

# APPENDIX A:

## Additional Information Regarding The Selected System

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## EVALUATION OF RECYCLING

The following provides additional information regarding implementation and evaluation of various components of the Selected System.

In order to evaluate the current system and identify needs for future programming, the Solid Waste Planning Committee conducted a "S.W.O.T" process --- identifying strengths, weaknesses, opportunities, and threats of the current solid waste management system. This process spanned the course of several meetings, a summary of which follows:

### **SWOT Discussion Topics Washtenaw County Solid Waste Planning Committee Summary/Compilation of All Sessions**

The following general threats were identified:

- Rapid growth throughout County
- Expectations for same quality of life with increased pressures and growth
- Increased need for services
- NIMBY (not in my backyard)
- Public perception

The following specific areas were discussed:

1. **Clean Community**: Including community 'clean ups' and other efforts aimed at small quantities such as household hazardous waste or conditionally exempt small quantity generators of solid waste.

Strengths:

- Citizens and communities have a commitment to a "clean community"
- Some enforcement is occurring for illegal dumping

Weaknesses:

- Small quantity generators of hazardous waste, exempt from regulations, are landfilling harmful materials
- No collection service provided to small quantity hazardous waste generators
- None or little enforcement of these illegal dumping ordinances
- Unregulated dumps/salvage yards
- Piles of used tires (e.g. Town & Country)

Vision:

- Network of disposal sites throughout county (for HHW and solid waste) to decrease illegal dumping
- More education on non-toxic alternatives to common hhw materials
- Develop regional, cooperative solutions to meeting needs
- Greater enforcement of local regulations

## 2. **Residential Recycling (Drop-Off & Curbside)**

### Strengths:

- Several material recovery facilities in area
- Strong desire for recycling (residential)
- Drop-off Stations throughout County are well used
- Western Washtenaw Recycling Authority programs
- Local community (Ypsi, Ypsi Twp, Ann Arbor) programs
- County programs

### Weaknesses:

- Harsh ordinances/regulatory barriers for haulers such as reduced service hours and allowable routes (residential and commercial)
- Un-staffed drop-off stations often misused by citizens and businesses
- Hard to site drop-off stations (especially in rural communities); existing sites are going to other uses
- Liability and mess at drop-off stations
- Recycling drop-off stations being used by non-community members
- Lack of disposal options for durable goods (computers, white goods, etc.)

### Vision:

- Establish strong goals for overall recovery
- Source reduction needs to be emphasized as the top management priority
- Regional drop-off centers for recycling throughout County
- Link consideration of waste management with design prior to construction; recycling and solid waste removal are generally an afterthought
- Convenience of recycling should match that of disposal (equivalence should be criterion)
- Evaluated across sectors (SF, MF, COM, etc.)
- Explore efficiencies of drop-off's & curbside; optimize recycling services; get more for less

## 3. **Multi-Family Recycling**

### Strengths:

- Ann Arbor's multi-family housing programs

### Weaknesses:

- Very few multi-family recycling programs occurring throughout County
- Multi-family recycling programs are harder to implement

## 4. **Commercial Recycling**

### Strengths:

- Businesses have interest

### Weaknesses:

- Too easy for businesses to throw away; little incentive to recycle
- Not enough recognition given to businesses that have successful programs

### Vision:

- Increase commercial recycling opportunities
- Place heavy emphasis on source reduction before recycling

- Link with business emphasis on waste reduction (ISO 14000, etc.)
- Link consideration of waste management with design prior to construction; recycling and solid waste removal are generally an afterthought
- Identify barriers
- Increase convenience
- Assign to commercial task force to explore alternatives and look at techniques
- Create a goal and/or objective(s)

## 5. **Yard Waste/Composting**

### Strengths:

- County Master Composter Program

### Weaknesses:

- Backyard burning in some communities
- Problems with fall leaves and brush after storms
- Handling/providing options to citizens difficult for rural communities

### Vision:

- Yard waste drop-offs as alternatives
- Enhance backyard composting/ grass cycling initiatives
- Regional processing centers for yard waste

## 6. **Processing**

### Strengths:

- Commingled capability at area material recovery facilities

### Weaknesses:

- Lack of markets

## 7. **Construction and Demolition Recovery**

### Strengths:

- Programs exist in area (Calvert's etc.)

### Weaknesses:

- C&D large portion of waste stream and not addressed in great detail

### Opportunities:

- Increased promotion of existing program (such as Calvert's, Reuse center, others)
- Track generation/data/capacity
- Develop markets for new durable goods
- Address electronic component salvaging

### Threats:

- Increased amount of durable goods needing to be disposed (i.e. computer monitors)

## 8. **Disposal**

### Strengths:

- Adequate disposal capacity for over 10 years

Weaknesses:

- Space for future landfills
- Future of BFI capacity
- Free market for disposal
- Excessive capacity / low disposal costs

**9. Recycled Content/Markets**

Strengths:

- City/County purchasing policies
- Lots of MRF's in area

Weaknesses:

- Weak markets
- Beyond our control

Opportunities:

- Create demand for recycled products
- Area could be model
- Work with schools and universities (i.e. broaden overall procurement policies)
- Build upon pollution prevention (P2) initiatives
- Explore joint purchasing (re-activate government buying cooperative)
- Buy Recycled Business Alliance (NRC)
- Form recycled information alliance
- Coordination of sales
- Material via collaboration between facilities
- Explore management challenges
- Explore regional markets (cooperative with rest of Michigan)
- Focus beyond paper
- Support developing markets
- Protection by County for weak markets
- Create interest bearing account for market stabilization
- Long term private sector partnership to decrease market fluctuations

Threats:

- Collection infrastructure could fall apart if markets weaken
- Need to develop some mechanism for market stabilization

**10. Organization/Management**

**A. Funding**

Strengths:

- Revenues received by County from BFI
- Ability to develop programs with BFI revenues

Weaknesses:

- Not enough funding for regional programs
- Public ignorant of real costs (no full cost accounting)
- Funding from BFI is limited
- Distribution system for Community Revenue Sharing can be further improved (include recycled content requirement)

- Expand Pay-as-You Throw Approach (unit based fees)
- Some community programs are not self-sustaining

Vision:

- Direct funds to communities with “transitional programs” to help address “unmet” needs
- Build incentives for residents to reduce waste and recycle into the system (e.g. pay for disposal, recycle for free)
- Dispel the myth that recycling is “free”

**B. Ordinances**

Strengths:

- Some local ordinances are being enforced

Weaknesses:

- Harsh ordinances/regulatory barriers for haulers such as reduced service hours and allowable routes (residential and commercial)
- 28 separate communities trying to regulate haulers

**C. Recycling Incentives**

Strengths:

- Strong educational and public relations effort

**D. Data**

Strengths:

- County tracking process

Weaknesses:

- More accurate data needed to help prioritize funding and programs
- Benchmark data needed (lbs./capita, waste sorts, etc.)

Vision:

- Implement a system for continuous evaluation

**E. Coordination**

Strengths:

- WWRA communities working together for recycling
- County can facilitate growth of services

Weaknesses:

- Not enough funding for regional programs
- 28 separate communities trying to regulate haulers

Vision:

- Communities (such as WWRA) working together to address waste
- Regional cooperative approach to meeting needs (hhw, drop-off recycling, enforcement, etc.)

**11. Source Reduction**

Strengths:

- County Programs (incl. 4 R's guide, Pollution Prevention network, Household Hazardous Waste Collection/Education program, Master Composter Program, Waste Knot, ReTAP)
- Availability of funds

Weaknesses:

- Difficult to track/measure
- Difficult to implement
- Not enough participation

Opportunities:

- Link to other programs (e.g. HHW, yard waste)
- Use of incentives
- Recycling Education
- Technical assistance/assessment (ReTAP)
- Target funding (Green Backs, community revenue sharing)
- Commercial/Industrial easiest target (many opportunities; ReTAP, waste exchange, etc.)
- Awards/Waste Knot
- Increased Data Tracking

In addition to the Solid Waste Planning Committee, the Washtenaw County Consortium for Solid Waste Management also identified strengths and weaknesses of the current solid waste system at a meeting held on May 29, 1998. A summary of their findings follows:

### **SWOT Discussion Summary** **Washtenaw County Consortium for Solid Waste Management**

**Strengths in the Current Solid Waste Management System:**

- Washtenaw County Consortium for Solid Waste Management group, which includes members from 28 communities within Washtenaw County
- Michigan's bottle deposit law
- Washtenaw County Household Hazardous Waste collections
- Ease and low cost of recycling to Washtenaw County residents in some communities
- Diversity of materials collected for recycling
- Educational efforts targeted towards schools
- County level advocacy of recycling and waste reduction
- Master Composter outreach program
- Recognition programs such as Waste Knot and Environmental Excellence
- All Washtenaw County communities have recycling programs available
- Western Washtenaw Recycling Authority and its grass-root beginnings
- Local tire collection programs
- Washtenaw County Pollution Prevention Coalition
- Waste reduction and recycling are less costly than landfilling when looking at full cost accounting
- County has a wide variety of resources available to promote and further waste reduction and recycling
- Success of local spring and fall clean-up programs
- Fewer farm "dumps" in backyards
- City of Ann Arbor is recognized as one of the top 20 recycling programs in the nation by the Institute for Local Self Reliance
- Some communities have multi-family recycling projects

- Cooperation of communities
- Low landfill disposal fees decrease the amount of litter on roadways
- Roadside dumping has decreased
- The BFI contract generates revenue for recycling and waste reduction programs
- Grass root support from County residents

**Weaknesses:**

- Low demand for purchasing recycled-content materials
- Depressed recycling markets
- Business community isn't recycling enough
- Difficult to create effective education
- Not enough educational efforts for composting
- Difficult to track waste/gather data on waste generation
- Not enough multi-family recycling pilot programs in many communities
- High cost of recycling to municipalities
- Lack of a volume-based fee for citizen garbage disposal
- Distance to recycling drop-off sites in rural communities
- Frequency of drop-off
- Lack of composting activities in many communities
- Not enough educational efforts geared towards individuals who think recycling takes too much time
- Many items are exempt from the Michigan bottle deposit law
- Lack of markets for many plastic types
- Landfill fees are low, decreasing the incentive to recycle and reduce
- Cost of tire disposal
- Reduction of BFI revenue creates a decline in the funding communities receive

**DETAILED FEATURES OF RECYCLING AND COMPOSTING PROGRAMS:**

List below the types and volumes of material available for recycling or composting.

**Establishing Diversion Goals**

Washtenaw County's Solid Waste Plan calls for the creation and implementation of an aggressive program to increase overall diversion rates from current levels to 38% in 2005 and 45% in 2010, measured by weight. The Solid Waste Planning Committee (SWPC) established these goals through a methodical process spanning the course of several months.

First, the committee evaluated current waste generation, diversion, and disposal data. Statistics were compiled in two major categories, residential (households) and commercial/industrial (businesses). From these studies it was determined that approximately 37% of the County's waste stream originates from the residential sector and 63% - nearly 2/3 - from the commercial/industrial (C/I) sector.

**Commercial/Industrial Sector**

In order to better understand waste flows within the commercial/industrial sectors, businesses were grouped by Standard Industrial Code (SIC). Annual reports from waste generators were evaluated, and utilized in conjunction with historical waste generation studies. From this process it was determined that three industry classifications; 1) manufacturing, 2) retail trade, and 3) services comprised over 82% of the total C/I waste stream.

These three groups were then evaluated more closely to identify the specific types of businesses that generate the majority of waste within each industry classification. A summary of those statistics follows:

**Exhibit A-1**

**Waste Generation and Diversion in the Service Sector**

Description	Empl.	Firms	Days	Waste Gen. Rate (lbs/day)	Total Waste Gen. (tons/year)	Total Waste Div. (tons/year)	Div. %	Total Disposed (tons/year)
Hospitals	16,092	6	7.0	4.30	12,109	1,816	15%	10,293
Business Services (advertising, mailing, photocopying)	10,470	533	5.0	4.75	6,217	932	15%	5,284
Health Services, excluding hospitals	6,876	639	5.0	6.00	5,157	825	16%	4,332
Engineering & Management Services	6,114	481	5.0	4.75	3,630	545	15%	3,086
Auto Repair Services & Parking	1,116	170	5.0	20.70	2,888	318	11%	2,570
Hotels & Other Lodging Places	1,298	56	7.0	10.00	2,272	341	15%	1,931
Automotive Repair Shops	685	115	5.0	20.70	1,843	203	11%	1,641
Social Services	3,005	306	5.0	4.75	1,784	357	20%	1,427
Membership Organizations	2,287	303	5.0	4.75	1,358	244	18%	1,113
Amusement & Recreation Services	1,274	132	6.5	5.75	1,190	179	15%	1,012
Motion Pictures	1,123	41	7.0	5.75	1,130	124	11%	1,006
Personal Services (laundry, cleaning, barber, shoe repair)	1,426	227	5.0	4.75	847	127	15%	720
Educational Services	1,253	74	5.0	4.75	744	149	20%	595
Legal Services	753	169	5.0	4.75	447	67	15%	380
Services -administrative and auxillary	613	13	5.0	4.75	364	91	25%	273
Miscellaneous Repair Services	322	62	5.0	5.75	231	25	11%	206
<b>TOTALS</b>	<b>54,707</b>			<b>5.41</b>	<b>42,211</b>	<b>6,343</b>	<b>15%</b>	<b>35,868</b>

**Exhibit A-2**

**Waste Generation and Diversion in the Retail Trade Sector**

Description	Empl.	Firms	Days	Waste Gen. Rate (lbs/day)	Total Waste Gen. (tons/year)	Total Waste Div. (tons/year)	Div. %	Total Disposed (tons/year)
Eating & Drinking Places	12,143	543	6.5	23.00	45,384	4,992	11%	40,392
New & Used Car Dealers	2,067	37	6.5	45.00	15,720	6,288	40%	9,432
Food Stores (grocery, meat mkt, veggie mkt, bakeries)	3,060	186	6.5	15.00	7,757	2,017	26%	5,740
General Merchandise Stores (Dept. & variety stores)	3,812	28	6.5	5.75	3,704	741	20%	2,963
Misc. Retail (drug, liquor, books, gift, novelty, etc.)	4,030	442	6.5	5.75	3,916	1,331	34%	2,585
Apparel & Accessory Stores	1,396	158	6.5	5.75	1,304	196	15%	1,109
Furniture & Home Furnishing Stores	1,336	132	6.5	5.75	1,248	212	17%	1,036
Building Materials & Garden Supplies	1,085	71	6.5	5.75	1,054	211	20%	843
Gasoline Stations	910	107	6.5	5.75	884	97	11%	787
Retail - administrative and auxillary	1,035	13	5.0	4.75	639	128	20%	511
Auto & Home Supply Stores	246	31	5.0	10.00	320	64	20%	256
Unclassified Retail	109	N/A	6.5	5.75	106	21	20%	85
<b>TOTALS</b>	<b>31,229</b>			<b>16.31</b>	<b>82,038</b>	<b>16,298</b>	<b>20%</b>	<b>65,739</b>

**Exhibit A-3**

**Waste Generation and Diversion in the Manufacturing Sector**

Description	Empl.	Firms	Days	Waste Gen. Rate (lbs/day)	Total Waste Gen. (tons/year)	Total Waste Div. (tons/year)	Div. %	Total Disposed (tons/year)
Transportaiton equipment	8,429	16	6.5	16.70	23,789	11,895	50%	11,895
Printing & publishing	4,646	99	6.5	52.50	41,222	30,916	75%	10,305
Industrial machinery & equipment	6,679	93	6.5	17.50	19,753	9,877	50%	9,877
Instruments & related products	3,993	42	6.5	17.50	11,809	5,905	50%	5,905
Fabricated metal products	3,285	55	6.5	17.50	9,715	4,858	50%	4,858
Electronic & other equipment	1,793	43	6.5	17.50	5,303	2,651	50%	2,651
Rubber & plastic products	1,750	27	6.5	17.50	5,176	2,588	50%	2,588
Manufacturing administrative & auxillary	4,124	36	5.0	4.75	2,449	441	18%	2,008
Unclassified Manufacturing	727	N/A	6.5	17.50	2,067	1,034	50%	1,034
Food & kindred products	532	14	6.5	19.80	1,780	1,139	64%	641
Paper & allied products	432	5	6.5	17.50	1,278	639	50%	639
<b>TOTALS</b>	<b>36,390</b>			<b>21.36</b>	<b>124,341</b>	<b>71,942</b>	<b>58%</b>	<b>52,399</b>

Taking into consideration the information above, recovery goals were established for specific commercial/industrial sectors, as follows:

**Hospitals: Current recovery = 15% (1,816 tons). Increase diversion rate to:**

Goal	Percent Diversion	Tonnage Diversion
2005 Goal	25%	3,215
2010 Goal	40%	5,303

**Eating & Drinking Establishments: Current recovery = 11% (4,992 tons). Increase diversion rate to:**

Goal	Percent Diversion	Tonnage Diversion
2005 Goal	15%	7,229
2010 Goal	28%	13,909

**Manufacturing: Current recovery = 58% (71,942 tons). Increase diversion to:**

Goal	Percent Diversion	Tonnage Diversion
2005 Goal	67.5%	89,129
2010 Goal	75%	102,084

**Remaining C/I Sectors: Current recovery = 22% (23,769 tons). Increase diversion to:**

Goal	Percent Diversion	Tonnage Diversion
2005 Goal	26%	30,206
2010 Goal	28%	33,532

The commercial/industrial diversion rates listed above can be combined to obtain an overall commercial/industrial diversion goal as follows:

Industry	2005 Goal (tons)	2010 Goal (tons)
Hospitals	3,215	5,303
Eating/Drinking Estab.	7,229	13,909
Manufacturing	89,129	102,084
Remaining C/I industries	30,206	33,532
<b>TOTAL DIVERSION</b>	<b>129,779</b>	<b>154,828</b>

In order to meet the County's overall recovery goals, infrastructure and programs must be developed to increase recovery throughout the C/I sector, with a particular emphasis on hospitals, eating and drinking establishments, and manufacturers as indicated above. Washtenaw County's Plan calls for the creation of a specialized Commercial/Industrial Program Task Force (CITF) that will be charged with developing an

Implementation Action Plan to address these issues. For additional information on the CITE, please refer to page III-46 of the Selected Strategy.

**Residential Sector**

**Community Based Evaluation**

Concurrent with evaluating waste streams of the C/I sector, the SWPC evaluated similar statistics from the residential sector. Performance statistics of local recovery programs from each municipality were reviewed, as provided on Page II-2 of the Background Database. It was determined through this process that another specialized task forces should be formed, the Intergovernmental Program Task Force (IPTF). This group will be charged with developing an Implementation Action Plan to strengthen local community recovery programs.

A subcommittee was also appointed to examine and compare diversion rates of peer communities with those of Washtenaw County’s communities. These peer communities were identified and used to select what might be considered low (conservative) and high (aggressive) tonnage diversion goals for Washtenaw County’s residential sector. These low and high diversion goals were compared with the material-based evaluation (see below) of the residential sector to obtain the five-year and ten-year diversion goals for the residential sector.

**Material Based Evaluation**

In addition to the process described above, the SPWC also considered the composition of the waste stream to help establish overall recovery goals. After identifying the composition of landfilled waste, it was determined that two product categories, paper and organics, comprised a significant portion of the waste stream. Current recovery levels for each material were calculated, and projections were made for increased recovery in five and ten year increments, as follows:

**Food waste: Currently 17,632 tons of residential food waste is landfilled each year. Divert the following amounts through source reduction and on-site, home based technologies:**

Goal	Percent Diversion	Tonnage * Diversion
2005 Goal	2.5%	478
2010 Goal	10%	1,995

*NOTE: These rates are reflected in the waste generation rate, not the recycling rate.*

**Paper: Currently 38,891 tons of residential paper products are landfilled each year. Divert the following amounts in the future:**

Goal	Percent Diversion	Tonnage * Diversion
2005 Goal	15%	6,325
2010 Goal	25%	10,999

**Other recyclables (plastic, metals, glass, etc.): Currently 68,528 tons of residential “other recyclables” are landfilled each year. Divert the following amounts in the future:**

Goal	Percent Diversion	Tonnage * Diversion
2005 Goal	3%	2,229
2010 Goal	8%	6,202

\* Total tonnage diversions have been adjusted to reflect projected population increases

**Yard Waste Diversion: Current recovery rate = 12.2% (20,520 tons). Increase total recovery to:**

Goal	Percent Diversion	Additional Tonnage Diversion (tons) *	Total Tonnage Diversion (tons) *
2005 Goal	13.3%	3,433	23,963
2010 Goal	14.5%	6,298	26,818

\* Total tonnage diversions have been adjusted to reflect projected population increases

The residential diversion rates listed above can be added to the 1997 baseline recycling and yard waste diversion rates to obtain an overall residential diversion goal as follows:

Residential Waste Type	Present Diversion (tons)	2005 Goal (tons)	2010 Goal (tons)
Base Recycling Rate	24,605	24,605	24,605
Base Yard Waste (compost) Rate	20,520	20,520	20,520
Additional Food Waste	0	478	1,995
Additional Paper	0	6,325	10,999
Additional Other Recyclables	0	2,229	62021
Additional Yard Waste	0	3,443	6,298
<b>TOTAL DIVERSION</b>	<b>45,125</b>	<b>57,600</b>	<b>70,619</b>

### Overall County Diversion Goals

The diversion goals for the Residential and Commercial/Industrial sectors can be added together to obtain Washtenaw County's overall diversion goals as follows:

Sector	2005 Waste Gen. (tons)	2005 Diversion Goal (tons)	2005 Diversion Goal (%)	2010 Waste Gen. (tons)	2010 Diversion Goal (tons)	2010 Diversion Goal (%)
Com./Ind.	309,308	129,779	42.0%	318,837	154,828	48.6%
Residential	180,171	57,600	32.0%	184,954	70,619	38.2%
<b>TOTAL</b>	<b>489,479</b>	<b>187,379</b>	<b>38.3%</b>	<b>503,791</b>	<b>225,447</b>	<b>44.8%</b>

### Peer County Comparison

Another component of the subcommittee's evaluation of County diversion goals was to compile brief profiles of model "benchmark" solid waste programs from counties with similar demographics to those of Washtenaw County. Data was compiled primarily through phone interviews and county web sites on the following counties: Orange County, North Carolina; Lane County Oregon; Ramsey County, Minnesota; Dakota County, Minnesota; Dane County, Wisconsin; Santa Clara County, California; and Mercer County, New Jersey.

The peer counties had current diversion rates ranging from 38% to 44%, all of which exceeded

Washtenaw County's current diversion rate of 32%. Some counties had solid waste management plans that called for ambitious increases in future diversion rates (up to 61% by 2006), while others did not even have county-level solid waste management plans. The success of these peer county programs can be attributed to numerous factors, such as: county-owned landfills, state mandated mandatory recycling laws, aggressive pay-as-you-throw programs, and state financial grants and diversion-based incentives. In almost all peer counties studied, well-organized county-level education and outreach programs were considered essential to successful diversion rates.

Due to the varied and complex nature of each County's programs, it was impractical to standardize the data into a simple but accurate format for comparison with Washtenaw County's Solid Waste Management Plan and solid waste programs. However, the data gathered on these benchmark peer counties may serve as a useful foundation for a more in-depth study to be conducted as deemed necessary by the Commercial and Intergovernmental Task Forces.

## **COORDINATION EFFORTS:**

**Solid Waste Management Plans need to be developed and implemented with due regard for both local conditions and the state and federal regulatory framework for protecting public health and the quality of the air, water, and land. The following states the ways in which coordination will be achieved to minimize potential conflicts with other programs and, if possible, to enhance those programs.**

**It may be necessary to enter into various types of agreements between public and private sectors to be able to implement the various components of this solid waste management system. The known existing arrangements are described below which are considered necessary to successfully implement this system within the County. In addition, proposed arrangements are recommended which address any discrepancies that the existing arrangements may have created or overlooked. Since arrangements may exist between two or more private parties that are not public knowledge, this section may not be comprehensive of all the arrangements within the County. Additionally, it may be necessary to cancel or enter into new or revised arrangements as conditions change during the planning period. The entities responsible for developing, approving, and enforcing these arrangements are also noted.**

Ultimate responsibility for implementing the Solid Waste management Plan rests with the Washtenaw County Board of Commissioner's (BOC) as part of its duties of general governance. The BOC has charged the Washtenaw County Division of Public Works (DPW) to be cognizant of any pertinent ordinances or approved land use plans or wellhead protection plans within the County, and any pertinent restrictions or ongoing commitments contained in plans for air quality, water quality, or waste management which may be required to meet state or federal standards. Any county-level decisions affecting current or anticipated programs for solid waste management, air quality, water quality, or land use planning will be made in consultation with the County planning commission and County Review Group.

## **COSTS & FUNDING:**

**The following identifies potential funding sources that could be utilized to meet the necessary management, capital, and operational and maintenance requirements for each applicable component of the solid waste management system.**

Each community within Washtenaw County facilitates its own method of coordinating solid waste collection and disposal. Many communities allow their citizens to individually contract with a service provider. Some communities choose to negotiate a community contract with a service provider to collect and dispose of a community's waste and a few communities have chosen to fund their own services through any combination of the following funding options. The Washtenaw County Division of Public Works supports many community programs with the BFI capacity fee that is collected by the County.

### **1) Volume Based Fee Structures (commonly referred to as "Pay as you Throw")**

Generators pay in proportion to the amount of wastes they set out for collection. Volume based rate systems typically require that residents purchase special bags or stickers, or they offer generators a range of service subscription levels. When generators pay for the amount of waste they produce they have an incentive to reduce it.

### **2) Special Assessments through Public Act 185 and Public Act 188**

Municipalities, or the Washtenaw County Board of Public Works at the request of a municipality, could establish special assessments, to fund local solid waste and recycling programs. The special assessment must be linked to a benefit to the property owner and would be collected through the property tax bill.

### **3) Hauler licensing**

With its existing authority under the state Public Health Code, the County may pass a regulation to regulate haulers and establish associated fees for public health purposes; or, with the participation of individual local units of government, the County may create a licensing program and establish fees for haulers operating within the County.

### **4) Countywide ordinances**

Under the County's existing authority, the County has the ability to establish fees for landfill surcharges and county provided services, or with the participation of individual local units of government for other solid waste and recycling related programs.

### **5) Public Act 138 (limited to residential households)**

A county, through an inter-local agreement with municipalities, may impose a surcharge on households within the county of not more than \$2.00 per month or \$25 per year per household for waste reduction programs and for the collection of consumer source separated materials for recycling, composting or household hazardous waste.

### **6) Matching contributions of funds from municipalities**

Pooling of resources from municipalities may be an option to fund regional programs.

### **7) Other financing mechanisms as identified**

## **EVALUATION SUMMARY OF THE SELECTED SYSTEM:**

**The solid waste management system has been evaluated for anticipated positive and negative impacts on the public health, economics, environmental conditions, siting considerations, existing disposal areas, and energy consumption and production which would occur as a result of implementing this Selected System. In addition, the Selected System was evaluated to determine if it would be technically and economically feasible, whether the public would accept this Selected System, and the effectiveness of the educational and informational programs. Impacts to the resource recovery programs created by the solid waste collection system, local support groups, institutional arrangements, and the population in the County in addition to market availability for the collected materials and the transportation network were also considered. Impediments to implementing the solid waste management system are identified and proposed activities that will help overcome those problems are also addressed to assure successful programs. The Selected System was also evaluated as to how it relates to the Michigan Solid Waste Policy's goals. The following summarizes the findings of this evaluation and the basis for selecting this system:**

### **Environmental Conditions and Public Health**

Positive impacts to the County's environmental condition are expected to occur as a result of the selected system. The continuing and increased emphasis on waste reduction and reuse will decrease the amount of materials being landfilled and recycled. The decrease in materials being disposed of in area landfills will reduce the need for a County's landfill space. Increased composting will produce nutrient rich material for agricultural uses, potentially reducing the amount of chemicals being used.

### **Siting Considerations**

The selected system does not allow for the siting of any new landfills or incinerators within the County. This reinforces the County's municipal solid waste management priorities of waste reduction and recycling. By allowing only for the siting of transfer stations and material recovery facilities, the County is increasing the ease of recycling for residents, while decreasing the need for landfill disposal.

### **Existing Disposal Areas**

The selected system will have potential positive impacts on existing disposal areas. An increased emphasis will be placed on waste reduction and reuse for solid waste management, with landfilling being used as a last resort option. This process will help to maximize the County's use of landfill space.

### **Energy Consumption and Production**

The selected system's emphasis on waste reduction and reuse could potentially cause a decrease in energy consumption; by reducing and reusing waste items, the energy needed to produce and transport new materials is decreased. Methane reclamation systems constructed in the area landfills produce energy by reclaiming valuable resources from the waste stream.

### **Technical/Economical Feasibility**

The selected system is both technically and economically feasible for Washtenaw County. The County currently has the infrastructure in place to support recycling activities and the facilities to support waste landfilling options. The revenue the County receives from the Browning-Ferris Industries, Inc. landfill provides funding for various waste reduction, reuse, and recycling activities. The Pay-As-You-Throw option of waste reduction will also provide economic incentives to County citizens to employ more waste reduction and recycling practices. Furthermore, placing an emphasis on recycled-content product purchasing could create more markets for recyclable materials, thereby increasing the economic viability of recycling.

### **Public Acceptance**

It is anticipated that the selected system will meet with public acceptance. Washtenaw County is an environmentally conscious county. It is anticipated that citizens will embrace a system that puts an increased emphasis on waste reduction, reuse, and recycling, using landfilling as a last resort option for disposal.

### **Effectiveness of the Educational and Informational Programs**

Programs in place from the 1989 Plan put the majority of emphasis on recycling for municipal solid waste disposal. The selected system, which puts the prime emphasis on waste reduction as the preferred method of municipal solid waste disposal, will therefore necessitate the creation of new educational and informational programs.

### **Impediments to Implementing the Selected System**

The encumbrance of measuring waste reduction and reuse could impede the successful implementation of the selected system. The difficulty in measuring the success of the waste reduction initiatives could prove to be an obstacle in defining which areas of the program need extra attention. If specific areas of weakness cannot be identified, then the success of the program might be compromised. An increased public education effort will need to take place in order to ensure a successful program. Furthermore, a method for waste reduction measurement will have to be developed and implemented.

### **Other Impacts**

The County's current resource recovery programs could need expansion in order to support the expected increase in recycling volumes. The availability of recycling markets for additional materials will also need to be researched in order to expand the County's current programs.

## **ADVANTAGES AND DISADVANTAGES OF THE SELECTED SYSTEM:**

**Each solid waste management system has pros and cons relating to its implementation within the County. Following is an outline of the major advantages and disadvantages for this Selected System.**

### **ADVANTAGES:**

- Clearly aligns with the established goals and objectives of the plan.
- Material is diverted from the waste stream and prevented from landfill disposal.
- Reduced stress on natural resources, thereby extending the supply of raw materials.
- Avoided landfill disposal costs of diverted materials can be substantial.
- Land requirements for recycling and composting are minimal to moderate.
- Application of composted material to the soil is environmentally sound.
- There are no documented environmental hazards resulting from waste reduction and composting.
- An emphasis on purchasing recycled content products can create and expand markets for recycled materials.

### **DISADVANTAGES:**

- Quantifying waste reduction is very difficult.
- Public participation is required.
- Adequate education, ongoing promotional programs, and market development are required.
- Organization and implementation problems may exist with new programs.
- Cost-effectiveness varies with waste reduction, recycling, and composting programs depending on developing technologies, market value, volume of materials handled, and public participation.
- Landfills are a land-intensive disposal option.
- Creating new public education programs dealing with waste reduction are resource and labor intensive activities.

**Note: the following document, Washtenaw County's Rural Waste Generation Study, is provided for informational purposes only.**

## **Washtenaw County's Rural Waste Generation Study Published August 1995**

### **BACKGROUND**

Washtenaw County's Act 641 Solid Waste Management Plan (Plan) calls for a 30% diversion of the solid waste stream from landfill disposal. In order to determine the County's progress in meeting this goal, it is necessary to determine the total amount of recyclables and compostables collected as well as the total amount of solid waste disposed.

Several communities can accurately report these statistics for the residential sector. These communities, typically larger in size, either provide their own municipal collection or contract for community-wide services. These communities are often referred to as "high control" because they are able to collect and maintain accurate solid waste statistics over time.

Unlike the larger communities in the county, many rural communities do not have community-wide collection programs. Citizens in these communities typically subscribe individually with a private hauler for waste removal services. Tracking solid waste and recycling data is difficult for these communities because there are often several companies that provide service within each municipality. In addition, trucks generally service more than one jurisdiction on a route, which further complicates data tracking. Often referred to as "low control," these communities have limited ability to collect and maintain accurate solid waste statistics.

Typically, waste generation rates for these "low control" communities are determined by applying national waste generation rates to current population figures. Franklin & Associates has reported the national average for waste generation between 3.5 - 4.2 pounds per person, per day. The purpose of Washtenaw County's study was to determine actual generation rates and to evaluate whether national averages are realistic to apply to our communities.

Ideally, these studies would be conducted on a quarterly basis throughout a variety of rural communities. Data collected from surveyed communities could be extrapolated to other communities that have similar demographics and collection programs. Over time, these studies will lead to more accurate local information than currently available.

### **BENEFITS OF A WASTE GENERATION STUDY:**

- Allows waste generation figures to be calculated for "low control" communities
- Serves as a mechanism to verify the applicability of national averages to our communities
- Enables comparisons to be made between communities with different recovery programs
- Helps determine the effectiveness of waste reduction efforts over time
- Identifies areas/communities that need specific attention

### **PROJECT GOALS**

#### **Short Term**

- To determine the total amount of waste generated by households in a selected community

- To extrapolate data to other Washtenaw County communities with similar characteristics and demographics

### **Long Term**

- To track recovery and generation rates over time
- To compare rates between urban and rural communities
- To compare rates between communities with different recovery programs

## **METHODOLOGY**

Public Works staff worked in conjunction with Mister Rubbish to perform a waste generation study in June of 1995. A description of the process follows:

1. DPW staff followed a collection truck through a residential subscription route in Ann Arbor Township.
2. Staff counted the total number of stops and noted whether or not each household had waste, recyclables or both set-out for collection.
3. Upon completion of the route, staff accompanied the truck to the transfer station where the materials were weighed.
4. From the numbers recorded, staff determined set-out, recycling and generation rates.
5. The same procedures were followed the following week on the same route.
6. Results were compiled to compute a two week average.

## **DEMOGRAPHICS**

The most recent statistics estimate the population of Ann Arbor Township as 3,793 and the number of households as 1,589. It should be noted that this particular study did not encompass all 1,589 households, but a select route which we feel is representative of the entire community.

Waste removal for residences is handled on an individual subscription basis, as the Township does not provide waste removal or recycling services. The majority of homeowners, however, contract with Mister Rubbish.

In order to promote recycling, the Township provides 25 free recycling bags to all residents that contract with Mister Rubbish. Residents are instructed to place solid waste into regular trash bags, barrels, or in certain cases a cart that is provided. Recyclables are to be placed inside a plastic yellow recycling bag and placed next to the solid waste for collection.

One truck collects both solid waste and recyclables. The vehicle has a split-body so that solid waste materials are placed on one side and recyclables on the other to prevent contamination. Each side of the truck has a self-compacting mechanism.

## RESULTS

The **Set Out Rate** refers to the total number of households that set-out a bag (or bags) for recycling, as follows:

<b>Set Out Rate</b> =	$\frac{\text{Number of households that set out recyclables on collection day}}{\text{Number of households served on collection day}}$	
Week One:	$\frac{180}{314}$	= 57.3 %
Week Two:	$\frac{169}{304}$	= 55.6 %
Average:	$\frac{349}{618}$	= 56.5 %

From this study, we can observe that over half of the households on this route set out material for recycling. This does not mean, however, that only half of the households are participating in the program. In order to draw that conclusion, we would have to track a **participation** rate, which differs slightly, from a set-out rate.

A **set-out** rate is a measure obtained by counting the number of households that set out material on their designated collection day and the number of households in the service area. The set out rate is not a measurement of true participation, as participants may choose to set out materials less frequently than service is provided.

The **participation rate** is defined as the total number of households that take part in a community recycling program. This figure is difficult to accurately assess without tracking carefully for an extended period of time. The National Recycling Coalition recommends tracking a given route for a twelve week period. A “participant” is then defined as any household that contributes materials at least once during this period. Since this study only covered a two week period, assumptions for participation rates cannot be drawn.

Another term commonly used and understood by the public and solid waste professionals is **generation rate**. This relates to the amount of waste each member of a household contributes to the waste stream, as illustrated:

<b>Generation Rate =</b>	<b><u>Total Solid Waste Set Out By All Households*</u></b>		
	<b>Total Number of Households</b>		
Week One:	<u>19,000 (lbs)</u>		
	314		= 60.51 lbs./household/wk. = 25.42 lbs./person/wk. = <b>3.63 lbs./person/day</b>
Week Two:	<u>14,840(lbs.)</u>		
	304		= 48.82 lbs./household/wk. = 20.51 lbs./person/wk. = <b>2.93 lbs./person/day</b>
Total:	<u>33,840 (lbs.)</u>		
	618		= 54.76 lbs./household/wk. = 23.00 lbs./person/wk. = <b>3.29 lbs./person/day</b>
* Total Solid Waste = Solid Waste + Recyclables; does not account for compostables			

The **recycling rate** provides the actual percentage of recyclables that were separated and placed out by the participating households for recycling, as follows:

<b>Recycling Rate =</b>	<b><u>Total Recyclables Recovered</u></b>		
	<b>Total Solid Waste Generated (includes recyclables)</b>		
Week One:	<u>5,060 (lbs.)</u>		
	19,000 (lbs.)		= <b>26.63%</b> (by weight)
Week Two:	<u>2,640 (lbs.)</u>		
	14,840 (lbs.)		= <b>17.78%</b> (by weight)
Average:	<u>7,700 (lbs.)</u>		
	33,840		= <b>22.75%</b> (by weight)

**Waste Generation Study Results:**

**Week 1: Monday, June 19, 1995**

Community studied: Ann Arbor Township      Population: 3,793 \*  
 Total Households: 1,589 \*      Average Person/Household: 2.38 \*  
 \* 1990 U.S. Census Bureau Data

Start Time: 6:40 a.m.      End Time: 1:40 p.m.      Total Hours: 7

Number of Stops: 314      Stops per Hour: 44.86  
 Stops w/Recyclables: 180

Weight of Solid Waste: 6.97 Tons (13,940 lb.)  
 Weight of Recyclables: 2.53 Tons (5,060 lb.)  
 Total Weight of Collected Materials: 9.5 Tons (19,000 lb.)  
 Percent of Recyclables: **26.63%** (by weight)

	Recyclables (participating H/H)	Recyclables (all H/H)	Solid Waste	Total Waste Stream (recyc. + solid waste)
<b>Lbs./Household/Wk.</b>	28.11	16.11	44.39	60.51
<b>Lbs./Person/Wk.</b>	11.81	6.77	18.65	25.42
<b>Lbs./Person/Day</b>	<b>1.69</b>	<b>.97</b>	<b>2.66</b>	<b>3.63</b>

**Week 2: June 26, 1995**

(Same route as previous week)

Community studied: Ann Arbor Township      Population: 3,793 \*  
 Total Households: 1,589 \*      Average Person/Household: 2.38 \*  
 \* 1990 U.S. Census Bureau Data

Start Time: 6:35 a.m.      End Time: 1:20 p.m.      Total Hours: 6.75

Number of Stops: 304      Stops per Hour: 45.04  
 Stops with Recyclables: 169

Weight of Solid Waste: 6.10 Tons (12,200 lb.)  
 Weight of Recyclables: 1.32 Tons (2,640 lb.)  
 Total Weight of Collected Materials: 7.40 (14,840)  
 Percent of Recyclables: **17.79%** (by weight)

	Recyclables (participating H/H)	Recyclables (all H/H)	Solid Waste	Total Waste Stream (recyc. + solid waste)
<b>Lbs./Household/Wk.</b>	15.62	8.68	40.13	48.82
<b>Lbs./Person/Wk.</b>	6.56	3.45	16.86	20.51
<b>Lbs./Person/Day</b>	<b>.94</b>	<b>.52</b>	<b>2.41</b>	<b>2.93</b>

**Two Week Totals and Averages**

Total stops over 2 weeks: 618      Average Stops/Hour: 44.95

Total Stops with Recyclables: 349  
 Average Set Out Rate: **56.47%**

Total Weight - Solid Waste Only: 26,140 lb.  
 Total Weight - Recyclables: 7,700 lb.  
 Total MSW - Recyc. + Solid Waste 33,840 lb.  
 Percent Recyclables: **22.75%** (by weight)

	<b>Recyclables (participating H/H)</b>	<b>Recyclables (all H/H)</b>	<b>Solid Waste</b>	<b>Total Waste Stream (recyc. + solid waste)</b>
<b>Lbs./Household/Wk.</b>	22.06	12.46	42.30	54.76
<b>Lbs./Person/Wk.</b>	9.27	5.24	17.77	23.01
<b>Lbs./Person/Day</b>	<b>1.32</b>	<b>.75</b>	<b>2.54</b>	<b>3.29</b>

**NOTE: The following document, Washtenaw County's Solid Waste Program, is included for informational purposes only. This document is intended to provide an historical information on the County's Solid Waste Program, and identify areas that have been priorities in the past.**

## **Washtenaw County Solid Waste Program As Adopted by the Board of Public Works 1997**

### **County Solid Waste Program Overview**

From its inception., it was anticipated that Washtenaw County's Solid Waste Program would be reviewed periodically and adjustments made as revenues fluctuated or specific program requirements were modified. This document reflects the first of such efforts.

This is a proposal to update the County's Solid Waste Program for a five year period. The proposal is consistent with the goals of the County's Solid Waste Management Plan and is supportive of current and planned activities on the part of local governmental units and private industry. It also addresses the County's obligations within the contract negotiated with Browning Ferris Industries (BFI) regarding guarantees of landfill capacity and allocation of funds received as a part of that agreement.

Solid waste management practices are continually changing, and activities at the local, state, and federal level can have major impacts on community waste management programs. This solid waste program is reflective of the current solid waste management situation in southeast Michigan. It identifies specific areas for concentrating our efforts, yet is flexible enough to respond to changing situations.

There are seven main components of the program, as follows:

#### **WASHTENAW COUNTY SOLID WASTE PROGRAM Future Direction**

- I. Direct Monetary Support to Communities
- II. Promotion of Regional Programs
- III. Focus on Source Reduction
- IV. Increased County Services for Communities
- V. New Emphasis on Commercial/Industrial Sectors & Major Generators
- VI. Continuation of Planning, Regulatory, and Administrative Activities
- VII. Additional Contributions to Special Funds

The following pages will provide a brief description of each of the components listed above.

## **I. Direct Monetary Support To Communities**

Washtenaw County is host to one permitted operational municipal solid waste landfill, the Arbor Hills Landfill owned by Browning Ferris Industries (BFI). The County has negotiated a host community agreement with BFI that guarantees disposal capacity and also offers an annual revenue through disposal fees.

Residents of Washtenaw County are fortunate to have access to fourteen (14) curbside and twenty-nine (29) drop off recycling programs throughout the County. A portion of the revenues received from BFI have been used by communities to implement and operate these successful programs. Local units of government access their share of the funds through the County Community Revenue Sharing (CRS) program.

Funds will continue to be provided to local units of government for local waste reduction, recycling, and composting programs. As a result of fluctuating revenues received from BFI, the County will be modifying the formula used to compute community payments. A full description of the current and proposed payment formulas is included in the 1997 budget materials.

## **II. Promotion of Regional Programs**

Washtenaw County strongly supports the development of regional solutions to solid waste management problems. Opportunities for cooperation among communities often have economic, environmental, and social benefits and should be pursued. It is suggested that a special fund be established as a part of the Community Revenue Sharing program to help compensate programs that serve regional needs. An example would be a community drop-off station that services residents outside of its own jurisdiction.

In order to promote regional programs, and offer compensation to communities who host such facilities, it is recommended that a "Regional Program Fund" be created. Communities would be required to apply for funding through this program, and would need to demonstrate their regional service area.

## **III. Focus on Source Reduction**

Source reduction is at the top of Washtenaw County's Solid Waste management hierarchy. Also referred to as "waste prevention," source reduction can reduce the consumption of resources, lower system costs, prevent pollution, and increase efficiency.

It is recommended that the Solid Waste program increase the focus placed on source reduction. Potential activities include:

- An educational campaign aimed at consumers and residents focusing on reduced use/more efficient use of materials
- An educational campaign aimed at businesses and industries focusing on reduced material use and decreased toxicity in product manufacturing
- Development of measurement techniques for source reduction programs
- Identification of incentives/disincentives for source reduction

## **IV. Increased County Services to Communities**

It is recommended that the County provide additional direct services to communities. A short summary of potential activities follows:

**A. Educational Materials**

A successful waste management program requires widespread public participation. Such participation can best be obtained through effective public education programs which are consistent and ongoing. It is recommended that the Solid Waste Program build upon current efforts for a County-wide promotion and public education campaign.

Potential activities include:

- Distribution of the Washtenaw County Recycling Guide
- Development of an on-line version of the County's 4 R's Guide for communities
- Development of a streamlined 4 R's Guide for consumers
- Creation and maintenance of a web-page to provide information on local recovery programs
- Widespread publication of County progress towards recovery goals
- Targeted educational materials to new homeowners throughout the County

**B. Expanded Home Toxics Reduction Program**

Washtenaw County operates a permanent facility for the collection of Household Hazardous Waste. Survey results over the past two years indicate that the majority of users are from the immediate geographic jurisdiction. It is clear that logistics play an important role in participation rates, and as such, it is recommended that several "satellite" collections be sponsored throughout the County. Three pilot programs were implemented in 1995-6 and achieved a positive response from both local units of government and the general public.

Potential activities include:

- A minimum of two satellite collections per year in select areas of the County
- Development and implementation of a public education program focusing on less toxic alternatives to commonly generated products

Additionally, it is recommended that the County investigate the feasibility of the following enhancements to the Home Toxics Reduction Program:

- Development of a Re-Use program
- Provision of service to Conditionally Exempt Small Quantity Generators
- Acceptance of additional waste types
- Increase participation by offering evening hours and scheduled appointments
- Creation of partnerships with local businesses for collection of specific materials
- On-line waste exchange services

**C. Other Direct Services to Communities**

Additional activities could include:

- Regional collection programs for special materials such as tires
- Tools for assessing local program performance

**V. New Emphasis on Commercial/Industrial Sectors and Major Generators**

Approximately 55% of the County's Municipal Solid Waste Stream is composed of commercial and industrial wastes. It is recommended that the County take a more proactive role in addressing these waste streams and begin to work more closely with businesses to implement waste reduction and recycling programs.

Specific activities will include:

- Continuation of the “Green Backs for Green Acts” Innovative Grants Program
- Development and implementation of a Business Recognition Program

Additional activities could include:

- Development of a business advisory group
- Provision of facility waste assessments or self-assessment tools
- Development and administration of Peer Exchange programs
- Collaboration with businesses to develop Case Studies
- Provision of waste characterization studies
- Targeted workshops
- Development and maintenance of an on-line materials exchange network

It is expected that contractual services or additional staff may be required to implement these initiatives.

## **VI. Continuation of Administrative, Planning, and Regulatory Activities**

Following is a detailed discussion and description of tasks covering administration of the Solid Waste Plan, in addition to administration and coordination of the solid waste program. These activities are authorized by and described in more detail in the Solid Waste Plan.

### **Plan Administration**

Responsibilities of Plan administration include:

- Administration of the County’s Solid Waste Plan & coordination of future updates
- Management of capacity fee monies
- Coordination of cooperative programs between communities
- Administration of agreements with landfill operators

### **Program Compliance**

Regular reviews are conducted of solid waste programs to ensure compliance with the Solid Waste Plan and conditions placed on receipt of Community Revenue Sharing funds. In addition, communities are required to submit a detailed accounting of expenditures to the County to demonstrate how Community Revenue sharing dollars have been used.

### **Data Gathering/Analysis**

Activities related to data gathering and analysis include:

- Maintain data collection programs
- Produce annual program reports including waste diversion rates
- Oversee sector-specific and landfill waste composition studies
- Perform periodic waste composition studies
- Update the County Plan and Strategy on a regular basis

### **Landfill and Solid Waste Facility Monitoring**

County staff perform regular inspections of solid waste and resource recovery facilities to ensure compliance with applicable federal, state and local laws, ordinances and regulations.

### **County Internal Recycling Coordination**

The County will continue to coordinate and improve its internal recycling program. In addition, increased emphasis will be placed on waste prevention and purchasing of recycled, less toxic, products.

### **General/Administrative**

Answer questions, respond to complaints, and fulfill information requests.



**NOTE: The following document, Washtenaw County's Implementation Action Plan, is provided for informational purposes only. Utilized as a tool for implementing the 1989 Update, it is expected that this document may be used as a resource to the Intergovernmental and Commercial/Industrial Program Task Forces, and may serve as starting point for creating new action plans.**

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# **Washtenaw County Implementation Action Plan For Solid Waste Management**

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As Approved by the  
Washtenaw County  
Solid Waste Plan Implementation Committee  
and the  
Washtenaw County Board of Public Works

**- Amended 03/19/97 -**

## DEFINITIONS

For purposes of this document, the following words and phrases shall be given the following respective meanings:

**SOURCE REDUCTION:** A waste management technique aimed at reducing the quantity of waste generated.

**RECYCLING:** The recovery of materials from the waste stream for return to use as feedstock or other raw material.

**COMPOSTING:** The biological degradation of organic material from the waste stream and its return to use as a soil amendment.

**SELF-PROCESSING:** The term used when a facility removes contaminants and reduces the volume and/or mass of the materials produced.

**BACK-HAULING:** The term used when a facility or its agents transports processed materials back to its originating site.

**Washtenaw County  
Implementation Action Plan for Solid Waste Management**

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**SECTION 1:**  
**PROJECT AND SYSTEM GOALS -**  
**DATA COMPILATION AND REPORTING REQUIREMENTS**

**1.1 System Goals and Target Dates.**

With the coordination of the Director of the Division of Public Works (DPW Director), the Solid Waste Plan Implementation Committee (SWPIC) shall propose and the County Board of Public Works (BPW) shall adopt annual system goals for each year during the next five-year period for the solid waste stream generated in Washtenaw County. These system goals shall be organized by types of material in the waste stream.

The system goals shall be expressed in terms of diversion percentage, county-wide per capita cubic yards and tons and total cubic yards and tons of material to be handled by the end of the target year through various types of source reduction, recycling, composting, landfilling, or other applicable waste handling methods. The system goals shall also be expressed in terms of percentages of the value of goods purchased by governmental and institutional units (of those materials that are economically available in recycled form) being made of recyclable materials.

These adopted system goals and target dates shall be considered an amendment to the "Washtenaw County Implementation Action Plan for Solid Waste Management (Action Plan)".

Until amended as stated above, the system goals defined within the Washtenaw County Act 641 Solid Waste Management Plan Update of 1989 as amended will prevail. The overall goal is to divert 30% of solid waste materials (by weight) from being landfilled by the end of 1995 through waste reduction, recycling and composting and to increase the proportion of the value of goods purchased (of those materials that are economically available in recycled form) with recycled content to 30% by the year 1995. Economically available is defined as having a price that is less than or equal to 10% above the cost of comparable products in a competitive bid.

**1.2 Setting Goals and Target Dates.**

The five year updates of the Act 641 Solid Waste Management Plan required by the Michigan Department of Natural Resources (MDNR) shall contain five-year system goals and target dates for the solid waste stream generated in Washtenaw County. These plan-approved system goals and target dates shall be included in the next proposed amendment to Exhibit A of this Action Plan. In the absence of an active MDNR authorized update process for the Plan, the BPW shall continue to establish five-year system goals and target dates as defined in this section and as is consistent with any previous plan-approved system goals and target dates.

If system goals and target dates would result in modification of goals and target dates established within the latest update of the County's Act 641 Solid Waste Management Plan, the system goals must first be approved by the Board of Commissioners before they become effective.

**1.3 Annual Deadline for Submittal.**

The Director of Public Works, with assistance from the various committees established within the Solid Waste Plan, shall submit to the BPW its proposed annual system goals and target dates for the upcoming five-year period as proposed amendments to this Action Plan by April 1 of each year, with April 1, 1994 being the first date when this requirement shall be effective.

#### **1.4 Annual Deadline for Approval.**

If no action is taken by the BPW within 90 days of submittal of these proposed system goals and target dates, they shall automatically take effect and be considered as adopted amendments to this Action Plan.

#### **1.5 Failure to Submit Updated System Goals and Target Dates.**

Should the DPW Director not submit proposed amendments for annual system goals and target dates by the April 1 deadline, the existing system goals shall remain in effect with the percentage and per capita system goals for the fifth year being automatically extended for one additional year.

#### **1.6 Tracking Progress Towards System Goals and Target Dates.**

The DPW Director, to the degree practicable, shall arrange to collect, verify and analyze data necessary to document annual progress towards the system goals and target dates. Such data collection, verification and analysis activity shall include the following at a minimum:

- a) Semi-annually, submittal on a form prepared by the DPW Director of all public and private sector haulers (haulers who transport more than 100 cubic yards of solid waste annually) estimated activity in the previous six-month period in collecting all types of recyclable and compostable materials and all solid waste, refuse and demolition and construction debris. Such estimates shall be in cubic yards and tons and shall be broken down by type of collection activity (curbside, roll-off, etc.) and by point of final delivery and where possible, by category of generation sources (commercial, multi-family, single family, etc.) and jurisdiction (township, village, city or major generator). Due dates for filing this information for the prior half year are the thirtieth day of January and July of each year, with the first reporting to commence no later than January 30, 1994. Information and estimates of prior activity shall be requested at the time of first reporting.
- b) Semi-annually, submittal from all recycling, composting and waste transfer facilities on a form prepared by the DPW Director of a facility's estimated activity in the previous six-month period in receiving and processing all recyclable and compostable material and all solid waste, refuse and demolition and construction debris. Such estimates shall be in cubic yards and tons and shall be broken down by type of processing activity and by point of final destination of material after marketing and where possible by hauler delivering the material to the facility. Due dates for filling this information for the prior half year are the thirtieth day of January and July of each year, with the first reporting to commence no later than January 30, 1994. Information and estimates of prior activity shall be requested at the time of first reporting.
- c) Other data collection and verification activity, including data from all municipalities, institutions and major industry in the County as defined in the Solid Waste Plan, through techniques that may include, as deemed appropriate, 1) field, phone and mail surveys, 2) site visits, 3) statistically verifiable field sampling of types of activity, participation rates, material quantities, contamination levels, or characterization of streams of yard waste, recyclable materials, solid waste and demolition and construction debris.
- d) Data analysis as needed to document the performance of the system in the most recent full calendar year including at a minimum the performance in terms of percentages, per

capita cubic yards and tons, and total cubic yards and tons of material handled that year through various types of source reduction, recycling, composting, landfilling, or other applicable waste handling methods.

- e) The documented performance for the most recently completed calendar year shall be released as a report to the BPW and approved or amended as necessary by the BPW for release to the County Board, all Local Units, haulers and waste management facilities by April 1 of each year, with the first report due on April 1, 1994, and shall be included in tabular form in the proposed amendment to this Action Plan defining annual system goals and target dates for the next five year period.

### **1.7 Tracking Progress Towards Source Reduction Goals and Target Dates.**

The DPW Director, in evaluating progress towards source reduction goals and target dates, shall incorporate documented increases or decreases in activity during the calendar year being evaluated in any of the following areas:

- a) Composting of organic material on-site, referred to as backyard composting for residential generators.
- b) Mulching of organic material back into the soil during lawn and yard maintenance activities.
- c) Use of reusable containers (including pallets), utensils, products or tools by households, businesses and industry.
- d) Purchase of longer-life products and equipment.
- e) Increased efficiency through higher yields in utilization of feedstock materials during production, distribution and consumption activities within the County.
- f) Decreased packaging and increased purchasing of items in bulk.
- g) Other activities as deemed appropriate.

Reductions in the per capita rate of generation for materials recycled, composted and disposed shall serve as supporting documentation of increased source reduction only when those results can be correlated to specific source reduction activities.

### **1.8 Tracking Progress Towards Recycling Goals and Target Dates.**

The DPW Director, in evaluating progress towards recycling goals and target dates, shall incorporate documented increases or decreases in recyclable material handled during the calendar year being evaluated in any of the following areas:

- a) Collection activity by all haulers.
- b) Processing activity at all recycling drop-offs and material recovery facilities.
- c) Disposal site separation activity at all transfer facilities, Type II landfills and Type III landfills.
- d) Self-processing/baling and back hauling of recyclables generated on-site by commercial and industrial enterprises. Some examples include supermarkets and manufacturing facilities.
- e) Other retail outlet sponsored recycling activity in which product or packaging types sold by a particular location are received by that location for recycling. Some examples include retail outlet collection and recycling for tires, white goods, auto batteries, and plastic bag packaging.
- f) Wood waste, including pallets recycled or used as boiler fuel.

### **1.9 Tracking Progress Towards Composting Goals and Target Dates.**

The DPW Director, in evaluating progress towards composting goals and target dates, shall incorporate documented increases or decreases in compostable material handled during the calendar year being evaluated in any of the following areas:

- a) Collection activity by all haulers.
- b) Processing activity at all yard waste drop-off and composting facilities.
- c) Disposal site separation activity at all transfer facilities, Type II landfills and Type III landfills.
- d) Brush chipping and reuse activity by tree trimmers, lawn care companies, land clearing firms and landscapers.
- e) Wood waste chipping and reuse activity by institutions, business and industry.
- f) Land application activity of yard waste and food processing waste.
- g) Land application activity of sludge from water and wastewater treatment facilities.

#### **1.10 Tracking Other Ongoing Recycling Activity.**

The DPW Director, while gathering data to document progress towards goals, shall also document any other recycling activity that is discovered yet does not directly apply towards the goals, including:

- a) State of Michigan deposit container recycling by beverage distributors.
- b) Medical waste recovery and recycling.
- c) Others as determined to be appropriate by the DPW Director.

### **SECTION 2: TARGETED MATERIALS**

#### **2.1 Targeted Materials Listing - Phase I "Minimum" Program Collection Requirements for Residential Services.**

The following "minimum" program requirements are incorporated into the County's Action Plan, which Local Units, Private Sector Firms and Institutions may adopt by joining in. In order to continue to receive their share of the County's Solid Waste Revenue Fund, local units will have to commit to these "minimum" requirements. As of **July 1, 1994**, all the following materials, in the form specified, shall be included in any combination of residential curbside, multi-family or drop-off recycling and composting collection services provided by a Local Unit alone or in combination with services provided by private haulers or other agencies operating within the jurisdiction of the Local Unit.

- a) Old newspapers and printed material made from newsprint.
- b) Old corrugated containers.
- c) Commingled food container materials consisting of green, clear and brown glass bottles and jars, aluminum beverage containers, tinsplate steel food cans and steel non-food cans, and natural and colored HDPE bottles (coded as #2 and small-mouthed such as milk jugs and laundry detergent bottles).
- d) Yard waste including leaves, grass clippings, vegetable or other garden debris, shrubbery or brush or tree trimmings less than 6 inches in diameter. Local Units may demonstrate that their solid waste does not contain significant quantities of these materials.
- e) Special waste items, including large appliances of all types including residential, commercial and industrial refrigerators, kitchen stoves, clothes dryers, clothes washers, central air conditioners, window air conditioners, furnaces, humidifiers, dehumidifiers,

hot water heaters, trash compactors, dishwashers, commercial food processors, metal sinks, metal countertops, and other related large appliances. Appliances must have freon or other items removed before recycling in compliance with existing regulations and laws utilizing best available technology.

**2.2 Targeted Materials Listing - Phase II Program Collection Requirements for Residential Services.** (Amended 06-21-94)

The following "optimum" program requirements are incorporated into the County's Action Plan. In order to continue to receive their share of the County's Solid Waste Revenue Fund, Local Units will have to commit to these requirements at the time that these "optimum" program requirements would take effect. As of **July 1, 1996**, all the following materials, in the form specified, shall be included in any combination of residential curbside, multi-family or drop-off recycling and composting collection services provided by a Local Unit alone or in combination with services provided by private haulers or other agencies operating within the jurisdiction of the Local Unit.

- a) All items identified in Section 2.1.
- b) Magazines
- c) Mixed office paper
- d) PETE (#1) plastic bottles
- e) Boxboard

**2.3 Targeted Materials Listing - Commercial, Institutional and Industrial Services.** (Amended 06-21-94)

Breakdown of commercial businesses by sectors was determined to be the most effective method of dealing with materials, which may often be industry specific. Seven sectors have been identified, with two categories under each defined sector, targeted materials and other materials. "Targeted Materials" are those specific materials which constitute a significant proportion of the industry's waste stream and for which recycling opportunities are readily available. These items should be identified and highly promoted in an educational campaign.

"Additional Materials" are items which may still represent a large portion of the waste stream but for which markets may not be readily available. For these additional materials, efforts will be placed on encouraging market development. Additional materials may also be recoverable items an industry generates which constitute a smaller portion of their waste stream. General information will be distributed to explain how these items may be recovered.

The target materials list for commercial, industrial, and institutional services is not intended to be used as a regulatory vehicle, but rather to be regarded as a framework for educational efforts and programming.

**a. Construction/Demolition**

Targeted Materials

Cardboard  
Metals  
Pallets/Wood  
Concrete  
Bricks

Additional Materials

Drywall  
Shingles

**b. Retail/Wholesale**

Targeted Materials

Newspaper  
Mixed File Stock  
Cardboard  
Plastics (HDPE)  
Pallets/Wood

Additional Materials

Shrink Wrap  
Textiles  
Damaged Retail Merchandise

**c. Restaurants**

Targeted Materials

Newspaper  
Cardboard  
Plastics (HDPE)  
Metal Cans  
Glass Bottles & Jars  
Unused, Nutritious Food

Additional Materials

Food Waste

**d. General Offices (Government, Organizations, Churches, Financial, Real Estate, etc.)**

Targeted Materials

White Paper/CPO  
Mixed File Stock  
Cardboard

Additional Materials

Telephone Directories  
Toner Cartridges

**e. Auto Maintenance/Repair, Transportation, Utilities, etc.**

Targeted Materials

White Paper/CPO  
Newspaper  
Mixed File Stock  
Cardboard  
Metals  
Oil  
Tires  
Automotive Batteries  
**Antifreeze** (Amended 3/19/97)

Additional Materials

**f. Manufacturing**

Targeted Materials

White Paper/CPO  
Mixed File Stock  
Cardboard  
Plastic (HDPE)  
Pallets/Wood

Additional Materials

Toner Cartridges  
Shrink Wrap

**g. Institutions/Medical Facilities/Hospitality Services**

Due to the diversity of operations among and within these entities, specific portions of all lists will be applied where applicable.

**2.4 Additions, Deletions, and Exemptions to the Targeted Materials Lists.**

The DPW Director and the Solid Waste Plan Committees shall work with current and potential future recycling, composting, waste transfer, waste processing and waste disposal facilities to insure adequate capacity to process and market the materials on the targeted materials list.

- a) By April 1 of each year, beginning in 1994, the DPW Director shall submit to the BPW an evaluation of the list of targeted materials and propose any additions or deletions to that list. The BPW shall review, revise as necessary and approve the evaluation for final release to the participating Local Units, haulers and facilities. Any proposals for additions and deletions shall be handled as amendments to this Action Plan.
- b) Participating Local Units, haulers and facilities may petition the BPW, through the DPW Director, in writing at any time to have additions or deletions made to the targeted materials list. The BPW, under the coordination of the DPW Director, shall respond in writing within 60 calendar days.

- c) Participating Local Units, haulers and facilities may petition the DPW Director in writing at any time for emergency relief from the requirements for materials on the targeted materials list. The DPW Director shall respond in writing within 30 calendar days. Any emergency relief granted by the DPW Director shall be for a period of no more than 60 days, and shall include restriction as deemed necessary by the DPW Director to guarantee consistency with the intent of this Action Plan. If emergency relief is requested and granted more than once for the same reason, a process must be initiated to consider necessary changes that should be made to this Action Plan.
- d) Within four years of the effective date for Section 2.1 requirements, the following materials will be considered by the DPW Director and BPW for incorporation into the targeted materials list for residential services. A 180 day notice period will be provided by the County to Local Units and other interested parties before any such materials will need to be incorporated into local programs.
  - i) Other papers
  - ii) Other ferrous metals
  - iii) Other non-ferrous metals
  - iv) HDPE & LDPE plastic films
  - v) Food waste

**SECTION 3: SPECIAL WASTE MATERIALS**

**3.1 Special Waste Materials Listing - Program Requirements for Residential Education Services.**

In order to continue to receive their share of the County’s Solid Waste Revenue Sharing Fund, local units will have to commit to these requirements. As of **July 1, 1995**, all the following materials, in the form specified, shall be included in an educational campaign, as outlined in Section 3.2, to educate residents on proper disposal and handling:

- a) Household batteries
- b) Waste oil
- c) Expanded Polystyrene (commonly referred to as ‘styrofoam’)
- d) Tires of all types, including auto, truck, motorcycle, off-road vehicle, garden tractor, and farm equipment tires.

**3.15 Special Waste Materials Listing - Program Requirements for Residential Education Services.** (Amended 03-20-96)

The following program requirements are incorporated into the County’s Action Plan. In order to continue to receive their share of the County’s Solid Waste Revenue Sharing Fund, local units will have to commit to these requirements. As of **July 1, 1996**, all the following materials, in the form specified, shall be included in an educational campaign, as outlined in Section 3.2, to educate residents on proper disposal and handling:

- a) Textiles

**3.2 Special Waste Materials - Education Campaign Requirements**

The education campaign shall include, but not be limited to, one piece of correspondence annually to each household in the local unit jurisdiction. The correspondence may be a part of

another existing communication, i.e. annual municipal report, community calendar, water bill, tax roll, etc.

The correspondence must include at a minimum:

- a) The name and a description of the material
- b) Reduction or reuse alternatives
- c) Proper disposal method and available outlets
- d) Recycling market outlets if available

The local unit may choose to employ additional methods of communication including press releases/advertisements in newspapers, point of purchase displays, posters, electronic bulletin boards on cable television, etc.

The Public Works Director and the Solid Waste Plan Committees shall work together with local units to assist in the identification of source reduction and recycling opportunities. Additionally, assistance will be provided for the preparation of generic information which may be used to fulfill this requirement, i.e. camera ready art, updated 4-R's Guides, etc.

### **3.3 Additions, Deletions, and Exemptions to the Special Waste Materials List**

- a) By April 1 of each year, beginning in 1996, the DPW Director shall submit to the BPW an evaluation of the list of Special Wastes and propose any additions or deletions to the list. It is not the intention of that the list will grow to include many additional items, and additions will only be considered when need is clearly demonstrated. The BPW shall review, revise as necessary, and approve the evaluation for final release to the Local Units, haulers, and facilities. Any proposals for additions or deletions shall be handled as amendments to the Action Plan.
- b) Participating local units, haulers, and facilities may petition the BPW, through the DPW Director, in writing at any time to have additions or deletions made to the Special Waste Material List. The BPW, under the coordination of the DPW Director, shall respond in writing within 60 calendar days.