
Section V - PLANNING PERIOD PROJECTIONS AND STRATEGIES

This section focuses upon projections of solid waste generation in the District including residential, commercial, industrial and some special categories of waste. Solid waste originating outside the District that may be brought into the District for disposal during the planning period are projected in this section from information supplied by private solid waste facilities in the District and trends.

Also incorporated in this section are projections for decreases in waste disposal due to anticipated waste reduction activities and disposal restrictions.

A. PLANNING PERIOD

The planning period for this update is 17 years beginning January 1, 2006 to December 31, 2022. The reference year for this plan is 2003.

B. POPULATION PROJECTIONS

Table V-1 presents the population projections for Mahoning County Solid Waste Management District for the 2003 reference year and for each year of the planning period. The population of Mahoning County in 2003 according to interpolation of the Ohio Department of Development, Office of Statistical Research (OSR) population projection was 254,620.

This section projects population changes within the District for the plan period (2006 - 2022). The 2003 District population of 254,620 is used as the baseline year population. The year 2003 is referred to as the baseline year.

The District population is projected to decline by 6.3 percent over the 17-year plan period (2006 - 2022). During this period, population will drop from 251,280 in 2006 to 234,345 in 2022 (Table V-1). Mahoning County's population has been decreasing since 1970. During the time period between the 1980 and 1990 census, the County's population decreased by over 24,000 residents, from 289,487 to 264,806. In 1970, the County had a population of 304,545.

The District's population projections for the 17-year plan period are extrapolated using the 2000 census population for Mahoning County and the population projections for Mahoning County by the Ohio Data Users Center (ODUC) and the Ohio Department of Development, for 2000, 2005, 2010, 2015, and 2020. The percentage of decline for the County population during the five-year interval periods is applied to the baseline year population, and to the projected District populations to interpolate the population for in-between years. For instance, the ODUC projected the County population to be 252,660 in 2005, and 245,760 in 2010 indicating a decline of 2.73 percent (or 0.546% per year). This percentage decrease is applied baseline year population to calculate the total decline over each annual period.

For planning purposes, the following Cities, Villages and townships populations were also updated and reflect the revised population of the District. The following table shows a breakdown of the 2000 Census, and previous SWMP 1996 figures and the percentage of population change.

District Population by Community, 1996 and 2000

<i>COMMUNITY</i>	<i>Population 1996</i>	<i>Population 2000</i>	<i>% Change</i>	<i>COMMUNITY</i>	<i>Population 1996</i>	<i>Population 2000</i>	<i>% Change</i>
Campbell	9,594	9,460	-1.4	Berlin Twp.	2,149	2,240	4.2
Canfield Village	5,576	7,374	32.2	Boardman Twp.	43,375	42,518	- 4.9
Struthers	11,611	11,756	1.2	Canfield Twp.	5,627	7,250	28.8
Youngstown	87,389	82,026	-6.1	Coitsville Twp.	1,912	1,608	-15.9
Beloit	1,119	1,024	-8.5	Ellsworth Twp.	2,183	2,234	2.3
Craig Beach	1,329	1,264	-4.9	Goshen Twp.	3,440	3,281	-4.6
Lowellville	1,271	1,281	0.8	Green Twp.	3,020	3,450	14.2
New Middletown	1,987	1,681	-15.4	Jackson Twp.	2,248	2,167	-3.6
Poland	2,830	2,866	1.3	Milton Twp.	2,768	2,843	2.7
Sebring	4,741	4,912	3.6	Poland Twp.	11,422	11,422	0.0
Washingtonville	427	789	84.8	Smith Twp.	4,002	4,977	24.4
Austintown Twp.	38,120	38,001	-0.3	Springfield Twp.	6,262	6,054	-3.3
Beaver Twp.	5,614	6,466	15.2				

C. WASTE GENERATION PROJECTIONS

1. Residential/Commercial Waste Generation

District population and waste generation rates based on landfill disposal plus recycling data are generally considered to be good parameters when determining and projecting the residential/commercial waste generation for a predominantly urban district such as Mahoning County. Although the rate of waste generation (lbs/person/day) is anticipated to increase during the planning period, the District's total residential and commercial solid waste generation over the 17-year plan period is expected to drop due to the decline of population projected by the Ohio Data Users Center. The total residential/commercial solid waste generation is estimated to decline 1.7 percent from 298,153 tons in 2003 to 293,104 tons in 2022 (Table V-2).

The development of the District's waste generation projections were developed below:

$$\frac{GR \times P \times 365}{2000} = \text{Residential/Commercial waste generation (TPY)}$$

Where:

GR = generation rate (in pounds/person/day) is calculated as a composite rate for residential/commercial waste using the Mahoning County average of 6.42 pounds per person per day for 2003, and the projected lbs/person/day increase in generation rates provided in the Ohio EPA "Estimating Per Capita Residential/Commercial Waste Generation" figures.

P = Population of the District

2000 = Conversion factor (converts pounds into tons)

365 = Conversion factor (converts days into years)

TPY = tons per year

For the future year projections, the rate of increase would reflect the same incremental increase as indicated in the Ohio EPA "Estimating Per Capita Residential/Commercial Waste Generation". These results are presented in Table V-2.

2. Industrial Sector

The results of the 2003 industrial survey performed specifically for development of with the Plan Update were used in conjunction with the State average tons/employee/day values (Format version 3.0 Table JJ-2) to initially project the quantity of waste generated by each SIC code for the reference year.

However, the documented industrial waste generation reflects a much lower tonnage. Adding the tonnage of industrial waste from Mahoning County reported to be landfilled (2003 Ohio EPA FDR 78,867 tons) to the tonnage of industrial waste reused through the materials exchange program (8,240 tons) and adding the tonnage reported to be recycled through brokers (43,535 tons) one arrives at 130,642 tons of documented industrial waste generation. Therefore, the District will utilize the 130,642 documented tons of industrial waste generation as the baseline year's (2003) industrial waste generation.

Examination of historical trends in industrial waste is difficult due to changes in the basis of documented information. Prior to 2000 the reported industrial recycling tonnage had basis in the 1996 industrial survey. In 2000 the YSU CERTT Program re-surveyed industrial recycling activities and found a major discrepancy as a major paper facility had previously reported ALL paper it recycled, not just that generated from within

Mahoning County. Therefore, reported industrial recycling appears to show a marked decline in 2000.

Industrial Waste Trends, 1997 to 1999					
Year	Recycling/ Brokers (tons)	Incineration (tons)	Landfilled (tons)	Total Generation (tons)	% Change
1997	186,527	4,749	34,264	225,540	
1998	186,527	4,749	43,573	234,849	4.1%
1999	186,527	4,749	24,063	215,339	-8.3%

Recycling values reported after 2000 are based on the 2000 CERTT Industrial Survey. Documented industrial waste generation declined 3.5% between 2000 and 2001.

Industrial Waste Trends, 2000 to 2001					
Year	Recycling/ Brokers (tons)	Materials Exchange (tons)	Landfilled (tons)	Total Generation (tons)	% Change
2000	46,944	508	60,229	107,681	--
2001	43,778	4643	55,475	99,253	-3.5%

In 2002 the Materials Exchange Database went online and served both as a means to promote and advertise reusable materials as well as a means to document those industrial reuse activities. In 2002 and 2003 the reported recycling values include values from the 2000 CERTT survey plus materials exchange. Between 2002 and 2003 industrial waste generation increased by 4%.

Industrial Waste Trends, 2002 to 2003					
Year	Recycling/ Brokers (tons)	Materials Exchange (tons)	Landfilled (tons)	Total Generation (tons)	% Change
2002	43,535	6,776	75,231	125,542	
2003	43,535	8,240	78,867	130,642	4%

Due to the new accounting practice implemented in 2002, comparison of 2001 and 2002 cannot establish a valid rate of change. However, the trends, -3.5% (2000 to 2001) and 4% (2002 to 2003) on average, represent a relatively flat actual industrial waste generation trend for Mahoning County.

The baseline 130,642 tons of reported industrial waste from the reference year is utilized in projecting the industrial generation rates for each year of the planning period as presented in Table V-3.

The presumed change in industrial solid waste generation is based on the assumption that industrial waste generation is proportional to industrial employment projections. A decline in manufacturing employment and industrial output is predicted for the District by the Ohio Bureau of Employment Services (OBES). The OBES Data table "Trends in Employment" provides information on Mahoning County employment from 1986 to 2000. Manufacturing employment in Mahoning County declined from 13,497 in 1997 to 12,684 in 2000. This represents an average decline of 1.9% per year in manufacturing employment.

Likewise, Ohio Job and Family Services, Bureau of Labor Market Information prepared a labor market review for the Youngstown-Warren Metropolitan Statistical Area (MSA), which consists of Mahoning and Trumbull Counties in Ohio and Mercer County, Pennsylvania dated August 2003. Overall manufacturing employment is projected to decline by 12.6% between 2000 and 2010 (an average manufacturing employment decline of 1.26% per year) for the region. The observed historical changes in industrial waste generation may be more a matter of improved reporting than actual changes in waste generation. Thus the industrial employment projections are considered the best indicator of change in future industrial waste generation.

Projections of employment change, by SIC, for industries with more than 1,000 employees from Ohio Job and Family Services, Bureau of Labor Market Information were utilized to project the future industrial waste generation. The tons of industrial waste generation in 2003 for each SIC category were multiplied by the annual rate of employment change for that SIC category. For SIC categories with no employment projection provided by the labor market review (i.e. all industry with less than 1,000 employees) the average change of employment, -1.0%, from the listed SIC categories was used. The declining industrial employment, and the observed general trend of declining generation both support the declining projection of industrial waste generation, which was developed directly from the industrial employment projections. Over the planning period industrial waste generation is projected to decrease from 124,709 tons in 2006 to 98,551 tons in 2022 as presented in Table V-3.

3. Total Waste Generation

Using the information generated in the previous portions, Table V-4 was developed to present the Total Waste Generation for the District during the planning period including exempt waste.

Total waste generation is expected to decline, by 32,799 tons or approximately 9.2 percent over the 17-year plan period (2006-2022), as shown in Table V-4. The projected decrease in waste generation projected in Table V-4, from 428,927 tons in 2006 to 396,128 tons in 2022, can be directly attributed to decreased employment in the manufacturing sector compiled with the declining waste generation of the declining population.

The projection for total waste generation includes the projections for residential, commercial, industrial and special categories of waste. An estimation of special waste generation was derived for the baseline year in Section IV-E. Most of the special waste consists of contaminated soil, non-hazardous industrial waste and some construction and demolition waste. The projection of special waste generation is made on the assumption that it will be consistent with recent trends which have averaged 4,437 tons of "exempt" and "other" waste category over the 2000-2003. It is unlikely that the production of these wastes will change significantly.

D. PROJECTION FOR WASTE STREAM COMPOSITION

Projections for the composition residential and commercial solid waste stream were estimated using the Ohio Department of Natural Resources Waste Characterization Study (2003) in conjunction with the composition of the Mahoning County recyclable waste and Franklin Associates projected trends. The projections are summarized in Table V-7.

E. SOURCE REDUCTION AND RECYCLING STRATEGIES

It is the intent of the Mahoning County Solid Waste Management District to implement an updated plan, which addresses and includes the goals established in the 1995 State Plan and Format Version 3. These goals are as follows:

- Goal #1** To ensure the availability of waste reduction alternatives for residential/commercial waste.
- Goal #2** To reduce and/or recycle at least 25 percent of the residential/commercial and/or 50 percent of the industrial waste generated by the year 2000.
- Goal #3** To provide informational and technical assistance on recycling, and source reduction strategies.
- Goal #4** To provide informational and technical assistance on recycling, reuse and composting opportunities.
- Goal #5** To develop strategies managing scrap tires and household hazardous waste (HHW).

Tables V-5 and V-6 provide a projection of source reduction, reuse and recycling activities for residential/commercial programs and the industrial program throughout the planning period. These program will serve to reduce the quantity of waste disposed in landfills. This section describes the status of solid waste reduction and recycling in the District and presents the strategies which the District will employ for waste reduction/recycling to meet the five goals as stated above during the 17 year planning period.

1. Residential/Commercial Waste Reduction Strategies

Residential and commercial recycling is projected for the plan period 2006 - 2022 predicated upon the currently available recyclable materials in the municipal waste stream. The national composition figures for various materials in residential and commercial waste were used to estimate the amount of recoverable materials in the waste stream. The existing level of residential and commercial recycling estimated through survey is used as the baseline rate for recycling.

In the residential/commercial sector, it is the intent of the District to continue to provide available waste reduction programs and activities to a majority of the District's population. The existing waste reduction and recycling programs and activities in the residential/commercial sector will continue to be achieved by the programs, activities and facilities described in Chapter IV-D. The existing and new programs are classified below with the particular goal that each strategy will meet.

<u>Program</u>	<u>Goal #</u>
Opportunity to Recycle Program	
Drop-off Recycling Sites	1,2
Non-subscription Curbside	1,2
Christmas Tree Collection	1,2
Magazine/Catalog Recycling Drive	1,2
Appliance Drive	1,2
Office Paper Recovery Program	1,2
RREAP Rural Recycling and Awareness Program	3
School Fiber Program	1, 2
Waste Tire Removal and Disposal	5
Competitive Funding Program	1, 3, 4
Build America Beautiful	2, 3
Household Hazardous Waste Programs	
HHW Collection	1, 5
Household Battery Collection	1, 5
Electronics Collection	1, 2
Lead-Acid Battery Programs	
Township LAB Collection	5
Recycling Alternatives Directory	3, 4, 5
HHW Collection	5

Litter Programs	
ⁿ Litter and Illegal Dumping Law Enforcement	3
Litter Collection & Adopt-a-Road	3
Recycling Promotional Campaign	1, 3, 4
<i>Institutional Promotional Activities</i>	
Cash for Cans	1, 2
Design a Place-mat Contest	3, 4
Litter Prevention and Recycling Education	1, 3, 4
Environmental Workshops	1, 3, 4
<i>Public Education & Awareness</i>	
Public Presentations	1, 3, 4
Promotional Activities	1, 3, 4
Advertisements	1, 2, 3
Backyard Composting Program	1, 2, 3, 4
Resource Library	1, 3, 4
Pay as you Throw	1, 2
District Web Site	3, 4
ⁿ District Headquarters	1, 2, 3, 4, 5
ⁿ Material Recovery Facility	1, 2
Yard Waste Programs	
Yard Waste Recycling (Composting)	1, 2, 4
ⁿ Leaf Collection Program	1, 2, 4

ⁿIndicates Program or Strategy is “new” and did not exist in the reference year

The following describes the changes to existing programs and activities the District is planning to implement during the planning period:

Drop-off Recycling Sites: Two new Drop-off sites were added in 2004 to bring the total number of drop-off sites to Twenty-five (25). The new locations for 2004 were: Canfield Road Department, 5035 Messerly Rd; and Canfield Township, McCune Field, 5627 Shield Rd. As stated in section IV D., the opening of a third site in Boardman Township located at 8299 Market Street took place during the reference year. This site was only operational for half the year while the recycling center at Shields/Lockwood was being renovated. It is this reason that three sites are listed for Boardman Township. However, the District is only credited with twenty-two because the sites in Boardman were not operational concurrently during the reference year.

In 2005 the District purchased seventeen new, 30-yard roll-off bins. Seven of the bins were to supplement existing drop-off site. Ten (10) bins are deployed to ten (10) new recycling sites, which begin collections in 2006. The (10) ten new site for 2006 are: Austintown Township, Fire Station, 1690 Turner Rd; Austintown Township, Austintown Park, 6000 Kirk Road; Lowellville Village Maintenance Building, 3 West McGaffney Avenue; Youngstown, Martin Luther Lutheran Church, 420 Clearmont Dr.; Youngstown McGuffey Plaza, 795 Garland Avenue; Youngstown ReNu Paints 166 South Meridian Rd.; Youngstown Boys and Girls Club, 2105 Oak Hill; Poland Community Baseball Association, Sheridan Rd; Canfield Township Mill Creek Metro Parks, 7574 Columbiana-Canfield Rd.; and Damascus Fire Station, Goshen Twp.

Another ten (10) bins will be acquired in 2006 for deployment at new sites in 2007. The ten (10) new sites for 2007 are yet to-be-determined. Each community’s coordinator will cover the operation of all new sites. The District’s material collection contract (currently with Phoenix Disposal) has been augmented to address the increase in drop-off sites.

The District assumes an increase in drop-off recycling on several levels. First, an increase in materials accepted has manifested in 2005. Specifically, the collection of all paper publications and the addition of #3 through #5 plastics. The additional plastics are now accepted by Pittsburgh Recycling whom processes all drop-off materials.

The additional fiber materials are a result of Phoenix Disposal securing agreement with Alliance Recycling Center and Pittsburgh Recycling for these additional materials. Secondly, an increase the number of recycling drop-off centers will occur during 2006 and 2007. This will be done with deployment focused on relieving some burden on the more heavily trafficked sites and introducing new sites around recently developed neighborhoods.

Future participation is projected by determining average recycling amounts for all existing sites during 2005 (102.2 tons) and multiplying this number by the intended number of new sites for 2006 and 2007. Using this metric 102.2 (2005 average) \times 35 (expected total sites in 2006) = $3,577$ tons. The same method was used for 2007. A 3% increase throughout the remainder of the planning period was used subsequently. The District feels this number is attainable when utilizing previous and present recycling as a gauge.

All drop-off sites are available to both the residential and commercial sectors of Mahoning County. As a guide, a list of available drop-off sites for the reference year follows:

Austintown Township, Township Building, 82 Ohltown Road	Jackson Township, Fire Station, 229 N. Salem-Warren Road
Austintown Township, Trustee Park, 1075 South Raccoon Road	Milton Township, Township Building, 15992 Mahoning Avenue
Beaver Township, Township Building, 601 West South Range Road	Milton Township, Lake Milton State Park, 2541 Grandview Avenue
Berlin Township, Township Building, 15823 West Akron-Canfield Road, Berlin Center	Poland Township, Road Department, 7474 Clingan Road
Boardman Township, Fire Station, 6169 South Avenue	Smith Township, Maintenance Building, 800 North 18th Street, Sebring
Boardman Township, Township Building, 8299 Market Street *half year	Smith Township, Township Building, 846 North Johnson Road
Boardman Township, Fire Station, 1200 Shields Road at Lockwood Blvd. *half year	Smith Township, Fire Station, 5th Street, Beloit
Coitsville Township, Township Building, 3737 McCartney Road	Springfield Township, Township Building, 3475 East South Range Road
Ellsworth Township, Township Building, 6036 S. Salem-Warren Road	Springfield Township, Water Tower, 10720 Struthers Road, New Middletown
Goshen Township, Maintenance Building, 12649 Seacrist Road, Goshen	Struthers, City Hall, 6 Elm Street
Green Township, Township Building, 12184 Lisbon Road, Greenford	Campbell, City Hall, 351 Tenney Avenue
	Youngstown, Youngstown State University, Harrison and Adams Street

Curbside Recycling: The District's curbside recycling program is a non-subscription program. The curbside program will see small changes aimed at increasing the tonnage of collections. These added efforts are outreach to condominium associations and new developments, and an expanded materials list. The expansion of accepted materials is regarded as the paramount catalyst that may reverse the trend of declining weight. In 2005, the District worked with Allied Waste to expand the type of fiber-based material accepted to magazines catalogs and ad slicks. This is in addition to the traditionally accepted materials: newspaper, metal food and beverage cans, and glass and plastic bottles.

Magazine/Catalog Recycling Drive: This program will be discontinued in its present form beginning in 2006. The District intends on greatly increasing the amount of drop-off sites located in the City of Youngstown beginning in 2006. This increase in drop-off bin sites will provide access to publication recycling, year-round. Thus the need to fund a City of Youngstown collection drive will be obviated.

Office Paper Recovery: Originally, the Mahoning County Commissioners passed a resolution calling on department heads to engage in the practice and this program encompassed all participating Mahoning County and City of Youngstown public offices. A resolution was recently reissued in 2005 to stimulate efforts and increase participation.

In 2005 an expanded program was established to reach out to the commercial sector. The District provides technical assistance and personnel that will result in the collection of commercial high grade, mixed low-grade paper, shredded documents, computer paper and most other paper publications. Participants in the private sector are required to provide their own containment. A subsequent pull schedule is created and maintained based on volume patterns.

The District hopes to enlist one hundred (100) commercial companies the first year and one hundred fifty (150) additional companies every year after, for the duration of the planning period. Utilizing existing data from 2005, an average of nine (9) tons per business per year is the expected yield. Projections are then drafted by adding 9 tons per expected recruitment compounding each year for the planning period.

School Fiber Program: Twenty-two Schools participated in 2003 in a two-stage rollout. The program integrated thirty-two (32) additional schools at the end of 2004, and a total of 81 schools were members in 2005. The remaining of District schools are scheduled to join (84 in total) by the conclusion of 2006.

Future yields are projected by determining average recycling amounts for all participating schools during 2005 (16.78 tons) and extrapolating this number by the intended number of new schools for 2006. Using this metric, $16.78 \text{ (2005 average)} \times 84 \text{ (expected schools)} = 1,409 \text{ tons}$. A flat projection is then utilized since the District doesn't expect much recycling growth after all remaining schools enroll.

Waste Tire Removal & Disposal: During 2004, the District partnered with the City of Youngstown Street Department to recycle 1,695 tons of accumulated tires. The tires were de-rimmed, transported and recycled by Liberty Tire. This amount was not initially listed in the 2004 Annual District Report since the data was not available prior to the reporting deadline.

In 2005, Mahoning County's first a Tire Amnesty Day was conducted. This program was established to replace the small tire grants program that was in operation during previous years. The intent is to offer tire recycling to all residents of Mahoning County and not just within the communities that opted to participate in the grant program.

Projected tire recycling is estimated by applying a 2.79% increase annually throughout the planning period. Support of this was provided by Ohio EPA documenting national trends for tire recycling.

**Ohio Scrap Tire Reuse in Calendar year
2004**

Disposal	23%
Unknown	1%
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Tire derived fuel	6%
Civil Engr	45%
Ground Rubber	3%
Feed Material	18%
Storage	
Used and Retread	3%
Processed Parts	1%
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Total Recycled	76 %

Source: Ohio EPA

Year	Waste Tires Generated	% change (generation)	Tires recycled	Recycling %
1998	265 M	--	177.5 M	66.7%
2001	281 M	3% / yr	218 M	77.5%
2003	290 M	1.6% / yr	233.5 M	80.5%
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Avg. change ('98 - '03)		1.9% / yr		2.745% / yr

Source: Rubber Manufacture's Assoc. (National #'s per OEPA presentation)

These tables show that tire recycling in Ohio is slightly behind national average. However, tire recycling in Ohio is anticipated to grow proportional to the national trends. The National numbers show more waste tires are being generated each year and that a greater percentage of those tires are being recycled each year. Combining the effect of these trends indicates a 2.79% per year increase in tire recycling ($2.745\%/year * (1 + 0.019) = 2.79\%/year$)

New light was also shed on additional data to corroborate these amounts in 2005. Most tires associated with monofill disposal in the reference year were headed to Liberty Tire. Subsequent follow-up calls to Liberty Tire unveiled that the majority of the tires collected were designated for recycling.

Competitive Funding: Beginning in 2007, the District intends to narrow funding to recycling and recycling initiatives only. The program will be available to the same demographic but should spur additional reporting for recycling. Some grants may include recycled plastic containers for public recycling or supplies required for educational purposes. Since there is no available data to support possible recycling yields no amounts have been ascribed to this strategy.

The program criteria have been revamped. The new eligibility criteria have narrowed the scope of eligible projects to now focus strictly on recycling. Thus the Competitive Paving portion of the program will cease with no expenditures anticipated after 2005.

With the narrowed program scope the Competitive Funding program will fund a smaller total dollar amount of projects in the future. The District controls the annual level of grant funding. Future funding levels are budgeted at \$50,000 per year commencing in 2007 through 2010 of the planning period. Continuation of grant awards beyond 2010 will be reviewed on an annual basis based on adequacy of District revenue to be applied towards recycling percentage goals. However, at this time the Competitive Funding program grants are anticipated to cease after 2010.

Competitive Paving: The District will continue to reduce funding levels for this program so that beginning in 2005 the District will conclude funding altogether. Decreased revenue coupled with its discretionary nature contributes to this strategy's imminent departure. The District has decided to invest principally in strategies that will increase the District recycling percentage.

Health Department Enforcement Program: Assumptions: The District provides financial assistance the Mahoning County District Board of Health to defray the costs for the participation of their employees responsible for enforcement of the solid waste provisions, rules adopted and orders and terms and conditions of permits, licenses, and variances issued under those provisions in the training and certification program as required by rules adopted under division (L) of section 3734.02 of the Revised Code;

The Solid Waste District sees no major changes with the Health District in funding or function throughout the planning period.

County/Municipal Assistance: The District provides financial assistance to county and individual municipal corporations and townships within the district to defray their added costs of maintaining roads and other public facilities and of providing emergency and other public services resulting from the location and operation within their boundaries of a composting, energy or resource recovery, incineration, or recycling facility that either is owned by the district or is furnishing solid waste management facility or recycling services to the district

The Solid Waste District sees no major changes with this strategy in funding or function throughout the planning period

Advertisement: The District's media campaign has had great success in establishing the presence of the District and the many services it provides to county residents. The media campaign continues to focus on curbside and drop off recycling opportunities, as well as special collections, educational opportunities for residents, and the hazards of unsafe disposal methods. Currently, the Division contracts with four local broadcast stations and a cable station for airtime. Beyond the use of commercials, the Division engages in morning show live remotes on local TV stations. These remotes feature special collection drives, new drop off site unveilings and shows featuring the education occurring in county schools. In addition, beginning in 2005, the Division has made greater use of local cable channels with shows centered on recycling programs and educational opportunities. The Division has also begun to make use of radio advertisement, particularly for the promotion of special collection events. Print ads are used in most area papers and include use of PSA's. Fliers are printed and distributed at all public events and meetings. The District has upgraded and maintained its website as a constant source of information on the recycling program as well as special collections.

Household Hazardous Waste Collection: Mahoning County intends to reduce the number of collections from two (2) held in 2004 and 2005 to one (1) annual event. This decision is based on both cost and participation factors. During the most recent collection events, there has been a noticeable decline in weight and involvement. This fact, coupled with increased collection costs has forced to District to scale down the number of one-day collection drives. Should the District notice a trend of increased participation we will reevaluate this strategies frequency.

Materials Exchange Program: This strategy is only slightly changed from its original design. Beginning in 2004 the Materials Exchange Newsletter will no longer be printed and mailed. Instead the District has opted to publish the newsletter through an online searchable database. This modification will provide easier navigation and the most up-to-date information to our subscribers.

New Programs

The following describes entirely new programs to be implemented during the planning period which were not available in the reference year 2003.

Leaf Collection Program: This proposed program is a new initiative that seeks to minimize the yard waste impact to our local landfills. The District intends to conduct an eight-week leaf collection for every urban municipality within the county. The timetable for deployment will add one or two municipalities per year compounded to the previous year's additions. Ultimately, the program should incorporate all qualified areas by 2011.

Funding: Initial budgeting was determined by polling local haulers and determining Boardman Township's expense to conduct a similar program during 2003. Subsequent costs are bound by population and municipal geography. All costs in Table VIII-8 represent annual compounding expenditure.

Leaf Collection Implementation Schedule	
Year	Community
2006	Austintown Township
2007	Youngstown
2008	Campbell
2008	Struthers
2009	Canfield Township
2009	Poland Township
2010	Lowellville
2010	New Middleton
2011	Beloit
2011	Sebring

Reporting: All the leaves collected will be unloaded at a local compost facility. Tonnages will be calculated utilizing Ohio EPA's reporting requirement for all class III/IV compost facilities.

Assumptions: The US EPA has placed the average pounds per-person-per-day at .57 lbs for yard waste generation. Anticipated tonnages are calculated by taking 25% of this number which is associated with leaves. We then subtracted an additional 50% for expected participation. The projected landfill impact can be found on tables V-5 throughout the planning period. Each year after 2011 a three percent increase is assumed based on increased participation due increased awareness and education campaigns.

A sample calculation for 2006 is	Austintown Population =	38,001
	38,001 * .57 Lbs per day =	21,661
	21,661 * 365 (for annual rate) =	7,906,108
	7,906,108 * .25 (leaf waste) =	1,976,527
	1,976,527 / 2 (50% participation) =	<u>988,264</u>
	988,264 / 2000 (tons) =	494

Litter and Illegal Dumping Law Enforcement: As per the ORC allowable expenses, Item (7) regarding the enforcement of anti-littering laws and ordinances, the District will have two Mahoning County Sheriff Department deputies conduct surveillance on known illegal dumping sites, patrol to enforce ORC 3767.32 (littering and illegal dumping), ORC 4513.31 (unsecured load), ORC 4511.82 (littering from motor vehicle), and ORC 1547.49 (littering from watercraft). The deputies will cite violators, follow through the investigation phase, cooperate with the City and County Prosecutor personnel, and appear in court for hearings. Convicted violators will be sentenced by cooperating judges for jail time, a fine, a litter collection sentence through community service, or a combination of all three depending upon the severity of the offense.

Residents will be able to report violators through the District's telephone or e-mail capabilities. All reports will be investigated, and appropriate procedures will be followed to insure every legal process is completed in a timely fashion. The goal is to sternly emphasize that littering and illegal dumping have a zero tolerance level in Mahoning County.

The deputies will work cooperatively with the following agencies: Youngstown Litter Control and Recycling Division, Youngstown Health Department, Mahoning County Board of Health and their landfill inspectors, township trustees and other local governmental officials, and the District.

Funding: A budget of \$60,000 annually is provided for this strategy throughout the planning period.

Reporting: Monthly reports are submitted to the District detailing all investigations. Every step of the process is recorded up to prosecution and sentencing if applicable.

Assumptions: The District anticipates this program to greatly impact illegal dumping and blight within Mahoning County. There are no recycling numbers associated with this program

Material Recovery Facility: In 2004, the District employed ms consultants to conduct a feasibility and prospectus study for the purpose of establishing a Material Recovery Facility (MRF) in Mahoning County. The study based its assumptions on a MRF that would receive recyclable materials and provide sorting, processing, baling and other services to produce marketable materials. The study analyzed current recycling rates within the county, market receptors within the area, and historical trends in commodity pricing. The factors analyzed indicate that a Mahoning County based MRF is a feasible project. To insure long-term financial viability, the tonnage of collected and/or available recyclable material must substantially increase.

Ideally the proposed Mahoning County MRF would be a 'clean' facility with paper fiber products and corrugated cardboard handled in a separate stream from container products and other materials.

In May 2005, a committee of concerned citizens was formed, with technical assistance provided by the District and the Mahoning County Commissioners' Special Projects Office, with leadership provided by the Coalition of City Council Presidents – to research the feasibility of the MRF. Attracting a private venture was the most preferred course of action. There were several initiatives underway in 2005 as detailed in this plan that will assist the District in significantly increasing the tonnage of recyclable materials collected, thus making the MRF concept more viable.

The District received a commitment early in 2006 from Recycle Management, Inc. out of Pittsburgh PA to construct and operate a privately funded MRF in Mahoning County. The following information is available regarding the criteria and operations of this new facility.

The proposed physical location of the MRF is in the Village of Lowellville at 8100 South State Line Rd. The facility is anticipated to be approximately 15,000 square feet. It is expected that 8 new jobs will be created to operate the new MRF.

It is proposed that the MRF will receive all of the non-subscription curbside materials for processing (Approx. 5,000 ton). It is also estimated that the MRF will handle approximately 12,000 tons of recyclable material annually. The facility will be under construction in 2006 and it is anticipated to be completed and in operation December 31, 2006. It is anticipated that economic factors, namely transportation/labor expenses, will push private haulers to utilize the local MRF instead of locations outside the District.

Mahoning County Centralized Solid Waste Management District Headquarters: In 2006, the District will begin the process of an internal needs assessment for developing a plan to acquire or build permanent housing for its administration and operation. The District intends to have the needs assessment completed by January 2007 in order to begin the process of building acquisition or construction per Ohio Revised Code sections 307.02 and 307.86 and in compliance with Mahoning County Purchasing policies and procedures. This compliance will ensure that bidding requirements are adhered to and that the cost projections according to detailed specifications remain within the District's allocated funds. In addition, the District will ensure that Construction Projects Bid Criteria, per Resolution 00-422 of the Board of Mahoning County Commissioners, is followed when analyzing any construction bid.

The facility will serve as District Headquarters, the meeting venue for the District's Policy Committee, provide required space for all environmental education and awareness workshops and teacher/educator meetings, and provide safe shelter for the District's vehicles, trailers, inventory and specialty containers. The District Headquarters will be able to accommodate meetings and special activities as related to the Districts plan implementation, including training for waste assessments, compost seminars, and waste-to-energy seminars.

The District has an established capital building fund in the amount of \$1,500,000.00. Initially, during the draft plan phase of the mandated plan update, this fund was envisioned as funds for construction of a Materials Recovery Facility. However, as stated in previous sections of this Plan, a privately owned and operated MRF is being constructed in Mahoning County in 2006. Therefore, the District will allocate these funds for permanent headquarters.

The District, in non-official, preliminary conversations with staff and plan consultants, has anticipated expending funds in the amount of \$900,000 for land acquisition and building, or purchasing an existing structure. Of considerable concern to the District is establishment of a centrally located headquarters for the convenience of all Mahoning County residents. This site would also need to have at least 4,000 square feet. Construction or renovation to an existing structure will be completed utilizing "green building" environmentally sound methods, and using recycled content materials wherever possible. Other criteria in consideration will be access to at least one major freeway or road system, upgrading potential for the District's electronic and computer needs, renovation requirements if an existing facility, Mahoning County building inspection approval, legal clearance or property and green space.

If funds permit, the District will attempt to utilize solar panels to assist in the generation of heat for water and warmth in the winter months. The District will seek to maximize natural light to conserve electricity. The District will continue to institute their strict reuse and recycling policy so that MSW generation is minimal, eventually leading to a Zero Waste system.

The costs for utilities, facility insurance, and maintenance are anticipated at \$30,000 per year, with standard inflationary increases of 3% each year, and these costs are reflected in Table VIII-5.

The District anticipates commencing research on existing properties in early 2007, and a decision regarding whether to purchase or build a headquarters should be reached by the second quarter of the year. The District hopes to have a facility ready to move operations by the beginning of 2008.

It is imperative that the District has adequate and appropriate office space, and a headquarters that is admired and utilized by a maximum number of District residents. Thousands of teachers, officials, interested individuals, college interns, students, and others will visit the facility annually, and many will utilize the environmental education resource section filled with volumes of literature, reference material, fact sheets, computer files, videos, and other items.

The headquarters will not serve as a drop-off location for materials. The District has already adequately provided site for the recovery of electronics, appliances, household hazardous waste, and regular and specialized recyclable materials.

2. Industrial Waste Reduction Strategies

The District intends to continue and expand the programs discussed in Section III and this Section throughout the 17-year planning period. Regarding goals 2, 3, and 4; current and proposed programs and activities in the industrial sector will be sufficient to strive toward the 50% industrial recycling goal of the 1995 State Plan. (Note: the 2001 State Plan has not been legislated into rule, and therefore at this time there is no mandated goal for 66% industrial recycling.)

The waste reduction and recycling programs and activities in the industrial sector will continue to be expanded by the programs, activities, and facilities described in Section IV – D. The existing programs are classified below with

the particular goal that each strategy will meet. The District is adding the position of Commercial/Industrial Specialist and the Waste Assessments Program in 2006 who will work closely with industries to ascertain the best methodology for effective waste reduction. The Specialist will perform free waste characterization studies, and the industry officials will implement realistic methods of waste reduction and recycling with continued technical assistance provided by the District.

Also, the District Specialist, along with the YSU re:CREATE Manager, will be responsible for gathering recycling and waste reduction data from industries as per the minimum reporting guidelines established by the Ohio EPA. Significant quantities are not being reported due to the past failure of setting reporting parameters that distinguish between scrap metal origin and waste stream sectors. The reporting project will end the deficient reporting that has gone on in the past. Reliable and accurate data will be determined and reported.

Table V-6 provides the projection of industrial recycling anticipated over the 17-year planning period.

Opportunities for Recycling – Businesses and Industries

Drop-off Sites	1,2
Office Paper Recovery Program	1,2
Industrial & Commercial/Industrial Hybrid Programs	
CERTT	2
ⁿ re:CREATE/Dump & Run	1, 2, 3, 5
Materials Exchange Database	2
ⁿ Commercial/Industrial Specialist	2
ⁿ Waste Assessments	2

Industrial Sector Program Changes

CERTT: The CERTT program implemented by YSU ceased to exist after 2004. In 2006 a new program “Waste Assessment Program” will serve the industrial sector.

New Industrial Sector Programs

re:CREATE/Dump & Run: The District, in cooperation with Youngstown State University, will launch a reuse awareness project entitled “YSU re:CREATE and Dump and Run”. The re:CREATE manager will collaborate with District personnel on addressing the industrial reuse and waste reduction strategies currently in place for District based industries. The re:CREATE manager will also plan and implement community Dump and Run projects whereby a municipality will provide a special event where an exchange of unwanted, reusable items may occur. This is based on the popular campus Dump and Run project implemented by founder and president – Lisa Heller of Cape Code College.

The management of the Materials Exchange Database and E-newsletter with 6 issues per year (formerly Materials Exchange Newsletter) will be provide by the re:CREATE manager.

Funding: A budget of \$30,000 annually is provided for this strategy beginning in 2006 and continuing throughout the planning period.

Reporting: Monthly reports are provided by the re:Create Manager employed by YSU. Additionally, annual program goals and implementation timelines are required to be presented to the District at the beginning of each year.

Assumptions: The successful Dump and Run projects held at Youngstown State University (YSU) beginning in 2002 resulted in over 5 tons per year of unwanted student material being diverted to charities for reuse. The same concept will be expanded to the community setting. A staging area will be created so that citizens may bring non-

hazardous, reusable items for charities to take and reuse – causing a diversion from the solid waste stream. It is estimated that the District will reuse up to 5,000 tons per year of unwanted community items through this process.

Commercial/Industrial Specialist: Programs utilizing a dedicated District Commercial/Industrial Specialist will be implemented in 2006. The focus will be on reduction, recycling and reporting. The District feels that there is a substantial amount of unreported waste reduction and recycling within these sectors. This assumption is predicated on the amount of unreported recycled and generated materials gathered in the most recent industrial survey. This unified and focused strategy should shed light on unreported activities.

The strategy begins by establishing relationships. Once this has taken shape, an understanding of the manufacturing / production process will take place and recommendations on recycling outlets will be provided. Follow-up waste assessments in partnership with YSU will be conducted to offer consulting on the reduction of post manufacturing waste. Lastly, follow-ups meetings will take place to translate the environmental impact associated with implemented recommendations.

Funding: As a staff member, the funding for this position is grouped under “Admin Salary, District Expenses” in Table VIII-8.

Reporting: As a precursor to involvement in the program all participants will be required to report recycling data to the District. For the purposes of ADR reporting, all recycling weights associated with this program will be connected with the broker. Source reduction will be attributed to the business.

Assumptions: Comparison of state industrial generation averages and local survey figures illustrate large gaps in unreported reduction. The District intends to close these gaps and provide a much improved version of actual waste generation within Mahoning County.

Waste Assessments Program: A revised waste assessment program will be implemented in 2006. With the termination of the Youngstown State University CERTT program, no industrial assessments were conducted for 2005. This program will be re-implemented in 2006. The core focus will be to encourage businesses and institutions to establish waste disposal and production practices that benefit the environment and may introduce a cost benefit. The District will also provide opportunities for recycling and technical assistance for recycling with private haulers.

Inadequate follow-up in the past prevented the District from including waste assessment recommendations towards source reduction. Our revised program should resolve this setback and provide greater flexibility towards reduction measurements. Moreover, it is within this strategy that we may gather unreported waste reduction most effectively. Onsite visits to all industrial locations within the District will help to establish new relationships and expand existing ones.

Funding: This strategy will be a combined effort between the **Commercial/Industrial Specialist and re:CREATE Manager**. The costs associated with those programs will supply the necessary revenue to support this endeavor.

Reporting: A requirement for involvement in the waste assessment program will be the availability for follow-up meetings to measure implementation and effect. For the purposes of ADR reporting, all recycling weights associated with this program will be connected with the broker. Source reduction will be attributed to the business through the Waste Assessment Program for the year the reduction is verified.

The District lobbied the City of Youngstown for passage of an amendment to the original scrap and junk dealers ordinance (in Appendix K). This ordinance passed in early November, 2005 requires all scrap metal processors located in the City of Youngstown to report on a monthly basis to the District the weight of processed metals generated in Mahoning County from residential/commercial and industrial sources, excluding auto bodies, rail cars, and CDD. The reporting rate is 100% compliance thus far. District staff monitor the monthly reports and have inspected facility weight slips to insure accuracy.

Assumptions: The initial 3 months of reported numbers resulting from the scrap metal ordinance totaled 36,160 tons. These break down to 4,136 tons of residential/commercial and 32,025 tons of industrial sources from the 4th quarter (October, November December) of 2004. Multiplying this value by a factor of four to arrive at an anticipated full years worth of metal recycling provides a projection of approximately 140,000 (144,640) tons of total annual scrap metal reporting. Because this value is based on the initial data received by this strategy, there is concern on the accuracy of applying such an estimate over the full planning period. For this reason the District has not applied a full years data projection to the values of Industrial Brokers nor Residential Brokers for 2006. It is conservatively assumed that two thirds of that projection ($140,000 \text{ tons} \times 2/3 = 95,000 \text{ tons}$) may actually be realized. Instead one large jump in recycling, a 5% increase attributable to the anticipated increase in scrap metal reporting is applied to both the Industrial and Residential Recyclers/Brokers. Under this method the anticipated jump in scrap metal recycling numbers is spread over 17-years of the plan period instead of all occurring in one year. In this projection method Tables VI-4 the scrap metal Recyclers/Brokers total 95,021 in year 2022. This will enable to the District to react accordingly in the next plan update cycle once a firm history of scrap metal recycling is established.

As with the previous strategies of this type, the intent is to close gaps in waste generation and recycling within these sectors. The District considers its unique position in providing free cost cutting recommendations will encourage better relationships and subsequently better reporting more reflective of actual District recycling rates.

As part of their duties, the Specialist and Manager will conduct industrial audits throughout the calendar year for industries located within the Mahoning County. Currently, documentation of source reduction activities in the industrial sector is not occurring within the District. Industrial audits performed by District personnel for local industry will identify new waste reduction strategies and will document occurring source reduction practices. This will provide insight to the industrial waste generation observed through the “Disposal + Recycling” practices during the planning period. Anticipated source reduction values attained through waste audits are documented to the Ohio EPA in the ADR. There is no direct cumulative credit of reported source reduction provided through Ohio EPA Facility Reports. Crediting source reduction would actually double count the benefit as the reduced quantity is not shown in the waste generation (disposal + recycling) value. The cumulative benefit of source reduction practices is obtained indirectly. The overall quantity of waste generation decreases; therefore, the recycling that is occurring typically becomes a larger percentage of the total number.

Projecting the anticipated source reduction accurately over the planning period is difficult to near impossible. Changes in a manufacturer’s production or product line can change materials and practices from one year to the next. Larger industries have likely conducted waste audits on their own, in accordance with ISO 14001, and may have already maximized their source reduction potential. In fact, the Ohio EPA (in Format Version 3.0 guidelines) suggests NOT including projections for source reduction in solid waste management plans. Yet, the Ohio EPA does promote source reduction efforts as an important feature and one of the most effective strategies of solid waste planning. Again, the benefit(s) of source reduction practices are attained indirectly as the overall quantity of waste generation decreases.

Pursuant to Ohio EPA’s suggestion, Table V-4 reflects zeroes in each year of the planning period for the Industrial Waste Specialist (Industrial Waste Audits) line item under Industrial Source Reduction. However, the District does certainly anticipate benefits from this strategy. For planning purposes and all other things presumed equal, the anticipated annual source reductions for program planning purposes were developed based on the following conservative assumptions. These annual reductions are cumulative in effect as illustrated in the table below.

The United Nations Environmental Policy document “A Training Manual: Cleaner Production “ identifies that potentially over 50% of the industrial waste generated can be reduced through implementation of source reduction practices. However, this report was dated 1993 and therefore was published just prior to the era of ISO 14001, Environmental Standards Certification Waste Audits. Such audits were typically conducted by large industrial entities to identify waste reduction/cost saving practices. The larger industries typically have ISO 14001 certification or at least have reduced waste to improve their bottom line waste generation. For this reason, the larger industrial facilities probably offer the lowest potential for additional waste reduction.

For program planning purposes, the District conservatively presumes that waste audits on average will be able to identify new practices resulting in a 10% waste reduction. The program will target 12 audits per year, assuming one per month. The projected annual source reduction value presented for each year in Table C is based on the program initially targeting the largest waste producing SIC. An average waste generation value per industry, found in Table A, has been calculated based on the average industrial waste generation values per SIC and an assumption of 10% waste reduction. In the first year of the program it is presumed that the seven (7) industries in SIC 26 and five (5) from SIC 33 will be audited. For the next (five) 5 years of the program it is assumed that (twelve) 12 new waste audits will be conducted on industries within SIC 33. These (65) industries in SIC 33 account for nearly 39% of all the industrial solid waste generated in the District. For planning purposes, the source reduction documented through waste audits is presumed to be cumulative each year. Additionally, industrial waste generation is presumed to be changing proportionally with employment. The rationale is that the waste savings through source reduction practices implemented in prior years, as well as reduction obtained each year by waste audits is projected to change proportionally to employment.

Employment in SIC category 33 is projected to decrease by 1.79% annually as presented in Table V-3. The average tons of waste reduction per audit per industry in 2003 for SIC 33 is 74.71 tons. As shown in Table B, this value of anticipated source reduction changes each year proportional to employment, 2004: 73.37 tons; 2005: 72.06 tons, etc. These annual values are applied to the number of audits anticipated for the current year as well as the cumulative number of audits for previous years.

Tables A and B provide a planning tool for selecting the direction of the industrial specialists waste audits by identifying areas of industry where there is the most potential for source reduction. Table C illustrates the source reduction anticipated annually from the new waste audits, the cumulative effect of the prior year's audits, and the total combined source reduction.

Table A – Industrial Waste Generation per Industry- (2003)

Industrial SIC Codes	2003 Waste Generated (tons)	Number of Industries per SIC	Average (2003) Waste Generated / Industry	(2003) Anticipated Waste Reduced per Audit (10%)
20	8,198	22	372.65	37.27
21	0	0	0.00	0.00
22	160	3	53.49	5.35
23	566	12	47.14	4.71
24	12,228	25	489.11	48.91
25	306	15	20.42	2.04
26	5,365	7	766.49	76.65
27	4,454	80	55.67	5.57
28	7,030	40	175.75	17.58
29	2,477	21	117.97	11.80
30	2,311	23	100.46	10.05
31	278	1	278.09	27.81
32	4,301	36	119.47	11.95
33	50,806	68	747.15	74.71
34	19,506	145	134.52	13.45
35	6,741	121	55.71	5.57
36	1,402	10	140.21	14.02
37	943	20	47.14	4.71
38	666	19	35.05	3.51
39	2,903	63	46.08	4.61
TOTALS	130,642	731	3,803	380

Table B – Source Reduction per Audit by year

Industrial SIC Codes	2003 Source Reduction per Audit	Annual % Employment change (2003-2010)	Waste Reduced from Audit (2004)	Waste Reduced from Audit (2005)	Waste Reduced from Audit (2006)	Waste Reduced from Audit (2007)	Waste Reduced from Audit (2008)	Waste Reduced from Audit (2009)	Waste Reduced from Audit (2010)	Waste Reduced from Audit (2011)	Waste Reduced from Audit (2012)	Waste Reduced from Audit (2013)
20	37.27	-0.0100	36.89	36.52	36.15	35.79	35.43	35.08	34.73	34.38	34.04	33.70
21	0.00	0.0000	--	--	--	--	--	--	--	--	--	--
22	5.35	-0.0100	5.29	5.24	5.19	5.13	5.08	5.03	4.98	4.93	4.88	4.83
23	4.71	-0.0100	4.66	4.62	4.57	4.52	4.48	4.43	4.39	4.35	4.30	4.26
24	48.91	-0.0081	48.51	48.12	47.73	47.34	46.96	46.58	46.20	45.82	45.45	45.09
25	2.04	-0.0100	2.02	2.00	1.98	1.96	1.94	1.92	1.90	1.88	1.86	1.84
26	76.65	-0.0100	75.88	75.12	74.37	73.62	72.89	72.16	71.44	70.72	70.01	69.31
27	5.57	-0.0046	5.54	5.51	5.49	5.46	5.44	5.41	5.39	5.36	5.34	5.31
28	17.58	-0.0100	17.39	17.22	17.05	16.88	16.71	16.54	16.38	16.21	16.05	15.89
29	11.80	-0.0100	11.67	11.56	11.44	11.33	11.21	11.10	10.99	10.88	10.77	10.66
30	10.05	-0.0129	9.91	9.78	9.66	9.53	9.41	9.29	9.17	9.05	8.93	8.82
31	27.81	-0.0100	27.53	27.25	26.98	26.71	26.44	26.18	25.91	25.66	25.40	25.15
32	11.95	-0.0017	11.92	11.90	11.88	11.86	11.84	11.82	11.80	11.78	11.76	11.74
33	74.71	-0.0179	73.37	72.06	70.77	69.50	68.26	67.04	65.84	64.66	63.50	62.36
34	13.45	-0.0332	13.00	12.57	12.15	11.75	11.36	10.98	10.62	10.26	9.92	9.59
35	5.57	-0.0029	5.55	5.53	5.52	5.50	5.49	5.47	5.45	5.44	5.42	5.41
36	14.02	0.0014	14.04	14.06	14.07	14.09	14.11	14.13	14.15	14.17	14.19	14.21
37	4.71	-0.0089	4.67	4.63	4.58	4.54	4.50	4.46	4.42	4.38	4.34	4.31
38	3.51	-0.0100	3.46	3.43	3.40	3.36	3.33	3.29	3.26	3.23	3.20	3.16
39	4.61	-0.0100	4.56	4.51	4.47	4.42	4.38	4.33	4.29	4.25	4.20	4.16

Table C – Anticipated Source Reduction								
Industrial Specialist (Industrial Waste Audits)								
	2006	2007	2008	2009	2010	2011	2012	2013
Annual Audits	874	834	819	804	790	776	600	541
Prior Years	--	863	1,671	2,449	3,200	3,922	4,618	5,288
Cumulative Total	874	1,697	2,490	3,254	3,990	4,698	5,218	5,829

F. LANDFILL AND INCINERATOR DISPOSAL RESTRICTIONS

1. Leaves and Yard Waste

Effective December 1, 1993, no source-separated loads of leaves or yard waste have been accepted for disposal at any landfill within the District. As of 2003 there are 23 private or public composting facilities in the District that have been registered with the Ohio EPA.

Waste haulers that unload within the District are notified of the yard waste restrictions. Enforcement of these restrictions will be the responsibility of the sanitarians of the Solid Waste Inspection Program, Mahoning County Board of Health. Direct action will be taken as required to ensure that haulers comply with the restrictions if problems arise.

2. Whole Waste Tires

Effective January 1, 1993, whole scrap tire loads have not been accepted for disposal at any landfill within the District. A Class II Scrap Tire Recovery Facility is currently located in the City of Youngstown.

Waste haulers that unload within the District are notified of the whole scrap tire waste restriction. Enforcement of these restrictions will be the responsibility of the sanitarians of the Solid Waste Inspection Program, Mahoning County Board of Health. Direct action will be taken as required to ensure that haulers comply with the restrictions if problems arise.

3. Shredded and Whole Waste Tires

Effective January 1, 1995, neither whole nor shredded scrap tire loads have been accepted for disposal at any landfill within the District.

Waste haulers that unload within the District are notified of shredded and whole scrap tire restrictions and are directed to an appropriate facility. Enforcement of these restrictions will be the responsibility of the sanitarians of the Solid Waste Inspection Program, Mahoning County Board of Health. Direct action will be taken to ensure that haulers comply with the restrictions if problems arise.

4. Lead Acid Batteries

Effective January 1, 1993, lead acid batteries have not been accepted for disposal at any landfill within the District.

Waste haulers that unload within the District are notified of the lead acid battery restrictions and are directed to one of several recycling facilities, battery dealers, or distributors that accept used lead acid batteries. Enforcement of these restrictions will be the responsibility of the sanitarians of the Solid Waste Inspection Program, Mahoning County Board of Health. Direct action will be taken as required to ensure that haulers comply with the restrictions if problems arise.

5. Scrap Tire Cleanup

In addition to the Cardinal Recycling, LLC Class II Scrap Tire Recovery Facility that is registered and operates in the city of Youngstown, the BFI Carbon Limestone Sanitary Landfill has obtained approval from the Ohio EPA to beneficially use tire shreds and/or tire bundles in new cell construction.

The Solid Waste Inspection Program of the Mahoning County Board of Health notifies property owners of waste tire dumping violations and oversees cleanup activities. If uncooperative, violators may be prosecuted through the efforts of the Mahoning County Prosecutor's office and the Mahoning County Sheriff's Department.

G. HOUSEHOLD HAZARDOUS WASTE

Household hazardous waste (HHW) comprises approximately one percent of the solid waste stream. Based on the District's reference year total solid waste generation of 430,923 tons, approximately 4,309 tons of HHW are generated annually in the District. Although this is a comparatively small amount of waste, it is of concern due to the problems associated with HHW.

HHW contains many of the same chemicals that industrial substances contain, but usually in lesser volumes at lower concentrations. Since the EPA does not regulate HHW as hazardous waste, it is being placed into sanitary landfills along with other solid waste. This practice can pose health risks and can be hazardous to the environment.

The following is a summary of changes to the strategies and programs the District plans to implement to manage HHW. The objective of the District is to reduce the total amount of HHW going to sanitary landfills by utilizing safe disposal alternatives and techniques to minimize, reuse and recycle HHW.

Household Hazardous Waste Collection: Mahoning County intends to reduce the number of collections from two (2) held in 2004 and 2005 to one (1) annual event. Projections are calculated at a flat rate of 197,341 lbs annually. This was derived from the average of six years worth of event data. Since HHW recycling fluctuates considerably from year to year there is no discernable trend.

Electronics Collection: In 2006 a change in frequency may provide increased tonnages as well as convenience. The District intends on conducting sixteen (16) smaller collections in participating municipalities. Mahoning County anticipates this strategy will be privatized within the next few years and therefore associates no cost from 2010 through the remaining of the planning period.

Education and Awareness: The objectives of the Education and Awareness program will be to inform the public of HHW events. This will include:

- Identification of HHW
- Problems associated with HHW
- Minimization techniques to reduce the amount of HHW
- Recycling methods for HHW
- Proper disposal procedures for HHW
- Disposal and recycling facilities that accept HHW
- Alternative products that could replace HHW

This information will be made available to the public through the use of various mediums. These will include brochures, news releases, web page, and telephone hotline advertising and educational presentations.

The brochures will encompass identification, disposal, reuse and minimization techniques for dealing with HHW. They will also identify HHW disposal and recycling facilities within the District by name, location and types of waste accepted. These brochures will be distributed at public functions, educational programs, government offices and recycling facilities.

Periodically, news releases will be sent to the local media to inform the public of changes in HHW disposal and recycling. They will also inform the public of any new facilities and collection programs for HHW.

An established telephone hotline continually fields questions regarding HHW, HHW alternatives and proper methods of disposal. HHW alternatives and safe disposal can also be found on our website. The employees of the District are required to become familiar with HHW and have reference materials on hand to convey information to the public regarding HHW.

Advertising and educational presentations will target audiences of all ages and social groups. Currently the environmental educational presentations are being given in schools to children of grades K-12, civic groups, local chapters of national associations, preschools, and local governments. These presentations will utilize information on HHW, disposal procedures and alternatives as provided in the Solid Waste Plan.

**MAHONING COUNTY SOLID WASTE MANAGEMENT DISTRICT
SOLID WASTE MANAGEMENT PLAN**

**TABLE V-1
DISTRICT POPULATION PROJECTIONS**

YEAR	TOTAL DISTRICT POPULATION
2003	254,620
2004	253,640
2005	252,660
2006	251,280
2007	249,900
2008	248,520
2009	247,140
2010	245,760
2011	244,842
2012	243,924
2013	243,006
2014	242,088
2015	241,170
2016	240,006
2017	238,842
2018	237,678
2019	236,514
2020	235,350
2021	234,798
2022	234,245

2004 -2022 Source of information: Ohio Department of Development,
Office of Strategic Research Projections 2005-2030

**MAHONING COUNTY SOLID WASTE MANAGEMENT DISTRICT
SOLID WASTE MANAGEMENT PLAN**

**TABLE V-2
DISTRICT RESIDENTIAL/COMMERCIAL WASTE GENERATION**

YEAR	TOTAL DISTRICT POPULATION	PER CAPITA GENERATION RATE (lbs/person/day)	TOTAL RESIDENTIAL / COMMERCIAL GENERATION (TPY)
2003	254,620	6.42	298,153
2004	253,640	6.47	299,320
2005	252,660	6.52	300,469
2006	251,280	6.54	299,745
2007	249,900	6.56	299,011
2008	248,520	6.58	298,267
2009	247,140	6.60	297,513
2010	245,760	6.62	296,748
2011	244,842	6.64	296,534
2012	243,924	6.66	296,312
2013	243,006	6.68	296,084
2014	242,088	6.70	295,849
2015	241,170	6.72	295,607
2016	240,006	6.74	295,057
2017	238,842	6.76	294,498
2018	237,678	6.78	293,930
2019	236,514	6.80	293,354
2020	235,350	6.82	292,769
2021	234,798	6.84	292,939
2022	234,245	6.86	293,104

1. Increase in per capita waste generation based on recommended projected annual change (lbs/person/day) provided by Ohio EPA guideline "Estimating Per Capita Residential/Commercial Waste Generation, Sept 4, 2002".

Sample Calculation:

2003: $254,620 * 6.42 * 365 / 2,000 = 298,153$ tons of residential/commercial waste where:

254,620 = district population in 2003

6.42 = lb/person/day based on 2003 Ohio Solid Waste Facility Data Report & 2003 Annual District Report

365 = number of days per year

2,000 = conversion from pounds to tons

2004: $6.42 + 0.05 = 6.47$ lbs/person/day;

$6.47 \text{ lbs/person/day} \times 253,640 \text{ people} \times 365 \text{ days/year} \times 1 \text{ ton}/2000 \text{ lbs} = 299,320 \text{ Tons/year}$

**MAHONING COUNTY SOLID WASTE MANAGEMENT DISTRICT
SOLID WASTE MANAGEMENT PLAN UPDATE**

**TABLE V-3
PROJECTED INDUSTRIAL WASTE GENERATION**

SIC ¹	Employment change per yr	TONS OF INDUSTRIAL WASTE GENERATION PER YEAR																			
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
20	-0.01	8,198	8,116	8,035	7,955	7,875	7,797	7,719	7,641	7,565	7,489	7,414	7,340	7,267	7,194	7,122	7,051	6,981	6,911	6,842	6,773
22	-0.01	160	159	157	156	154	153	151	150	148	147	145	144	142	141	139	138	137	135	134	133
23	-0.01	566	560	554	549	543	538	533	527	522	517	512	507	501	496	491	487	482	477	472	467
24	-0.0081	12,228	12,129	12,030	11,933	11,836	11,740	11,645	11,551	11,457	11,365	11,273	11,181	11,091	11,001	10,912	10,823	10,736	10,649	10,563	10,477
25	-0.01	306	303	300	297	294	291	288	286	283	280	277	274	272	269	266	263	261	258	256	253
26	-0.01	5,365	5,312	5,259	5,206	5,154	5,102	5,051	5,001	4,951	4,901	4,852	4,804	4,756	4,708	4,661	4,615	4,568	4,523	4,478	4,433
27	-0.0046	4,454	4,433	4,413	4,392	4,372	4,352	4,332	4,312	4,292	4,273	4,253	4,233	4,214	4,195	4,175	4,156	4,137	4,118	4,099	4,080
28	-0.01	7,030	6,960	6,890	6,821	6,753	6,686	6,619	6,552	6,487	6,422	6,358	6,294	6,231	6,169	6,107	6,046	5,986	5,926	5,867	5,808
29	-0.01	2,477	2,453	2,428	2,404	2,380	2,356	2,332	2,309	2,286	2,263	2,240	2,218	2,196	2,174	2,152	2,131	2,109	2,088	2,067	2,047
30	-0.0129	2,311	2,281	2,251	2,222	2,194	2,165	2,137	2,110	2,083	2,056	2,029	2,003	1,977	1,952	1,927	1,902	1,877	1,853	1,829	1,805
31	-0.01	278	275	273	270	267	264	262	259	257	254	252	249	246	244	242	239	237	234	232	230
32	-0.00170	4,301	4,294	4,286	4,279	4,272	4,265	4,257	4,250	4,243	4,236	4,228	4,221	4,214	4,207	4,200	4,193	4,186	4,178	4,171	4,164
33	-0.0179	50,806	49,897	49,004	48,126	47,265	46,419	45,588	44,772	43,971	43,183	42,410	41,651	40,906	40,174	39,454	38,748	38,055	37,373	36,704	36,047
34	-0.0332	19,506	18,858	18,232	17,627	17,041	16,476	15,929	15,400	14,889	14,394	13,916	13,454	13,008	12,576	12,158	11,755	11,364	10,987	10,622	10,270
35	-0.0029	6,741	6,722	6,702	6,683	6,664	6,644	6,625	6,606	6,587	6,568	6,549	6,530	6,511	6,492	6,473	6,454	6,435	6,417	6,398	6,380
36	0.0014	1,402	1,404	1,406	1,408	1,410	1,412	1,414	1,416	1,418	1,420	1,422	1,424	1,426	1,428	1,430	1,432	1,434	1,436	1,438	1,440
37	-0.0089	943	934	926	918	910	902	894	886	878	870	862	855	847	839	832	825	817	810	803	796
38	-0.01	666	659	653	646	640	633	627	621	615	608	602	596	590	584	579	573	567	561	556	550
39	-0.01	2,903	2,874	2,845	2,817	2,789	2,761	2,733	2,706	2,679	2,652	2,626	2,599	2,573	2,548	2,522	2,497	2,472	2,447	2,423	2,398
TOTAL TPY		130,642	128,623	126,646	124,709	122,813	120,956	119,137	117,354	115,608	113,897	112,221	110,578	108,968	107,390	105,843	104,326	102,840	101,382	99,953	98,551

1. The Change per Year of Employment for SIC Codes 24, 27, 30, 32-37 was obtained from *The Ohio Department of Job and Family Services, Job Outlook to 2010, Youngstown-Warren MSA* publication. This change of employment was available for only those industries that employed more than 1,000 employees. For the industries that employed fewer than 1,000 employees, an average change of employment value was calculated to be -0.01. This value is the average of the reported change of employment for SIC Codes 24, 27, 30, 32-37.

Sample Calculations:

Reported Change in Employment:

SIC Code 24 for Year 2004: 2003 value * (1+ change in employment)
12,228 * (1+ -0.0081) = 12,128.95

Calculated Average Change in Employment:

SIC Code 20 for Year 2004: 2003 value * (1+average change in employment)
8,198 * (1+-0.01) = 8,116.02

**MAHONING COUNTY SOLID WASTE MANAGEMENT DISTRICT
SOLID WASTE MANAGEMENT PLAN UPDATE**

**TABLE V-4
TOTAL WASTE GENERATION FOR THE DISTRICT
DURING THE PLANNING PERIOD**

YEAR	RES/COM	INDUSTRIAL	EXEMPT ¹ and OTHER	TOTAL	POPULATION	GENERATION RATE LB/PERS/DAY
2003	298,153	130,642	2,188	430,983	254,620	9.27
2004	299,320	128,623	4,473	432,416	253,640	9.34
2005	300,469	126,646	4,473	431,588	252,660	9.36
2006	299,745	124,709	4,473	428,927	251,280	9.35
2007	299,011	122,813	4,473	426,297	249,900	9.35
2008	298,267	120,956	4,473	423,696	248,520	9.34
2009	297,513	119,137	4,473	421,122	247,140	9.34
2010	296,748	117,354	4,473	418,576	245,760	9.33
2011	296,534	115,608	4,473	416,615	244,842	9.32
2012	296,312	113,897	4,473	414,683	243,924	9.32
2013	296,084	112,221	4,473	412,778	243,006	9.31
2014	295,849	110,578	4,473	410,900	242,088	9.30
2015	295,607	108,968	4,473	409,048	241,170	9.29
2016	295,057	107,390	4,473	406,920	240,006	9.29
2017	294,498	105,843	4,473	404,813	238,842	9.29
2018	293,930	104,326	4,473	402,729	237,678	9.28
2019	293,354	102,840	4,473	400,666	236,514	9.28
2020	292,769	101,382	4,473	398,624	235,350	9.28
2021	292,939	99,953	4,473	397,365	234,798	9.27
2022	293,104	98,551	4,473	396,128	234,245	9.27

1. Projection for Exempt and Other waste based on average tons of landfilled asbestos, exempt and other waste from Table 14 of OEPA Facility Data Reports 2000 thru 2003 (6688, 7139, 1877, and 2188 respectively) for Mahoning SWMD.

**MAHONING COUNTY SOLID WASTE MANAGEMENT DISTRICT
SOLID WASTE MANAGEMENT PLAN UPDATE**

**TABLE V-5
RESIDENTIAL/COMMERCIAL WASTE REDUCTION STRATEGIES**

STRATEGY	MATERIAL ³ REDUCED AND/OR RECYCLED	TONS REDUCED/RECYCLED																			
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SOURCE REDUCTION STRATEGIES																					
SUBTOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECYCLING STRATEGIES																					
CURBSIDE	Fe, NonFe, G, Al	4,318	3,887	3,556	5,646	5,702	5,759	5,817	5,875	5,934	5,993	6,053	6,114	6,175	6,237	6,299	6,362	6,426	6,490	6,555	6,620
DROP OFF RECYCLING	Fe, NonFe, C, G, L/A, O, Al	1,971	2,286	2,555	3,577	3,684	4,599	4,737	4,879	5,025	5,176	5,332	5,491	5,656	5,826	6,001	6,181	6,366	6,557	6,754	6,956
SCHOOL FIBER PROGRAM	office paper	100	427	1,359	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Collection Drives																					
- Christmas Tree Recycling Program		9	47	24	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
- Office Paper Recovery Program	office paper	0	0	900	2,250	3,600	4,950	6,300	7,650	9,000	10,350	11,700	13,050	14,400	15,750	17,100	18,450	19,800	21,150	22,500	23,850
- Appliance Drive	white goods	186	133	84	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
- Electronics Drive	equip	40	67	71	72	72	73	74	75	76	77	78	78	79	80	81	82	82	83	84	84
- Magazine/Catalog Recycling Drive	mag./ phonebooks	15	12	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead Acid Battery Program	L/A	10	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Household Battery Collection	HHW	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Household Hazardous Waste Collection	HHW	22	37	38	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Cash-for-Cans	Al	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Litter Collection and Adopt-A-Road Programs	All	112	136	136	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
RECYCLERS/BROKERS	All	12,502	16,378	20,514	21,540	22,617	23,748	24,935	26,182	27,491	28,866	30,309	31,824	33,415	35,086	36,841	38,683	40,617	42,648	44,780	47,019
TIRE RECYCLING & DISPOSAL	tires	91	1,762	46	47	49	50	51	53	54	56	57	59	61	62	64	66	68	70	71	73
<i>re:CREATE</i>				1,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
<i>COMPOSTING:</i>																					
YARD WASTE ²	Res. Yard Waste	16,980	5,076	6,076	6,258	6,446	6,639	6,839	7,044	7,255	7,473	7,697	7,928	8,166	8,411	8,663	8,923	9,190	9,466	9,750	10,043
LEAF COLLECTION PROGRAM	Res. Leaves	-	-	-	494	1,561	1,837	2,218	2,257	2,334	2,404	2,476	2,550	2,627	2,706	2,787	2,871	2,957	3,045	3,137	3,231
SUBTOTAL		36,370	30,269	36,392	46,639	50,486	54,410	57,726	60,769	63,924	67,148	70,455	73,849	77,333	80,911	84,589	88,370	92,259	96,263	100,385	104,631
OTHER WASTE REDUCTION STRATEGIES																					
INCINERATION		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL		36,370	30,269	36,392	46,639	50,486	54,410	57,726	60,769	63,924	67,148	70,455	73,849	77,333	80,911	84,589	88,370	92,259	96,263	100,385	104,631

1. The 2004 ADR reported 67 tons of tires recycled. However, after the submittal of the ADR, the District received documentation regarding the City of Youngstown and Liberty Tire Remediation Project quantities. This was a one time clean-up program, which resulted in 1,695 tons of tires recycled.

2. In 2004, an error in reporting from Boardman Township Composting facility was discovered. The discovery of this error accounts for the dramatic decrease in yard waste composting.

3. Fe - Ferrous; NonFe - NonFerrous; C - Cardboard; Pl - Plastic; P - Paper; G - Glass; L/A - Lead-Acid Batteries; Com - Composites; O - Other; Al - Aluminum.

Curbside - 2005 based on average 4% annual decrease based on 1998-2003, 2006 based on 140% increase due to addition of materials, 1% annual increase thereafter.

Drop-off bins / Buyback 2005 actual data. Subsequent years based on average amount per site (102.2 tons/site) and multiplying by planned site additions.

Commercial Office Paper Recovery - 2005: 100 companies at 9 tons per company. Then 150 companies added to program annually.

SCHOOL OFFICE PAPER PROGRAM - 2005: Extrapolated from 6 months worth of data and adding 33% (off during summer). 2006: Based on remainder of schools being added to program and average of 14.5 tons per school. 3% increase each year thereafter.

RECYCLERS/BROKERS - Projected increases from the new reporting resulting from the amended City of Youngstown Ordinance for Scrap Metal Processing Facilities.

Re:Create - Program anticipates to facilitate the reuse of 5,000 tons per year of materials.

Projection Sample Calculation:

Year 2005 calculation: 100 companies x 9 tons a year generation = 900 tpy.

Year 2006 calculation: additional 150 companies x 9 tons a year generation = 1,350 tpy + 900 tpy from the previous year = 2,250 tpy.

**MAHONING COUNTY SOLID WASTE MANAGEMENT DISTRICT
SOLID WASTE MANAGEMENT PLAN UPDATE**

**TABLE V-6
INDUSTRIAL WASTE REDUCTION STRATEGIES**

STRATEGY	MATERIAL REDUCED AND/OR RECYCLED	TONS REDUCED/RECYCLED																			
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
INDUSTRIAL SOURCE REDUCTION STRATEGIES																					
<i>Commercial/Industrial Specialist (Industrial Waste Audits)</i>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECYCLING STRATEGIES																					
INDUSTRIAL RECYCLERS/BROKERS		43,535	43,535	45,712	47,997	50,397	52,917	55,563	58,341	61,258	64,321	64,321	64,321	64,321	64,321	64,321	64,321	64,321	64,321	64,321	64,321
MATERIAL EXCHANGE DATABASE		8,240	8,000	-	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633	5,633
SUBTOTAL		51,775	51,535	45,712	53,630	56,030	58,550	61,196	63,974	66,891	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954
OTHER WASTE REDUCTION STRATEGIES																					
INCINERATION		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL		51,775	51,535	45,712	53,630	56,030	58,550	61,196	63,974	66,891	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954	69,954

For Industrial Facilities See Tables III-5 and IV-6.

Industrial Recycling projected to increase 5% annually (thru 2012) in response to new reporting requirements placed on industrial recycling brokers by resolution.

Projection Sample Calculations:

Material Exchange Database:

<u>Year</u>	<u>Tonnage</u>	
2000	508	shown in Table IV-8 IND
2001	4,643	shown in Table IV-8 IND
2002	6,776	shown in Table IV-8 IND
2003	8,240	
2004	8,000	

By averaging the reported tonnage between the years 2000 and 2004: 5633.4 tons

Material Exchange Database tonnage expected vary but on average will be consistent with previous years average of 5,633 tons.

Industrial Recycling reported from Oct/Nov 2005.

If assumed to be representative of full year, total ind recycling = 136,182 tons/yr for 2005.

However, early reporting practice may need debugged to assure proper reporting (reported value should exclude auto bodies etc).

Industrial Source reduction value stated here as 0 tons due to nature of source reduction. Reduction is anticipated from this program as discussed in the narrative.

**MAHONING COUNTY SOLID WASTE MANAGEMENT DISTRICT
SOLID WASTE MANAGEMENT PLAN UPDATE**

**TABLE V-7
PROJECTIONS OF MATERIALS GENERATED IN THE MUNICIPAL WASTE STREAM:
2003 and 2010**

Waste Stream Type	Percentage of Weight Generated 2003	Tons of Res/Com Waste Disposed 2003	District Recycled 2003	Percentage of Weight Generated 2003	Tons of Res/Com Waste 2003	Percentage of Weight Generated 2010	Tons of Res/Com Waste 2010
Paper and paperboard	35.2%	92,147	12,825	35.2%	104,972	41.8%	124,050
Glass	5.3%	13,874	1,839	5.3%	15,713	5.7%	16,920
Ferrous metals	5.9%	15,445	242	5.3%	15,687	5.3%	15,730
Aluminum	1.4%	3,665	752	1.5%	4,417	1.4%	4,160
Other Non-Ferrous	0.7%	1,832		0.6%	1,832	0.6%	1,780
Plastics	11.3%	29,581	328	10.0%	29,909	9.7%	28,790
Rubber and Leather	2.9%	7,592		2.5%	7,592	3.1%	9,200
Textiles	4.5%	11,780		4.0%	11,780	4.2%	12,470
Wood	5.8%	15,183	14,118	9.8%	29,301	7.8%	23,150
Other materials	1.7%	4,450	245	1.6%	4,695	1.7%	5,050
Food Wastes	11.7%	30,629		10.3%	30,629	6.4%	19,000
Yard Trimmings	12.1%	31,676	5,980	12.6%	37,656	10.8%	32,170
Misc. Inorganics	1.5%	3,927	41	1.3%	3,968	1.4%	4,273
Total	100.0%	261,783			298,153	100.0%	296,748

2003 Based on Percentages from ODNR 2003 Waste (Landfilled) Characterization Study plus District Recycling

2010 Percentage from USEPA / Franklin Associates