle a diverse set of issues including (but not limited to) the following:

Notification of changes in the solid waste laws that affect the District;
Notification of the materials banned from landfills and effective dates;
Current listings of private business that will accept landfill banned material from residents (i.e. used motor oil, lead-acid batteries, waste tires, etc.);
Local contact names and numbers for detailed information concerning local opportunities

for solid waste landfills, transfer stations, recycling, composting, household hazardous waste, tire disposal, and reporting illegal dumping;

Notification of the District office's address, hours of operation, names of staff, telephone number.

Initial notification of available grant funding for recycling and composting assistance;
Roster of the Board of Directors and all members of the Policy Committee.

d. School Programs

The general campaign will be primarily directed toward educating school children and, hence their parents, about the benefits of recycling and waste reduction. The emphasis will be conducted during the summer months as youth camps and at the County Fair. All educational activities targeted toward recycling and waste reduction shall also include other topics of wise solid waste management, such as household hazardous waste, composting, open dumping, litter, and hierarchy of solid waste management techniques.

The District will coordinate recycling contests and promotion for all events, activities and programs, mostly in the local school system. The thought is that as children learn about recycling, reduction, and wise solid waste practices, hopefully their parents will learn.

Lesson plans will be prepared for use in public and private schools, grades K through 12 on proper waste management at the home. The lesson plans will focus on the issues of proper household waste management, HHW identification, the impacts of improper disposal (including an overview of groundwater contamination, air pollution, and environmental degradation that results from improper disposal,) the laws surrounding hazardous waste and the alternatives to landfilling or incinerating waste. Teachers will be trained in the use of the lesson plans during in-service days. Technical assistance and presentations will also be offered to these teachers. This activity may be in conjunction with other recycling and waste management programs.

e. Recycling

The preferred funding strategy for the following programs is to use the ongoing revenues from landfill disposal fees from the in-district landfill. Revenues are expected to approach \$230,000 per year. Maximal programming will require \$250,000 per year in expenditures. However, in recognition of real-world conditions, the district has prepared a budget which requires only \$150,000 per year as a primary strategy to facilitate adaptation if lower revenues are received, setting priorities for spending in the event budgets need to be reduced.

In the event of lost funding from landfill disposal fees the District is authorized to implement service charges on improved, parcels to supply the District with sufficient recycling services (Refer to Section 8). These service charges, if implemented, will be established annually by act of resolution by the District Board of Directors for a period of

not less than five-years. The goal of the charges will be to collect approximately \$150,000 per year from residential sources in order to operate recycling and household hazardous waste programs.

As the number of improved parcels is a constantly changing number, the per-parcel charge will require periodic adjustment. Under the authority created by this Plan revision, the Board of Directors will, during June of each implementation year, consult with the Mercer County Auditor for the purpose of establishing rates on improved parcels. By the end of June in every implementation year, the Board of Directors will announce and advertise the rate for the following year.

For the purposes of expediting implementation of this Plan revision, the First-Year Rate is contained and advertised as part of this Plan adoption process. The initial rate is established by this document at one dollar per month (\$1/month) per improved, residential parcel. Service charges are expected to range from \$1 to \$2 /month, but in no case will exceed \$2 / month without a majority approval by the Policy Committee.

Once implemented, rate reviews and adjustments will be made annually for future years by the Board. The Board shall establish rates in such a manner that \$150,000 in revenue from the residential sources can be reasonably expected in each of the first five years.

For the years six and up, the Board shall be directed by action of the Policy Committee (or its successor entity) whether such service charges shall continue for five successive years. The option to renew shall either be directed by the Policy Committee with a simple majority vote of the Policy Committee members or the non-renewal shall be accompanied by alternate funding directions. Any alternate funding method would be subject to all prevailing rules and regulations.

Service charges are required by the Board to provide recycling and household hazardous waste collection services to every resident in the county. Any unused portion of any of these allocations may be applied to the revenue forecast used in determining the necessary fee for the next calendar year.

Allowable spending of these funds is as follows:

Recyclables Processing.

\$45,200 per year

Source of Funding: \$20,000 from District Funding and \$25,200 from user fees

The Solid Waste District will accept bids and award one Solid Waste District Recycling Franchise for five or ten-year intervals. The successful bidder will receive a franchise fee of no more than \$20,000 per year. In exchange, the franchisee will agree to accept recyclables from haulers and local governments who consent (by third-party arrangement) to pay user-fees to the facility operator of (no more than) \$18/net ton or 35 cents per

household per month (est. 6000 households) for curbside-collected, residential recyclables, including commingled plastic, glass and metal food containers and commingled paper products.

The District will coordinate the necessary arrangements with local haulers and governments. No hauler or local governments will be required to use the franchise arrangement. However, any locally-franchised, existing curbside program which is discontinued by a local government may be replaced by the District and funded with user fees on the properties served throughout the planning period.

The successful bidder/franchisee will be also be required to accept drop-off materials at their facility and any residential, drop-off materials delivered by (not more than 6) organizations or local governments who collect and transport them.

The District will require the franchisee to accept of the following (minimum) list of residential materials:

- #1, and #2 plastic food and beverage containers;
- glass food and beverage containers (minimum of 2 colors);
- aluminum and steel food and beverage containers;
- newspaper;
- magazines; and
- boxboard.

The District Board of Directors may choose to use this allocation to meet the obligations associated with any contract with an adjacent or nearby Solid Waste District for processing services or with privately owned in-District or out-of-District recyclers. Such a contract would include any or all of the following services: the costs of transferring residential and commercial recyclable materials from Mercer County to the contracted District (or private recycler), as well as processing and marketing of residential and commercial recyclables.

In the event the Board chooses to contract with another District or a private company for processing and marketing services, the debt-retirement allocation may be used in part to fund one to three drop-off locations, from which recyclables would be transferred to another District or private recycler.

Alternate Recycling Strategy #1 Allowable spending for Alternate #1 is as follows:

Building a facility. Debt Retirement over a ten-year period for an industrial property, to be purchased or built by the County for the purpose of housing recycling equipment and housing a recycling operation.

The building is expected to be approximately 4,000 to 6,000 square feet in size and to cost \$100,000 to \$150,000 (assuming \$25 per sq. ft. construction costs), including necessary site preparation and amenities. The remainder of the available funds (\$50,000 to \$100,000) would facilitate purchase of basic processing equipment.

In the event the service charge is not continued after five years, the County would retain ownership of the building and facility and may choose to use the building for other needed purposes or sell the building to another entity.

Contracting for processing center operations. Provide recycling for the District, in the form of processing operations, to be owned by the Solid Waste District and operated by a qualified private and/or non-profit contractor. The facility will emphasize residential and commercial material processing. Allowable expenses shall include supervisory costs, basic labor costs, employee benefits, facility utility costs, equipment maintenance costs, and monitoring expenses. All District-related expenses are subject to approval by the Board of Directors on an annual basis and subsequently subject to County audit. Revenues from the sale of materials would be contractually subject to periodic review by the District. The purpose of these reviews is to determine how these revenues (projected to range from \$15,000 to \$50,000 / year) reduce the need for District outlays.

f. Curbside Recycling

The District will encourage the officials of, and solid waste haulers for, the City of Celina to continue curbside collection as well as other interested communities/haulers-- targeting 15,000-16,000 people for curbside; approximately the number of residents living in the larger communities or communities with existing programs (Celina, Coldwater, Ft. Recovery, Chickasaw, and Burkettsville).

The District believes that curbside collection programs are best managed on the level of the local municipality. The District estimates that the cost necessary to help implement curbside collection is estimated to be approximately \$2.5/household/month. This estimate is based on the following assumptions:

- 70 percent participation in the area served;
- 1 collection of recyclables per week;
- 2 workers per collection vehicle;
- Collection vehicles, trailers and bins are purchased;
- Containers are provided to each participating household without charge;
- Newspaper, corrugated, plastic (HDPE, PET), glass, ferrous cans and aluminum cans are collected;
- Labor, promotion, insurance, collection processing and marketing costs are included;
- Materials receive an average market value based on a recent market survey (refer to Appendix J);
- \$20/ton avoidance cost is realized by reducing landfilling requirements.

Clearly, if any of these assumptions are altered, the cost for the program would change accordingly. For instance, if a municipality decided to contract with a private hauler for collection, no vehicles would be purchased. Thus, the cost of collection may be less. While \$2.50/household/month is an average program cost, the District does not intend to

completely underwrite any curbside program.

The recyclables are to be collected in a clear bag. Paper must be separated and collected in one recycling bag or it may be collected using a tag system where bundled paper is collected only if a pre-paid tag is attached. All other recyclable items may be commingled in another recycling bag. Improper separation or contamination of recyclables will result in rejected loads. To reduce the incidents of rejected loads, the District will assist in the education efforts on the types of recyclable material collected and the proper method of handling.

All recyclers operating under District subsidies will be required to report the volume of material recovered on a quarterly basis to the Mercer County Solid Waste District office.

The preceding post-consumer products represent more than 30 percent of the adjusted residential / commercial waste as it existed in arriving loads at the landfill. Successful recycling of approximately three-quarters of these products will exceed the District's recycling goals.

All programs to be subsidized by the District are to be voluntary participation programs. Any resident of Mercer County will be able to continue using an existing buy-back operation if they choose to pursue economic incentives for recycling.

g. Drop-off Recycling

The Ohio Recyclers Center accepts allows District residents to drop off recyclable material at their facility. The District plans to continue utilizing the existing drop-off operation if they choose to pursue economic incentives for recycling. For other drop-off recycling options, see Section *C.I.e* above.

h. Household Hazardous Waste

f. Household Hazardous Waste Collection.

Seasonal low-toxicity, high-volume HHW collection

\$5,000 per year

The District will provide convenient, seasonal service for high-volume HHW which is easily, inexpensively and safely managed. At least 50% of all HHW collected is expected to use this service. One or more non-permanent locations will be established:

- to collect oil, antifreeze for re-use;
- collect and recycle household batteries;
- collect latex paint and other latex paint products for re-use, bulking and/or disposal.

Periodic high-toxicity, low-volume HHW collections

\$15,000 per year

Source of Funding: \$7,500 per year donated from industries, wastewater treatment funds

and local businesses, with (\$7,500) 1:1 matching funds from the District.

The District will schedule and conduct periodic high-toxicity HHW collection events as often as donations permit. Mercer County will develop a strong Keep Mercer County Beautiful affiliation as a vehicle to solicit these donations. In the years collection is not conducted, the District will reserve the allocated and donated funds to use in the future collections

I. Yard Waste Education

See Section 5.E.2(a) for more yard waste program information.

j. Additional Yard Waste Programs

Additional Yard Waste Programs may take the form of community contents, such as a “Best Composting” project or “Best Use of Compost” project. These will be set up as community events, but will be mostly aimed at younger people for participation. Again, adults will learn through their children the proper methods of yard waste disposal.

k. Health Department Assistance

The District will supply assistance to the local Board of Health (BOH) to conduct sampling of water wells and spot checking waste and enforcement activities. The District believes that it is important to assure that the illegal dumping is more expensive in the long run than the cost of proper management methods. Printed material will be developed to educate and increased enforcement of dumping laws will encourage the judicial system to levy maximum fines for violators.

Board of Health funding will be allocated by contract, and will be renewed and revised annually to provide only the services described below. These services will be limited to:

- Regular inspections of each licensed and active solid waste facility
- Regular inspections of each inactive solid waste facility throughout the closure and post-closure period
- Investigate and sample surface waters adjacent to active and inactive sanitary landfills for possible contamination. Such analyses will be limited to chemical and biological contaminants. Develop appropriate mitigation plans in the event of contamination.
- Evaluate and monitor methane gas migration at all active and inactive solid waste landfill disposal facilities.
- Administer and enforce all existing and future regulatory rules for infectious waste, solid waste disposal, and investigate suspected illegal dumping of solid waste at facilities not licensed for such disposal.
- Investigate and record all citizen complaints regarding licensed active or inactive solid waste disposal facilities and open dumping.

Pursuant to contracts entered into with BOH for paying the costs incurred by the BOH for collecting and analyzing samples from public or private water wells on lands adjacent to those facilities, the District will allocated \$5,000 per year. This will include:

- Collection and analysis of private water supply wells within 2000 feet of active or inactive landfills. Such analysis will be limited to chemical and biologic contamination and the development of remediation plans in the event contamination is observed.

Solid Waste generated outside the boundaries of the State of Ohio that are disposed of at solid waste facilities included in the Solid Waste Management Plan or amended Plan shall be subject to inspection in accordance with such rules governing development and implementation of a program for that inspection as may be adopted from time to time by the Board of Directors or its authorized representative may enter upon the premises of any solid waste facility included in the District's Solid Waste Management Plan or amended Plan for the purpose of conducting the inspections required or authorized by such rules.

The BOH will develop and implement a program for the inspection of solid wastes generated outside the boundaries of this state that are disposed of at solid waste facilities included in the District's approved Solid Waste Management Plan or amended Plan. Moneys in the special fund of the District arising from the fees levied under Sec. 3734.57(B)(3) shall be expended exclusively for these purposes.

Board of Health funding will be allocated by contract, and will be renewed and revised annually to provide only the services described below. These services will be limited to:

- Regular inspections of each licensed and active solid waste facility
- Regular inspections of each inactive solid waste facility throughout the closure and post-closure period
- Investigate and sample surface waters adjacent to active and inactive sanitary landfills for possible contamination. Such analyses will be limited to chemical and biological contaminants. Develop appropriate mitigation plans in the event of contamination.
- Evaluate and monitor methane gas migration at all active and inactive solid waste landfill disposal facilities.
- Administer and enforce all existing and future regulatory rules for infectious waste, solid waste disposal, and investigate suspected illegal dumping of solid waste at facilities not licensed for such disposal.
- Investigate and record all citizen complaints regarding licensed active or inactive solid waste disposal facilities and open dumping.

l. Other Local Assistance.

Providing financial assistance to Mercer County to defray the added costs of maintaining roads and other public facilities and of providing emergency and other public services resulting from the location and operation of a solid waste facility within the county under the District's approved Solid Waste Management Plan or amended Plan. The District will

allocate funds each year for the maintenance of the roads and bridges around the landfill. Assistance will be supplied with available funds and as requested.

2. Commercial Sector

Commercial and Institutional Recycling

Estimate \$20,000 per year

Source of Funding: User Fees estimate \$20,000 per year and \$0 District Resources

The District will coordinate and organize businesses and institutions who agree to pay user fees (approximately) equal to the costs of providing the recycling services. The District will organize willing customers and purchase services from private hauler(s). There will be no net costs to the District but appropriations will be necessary to purchase services prior to reimbursements from the businesses and institutions.

Coupled with awareness and education in commercial recycling, the District will actively promote office paper recycling programs throughout the county, assist commercial establishments with the implementation of voluntary recycling programs, institute recycling programs in all county offices and will actively promote/assist in the implementation of similar programs at all other public offices in the District.

The District will actively recruit **specific** commercial establishments which are considered to have significant potential for recycling their waste. The type of establishments targeted will include:

- restaurants;
- hospitals;
- banks/financial institutions;
- office buildings;
- schools;
- grocery stores/supermarkets; and
- department stores; retail stores.

Special focus will be placed on the following materials:

- OCC and other commercial packaging;
- Kraft paper (i.e. brown paper);
- commercial print; and
- office (bond) paper.

The District anticipates that approximately half of the materials recovered toward residential and commercial goals will be of commercial origin.

Awareness and education in the commercial sector will include campaigns designed around the advantages of proper battery/tire/used oil disposal utilizing voluntary point-of-sale returns. This campaign will be designed to initiate grass-roots support in the

commercial sector for voluntary participation in point-of-sale returns, as opposed to mandatory methods. Awareness and education for commercial businesses will also focus on procurement policies of the establishment:

- to minimize waste generation;
- to maximize recycling potential; and
- to provide incentives for industries to produce goods from post-consumer materials.

3. Industrial Sector

Industrial waste composition is highly specific to the individual industry and, therefore, the need for industry specific recycling programs is evident. The Mercer County Solid Waste Management District will take an individual approach to **voluntary** recycling to fully exploit the recycling potential of each participating industry.

To this end, the District will contact specific industrial generators in Mercer County, targeting specific materials and providing direct administrative assistance in:

- Instituting the recycling program;
- Finding markets for reclaimed materials;
- Instituting programs for the procurement of recycled materials; and
- Establishing voluntary waste exchange programs. Initially, the District will use the industrial surveys and industrial employment data to prioritize the local industries for recycling programs--in the first year, targeting the top ten generators for participation in recycling programs. For each successive year, the top 20 percent of the remaining generators will be targeted.

At the present time, the Mercer County Solid Waste Management District considers the avoidance of landfill costs as providing sufficient impetus for successful voluntary, non-subsidized programs. Therefore, no provision to fund industries in this effort has been made in this plan.

In order to track progress toward the goals set forth in this plan, the District will request participating industries to report their recycling, minimization and reuse activities on an annual basis.

The District intends to continue industry-specific recycling programs, using a voluntary approach to recycling to fully exploit the recycling potential of each participating industry. This will include, but not be limited to, mailings, information workshops and seminars, and general promotional material. Also, on an individual basis where feasible, waste exchanges will be initiated.

The amounts of recycling which occurred in the reference year in the industrial sector is shown in Table V-2. (Industries were encouraged to report totals in either cubic yards or

tons for each material, whichever was better known by the industries. Sand, clay, stone, ash or other such materials of common density were assumed to have a conversion factor of 1 cubic yard = 1 ton.) Conversion factors used for specific industrial reported totals were obtained from Appendix II of the *District Solid Waste Management Plan Format (version 2.1)*. The conversion factor for other materials not listed in Appendix II was assumed to be 3 cubic yards = 1 ton as stated in ORC Section 3734.57.

The District used the *1995 Harris Selectory on Disk, Ohio 20+ Employees* to compile a list of manufacturing industries operating in Mercer County for the purposes of an industrial survey. The total employment shown among the 78 Mercer County industries in the *1995 Harris Selectory* was 4,680. The industries that **responded** (a total of 45 industries, or 57%) to the survey reported **3,475 employees**. [Note: *These 45 industries represent 74% of the District's manufacturing-based employment.*] It was also discovered that one industry did not produce any waste in Mercer County; three industries were actually commercial warehouses; one industry was out of business; two industries flatly refused to co-operate with the survey; and three industrial manufacturers who were not in the *Harris Selectory* were discovered and surveyed. (All three responded.) It was assumed that any information sent to us by industry was more current than that of the *Harris Selectory*, and therefore used in this Plan.

Table V-3. Strategies for Residential/Commercial Source Reduction and Recycling¹

Strategy ²	Material	Tons of Waste Reduction ⁴																											
		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
Source Reduction Strategies																													
Education Program		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Variable-rate Disposal		0	1,494	1,997	2,505	3,004	3,083	3,177	3,275	3,381	3,476	3,583	3,611	3,647	3,684	3,720	3,758	3,795	3,833	3,871	3,910	3,949	3,989	4,029	4,069	4,110	4,151		
<i>Sub-totals</i>		0	1,494	1,997	2,505	3,004	3,083	3,177	3,275	3,381	3,476	3,583	3,611	3,647	3,684	3,720	3,758	3,795	3,833	3,871	3,910	3,949	3,989	4,029	4,069	4,110	4,151		
Recycling Strategies																													
Sources for individual items combined for confidentiality	Cardboard & Other Paper	1,173	1,591	2,010	2,433	2,848	2,883	2,938	2,993	3,050	3,106	3,131	3,226	3,258	3,291	3,324	3,357	3,391	3,424	3,459	3,493	3,528	3,564	3,599	3,635	3,671	3,708		
	All other targeted	3,299	3,905	4,525	5,141	5,759	5,829	5,941	6,053	6,167	6,281	6,330	6,523	6,588	6,654	6,721	6,788	6,856	6,924	6,994	7,063	7,134	7,205	7,278	7,350	7,424	7,498		
Subtotals		4,473	5,496	6,535	7,574	8,607	8,712	8,879	9,046	9,216	9,387	9,461	9,748	9,845	9,944	10,043	10,144	10,245	10,348	10,451	10,556	10,661	10,768	10,876	10,984	11,094	11,205		
Ohio Recyclers/MCR		1,006	1,308	1,661	2,009	2,364	2,400	2,458	2,511	2,570	2,624	2,685	2,708	2,735	2,762	2,790	2,818	2,846	2,875	2,903	2,932	2,962	2,991	3,021	3,051	3,082	3,113		
Private Operations		3,467	4,188	4,874	5,565	6,243	6,312	6,421	6,535	6,646	6,763	6,776	7,040	7,110	7,182	7,253	7,326	7,399	7,473	7,548	7,623	7,700	7,777	7,854	7,933	8,012	8,092		
<i>Subtotals</i>		4,473	5,496	6,535	7,574	8,607	8,712	8,879	9,046	9,216	9,387	9,461	9,748	9,845	9,944	10,043	10,144	10,245	10,348	10,451	10,556	10,661	10,768	10,876	10,984	11,094	11,205		
Grand Totals		4,473	6,990	8,532	10,079	11,611	11,795	12,056	12,321	12,597	12,863	13,044	13,359	13,493	13,628	13,764	13,901	14,040	14,181	14,323	14,466	14,611	14,757	14,904	15,053	15,204	15,356		

¹ This table is a part of the implementation schedule required in accordance with ORC Section 3734.53(A)(12).

- 2 Include both on-going existing strategies and new strategies to be implemented during the planning period. Strategies focused on source reduction should be listed separately from those using recycling. Expand the table as necessary to include additional strategies. Please note that strategies addressing restricted waste streams should not be included in this table. Instead, put such strategies in Table V-6.
 - 3 If a given strategy reduces or recycles more than one material, list all materials together and combine the tons reduced/recycled.
 - 4 Enter zeroes ("0") for those years prior to the anticipated implementation of a given strategy. Use data from Table V-1 for the reference year.
- Sample Calculation:
Assumptions:

INDUSTRIAL WASTE: Projections for recycling in Table V-4 are shown by type of material rather than by individual strategies. The increases are assumed to result through the combination of all strategies. Tons recycled in the 1995 reference year were obtained from surveys.

TYPE OF WASTE	RECYCLED TONS	TONS GENERATED	PERCENT RECYCLED	ASSUMPTIONS FOR REDUCTION PROJECTIONS
Cardboard	784	2,209	35.5%	
Paper	3,304	7,598	43.5%	
Fabric & cloth	0	355	0.0%	
Sawdust, bark	0	0	0.0%	
Pallets	862	1,001	86.0%	
Wood Scrap	379	497	76.2%	
Aluminum	80	89	90.2%	
Ferrous Metals	12,854	14,798	86.9%	
Non-ferrous Metals	4,325	4,417	97.9%	
Glass	0	291	0.0%	
Plastics	16	1,334	1.2%	
Rubber	0	1	0.0%	
Stone/clay/sand	124	224	55.3%	
Concrete	70	204	34.4%	
Foundry Sand	0	0	0.0%	
Ash	0	2	0.0%	
Sludge	8	448	1.8%	
Non-hazardous chemicals	80	104	76.8%	
Composites	0	2,345	0.0%	
Other	361	2,364	15.27%	
TOTALS	23,247	38,281	61%	

Table V-4. Source Reduction/Recycling Tons from Industrial Waste Strategies¹

Strategy ²	Type of Material Reduced and/or Recycled ³	Tons of Source Reduction/Recycling ⁴																									
		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
		Source Reduction																									
Technical Assistance	All materials	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Substrates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recycling																											
Technical Assistance	Cardboard	784	1,072	1,393	1,714	2,035	2,034	2,034	2,034	2,036	2,033	2,033	2,033	2,043	2,053	2,064	2,074	2,084	2,095	2,105	2,116	2,126	2,137	2,148	2,158	2,169	2,180
	Paper	3,304	3,694	4,182	4,669	5,156	5,155	5,154	5,153	5,158	5,151	5,151	5,150	5,202	5,254	5,306	5,359	5,413	5,467	5,521	5,577	5,632	5,689	5,746	5,803	5,861	5,920

	Fabric & Cloth	0	22	43	65	86	86	86	86	86	86	86	86	86	87	88	89	89	90	91	92	93	94	95	96	97	98	99
	Sawdust, bark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pallets	862	832	832	831	831	831	831	831	832	831	831	830	838	847	855	864	872	881	890	899	908	917	926	935	945	954	
	Wood Scrap	379	369	368	368	368	368	368	368	368	368	368	368	372	375	379	383	387	391	395	398	402	407	411	415	419	423	
	Aluminum	80	81	82	83	84	84	84	84	85	84	84	84	84	85	85	86	86	86	87	87	87	88	88	89	89	89	
	Ferrous Metals	12,854	12,877	12,873	12,871	12,868	12,866	12,863	12,861	12,875	12,857	12,857	12,855	12,984	13,113	13,245	13,377	13,511	13,646	13,782	13,920	14,059	14,200	14,342	14,485	14,630	14,776	
	Non-Ferrous Metals	4,325	4,356	4,355	4,354	4,353	4,352	4,351	4,351	4,355	4,349	4,349	4,348	4,352	4,357	4,361	4,365	4,370	4,374	4,379	4,383	4,387	4,392	4,396	4,400	4,405	4,409	
	Glass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Plastics	16	109	202	294	387	387	387	387	388	387	387	387	391	395	399	403	407	411	415	419	423	427	432	436	440	445	
	Rubber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Stone/clay/s and	124	109	109	109	109	109	109	109	109	109	109	109	110	111	112	113	115	116	117	118	119	120	122	123	124	125	
	Concrete	70	68	68	68	68	68	68	68	68	68	68	68	69	69	70	71	71	72	73	74	74	75	76	77	77	78	
	Foundry Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Ash	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sludge	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	

	Non-h az Chems	80	80	80	80	80	80	80	80	80	80	80	80	80	81	82	82	83	84	85	86	87	87	88	89	90	91	92
	Composites	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	361	563	563	563	563	563	563	563	563	562	562	562	568	573	579	585	591	597	603	609	615	621	627	633	640	646	
	Subto- tals	23,24 7	24,23 9	25,15 8	26,07 8	26,99 8	26,99 2	26,98 7	26,98 4	27,01 1	26,97 5	26,97 3	26,96 9	27,18 8	27,41 0	27,63 4	27,86 0	28,08 9	28,32 0	28,55 2	28,78 8	29,02 5	29,26 5	29,50 7	29,75 1	29,99 7	30,24 6	
	Grand Totals	23,24 7	24,23 9	25,15 8	26,07 8	26,99 8	26,99 2	26,98 7	26,98 4	27,01 1	26,97 5	26,97 3	26,96 9	27,18 8	27,41 0	27,63 4	27,86 0	28,08 9	28,32 0	28,55 2	28,78 8	29,02 5	29,26 5	29,50 7	29,75 1	29,99 7	30,24 6	

1 This table is a part of the implementation schedule required in accordance with ORC Section 3734.53(A)(12).

2 Both on-going existing strategies and new strategies to be implemented during the planning period are included. **The District does not plan to do any active programming in the industrial sector. The baseline numbers for each historically recycled material have been listed in this table, along with the District's projections. These projections were based on the historic percentage of each material in relation to the entire waste stream (available material), and how much of the available material will be recycled.**

3 If a given strategy reduces or recycles more than one material, list all materials together and combine the tons reduced/recycled.

4 Zeroes ("0") have been entered for those years prior to the anticipated implementation of a given strategy.

Sample Calculation:

Assumptions:

D. Incineration, Resource Recovery, and Municipal Solid Waste Composting

The District does not use any resource recovery or MSW composting facilities. The District has not plans for any future uses of these technologies. Of the Incinerators operating in the old Plan, only two are still operating. The Districts two remaining captive incinerators did not supply volumes.

**Table V-5
Incineration, Resource Recovery, and MSW Composting**

Year	Incineration	Resource Recovery	MSW Composting	Total Tons
1995	0	0	0	0
1996	0	0	0	0
1997	0	0	0	0
1998	0	0	0	0
1999	0	0	0	0
2000	0	0	0	0
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	0	0	0	0
2018	0	0	0	0
2019	0	0	0	0
2020	0	0	0	0

1 There are two active incinerators reported to be currently operating within the District. There were no incineration amounts reported by these industries in the baseline year surveys.

E. Restricted Waste Streams - Yard Waste, Tires, Lead-Acid Batteries

The *State Solid Waste Management Plan (State Plan)* imposed landfill and incinerator disposal restrictions on yard waste, waste tires, and lead-acid batteries. SWMDs are required to provide alternative management strategies (or programs) for these waste streams prohibited from landfill and incinerator disposal. The following sections characterize these waste streams in the District and describe their management methods.

1. Projections of Restricted Waste Stream Quantities Generated.

Using the data from Section IV.G., the District estimated the amount of yard waste, waste tires, and lead-acid batteries generated during each year of the planning period and entered all requested information in Table V-6. Please note the data in Table V-6 includes all restricted waste stream amounts, regardless of the management method used.

a. Generation of Yard Waste

The projections for the generation of yard waste were prepared using percentages of composition of municipal solid waste stream contained in the Characterization of Municipal Solid Wastes, 1995 Update released by the United States EPA and prepared by Franklin Associates, Inc. It was estimated that yard trimmings represented approximately 14.6% in 1994, 10.3% in 2000, and 9.5% in 2010. A straight line projection was used for years 1990 through 2000 and 2000 through 2010. It was assumed that percentages would continue at the same changes from 2010 to 2011.

Sample Calculations:

Change in percent composition for =
$$\frac{(\text{Percent composition MSW 2010}) - (\text{Percent composition MSW 2000})}{10 \text{ years}}$$
 each year 2000 through 2010

$$= \frac{9.5\% - 10.3\%}{10}$$

$$= -0.08\% \text{ change each year}$$

Percent composition MSW in = (Percent composition MSW 2000) + (change for one year)

2001

$$= 10.3\% + -0.08\%$$

$$= 10.22\%$$

Tons yard waste generated = (Tons MSW Generated 2001) * (percent yard waste 2001)

in 2001

$$= 25,283 * 10.22\%$$

$$= 2,584$$

b. *Tons of Waste Tire Generation*

One method of calculating waste tire generation is to use the national average percentage rate in the *Characterization of Municipal Solid Wastes, 1995 Update* released by the United States EPA and prepared by Franklin Associates, Inc. of Prairie Village, Kansas. The national average rate was 1.8% for each year of the planning period.

Sample Calculation:

$$\begin{aligned} \text{Tons of Waste Tires 1996} &= (\text{tons of MSW generated 1996}) * (\text{national average for 1996}) \\ &= 24,618 * 1.8\% \\ &= 443 \text{ tons} \end{aligned}$$

c. *Generation of Lead-Acid Batteries*

Projections for lead-acid batteries uses the national average percentage rate in the *Characterization of Municipal Solid Wastes, 1995 Update* released by the United States EPA and prepared by Franklin Associates, Inc. of Prairie Village, Kansas. It was estimated that lead-acid batteries represented approximately .8% in 1994, .9% in 2000 and in 2010. A straight line projection was used for years 1994 through 2000.

Sample Calculation:

$$\begin{aligned} \text{Tons of lead-acid batteries} &= (\text{tons of waste generated 1996}) * (\text{national average in 1996}) \\ \text{in 1996} &= 24,618 * .83\% \\ &= 204 \text{ tons} \end{aligned}$$

Table V-6. Generation of Yard Waste, Waste Tires, and Lead-Acid Batteries¹

Year	Tons of Yard Waste	Tons of Waste Tires	Tons of Lead-Acid Batteries	Total Tons
1995	2,633	443	204	3,280
1996	2,614	443	204	3,262
1997	2,596	443	204	3,244
1998	2,578	444	205	3,226
1999	2,559	444	205	3,208
2000	2,541	444	205	3,189
2001	2,584	455	210	3,249
2002	2,562	455	210	3,227
2003	2,540	455	210	3,205
2004	2,519	454	209	3,182
2005	2,497	454	209	3,160
2006	2,475	454	209	3,138
2007	2,454	453	209	3,116
2008	2,432	453	209	3,094
2009	2,410	453	209	3,072
2010	2,389	453	209	3,050
2011	2,367	452	209	3,028
2012	2,346	452	208	3,006
2013	2,324	452	208	2,984
2014	2,303	452	208	2,962
2015	2,281	451	208	2,941
2016	2,260	451	208	2,919
2017	2,238	451	208	2,897
2018	2,217	450	208	2,875
2019	2,196	450	208	2,853
2020	2,174	450	207	2,832

¹ The estimates in this table should reflect the generation of these waste streams, and not only the amounts currently landfilled. If the estimates have been reduced by source reduction programs, these programs should be identified, quantified (if possible), and included in this table, in accordance with the guidance provided in Appendix LL in this document.

2. Management Strategies for Restricted Waste Streams.

All of the state-mandated restrictions on the (landfill/incinerator) disposal of yard waste, waste tires and lead-acid batteries are currently in effect. As described and defined in other sections of this Plan, the District has not and does not anticipate any Direct role as regulator. In demonstration of this belief, the Board of Directors has supported these land bans as well as providing direct financial support to the state's local agent (the Mercer County Health Department) for enforcement of solid waste rules.

It is desirable to note in this Plan that the restricted materials have never been known to present much problem in Mercer County. Not only have these materials represented an incidental portion of the historic waste stream, they have not presented a measurable problem in managing post-restriction. The following sections represent the District's existing and intended strategies for managing restricted waste streams, **all of which are implemented by the private sector in cooperation with the District.**

a. *Yard Waste*

In January, 1992 a ban restricting disposal of leaves and total yard waste in existing landfills went into effect. This essentially banned the disposal of source-separated yard waste from entering landfills. The District provided educational material related to backyard composting and yard waste minimization practices. Local governments were informed of the ban. Availability of disposal and/or processing facilities was determined by the local governments. Those, parties, whether public or private, were supplied the compost facility siting strategy contained in the Approved Plan.

After the ban was in place, the District concluded that there was a negligible impact of yard waste restrictions on the disposal facilities. Nevertheless, the District has, and will continue to, aggressively promote backyard composting and land application of leaves and will further encourage the siting of compost facilities in the county.

The District only had two composting facilities. One (Mercer Composting Inc.) was recently sold under forced auction, and it is currently undecided whether it will continue as a composting facility. The other composting facility belongs to the City of Celina, who composts yard waste collected or generated by the City, and will accept yard wastes from city residents.

Despite the lack of accessible composting facilities, there have been no yard waste disposal problems identified in Mercer County. The District believes this is due to the rural nature of the District. Most yard waste is believed to be taken care of by backyard composting practices voluntarily taken on by District resident.

However, the District will continue to supply information to District residents about the option for yard waste disposal such as:

Backyard Composting and “Leave It Lay” philosophies;
“Don’t Bag It” Program, mulching mowers, etc.;
Private Service Providers

To support these activities, the District Office may provide funds for the following education/awareness and promotion activities as they relate to yard waste management.

- (1) An annual cash prize donation will be made to local organizations sponsoring a contest for the best compost project by a youth group (\$1000).
- (2) The District Office will develop print and distribute educational brochure and flyers at an estimated annual cost of \$2,000.
- (3) A total of Two Thousand Dollars (\$2,000) per year is allocated to the county's education offices for yard waste management presentations. This allocation will defray the labor costs for these presentations.
- (4) As funds are available, workshops and training will be conducted on wise yard waste management topics.

The District plans to reinforce backyard management of yard wastes in the rural areas by providing educational materials and advertising the benefits of managing yard waste at the residence. The District will work with other agencies including the Soil and Water Conservation District Offices and the Cooperative Extension Offices to develop materials for distribution at libraries, post offices, municipal offices and other locations by 1992. Additionally, a phone number will be provided to answer questions regarding backyard management of yard wastes.

In more urbanized areas, managing yard waste at the residence is more challenging because of limited available space. Thus, these areas tend to produce more yard waste that enters the waste stream. The District plans to approach yard waste management in urban areas using two primary tactics:

Residents will be educated and encouraged to leave grass clippings on the lawn instead of bagging them, and to construct and use their own backyard composting unit. Yard waste reduction will be emphasized.

Some money will be set aside to encourage the establishment of municipal or private yard waste composting sites. This money is available as a one-time allocation to aid in the development.

The District plans to invest \$2,000 annually in the development and distribution of educational materials to encourage residents to manage their own yard waste, thereby avoiding collection and processing. Flyers describing the benefits of not collecting grass clippings will be distributed at lawn care establishments and nurseries. Additionally, the District will prepare a "do-it-yourself" backyard composting guide for residents describing

how to construct a backyard composting unit, how to effectively compost, and what to do with the resulting product. This information will be published in local papers and distributed at lawn care establishments, nurseries and lumber yards. The District believes that this is the most effective long-term strategy for reducing yard waste.

A possible alternative to centralized composting is land spreading yard waste on farmers' fields. Potential benefits associated with land spreading are:

Source of income for the farmer;
Improved soil till;
Potential for organic matter increase in soil;
Easier method of handling than composting.

To ensure that these restrictions are followed by the landfill, ORWM will, in cooperation with the Mercer County Board of Health, conduct periodic checks of materials tipped. Violations of these restrictions will be reported to the OEPA.

Assistance to the Soil & Water Conservation Office and the Cooperative Extension Office will be given for yard waste education activities. The District will allocate \$2,000 - \$5,000 per year for these activities, including additional yard waste programs, depending on available funding and the express need for the programs.

b. Waste Tires

The original District plan was to emphasize recycling of waste tires before landfilling, specifically:

- Encourage the use of retreaded tires through public education and use of retreaded tires on municipal vehicles by 1993.
- Use whole tires to the extent possible in municipal playgrounds and other such applications by 1993.
- Pursue tire recycling with waste tire users.
- Look into long term potential for using crumb rubber in District roads to increase the demand for this recycled waste tire material; consider pilot program by 1995.
- Investigate the possibility of contracting with a tire incineration company to recover energy from the waste tires.

Because of the uncertainty surrounding the statutory requirements, regulatory requirements, and the economic feasibility of the alternatives, the District decided to defer from commitments to any specific strategy. Rather, the District has outlined a preferred

hierarchy of approaches and defining a deadline for making a long-term commitment.

It was the intent of the District to restrict the landfilling of waste tires as of June 24, 1991, prohibiting the delivery of Mercer County-generated waste tires to landfills, and to provide an environmentally sound and economically attractive disposal method for waste tires to District residents. Many commercial facilities in the District who deal in tires will offer to properly dispose of old tires for a minimal fee (usually \$1.00/tire) when purchasing new tires, and most residents find this a viable alternative.

However, there are usually many do-it-yourself people who have waste tires to be disposed. To try and combat open dumping of tires, the District will secure a contract with a properly licensed waste tire handling and disposal company for the placement of an enclosed trailer for the collection, storage, and transport of waste tires when funds are available. Special focus will be placed, when selecting an entity for this task, on those companies which utilize the waste tires for reclamation or recycling. The site location of the collection/ storage shall be determined by the Board of Directors and the Policy Committee. It is recommended that an agreement is negotiate with the existing recycling center as this location is regarded as ideal in terms of staffing, and operating hours to provide convenience of disposal to District residents.

Various private entities engaged in the proposed type of tire collection, transport and disposal service have reported a projected unit cost of \$1.00 per tire received. This cost applies only to tires from motorcycles, mopeds, passenger vehicles and trucks; a schedule for larger tires will need to be established during implementation.

The contracted method of collection and disposal will be in place by mid 1998, at which time no one shall deliver tires generated in Mercer County to any landfills in Mercer County. District residents will be made aware of this system through various education and awareness programs and newspaper advertisements. By providing an inexpensive means for the proper disposal of waste tires to District residents, a 100 percent public participation rate in the program is anticipated.

The contract method of tire disposal will not be a mandatory policy but, rather, will provide Mercer County residents with an alternative method of disposal. This strategy is not intended to prohibit other methods of disposal, particularly beneficial reuses. Some landfill owners have expressed interest in reusing shredded tires as a soil stabilizer/ drainage layer in the construction of landfills. The District would encourage such other methods, if these methods meet all statutory and regulatory requirements. The intent of the waste tire strategy is to provide a low cost alternative to disposal, without creating an impetus to illegally dump tires in the District.

Currently there are no waste tire open dump sites reported to exist in the Mercer County District. Hence, it is imprudent to develop a budget for the clean-up of an identified quantity of tires. If such discoveries are made, funds for clean-up will originate from the District Fund for contingencies. The strategies for cost minimization in these clean-ups would follow along the same lines of litter collection activities of the District.

c. User Fees

The District may appropriate Solid Waste funds in order to facilitate any fee-based tire collections. All costs associated with these collections will be reimbursed to the District by the user.

User fees are also established by the operators and service providers. Most operators or service providers, like Allied, offer free or low-fee service to residents of Mercer County for disposal of certain “restricted” wastes like yard waste and tires. The user-fee system is already instituted in Celina, where curbside recycling and general MSW collection is offered in a pay-as-you-throw capacity.

d. Lead-Acid Batteries

In the early 1980's, secondary lead smelters reclaimed almost 90 percent of the used lead-acid automobile batteries. In 1985, the recycling rate for batteries had dropped to 58 percent, (Ohio's Solid Waste Management Plan, 1989). Two basic causes are believed to be behind this decline in recycling:

Low market prices for lead;
Stringent and costly environmental regulations.

Since 1985, lead prices have increased, and recycling rates appear to have improved slightly; however, increased environmental regulation of lead smelters has decreased the demand for used lead-acid batteries. Additionally, cylindrical batteries and button-shaped batteries contain manganese, mercury, lead, cadmium, and silver oxide. All of these are potentially toxic, and few of the batteries containing these metals are currently being collected and recycled.

Lead-acid batteries in general have a long history of recycling in Mercer County. Most retail outlets will accept old batteries as coupons for a discount off new batteries. The District is planning to continue encouraging the collection of lead-acid batteries by the retail centers selling the products. One mechanism for accomplishing this is by charging a deposit on the battery when it is purchased. The buyer would receive the deposit back when the old battery is returned to the retailer. Additionally, some of the private recycling facilities in the Districts have drop-off containers for lead-acid batteries. The District also plans to accept lead-acid batteries at collection days for household hazardous waste.

e. Used Motor Oil

There are a wide range of options available to communities who want to recycle used oil. The simplest, most effective method of encouraging the recycling of waste oil is to provide convenient, no-charge disposal alternatives for residents. This can be accomplished by establishing a network of convenient collection sites throughout the District, utilizing a

combination of municipal and private facilities, and encouraging residents to take advantage of businesses that change oil for customers.

The objective will be to locate collection sites over the entire District, providing convenient sites to residents. Various service stations and repair shops throughout the District currently accept used motor oil from District residents. Some utilize it in waste oil furnaces; others send it away for disposal. In the areas where private industry is not willing to participate, the local municipality may be encouraged to establish a collection site. The municipality would then be responsible for making arrangements to recycle the oil.

Once the network of providers is identified, a list of collection sites and contacts in the District will be assembled, distributed, and publicized. Distribution will include retail centers that sell oil to do-it-yourself oil changers to ensure that residents are aware of the collection program. The telephone number of the District office will be provided for residents who may have questions about the program.

Other action the District will take is to dedicate a portion of the education program to inform residents of proper disposal methods for waste oil. If residents become more knowledgeable of the problem caused by improper disposal of waste oil, they may become more active recyclers. If, for example, do-it-yourself oil changers began to recycle their waste oil, a greater demand for waste oil collection programs could be generated. Also, another action that could be initiated by the District is for the District to encourage the use of re-refined oil for County vehicles and to encourage municipalities to do likewise.

As with all of the programs and activities in this plan, education and awareness will be the key to success to this and other programs.

Table V-7 Tons of Restricted Waste Streams Source Reduced/Recycled¹

Strategy	Material	Tons Reduced/Recycled																									
		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<i>Source Reduction Strategies</i>																											
Backyard Composting	Yard Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Don't Bag It Program	Yard Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sub-totals</i>	-----	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Recycling Strategies</i>																											
Private Service	Yard Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tire Recycling	Waste Tires	12	103	194	286	377	382	389	396	404	411	414	427	428	430	431	433	435	436	438	439	441	442	444	445	447	448
Public awareness of lead-acid batteries	Lead-acid batteries	27	62	95	131	168	170	173	176	179	183	184	190	191	191	192	193	193	194	195	195	196	197	197	198	199	200
<i>Subtotals</i>	-----	39	165	289	417	545	552	562	572	583	594	598	617	619	621	624	626	628	630	632	634	637	639	641	643	646	648
Grand Total	-----	39	165	289	417	545	552	562	572	583	594	598	617	619	621	624	626	628	630	632	634	637	639	641	643	646	648

¹ This table is a part of the implementation schedule required in accordance with ORC Section 3734.53(A)(12).

Sample Calculation:

Assumptions:

F. Household Hazardous Waste (HHW) Management

Although hazardous wastes are regulated by the United States Environmental Protection Agency, household hazardous wastes (**HHW**) are exempt from these regulations. As a result, HHW usually end up in landfills or incinerators. These wastes are often the same types of wastes found in industry and even small amounts in landfills or incinerators can cause significant environmental degradation, including groundwater contamination and air pollution.

Growing concerns with the environmental and safety hazards which can result from landfilling and incineration of HHWs has caused many communities to develop management plans for the safe disposal of HHWs. The Mercer County Solid Waste Management District and the Board of County Commissioners are eager to undertake a HHW Management Program as part of the implementation of the Comprehensive Solid Waste Management Plan. However, the Board will only undertake such a program to the extent and in the manner which is consistent with industry practices, and complies with all regulatory and statutory requirements.

The best way to manage any waste is **NOT** to provide continual disposal outlets, but to promote education on how to reduce its generation. In the table below are the Districts estimates on what kinds of HHW are customarily expected from the general populous, and the best HHW generation estimates for the District.

However, in today's fast-paced society the "quickest and easiest" is not always the most earth-friendly. In fact, as far as the generation of HHW is concerned, it is rarely earth-friendly. For this factor, the District intends to provide in-frequent collections to prevent potentially dangerous HHW from entering the local landfill, along with an educational program aimed at changing the purchasing habits of District residents.

1. Household Hazardous Waste Collection

Household Hazardous Waste Management will be designed in the future to include infrequent collections conducted by a qualified contractor. **The District will not directly handle any Household Hazardous Waste.** It is anticipated that these collections will be separated into low-volume, high toxicity (herbicides, pesticides, mercury, etc) collection and high-volume, low-toxicity materials such as oil and paint.

However, in an effort to persuade the community to the "right track", the District has devised the following programs and activities for Household Hazardous Waste Management. The District reserves the right to change these programs to fit the future needs of the District. The District also reserves the right not to implement these programs and/or activities due to lack of funding, feasibility issues, or a change in the circumstances within the District. The District also reserves the right to implement other, more "up-to-date" programs and/or activities instead of the ones listed here if it is determined that the ones listed below are obsolete.

The most effective way to manage household hazardous waste (**HHW**) is not to produce it at all. The District does not plan to physically "manage" HHW forever. Rather, the District

plans to use education and awareness to entice the public not to generate the HHW at all, rather than dispose of toxic substances the “right way” once every two or three years.

Household Hazardous Waste Management will be redesigned in the future to include regular but not frequent collections conducted by a qualified contractor. As stated before, the **District will not directly handle any Household Hazardous Waste**. It is anticipated that these collections will be separated into low-volume, high toxicity (herbicides, pesticides, mercury, etc) collection and high-volume, low-toxicity materials such as oil and paint. All collection activities are expected to cost approximately \$20,000 each year, inclusive of donations and exclusive of printing, advertising and the costs of other support functions (included in the Educational Fund). Seasonal, low-toxicity collection will be budgeted for \$5,000 per year, and high-toxicity collection events are expected to be conducted triennially (but could be more or less often) and will be budgeted for \$15,000 per year, half of which is expected to be derived from corporate donations.

2. Generation of HHW

Generation of Household Hazardous Waste (HHW) was estimated by using information contained in a report by W.L. Rathje, and D.C. Wilson entitled *Characterization of Household Hazardous Waste from Marin County, California, and New Orleans, Louisiana, 1987*.

It is assumed that the type and amounts of HHW generated in the District are comparable to the average amounts as presented in the report. The following information is presented in the Appendix of the report. The information was compiled from three sources:

1. Geraghty and Miller (n.d.); Report on survey of consumer products containing harmful organic chemicals and having potential of contaminating the groundwater of Nassau County, New York. Geraghty and Miller, Syosset, New York.
2. Curtis and Anderson. 1981. Household Hazardous Waste. Pioneer Valley Planning Commission and Western Massachusetts Coalition for Safe Waste Management, Report to Massachusetts Department of Environmental Management, Bureau of Solid Waste Disposal.
3. Riddley, S.M. 1982. Toxicants in consumer products; report B of the Household Hazardous Waste Disposal Project Metro Toxicant Program No. 1. Waster Quality Divisions, Municipality of Metropolitan Seattle.

ITEM	KNOWN EXAMPLES OF HAZARDOUS INGREDIENTS
Household Cleaners	
Toilet Bowl Cleaner	Trichloro-S-Triazinetrione, Sodium Acid Sulfate or Oxalate, Hydrochloric Acid,

ITEM	KNOWN EXAMPLES OF HAZARDOUS INGREDIENTS
	Chlorinated Phenols
Drain Opener	Sodium Hypochlorite, Sodium Hydroxide Trichlorobenzene, Potassium Hydroxide, Hydrochloric Acid, Trichloroethane
Laundry Soap, Bleach, Dish-Washing Detergent, Bathroom cleaners, Upholstery Cleaners, Floor Cleaners, Other General Purpose Cleaners	Surfactants (LAS and others) Ethoxylated Alcohols, Methylene Chloride, Tetrachloroethylene, Sodium Hypochlorite, Hexachloroethane
Ammonia Based Cleaner	Ammonium Hydroxide, Surfactants (LAS and others), Ethoxylated Alcohols Xylenes, Sodium Hypochlorite Phenols, Ammonia, Diethylene Glycol
Polish (Furniture, Wood, Metal, Vinyl, etc).	Trichloroethane, Petroleum Distillates, Mineral Spirits, Petroleum Solvents, Oxalic Acid, Denatured Ethanol, Isopropanol, Phosphoric Acid
Floor Polish	Diethylene Glycol, Petroleum Solvents, Ammonia
Air Freshener	Alkylphenoxypolyethoxy Ethanol, Isobutane, Propane
Other Household (Oven Cleaner, etc.)	Sodium or Potassium Hydroxide
Automotive Maintenance	
Oil and Transmission Fluid (Grease, Hydraulic Fluid, Motor Oil, All Purpose Oil, etc.)	Petroleum Distillates, Lead
Engine Treatment (Transmission and Motor Oil Additives, Fuel Additives, Carburetor Cleaner, etc.)	Petroleum Distillates, Mineral Spirits, Trichloroethane, Methylene Chloride, Xylenes, Toluene, Methylene Chloride
Antifreeze/Coolant	Ethylene Glycol, Methanol
Auto Wax	Petroleum Distillates
Other Auto (Grease and rust solvents, refrigerants, etc.)	Toluene, Chlorinated Aliphatic Hydrocarbons, Potassium Dichromate
Household Maintenance	
Paint (Latex, Oil base, Art and Model Paints, etc.)	Toluene, Xylene, Methylene Chloride, Halogenated Aromatic Hydrocarbons, Mineral Spirits
Paint Thinner and Stripper (Remover)	Toluene, Chlorinated Aliphatic Hydrocarbons,

ITEM	KNOWN EXAMPLES OF HAZARDOUS INGREDIENTS
	Esters, Alcohols, Chlorinated Aromatic Hydrocarbons, Ketones
Glue (Model, Epoxy, General Purpose, etc.)	Toluene, Methyl Ethyl Ketone, Acetone, Hexane, Methylene Chloride, Asbestos Fibre (Asbestos Cement)
Stain/Varnish/Sealant	Pentachlorophenol, Methylene Chloride, Mineral Spirits, Petroleum, Methyl and Ethyl Alcohol, Benzene, Lead
Other Maintenance (Asphalt, Caulking, Tar Paper, etc.)	Methylene Chloride, Toluene, Trichloroethylene, Benzene, Asbestos, Ketone
Pesticides and Yard Maintenance	
Fertilizer	Concentrated Potassium, Ammonia, Nitrogen, Phosphorus
Pesticides	Aromatic Petroleum Hydrocarbons, Petroleum Distillates, Naphthalene, Xylenes, Carbamates, Chlorinated Hydrocarbons, Organophosphates, Urea, Uracil, Triazines, Coumarin
Herbicides	Chlorinated Phenoxys, Dipyridylis, Nitrophenols
Pet Maintenance (Flea & Tick Treatment Powders and Liquids, Flea and Tick Collars, etc.)	Carbaryl, Dichlorophene, Chlordane, Other Chlorinated Hydrocarbons
Batteries and Electrical	
Auto & Flashlight batteries, solder, etc.	Mercuric Oxide, Sulfuric Acid
Prescription Drugs	
Selected Cosmetics	
Nail Polish Remover, Hair spray, Make-up Remover, Dyes, etc.	Aromatic Hydrocarbon Solvents, Acetone, Ethyl and Butyl Acetate, Toluene, Alcohols, Dibutyl Phthalate
Other	
Pool Chemicals (Acids, Chlorine), Hobby Related Activities, etc.	Sodium Dichloro-S-Triazinetrione

On page 1 of the report by W.L. Rathje, D.C. Wilson, and R.C. Herndon entitled *Characterization of Household Hazardous Waste from Marin County, California, and New Orleans, Louisiana, 1987*, it was concluded that " it appears that, at least,

approximately 0.35 to 0.40 percent of the garbage being discarded (in residential garbage) is hazardous." For purposes of calculations, it will be assumed that .375% of residential waste is HHW. In the *Characterization of Municipal Solid Wastes, 1992 Update* released by the United States EPA and prepared by Franklin Associates, Inc. of Prairie Village, Kansas, it is estimated that approximately 55% to 65% of the municipal waste stream consists of residential waste and that approximately 35% to 45% is commercial waste. For purposes of calculations, it will be assumed that residential waste is 60% of the municipal waste stream (MSW).

For purposes of calculation, it will be assumed that the HHW contained in the Mercer County District is an average of the percentages of HHW contained in the residential waste of the two areas that were examined in the Rathje-Wilson-Herndon report.

By using this information, it is possible to provide rough estimates of the amount and type of HHW generated in the Mercer County District. The estimates calculated below are rough estimates providing a "ball-park" figure for HHW in the District. These estimates are not definite.

	HHW New Orleans	HHW Marin Co.	HHW New Orleans	HHW Marin Co.	HHW Mercer County SWMD District	'95 HHW Mercer County SWMD District
	Tons	Tons	Percent Total	Percent Total	Percent	Tons
Household Cleaners						
Toilet Bowl Cleaner	0.00	2.10	0.0000%	0.0081%	0.0041%	1
Drain Opener	0.10		0.0002%	0.0000%	0.0001%	0
Laundry Soap	47.20	3.40	0.0736%	0.0131%	0.0433%	7
Bleach	0.80	0.30	0.0012%	0.0012%	0.0012%	0
Dish Detergent	3.30	2.80	0.0051%	0.0108%	0.0080%	1
Cleaner	7.00	16.30	0.0109%	0.0629%	0.0369%	6
Ammonia Based Cleansers	0.10	2.10	0.0002%	0.0081%	0.0041%	1
Polish	15.70	4.20	0.0245%	0.0162%	0.0203%	3
Floor Finish	2.20	1.80	0.0034%	0.0069%	0.0052%	1
Air Freshener	0.40	1.70	0.0006%	0.0066%	0.0036%	1
Other Household	7.80	4.30	0.0122%	0.0166%	0.0144%	2
<i>Total Household Cleaners</i>	<i>84.60</i>	<i>39.00</i>	<i>0.1318%</i>	<i>0.1506%</i>	<i>0.1412%</i>	<i>23</i>

	HHW New Orleans	HHW Marin Co.	HHW New Orleans	HHW Marin Co.	HHW Mercer County SWMD District	'95 HHW Mercer County SWMD District
	Tons	Tons	Percent Total	Percent Total	Percent	Tons
Automotive Maintenance						
Oil	121.00	21.00	0.1886%	0.0811%	0.1348%	21
Transmission Fluid		0.50	0.0000%	0.0019%	0.0010%	0
Engine Treatment	0.50	3.30	0.0008%	0.0127%	0.0068%	1
Antifreeze/Coolant	9.60		0.0150%	0.0000%	0.0075%	1
Auto Wax	1.50	2.40	0.0023%	0.0093%	0.0058%	1
Other Auto	3.00	2.90	0.0047%	0.0112%	0.0079%	1
<i>Total Automotive Maintenance</i>	<i>135.60</i>	<i>30.10</i>	<i>0.2113%</i>	<i>0.1162%</i>	<i>0.1638%</i>	<i>25</i>
Household Maintenance						
Paints	120.60	24.30	0.1789%	0.0938%	0.1409%	22
Paint Thinner		0.70	0.0000%	0.0027%	0.0014%	0
Stain/Varnish	18.30	6.40	0.0285%	0.0247%	0.0266%	4
Glue	13.10	4.30	0.0204%	0.0166%	0.0185%	3
Other Maintenance	126.40	36.20	0.1970%	0.1398%	0.1684%	27
<i>Total Household Maintenance</i>	<i>278.40</i>	<i>71.90</i>	<i>0.4178%</i>	<i>0.2776%</i>	<i>0.3557%</i>	<i>56</i>
Pesticides & Yard Maintenance						
Fertilizer		3.20	0.0000%	0.0124%	0.0062%	1
Pesticides		15.90	0.0000%	0.0614%	0.0307%	5
Herbicides	4.40		0.0069%	0.0000%	0.0034%	1
Pet Maintenance	1.80	3.70	0.0028%	0.0143%	0.0085%	1
<i>Total Pesticides/Yard Maintenance</i>	<i>6.20</i>	<i>22.80</i>	<i>0.0097%</i>	<i>0.0880%</i>	<i>0.0488%</i>	<i>8</i>
Batteries and Electrical	76.30	69.00	0.1189%	0.2664%	0.1927%	30
Prescription Drugs	6.80	8.30	0.0106%	0.0320%	0.0213%	3

	HHW New Orleans Tons	HHW Marin Co. Tons	HHW New Orleans Percent Total	HHW Marin Co. Percent Total	HHW Mercer County SWMD District Percent	'95 HHW Mercer County SWMD District Tons
Selected Cosmetics	31.90	9.80	0.0497%	0.0378%	0.0438%	7
Other						
Hobby Related	2.10	4.60	0.0033%	0.0178%	0.0105%	2
Miscellaneous	19.80	3.50	0.0309%	0.0135%	0.0222%	4
<i>Total Other</i>	<i>21.90</i>	<i>8.10</i>	<i>0.0341%</i>	<i>0.0313%</i>	<i>0.0327%</i>	6
GRAND TOTAL	641.70	259.00	100.00%	100.00%	100.00%	158

3. Strategies for Managing HHW

The central objective of HHW management in Mercer County will be to assure the success of the collection events in diverting residual HHW from the landfills to proper disposal and/or recycling methods after education efforts (to minimize generation) are exhausted. To this end, awareness and education about HHW will facilitate this goal, functionally acting as a large publicity campaign to gain understanding and sympathy for the need to minimize generation of HHW and to establish a goal of 100 percent (cumulative) participation during the one-day collection events. One event per year is authorized for the District. However, these events will be on a “special event” basis, as interest and available funds allow.

During these one-day collection events, citizens can bring *specific* household hazardous materials to a designated, neutral, collection site. The residents will be required to have some form of identification proving their residency in the District (driver’s license, utility bill, etc.). The resident will then be required to sign a form stating that the waste is of *household origin*. Materials will then be sorted by a licensed HHW contractor and inventoried by waste type. Sorted materials are then moved to a controlled area, where they are properly packed for shipment to a secured landfill or recycling facility. Priority will be given to recycling all household hazardous wastes feasible.

Of course, **THE** most effective way to manage household hazardous waste (HHW) is not to produce it at all. The District does not plan to provide HHW disposal opportunities forever. Rather, the District plans to use education and awareness to entice the public not to generate the HHW at all, rather than dispose of toxic substances the “right way” once every two or three years.

Household Hazardous Waste Management will be designed to include regular, but not frequent, collections conducted by a qualified contractor. **The District will not directly handle any Household Hazardous Waste.** It is anticipated that these collections will eventually be separated into low-volume, high toxicity (herbicides, pesticides, mercury, etc) collection and high-volume, low-toxicity materials such as oil and paint. High-volume collections are expected to develop as a season service, at an estimated annual cost of \$5,000. High toxicity collections are expected to be triennial (but could be annual) and are expected cost approximately \$15,000 each year, exclusive of printing, advertising and the costs of other support functions.

The District will expand efforts to "network" the community with regular outlets for low-toxicity wastes. Additional materials to be diverted from central collection events will be (at a minimum) household batteries, paint and automotive batteries. The specific local sites will be identified on an information line. The District will institute a pilot program for household battery collection and disposal. The pilot program will incorporate, as locations, one public building as well as one retail location. If the program is successful, the District will consider expanding the program to other locations in future years.

The District will set aside funds toward collection of low volume, high toxicity household hazardous waste as funds are available. Their frequency and procedures will be as deemed necessary by the District. The scope of high-toxicity wastes to be accepted will be determined by the District based on requests, investigations, etc and in consideration of the recommendations of the local Emergency Management Agency, the Ohio EPA, and hazardous waste managers throughout the community. The initial screening of materials desirable for central collection will be selected from the comprehensive list contained in Appendix J.

Household hazardous wastes are a subject of ongoing education for finding alternatives and properly managing the remaining wastes. Periodic collection events are meant to divert the potentially toxic materials from entering the landfill. It is hoped that through proper education and sufficient opportunity, used oil, automotive batteries and household batteries will be managed through a network of private retailers who accept the materials from residents.

a. Informational Networking

The District is proposing to support a local contact network (through the District office) which would answer questions about the potential toxicity of particular products, the alternative products that could be substituted for the hazardous product, and the proper disposal method for the particular product. If implemented, the District will provide financial assistance to defray the costs for maintaining an additional phone line in the county's offices.

b. Exchange Programs

Another possible program is a limited exchange program. A limited number of products used in the home may be recycled or reused by another party. Exchange programs may be implemented to facilitate the reuse of easily recycled materials such as paints. Organizations have had more success with exchanges involving paints than any other product. Theater groups and other non-profit organizations are good candidates to accept these products because their quality requirements are less stringent.

The District is planning to maximize the exchange potential for paints. A paint exchange program may be initiated involving civic service groups coordinating with other organizations that could use such materials. Flyers may be developed and distributed by retail establishments that sell large quantities of paint to inform residents of the program and provide details on how to participate. Additionally, publicity of this program may occur through the other public information campaign strategies discussed previously, including radio and television announcements. Records will be maintained to track what materials were donated and accepted through this program.

Depending on the success for the above program, the District will evaluate the benefits associated with expanding the program and possibly including other materials such as pesticides and household cleaners.