

**Mid-Missouri Solid Waste
Management District**
Solid Waste Management
Guidance Plan

**Mid-Missouri Solid Waste
Management District**
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October 2009

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Mid-Missouri Solid Waste Management District Solid Waste Management Guidance Plan

October 2009

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1.0 INTRODUCTION

The Mid-Missouri Solid Waste Management District (the District) has retained GREDELL Engineering Resources (Gredell Engineering) to provide a solid waste management guidance document (Guidance Plan) to assist in the reduction of solid waste generated within all areas of the District. Gredell Engineering subcontracted to Far More Consulting, LLC to assist with the grant analysis and educational components and with Resource Enterprises, LLC to assist with the energy components of the Guidance Plan.

The District consists of the eight mid-Missouri Counties of Audrain, Boone, Callaway, Cole, Cooper, Howard, Moniteau and Osage. A District Council, an Executive Board and an Advisory Committee govern the District. The District has a wide range of population and cultural diversity, ranging from relatively urbanized communities (Boone and Cole Counties) to less populated rural communities (Osage, Howard and Moniteau Counties). The District includes the headquarters of state government (Jefferson City), a large number of institutional facilities, significant commercial and industrial influence and a wide range of universities and colleges.

The Guidance Plan was developed through a process that involved: an assessment of District services, programs, and past grant projects; input on goals and critical issues from the District's staff and Board members; and input from District stakeholders through mailed/e-mailed questionnaires and public meetings held in each of the District's counties.

At the Advisory Board meeting held in January 2009, it was emphasized that the Guidance Plan should identify what the District is currently doing and where the District should be heading. The District did not want a large, information filled plan that would not be read. The Guidance Plan has been prepared to be workable and concise, as well as enable the District to implement measurable solid waste management improvements. The Guidance Plan provides the District with guidance and a framework for solid waste service improvements in the District, future grant awards, and future District projects and events.

District policy should be periodically reviewed and updated to reflect changes to state solid waste management laws, rules and policy. This will help ensure that the District Guidance Plan does not restrict future participation in available programs.

2.0 DESCRIPTION OF MID-MISSOURI SOLID WASTE MANAGEMENT DISTRICT

The Mid-Missouri Solid Waste Management District (the District) provides planning, technical and financial support in the area of solid waste management for the eight mid-Missouri counties of Audrain, Boone, Callaway, Cole, Cooper, Howard, Moniteau and Osage.

2.1 District Governance

The District is governed by three separate bodies: the District Council, Executive Board, and Advisory Committee. These local and appointed officials provide guidance in the development of solid waste management policies.

The District Council is defined in Missouri State Law under RSMO 260.315. This body meets at least once a year and has a representative from each member city with a population over 500 and two members from each member county. The MMSWMD Council approves and amends the By-laws, adopts the annual budget, appoints the Executive Board (using a caucus format), and responds to issues as presented by the Executive Board.

The MMSWMD Executive Board is made up of one representative for each County and each City with a population over 35,000, for a total of ten spots at present. The Executive Board meets approximately once a month, and conducts most of the District's business including: approving payments of bills, entering into contracts, appointing the Advisory Committee(s), electing its own officers and approving the District Grants.

The Advisory Committee is appointed by the Executive Board. Originally it had responsibilities in drafting the District Plan, but now the primary responsibility is to review the District grant proposals and recommend levels of funding with the budget allocated. The Advisory Committee also periodically reviews the grant process.

Current District staff includes one full-time District Manager, one Administrative Support Assistant, and an MMSWMD intern.

2.2 Counties and Cities

The District serves eight (8) mid-Missouri Counties. The 25 cities within the member counties with a population greater than 500 (per the 2000 US Census) are presented Table 1. These cities are contacted by the District during its Assessment Inventories every two years, and generally form the list of city and county "stakeholders" in the District.



**Mid-Missouri Solid Waste Management District
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May 2009**

Table 1

**MMSWMD Counties and Cities
with Populations over 500**

County		City	
Name	Population (per 2000 US Census)	Name	Population (per 2000 US Census)
Audrain	25,853	Ladonia	620
		Mexico	11,018
		Vandalia	2,529
Boone	135,454	Ashland	1,869
		Centralia	3,774
		Columbia	84,531
		Hallsville	978
		Sturgeon	944
Callaway	40,766	Auxvasse	901
		Fulton	12,128
		New Bloomfield	599
		Holts Summit	2,935
Cole	71,397	Jefferson City	39,611
		Russellville	758
		St. Martins	1,023
		Taos	870
		Wardsville	976
Cooper	16,670	Boonville	8,202
		Pilot Grove	723
Howard	10,212	Fayette	2,793
		Glasgow	1,263
		New Franklin	1,145
Moniteau	14,827	California	4,005
		Tipton	3,261
Osage	13,062	Linn	1,354
Total	328,241		

Prepared by GREDELL Engineering Resources, Inc.

2.2.1 Demographics and Population Projections

The 2000 US Census provides the base of the demographic data for the District. The Missouri Office of Social and Economic Development Analysis (OSED) publishes the 2000 US Census data on its website, www.oseda.missouri.edu. The US Census Bureau's 2008 County Level Population Estimates, as published by OSED, were used to show the 2000-2008 demographic changes in the District's counties. Demographic data is summarized in Table 2.

Between 2000 and 2008, the total population of the District increased by 25,990 persons, approximately an 8% increase. The individual populations of the eight counties are estimated to have changed between a high of 14% (Boone County, 18,911 persons) to a low of -2.9% (Howard County, -294 persons).

2.2.2 Distribution of Recoverable Materials

The demographic data of the District was used to evaluate the distribution of recoverable materials. Recoverable materials are a subset of solid waste and solid waste is generated by human activity (household waste) or industrial activity (commercial or industrial waste). Therefore, the distribution of population within the District will generally identify the distribution of the household waste portion of recoverable materials. Likewise, the distribution of "private, non-farm businesses" will generally identify the distribution of the commercial or industrial waste portion of recoverable materials.

Approximately 2/3 of the District's population lives in the two most populated counties (Boone and Cole), which generally form the center of the District. These same two counties have over 50% of the households in the district. Between 54% and 68% of the households in six of the member counties are considered "urban", while only two of the counties have more "rural" households than "urban" households. These data generally indicate that the majority of recoverable materials derived from household waste in the District is concentrated in the central part of the District and is generated by "urban" households that *may* have access to municipal recycling programs.

Similarly, over 2/3 of the "private, non-farm businesses" are located in Boone and Cole Counties. Overall, the distribution of non-farm businesses generally mimics the distribution of populations and households. In addition, the Missouri State Capital and associated office buildings are located in Cole County. Again, these data generally indicate that the majority of recoverable materials derived from commercial and industrial waste in the District is concentrated in the central, urban part of the District. Although municipal recycling programs may not directly serve non-farm businesses, the non-farm businesses potentially have access to peripheral private recycling businesses that support the municipal recycling programs or they may be large enough and generate enough recoverable materials to financially justify their own internal recycling programs.



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Table 2

Demographic Data

Name of County	Audrain	Boone	Callaway	Cole	Cooper	Howard	Moniteau	Osage	District Totals	District Aves.
Total Population, 2008*	26,049	154,365	43,464	74,313	17,535	9,918	15,121	13,465	354,230	n/a
Increase since 2000*	196	18,911	2,698	2,914	867	-294	294	404	25,990	3,249
% Population Growth 2000-2008*	0.8%	14.0%	6.6%	4.1%	5.2%	-2.9%	2.0%	3.1%	7.9%	4.1%
Largest City Population in each County**	Mexico 11,230	Columbia 84,531	Fulton 12,128	Jefferson City 39,611	Boonville 8,202	Fayette 2,793	California 4,005	Linn 1,354	163,854***	20,482
Population in households**	23,920	126,519	36,932	65,653	14,599	9,419	13,481	12,860	303,383	37,923
No. of Households - Largest City****	4,717	31,498	3,190	14,111	2,452	896	1,540	520	58,924	7,366
No. of Households - Remainder of County	5,127	21,596	11,226	12,929	3,480	2,940	3,719	4,402	65,419	8,177
Urban Households	5,980	35,847	5,966	16,960	3,562	2,072	2,800	1,187	74,374	9,297
Rural Households	3,987	16,896	8,239	10,395	2,277	1,695	2,385	3,759	49,633	6,204
% Urban - Households	60.0%	68.0%	42.0%	62.0%	61.0%	55.0%	54.0%	24.0%	n/a	53.3%
% Rural - Households	40.0%	32.0%	58.0%	38.0%	39.0%	45.0%	46.0%	76.0%	n/a	46.8%
Private, Non-Farm Businesses**	648	3,775	703	2,144	410	213	339	257	8,489	1,061

NOTES:

* Data taken directly from the OSEDA Website, "Population Estimates With Components of Change 2000-2008", data from US Census Bureau

** Data taken directly from 2000 US Census as published on the OSEDA Website.

*** Approximately 50% of the District population lives in the largest city in each county.

**** "Group Quarters" populations were subtracted from the largest cities to generate Numbers of Households.

3.0 EXISTING SOLID WASTE MANAGEMENT SYSTEMS AND PROGRAMS

The Mid-Missouri Solid Waste Management District is made up of both systems and programs that promote responsible solid waste management. Waste management systems can be public or private, and include facilities for managing solid waste. Programs are operated by the District, private entities, or public entities, and focus on educational and outreach efforts to the region.

3.1 Existing Systems

Existing systems in the District include public or private facilities for: reduction and reuse of solid waste, recycling, composting, targeted waste stream management, solid waste processing, and disposal. These systems and facilities related to the systems are shown on a map of the District and adjacent counties (Figure 1). A list of the facilities and systems depicted on the map is given in Figure 2 (note that the list is not exhaustive of all facilities and systems in the District).

3.1.1 Reduction and Reuse

Several direct-reuse facilities are currently operated in the District. Habitat for Humanity operates direct-reuse ReStores in Columbia and Jefferson City. The Salvation Army operates direct-reuse stores in Columbia and Jefferson City. The Reusables program in Columbia provides school supplies for reuse to local teachers. The Missouri State Agency for Surplus Property (MOSASP) in Jefferson City obtains surplus property from the Federal Government and donates it for reuse to eligible nonfederal entities. Other existing direct-reuse facilities in the District include pawn shops, secondhand stores, antique shops, flea markets, and swap meets.

3.1.2 Recycling

There are numerous existing recycling facilities and operations in the District. Types of facilities include: private drop-offs, public drop-offs, private curbside, and public curbside. Materials currently being recycled in some manner in the District include:

- Antifreeze
- Auto Bodies/Parts
- Batteries (Lead-Acid and Rechargeable)
- Bicycles
- Books
- Brick
- Cans (Aluminum, Tin, and Steel)
- Cardboard
- Carpet
- Cartridges (Inkjet & Toner)
- CD/DVD
- Ceiling Tile
- Ceramic Tile
- Clothing
- Computers & Electronic Waste

- Construction Materials
- Eyeglasses
- Fire Extinguishers
- Fluorescent Light Bulbs
- Furniture
- Glass
- Household Hazardous Waste
- Linoleum
- Major Appliances
- Magazines
- Scrap Metal
- Used Oil
- Newspaper
- Paper (Mixed/White)
- Pallets
- Plastics (#1 & #2)
- Plastic Shopping Bags
- Porcelain Products
- Propane Tank
- Roofing Materials
- Televisions
- Tires
- Windows
- Wood
- Yard Waste

Many of the cities with a population over 500 (per 2000 US Census) in the District have community recycling programs. These programs can include residential curbside recycling pickup, community recycling drop-off locations, or commercial recycling pickup. These cities include:

- Ashland
- Boonville
- Centralia
- Columbia
- Fayette
- Fulton
- Glasgow
- Hallsville
- Holts Summit
- Jefferson City
- Ladsonia
- Linn
- Mexico
- New Bloomfield
- Pilot Grove
- Sturgeon
- Vandalia
- Wardsville

3.1.3 Composting

Yard waste management programs in the District include mulching and composting, and these programs are primarily organized by municipality. Some may be managed and operated by private companies under contract to a municipality, or solely by for-profit businesses.

Cities in the District with mulching and composting yard waste management programs include:

- Columbia
- Fulton
- Jefferson City
- Mexico
- New Franklin
- Pilot Grove
- Tipton

Private, for-profit businesses in the District with mulching and composting yard waste management services include those in:

- Latham, Moniteau County

Cities in the District with mulching (no composting) yard waste management programs include:

- Ashland
- Auxvasse
- Boonville
- California

- Centralia
- Fayette
- Glasgow
- Vandalia

Private, for-profit businesses in the District with mulching (no composting) yard waste management services include those located in:

- Columbia, Boone County

3.1.4 Targeted Waste Streams

Facilities for accommodating several different targeted waste streams exist in the District, including scrap tire processing, household hazardous waste (HHW) processing, and electronic waste recycling.

There are three (3) MDNR-registered scrap tire haulers in the District, including two in Fulton and one in Jefferson City. There is one MDNR-permitted scrap tire processor in the District. In Jefferson City, Missouri Vocational Enterprises processes scrap tires into tire-derived fuel (TDF), where it is used by the University of Missouri Power Plant in Columbia as an alternative fuel source. Scrap tires are de-wired and shredded to produce TDF. The US EPA estimates that TDF produces the same amount of energy as oil (per ton) and 25% more energy than coal when used as a fuel source.

Two (2) permanent HHW facilities are currently active in the District. The City of Columbia and the City of Mexico operate HHW facilities in their communities.

Electronic waste is collected and processed for recycling by two (2) for-profit businesses in Columbia, by a sheltered workshop in Boonville, by a workforce development organization in Columbia, and by several national electronics retail stores in Columbia. The MMSWMD also hosts collection events several times each year (see Section 3.2.2).

3.1.5 Disposal and Processing

There are currently two (2) solid waste processing facilities, or transfer stations, in the District. A private business operates a transfer station in Cooper County, and a private business operates Love's Transfer Station in Audrain County.

There are currently three (3) sanitary landfills in the District. The City of Columbia operates a landfill in Boone County, the City of Fulton operates a landfill in Callaway County, and a private business operates the Jefferson City Landfill in Cole County. According to the estimated remaining airspace (estimated landfill life) in each of these landfills there is adequate solid waste disposal space available for the Districts' solid waste needs over the next ten (10) years or more. The City of Columbia landfill has an estimated 20 years of remaining life, the City of Jefferson City landfill has an estimated 17 years of remaining life, and the City of Fulton landfill

has an estimated 4 years of remaining life. The City of Columbia operates a bioreactor cell at their landfill. In a bioreactor landfill cell, liquids are added to solid waste in order to accelerate waste decomposition, waste stabilization, and landfill gas production. At the City of Columbia's landfill, landfill gas is converted to electricity, in connection with the City's Water and Light Department.

Two (2) power plants in the District currently utilize alternative fuels for resource recovery. The Chamois Power Plant in Osage County has utilized a variety of materials as a fuel alternative to coal, including walnut hulls, chicken processing plant fryer sludge, corn cobs, railroad ties, wood chips, wood pellets, and pelletized paper and plastic waste. The University of Missouri Power Plant in Columbia replaces up to 20 percent of its traditional coal fuel with TDF from Missouri Vocational Enterprises as an alternative fuel source, and has experimented in the past with such alternative fuel sources as corn cobs, crop residue, switch grass, and waste wood chips.

An infectious waste processing facility is operated by a private contractor in Boonville.

3.2 Existing District Programs

Existing programs in the District include the District's Grant Program, a variety of solid waste collection events funded, organized, and executed by the District, and various educational programs to promote solid waste management.

3.2.1 Grant Program

District Grants are awarded as Small Grants (\$5,000 or less) and Large Grants (\$5,000.01 to \$100,000) through a well defined process, with three (3) grant award rounds scheduled each year. Applications for Small Grants are accepted in all three grant award rounds. Applications for Large Grants are accepted in the second round only. Each year the guidelines for grant application are reviewed and refined, including decisions as to whether particular areas of waste management (i.e., Household Hazardous Waste, waste tires, etc.) should be targeted or emphasized by awarding extra points to such projects in the ranking and review process. Grant guidelines are made available to the public both in hard copy and on the District's website. Two grant workshops are held four to six weeks ahead of the first submission deadline, and the District Manager provides one-on-one assistance to applicants upon request. Given the fact that the grant process must comply with state rules required by the MDNR, the District has developed an effective, user-friendly process.

3.2.2 Collection Events

The District holds numerous targeted waste stream collection events throughout each year. The collection events are organized, funded and executed by the District as a whole. The collection events target categories of wastes for which District members determine there is a

local recycling need and for which there is not an established, local recycling system routinely providing the service. The events are typically “one day events”, beginning and ending on the same day. They typically last no more than four or five hours and are typically held on a Saturday to maximize the number of citizens available to participate. In addition to District staff, local county and city staff, as well as volunteer citizens, provide the manpower for these events.

Typically, the collection events rotate through each of the eight counties over the course of a two to three year period, with a similar event scheduled in two or three counties each year.

There are generally three to four one-day collection events for each targeted waste stream organized each year in the District. This assures that all citizens of the District have access to at least one targeted waste stream collection event per every two years. The locations are coordinated with the local representatives to the District Council, Executive Board or Advisory Committee, based on the perceived needs of the District and the individual Counties and Cities. Availability of District funding also determines how frequently the events are held.

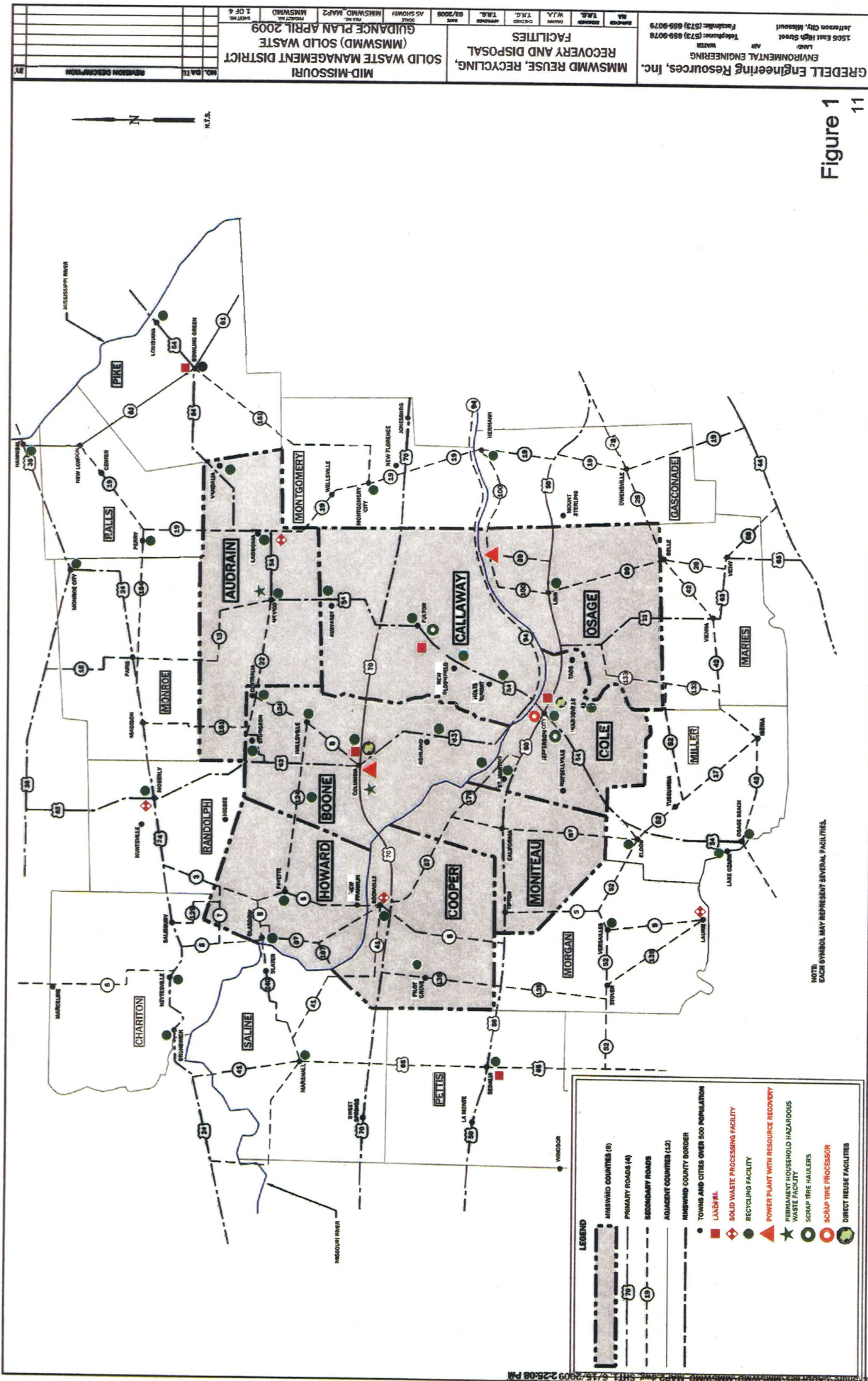
To the extent practicable, the events are held in a location within each county that is readily accessible to a large majority of the population. Participation in the individual events is open to all citizens within the District. The specific events are often held at public facilities or large, private parking lots, such as schools or shopping centers. Specific waste categories identified for targeted waste stream collection events include household hazardous waste (HHW), waste tires, and electronics.

Household hazardous waste (HHW) collection events are organized in District counties without permanent HHW collection facilities (there are currently two permanent HHW facilities, one in Columbia and one in Mexico). Participants are required to register in advance of these collection events, to aid District Staff and volunteers in managing the volume of HHW to be handled. The District contracts with a hazardous waste management contractor to provide staff and equipment the day of the event to handle the HHW. The contractor also provides the transportation, storage and disposal services required by state and federal hazardous waste regulations to ultimately reuse, recycle or dispose of the collected HHW.

Scrap tire collection events are also organized by the District. The number of scrap tires accepted by one individual is limited to 50 (without prior notification), and commercial businesses are not permitted to drop off scrap tires at the collection events. A contractor who is also a permitted waste tire processor is solicited by a bidding process to provide transportation, processing, recycling or re-use of the collected waste tires. The District also contracts with third-party firms to do on-site tire cleanups of private property. These cleanups are available for property owners with 51 to 499 waste tires on their property.

Electronic waste is the most recently targeted waste category by the District for collection events. Electronic items that are accepted at these collections include: desktop PC's (CPU's); monitors, keyboards, mice, cords & cables (power, USB, etc.); modems; laptop PCs; main

Figure 1
11



Direct Reuse Facilities

Columbia – Habitat for Humanity ReStore, CM-AEYC Reusables Program
Jefferson City – Habitat for Humanity ReStore, Missouri State Agency for Surplus Property

Recycling Facilities

MMSWMD Counties (8)

Ashland – Allied Waste
Auxvasse – Kingdom Projects Inc.
Boonville – Civic Recycling; Galambas Metals; Boonslick Industries
Centralia – City of Centralia; Civic Recycling
Columbia – City of Columbia; Civic Recycling; University of Missouri; Mid-Missouri Recycling
Fayette – Veolia Waste; Endless Options, Inc.; Boonslick Industries
Fulton – City of Fulton; Kingdom Projects Inc.
Glasgow – City of Glasgow; Veolia Waste
Hallsville – Boone County; Civic Recycling; Dayne's Waste Disposal
Harrisburg (Pop. Under 500) – Boone County
Holt Summit – All Type Recycling Center; Advantage Metals Recycling; Allied Waste
Jefferson City – City of Jefferson; New World Recycling; MRS Recycling Services; S and S All Metal Recycling
Ladonia – City of Ladonia; Dayne's Waste Disposal; Handi-Shop Inc.
Linn – Allied Waste
Mexico – City of Mexico; Handi-Shop Inc.; Central Metals Recycling
New Bloomfield – Kingdom Projects Inc.
Pilot Grove – City of Pilot Grove
St. Martins – MRS Recycling Services
Sturgeon – City of Sturgeon; Boone County
Vandalia – Handi-Shop Inc.
Wardsville – New World Recycling

Adjacent Counties (12)

Bowling Green – Cardinal Waste Inc.; Pike County Sheltered Workshop
Brunswick – City of Brunswick; North Missouri SWMD
Eldon – Ozark Recycling
Hannibal – Northeast Missouri Sheltered Workshop
Hermann – City of Hermann
Keosauqua – City of Keosauqua; Superior Services
Lake Ozark – Waste Watchers
Louisiana – Pike County Sheltered Workshop
Marshall – Boy Scouts of America; Cooperative Workshop; Marshall Municipal Services
Moberly – City of Moberly
Monroe City – Monroe City Sheltered Workshop
Montgomery City – Kingdom Projects Inc.
Osage Beach – Waste Watchers
Perry – Monroe City Sheltered Workshop
Sedalia – Bang's Recycling
Versailles – City of Versailles; Waste Management

Permanent Household Hazardous Waste Facilities

★ Columbia – City of Columbia
★ Mexico – City of Mexico

Permitted Scrap Tire Haulers

○ Fulton – Jim's Tire Salvage
○ Fulton – Keith's Tire Hauling

Permitted Scrap Tire Processors

○ Jefferson City – Missouri Vocational Enterprises

Power Plants with Resource Recovery

▲ Chamolia – Chamolia Power Plant
▲ Columbia – University of Missouri Power Plant

Solid Waste Processing Facilities



MMSWMD Counties (8)

Boonville – City of Boonville Transfer Station
Boonville – Enserve Midwest LLC Infectious Waste Processing Facility
Ladonia – Love Transfer Station

Adjacent Counties (12)

Moberly – Moberly Transfer Station

Landfills



MMSWMD Counties (8)

Columbia – City of Columbia Sanitary Landfill
Fulton – Fulton Sanitary Landfill
Jefferson City – Jefferson City Sanitary Landfill

Adjacent Counties (12)

Bowling Green – Eagle Ridge Sanitary Landfill
Sedalia – Central Missouri Landfill, Inc.

Figure 2

GREDELL Engineering Resources, Inc. ENVIRONMENTAL ENGINEERING 1505 East Main Street Jefferson City, Missouri 65101 Telephone: (573) 659-9078 Fax: (573) 659-9079		MMSWMD REUSE, RECYCLING, RECOVERY AND DISPOSAL FACILITY LIST		MID-MISSOURI SOLID WASTE MANAGEMENT DISTRICT (MMSWMD) SOLID WASTE GUIDANCE PLAN APRIL 2009		NO. DATE REVISION DESCRIPTION	
NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

frames; hard drives; CD ROM/Zip/Tape drives; handheld electronic organizers and games; copy machines; printers (laser, ink jet); televisions; VCRs/DVD players; video game players; joysticks and game controls; cameras (film and digital); camcorders; speakers; radios; stereos; portable CD players; typewriters; word processors; fax machines; adding machines; scanners; postage machines; calculators; telephones; cellular phones; answering machines; pagers; CBs and two-way radios; and microwaves. A contractor is solicited by a bidding process to provide transportation, processing, recycling and/or disposal of the collected electronic wastes.

3.2.3 Education and Outreach Programs

The District engages in various educational and outreach efforts to promote solid waste management within the eight-county District, including making presentations, reaching out to local colleges and universities, maintaining a District website, releasing publications, and providing grant application assistance.

The District Manager and other staff develop and present solid waste management information to city councils, county commissions, banks, and other businesses, as opportunities arise. The District offers recycling presentations to schools (Pre-K through 12th) and to colleges/universities. Also, the District Manager makes presentations on behalf of the Missouri Recycling Association (MORA) to varying audiences across Region H. Development and maintenance of the District's website is a key component of the District's outreach effort.

The District promotes collaboration and recycling partnerships among the colleges and universities in the District by hosting a summit of campus recycling and waste management representatives. This summit is facilitated by the District Manager, and allows for dialogue among the campuses and information sharing about successful reuse, reduction, or recycling initiatives.

A district newsletter is published several times each year, and a district-specific recycling guide is regularly updated and provided in hard copy and on the District's website. The District also drafts letters of support to governmental entities regarding positive actions in local solid waste management.

Other District outreach efforts focus on improving and streamlining the grant application process. These efforts include an annual revision of the District's grant application and guidance document, conducting grant workshops, and the availability of one-on-one assistance to grant applicants.

District participation in recycling events at county fairs and other special events aids in promoting material recovery (recycling) and responsible solid waste management to the public.



4.0 ANALYSIS OF DISTRICT SYSTEMS AND PROGRAMS

The systems and programs of the Mid-Missouri Solid Waste Management District were analyzed for gaps in service areas or services. This analysis included a review of the District services map and District grant program. Targets for service improvements were developed in conjunction with District members and staff. Opportunities for District income and partnerships were considered throughout this process. This process was enhanced by soliciting and receiving District and public input. The services and programs available in adjacent counties were also analyzed for partnership opportunities within the District.

4.1 District Input to Plan Development

This Guidance Plan was developed with significant input from the District Manager, the District Executive Board, and from stakeholders across the District. District staff was actively involved throughout the process via e-mail, telephone conversations and meetings. Gredell Engineering developed a simple questionnaire in conjunction with District representatives and sent it to a wide representation of stakeholders within the district. Finally, a series of eight (8) “open house” style public meetings were held throughout the District to reach out to local stakeholders.

4.1.1 District Participation

District input was solicited at several points in the Plan Development process. Presentations were made throughout the process to the District at an Advisory Board meeting, an Executive Board meeting and a District Council meeting. Following Gredell Engineering’s preliminary assessment of the District’s existing services, programs, and past grants, a working meeting was held with the District staff to review the assessment, identify additional data needed to develop the Guidance Plan, identify critical issues facing the District, and to begin development of the stakeholder questionnaire for public input. Many of the District’s Executive Board members attended one or more of the public meetings. The District Manager attended all eight (8) of the public meetings and the Executive Board Chair participated in all but one of the public meetings. This provided an excellent opportunity for regular, routine discussion of the issues and an opportunity to informally discuss the development of the Guidance Plan format and concepts.

Following the public meetings and the return of the stakeholder questionnaires, Gredell Engineering prepared a final DRAFT Guidance Plan for the final review and comment of the District staff and several Board members. District input on this final DRAFT was used to produce this final Guidance Plan document. The District staff was instrumental in the development of the Guidance Plan.



4.1.2 Public Participation

Public input was integral to the Guidance Plan development process. Public input was sought for current District programs and for the District's Targets for Service Improvements. Public stakeholder meetings were held throughout the District, and questionnaires were distributed for comment to District stakeholders.

4.1.2.1 Stakeholder Questionnaires

A questionnaire was mailed and e-mailed to District stakeholders to obtain public input on the District, to identify gaps in current District services, and to evaluate how closely the District's Targets for Service Improvement match with stakeholders' goals.

The list of "stakeholders" was developed from the District's "Grant Call List", which includes all past grant applicants and those District solid waste management service providers who are contacted by the District for MDNR's Assessment Inventory process. Additional stakeholders were also identified, including District colleges and universities and District scrap tire haulers and processors.

The 10-question survey characterized each respondent by category (manufacturing, commercial, K-12, etc.), assessed their current solid waste and recycling programs, and solicited information on their future solid waste goals, interest in forming waste management partnerships, and suggestions for improvement of the District's grant process. A copy of the questionnaire is provided in Figure 3.

The questionnaire was sent to approximately 216 stakeholders. Surveys could be returned by regular mail, toll-free fax or e-mailed. A total of 77 completed surveys were returned by May 1, 2009. The approximate distribution of responses (by organization type and by county) and response rate are tabulated in Table 3. A Summary Report of the responses received from the stakeholder questionnaires is found in Appendix 1.

4.1.2.2 Stakeholder Public Meetings

A series of eight (8) stakeholder meetings were held throughout the District to gather public input on the District. The list of "stakeholders" for direct invitation to the meetings was developed from the District's "Grant Call List", which includes all past grant applicants and those District solid waste management service providers who are contacted by the District for MDNR's Assessment Inventory process. Additional stakeholders were identified for these public meetings, including District colleges and universities and District scrap tire haulers and processors. In addition to direct mailing to "stakeholders", the meetings were advertised in local newspapers and Public Service Announcements were distributed to local radio stations.



Figure 3

Stakeholder Questionnaire

WE NEED YOUR INPUT



- 1) Which best describes the organization you represent and its location?
 Manufacturing ___ Commercial ___ Institutional ___ K-12 ___ University ___ Other ___ Private Citizen ___
 Audrain ___ Boone ___ Callaway ___ Cole ___ Cooper ___ Howard ___ Moniteau ___ Osage ___
- 2) Has your organization ever calculated/analyzed the type and volume of solid waste you dispose of annually? No ___ Yes ___ Annual Cost of Waste Disposal \$ _____
- 3) Does your organization have a recycling program? No ___ Yes ___ Describe: _____
- 4) Is your organization interested in waste reduction, reuse and/or recycling efforts?
 Yes ___ [Reduction ___ Reuse ___ Recycling ___] No ___ Undecided ___
 If Yes, indicate targeted materials:
 Paper ___ Glass ___ Metal ___ Plastic ___ Construction/Demolition ___ Food Waste ___ Yard Waste ___
- 5) Are you interested in waste management partnerships to create cost-effective reuse or recycling opportunities? Yes ___ No ___ Already Partnering ___
 If already partnering, describe: _____
- 6) Were you aware of the Mid-Missouri Solid Waste Management District before receiving this survey? Yes ___ No ___
- 7) If you have received assistance from the District, please indicate what type:
 Technical Assistance ___ Collection Events ___ Presentation ___ Grant Funds ___ Other _____
- 8) Have you applied for a grant through the District? Yes ___ No ___
 If so, do you have any suggestions for improving that process? _____
- 9) What type of assistance would help you implement/expand your recycling program, or reduce your waste management expenditures? _____
- 10) If you would like to discuss opportunities with the District, please include your preferred contact information here: _____

Thank you for completing this survey!

Please return the survey:

1. Mail to GREDELL Engineering Resources, Inc., 1505 E. High St., Jefferson City, MO 65101 (self-addressed, stamped envelope provided)
2. Fax to GREDELL Engineering Resources, Inc. at 573-659-9079, or Toll-Free at 1-866-636-9813
3. E-mail to GREDELL Engineering Resources, Inc. at contactus@ger-inc.biz

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District
Guidance Plan**

June 2009

**GREDELL Engineering
Resources, Inc.**

1505 East High Street
Jefferson City, Missouri 65101
Telephone (573) 659-9078
Facsimile (573) 659-9079

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**Table 3
Stakeholder Questionnaire Responses**

Organization Type	Surveys Returned	Percent of Total Returned
Manufacturing	1	1%
Commercial	16	22%
Institutional (Government)	18	24%
K-12	5	7%
University	5	7%
Other*	23	31%
Private	6	8%

* Known "Others" include: three (3) sheltered workshops, a river cleanup organization, a direct-reuse school supply store, and a church.

County	Surveys Returned	Percent of Total Returned
Audrain	8	10%
Boone	19	23%
Callaway	9	11%
Cole	12	15%
Cooper	7	9%
Howard	13	16%
Moniteau	8	10%
Osage	6	7%

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The meetings utilized an “open house” format that provided displays of information on the District’s grant programs, past District grant projects, and the existing solid waste management facilities in the District. Stakeholders were invited to provide written comments on each of the District’s twelve (12) Targets for Service Improvement, and to sign up to be added to the District Grant Call List to receive information about future grant application cycles.

A Summary Report of the stakeholder input received at the public meetings is found in Appendix 2.

4.2 Gaps in Existing Systems and Programs

Gaps in solid waste management systems within the District were identified through analysis of a District Services map, through feedback received at the public stakeholder meetings, and through analysis of completed stakeholder questionnaires.

4.2.1 District Map Analysis

The District Services map was created to visually illustrate the distribution of solid waste management services across the District. Included on the map were all District cities with a population over 500, and all known solid waste management services (systems) currently existing in those cities, including direct-reuse facilities, scrap tire haulers and processors, household hazardous waste facilities, power plants with the potential for resource recovery, recycling facilities, solid waste processing facilities, and landfills.

An analysis of the District Service map reveals gaps in solid waste services in southern Cooper County, Moniteau County, and in southern Osage County. Generally, service gaps exist in the rural areas of all eight of the District counties, as the majority of solid waste management services are located near larger population centers (Columbia, Jefferson City, Fulton, Boonville and Mexico).

4.2.2 Grant Program Analysis

District Grant Program awards for the fiscal years (FY) 2005 through 2009 were analyzed to identify trends as well as gaps in the program’s effectiveness. District Funds received from the State of Missouri are utilized for three purposes. Fifty percent (50%) or more of these funds are used for the Grant Program, providing monies to entities that provide solid waste management services within the District. The District itself uses approximately 18% of these state funds to provide administrative support for District activities, including the Grant Program. The other approximately 32% of funds are used to implement district-wide plan implementation activities.

Clear trends emerge from a simple analysis of the District’s grant awards from FY 2005 to FY 2009 (see Figure 4). Grants for equipment purchases continue to dominate the grant awards by category, with over 4 of every 5 dollars granted for equipment purchases. Nearly all the



grants awarded in FY 2005 to FY 2009 were for projects in education/outreach, or for resource recovery (recycling) activities (55 out of 57 grants). Only one project related to the manufacture of recovered materials products. The past distribution of grant awards speaks to the difficulty of developing commercially viable products using locally recovered materials.

On average, 46 percent of the grants awarded to district partners fall in the small grant category (see Table 4). If administrative efficiency were the largest concern of the District the \$20,000 to \$30,000 in these grants each year could be lumped into a single large grant to save staff time. But, the District is to be commended for identifying the benefits of having a portion of their grant funds reserved for these smaller grants. This allows entities to obtain grant funds in project areas that would not be served by a larger grant in many instances. To further the District's efforts to reduce, reuse and recycle materials that would have otherwise gone to landfills, or been illegally discarded, 57 grants totaling \$1,308,000 have been granted to public and private entities.

MMSWMD awarded grants to 23 separate entities from FY 2005 to FY 2009. Of these, 13 received a single grant, five received two grants, two received three grants and three entities received four or more grants. City of Fulton received four grants totaling \$214,000; Boonslick Industries received six grants totaling \$272,000; and the City of Columbia received 18 grants totaling \$373,000 for an average grant cost of \$53,500, \$45,000 and \$20,700, respectively (see Table 5).

The specific materials recovered or actions implemented under the 57 grants awarded from FY 2005 to FY 2009 have been categorized into sixteen categories as shown in Table 6. Several grants address more than one recovered material. Cardboard, paper and other fibers were targeted in 43 percent of the grants awarded. Aluminum, usually cans, was targeted in 22 percent of the grants. Eight grants targeted glass recycling, but no local markets exist for recovered glass.

During this same period (FY 2005 to FY 2009), the District used an additional \$870,000 for internal operating expenses and projects that implemented components of the District's solid waste management plan. Beginning in FY 2008, the District began to clearly delineate the funds for its operations (DO) versus plan implementation (PI). Funds for PI doubled from \$106,000 in FY2008 to \$232,000 in FY2009 (see Table 7).

The following gaps were identified in the Grant Program:

- 1) Nearly all grant applications are for resource recovery purposes, while only one grant has gone to support development of a business that makes products from recovered materials. It should be noted, however, that the District has little control over the type of Grant applications that are submitted.
- 2) Local markets for recovered materials need to be better developed.



3) Grant applications do not indicate waste management partnerships developing in the district.

4) The district currently encourages grant applicants to address target areas by providing bonus points in the review process. However, this method results in the district receiving grant requests that are targeted to the applicants' needs which may fall short of the district's actual objective.

4.2.3 Stakeholder Questionnaire Analysis

One of the ten (10) questions on the questionnaire that was mailed to a broad listing of District stakeholders was *"Were you aware of the Mid-Missouri Solid Waste Management District before receiving this survey?"* Out of the 77 returned questionnaires, ten (10) respondents indicated "No", that they were not aware of the District before receiving the survey.

Respondents that were not previously aware of the District included:

- A manufacturing company in Boone County
- Rural School Districts in Howard and Cole counties
- A municipal Board of Trustees in Cole County
- A university in Boone County
- A television news station in Callaway County
- A commercial recycling business in Boone County
- A private financial business in Audrain County
- Two (2) private citizens in Howard County

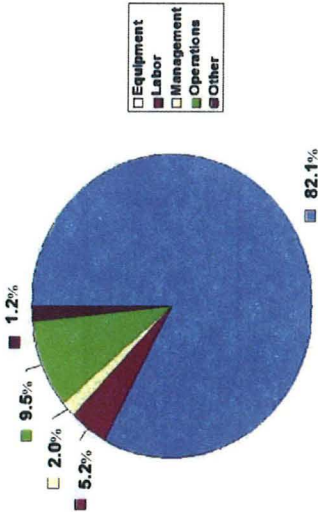
It is known that the commercial recycling business in Boone County is very new to the area, and that other representatives of the university in Boone County have worked with the District previously. The remaining responses indicate a potential gap in the District's services or public outreach to rural school districts and manufacturing businesses within the District.

Written comments received from survey respondents were used as another means of identifying gaps in District services. Question #9 on the questionnaire asked *"What type of assistance would help you implement/expand your recycling program, or reduce your waste management expenditures?"* Responses to this question that identified potential gaps in District services include:

- Implementation of a downtown restaurant/office recycling program in Columbia
- Equipment and operational help for the addition of a comingled plastic (saran, EVA, PVC) recycling program for a manufacturing company

Figure 4
District Grant Program Expenditures, FY 2005-2009

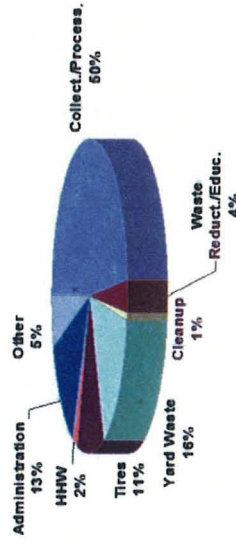
Non-District Expenditures by Category



Data for grant years 1993 – 2008 for grants given to subgrantees (does not include projects run by the MMSWMD). Source: MMSWMD

- MMSWMD gave over \$4 of every \$5 to equipment purchases.

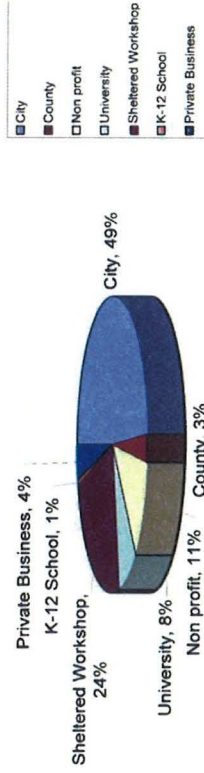
District Expenditures by Project



Data for grants given to subgrantees and for MMSWMD projects. Source: MMSWMD

- Grants for collection and processing of recyclables was the category most likely to be funded.

Non-District Expenditures by Organization Type



Data for grant years 2005 – 2009 for grants given to subgrantees (does not include projects run by the MMSWMD). Source: MMSWMD

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 Engineering Resources, Inc.

MMSWMD Stakeholder Public Meeting

Mid-Missouri Solid Waste Management District
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June 2009

GREDELL Engineering Resources, Inc.

1505 East High Street
 Jefferson City, Missouri 65101
 Telephone (573) 659-9078
 Facsimile (573) 659-9079

Mid-Missouri Solid Waste Management District
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Table 4

MMSWMD Grant Summary Information, 2005-2009

Fiscal Year	Number of Grants	Total Dollars Granted	Average Dollars per Grant per FY	Number of Grants < \$5,000	% of Grants < \$5,000
2005	11	\$246,617	\$22,420	5	45%
2006	12	\$269,848	\$22,487	5	42%
2007	13	\$293,517	\$22,578	6	46%
2008	11	\$216,208	\$19,655	6	55%
2009	10	\$282,294	\$28,229	4	40%
Total*	57	\$1,308,484	\$22,956	26	46%

* Totals may not match due to rounding.

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Table 5

MMSWMD Grant Recipients By Name, 2005-2009

Grant Recipient	Number of Grants Received	Number of Grants Received, by FY	Total Grant Funds Awarded, all FY	Average Grant Funds per Project
Board of Trustees Central Methodist University	1	1-'07	\$4,964.00	\$4,964.00
Boone Early Childhood Partners	1	1-'05	\$3,996.00	\$3,996.00
Boonslick Ind.	6	1-'05; 1-'06; 1-'07; 1-'08; 2-'09	\$272,799.00	\$45,466.50
Central MO Association for the Education of Young Children	1	1-'07	\$5,000.00	\$5,000.00
City of Columbia	18	4-'05; 4-'06; 3-'07; 3-'08; 4-'09	\$373,412.00	\$20,745.11
City of Fulton	4	1-'05; 1-'06; 1-'07; 1-'09	\$214,200.00	\$53,550.00
City of Holts Summit	1	1-'08	\$18,019.00	\$18,019.00
City of Jefferson	2	1-'06; 1-'08	\$42,000.00	\$21,000.00
City of Mexico	1	1-'07	\$19,787.00	\$19,787.00
City of Rocheport	1	1-'06	\$5,000.00	\$5,000.00
Columbia College	2	1-'05; 1-'06	\$9,129.00	\$4,564.50
Cooper County Commission	1	1-'05	\$4,763.00	\$4,763.00
County of Boone	1	1-'09	\$37,833.00	\$37,833.00
Endless Options, Inc.	1	1-'09	\$4,486.00	\$4,486.00
Handi-Shop, Inc.	2	1-'05; 1-'08	\$36,956.00	\$18,478.00
Harrisburg Preschool & Daycare	1	1-'08	\$5,000.00	\$5,000.00
Kingdom Projects	2	1-'07; 1-'09	\$10,000.00	\$5,000.00
Lincoln University	2	1-'06; 1-'08	\$10,000.00	\$5,000.00
Loganbill Industries	1	1-'07	\$5,000.00	\$5,000.00
River City Habitat for Humanity Re-Store	1	1-'08	\$49,725.00	\$49,725.00
River Relief, Inc.	3	1-'06; 1-'07; 1-'08	\$38,770.00	\$12,923.33
Ryan Enterprises, Inc.	1	1-'05	\$47,625.00	\$47,625.00
The Curators of the University of Missouri	3	1-'06; 2-'07	\$90,319.00	\$30,106.33
TOTALS*	57	-	\$1,308,783.00	\$22,961.11

MMSWMD Grants by Category, 2005-2009

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OCC = Old Corrugated Cardboard
HHW = Household Hazardous Waste
E-Waste = Electronics Waste
C & D Waste = Construction and Demolition Waste

Notes:

1. The total number of Grant Applications from 2005-2009 = 65
2. This is the total number of grants that regarded each category
3. This is the percent of the total number of grants that concerned

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Table 7

District Operations and Plan Implementation Grant History

Purpose	Number	Year	Amount
DO*	1	2009	\$82,492
PI	1	2009	\$232,183
DO	1	2008	\$83,219
PI	1	2008	\$106,425
PI & DO	1	2007	\$107,853
PI & DO	1	2006	\$44,041
PI& DO Part 2	1	2006	\$67,621
PI & DO	1	2005	\$146,000
TOTALS	8		\$869,834

*DO = District Operations, and PI = Plan Implementation

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- Equipment and operational help for the implementation of a food/grease waste recycling program for a food manufacturing company
- Establishment of Professional Development Grant funding for K-12 teachers
- Distribution by the District of “canned” Public Service Announcements and publicity flyers for community recycling efforts
- Publicity materials and resources from the District for small town recycling programs

4.2.4 Adjacent County Analysis

The District Services Map illustrating the distribution of solid waste management services across the District also shows the distribution of those services in the twelve (12) counties adjacent to the MMSWMD counties (Figure 1). Cities with populations over 500 are shown in the adjacent counties.

An analysis of the services and facilities presently available in adjacent counties reveals that some adjacent services can potentially fill service gaps inside the District. Recycling services in Morgan County could potentially provide service for areas of underserved Moniteau County. However, neither Maries nor Gasconade Counties seem to be providing solid waste management services that could fill service gaps in the MMSWMD’s Osage County.

Additional solid waste processing and disposal facilities in adjacent counties include a privately-owned transfer station in Randolph County (Moberly), and privately-owned landfills in Pike County (Bowling Green) and in Pettis County (Sedalia).

The proximity of solid waste management systems and facilities in adjacent counties may provide partnership opportunities for the District to work with other Solid Waste Management Districts to improve solid waste services.

4.3 Targets for Service Improvement

The District recognizes that it has limited resources to pursue its responsibilities under state statute and rule. In order to optimize the impacts of its program, the District developed a set of target areas for use in focusing its efforts to enhance solid waste management in mid-Missouri. These twelve (12) Targets for Service Improvement serve to provide guidance and direction to the efforts of the District members in considering future grant awards cycles and management decisions. However, it is important to note that District grant funds will continue to be awarded to projects that emphasize other areas of solid waste management not specifically listed in the Targets for Service Improvements. This especially applies to grant funds awarded for the maintenance of existing solid waste management programs or systems that are functioning well and apply for continued assistance from the District. These 12 Targets for Service



Improvement were identified in 2008. Future changes in state-wide and local solid waste systems will require these Targets to be reviewed and updated periodically.

1. Household Hazardous Waste (HHW) Management

HHW collection events can be extremely costly when done sporadically. The City of Mexico, Missouri has established a permanent facility and a regular schedule of HHW pickup events. This has resulted in a significant reduction in cost while providing a more effective service to its citizens. MMSWMD wishes to investigate the potential of copying this model throughout the District to provide a reliable and cost effective system to all its citizens. One benefit of such a District-wide system may be the use of a "milk-run" to retrieve collected materials more cost effectively.

2. Appliance Recycling

Many residents of the MMSWMD still have difficulty disposing of white goods, refrigerants, and PCBs. Besides the problem of illegal appliance disposal in roadside dumps, an added concern is that refrigerant gasses may be released to the atmosphere due to improper disposal. The District wishes to develop measures to reduce such improper disposal of these used materials.

3. Public Outreach

Educational activities are those that relate directly with teaching in a student-teacher environment. Such activities would include curriculum development and provision of teaching materials to schools. Other activities such as web page development and maintenance, advertising of District events and accomplishments and meetings with governmental and citizen groups can be characterized as public outreach. The MMSWMD seeks to identify how its resources can best be utilized in these areas. One issue to investigate is how MMSWMD activities can best synergize with local, state and federal efforts in solid waste education and outreach.

4. Electronic Waste Management

E-waste has been identified as any discarded appliance that uses electricity. The recently enacted (August 2008) Missouri Law concerning computer recycling and reuse is found in Chapter 260.105 to 260.1101. This law addresses the responsibility of computer manufacturers to provide recycling or reuse of their computers to consumers at no additional cost. MMSWMD's goals for e-waste management extend beyond the limited scope (computers only) of this new law, encompassing all types of e-waste. Emphasis in this area will be on items that contain hazardous substances such as cathode ray tube screens, cell phones, personal digital assistants (PDAs), and computer components.

5. Grant Focus: Diversion or Conversion?

The District wishes to conduct its grant process to optimize its effectiveness in attaining the District's goals. One issue to be addressed is how to rank projects that will divert waste to recycling streams versus projects that will result in conversion of wastes to entirely different products. The current downturn in recycled product markets provides a window of opportunity to develop industries that can convert mid-Missouri wastes to new products and reduce the amount of waste being landfilled. Waste-to-energy activities may be a significant portion of waste conversion efforts.

6. Partnership Potential

Partnerships are tools that can be used to improve the MMSWMD's ability to address all of its priorities. When the District considers any project or activity, it should ask whether any other entity is providing a similar service. It should also ask whether engaging another person or group might lead to enhanced results for all parties involved.

7. Scrap Tire Management

New EPA air emission regulations have inadvertently led to a reduction in use of tire-derived fuel by electric utilities. Identification of alternative markets for this resource is needed.

8. Rural Recycling

Rural areas are impacted by white goods and waste tire disposal choices and opportunities, as well as illegal dumping. Local perspectives on these issues are essential to the District's success in rural area recycling and waste management.

9. College and University Recycling

Outreach efforts to the colleges and universities in the MMSWMD region should result in positive recycling efforts. The District's role may be to serve as a catalyst to bring together recycling coordinators or other waste management leaders from the several campuses so that they can form their own network to share ideas and possibly obtain some grants to enhance their campus-specific activities. Also, the District may be able to use campus recycling groups to serve as volunteers for community activities beyond their campuses.

10. Recycling and Material Recovery Facilities

These facilities are critical partners in solid waste management. Specifically, sheltered workshops are facing two major concerns at this time. One general concern is that they may experience funding cuts as a result of the economic downturn. More specific to their recycling efforts is the glut in those markets resulting in decreased revenues and in some cases loss of materials due to insufficient storage facilities. These latter issues are also impacting for-profit material recovery facilities. Creating alternative markets, such as energy products, for these facilities to use as a supplement or a replacement for recycling markets may be a necessary action to avoid seeing many previously recycled materials ending up in landfills.



11. Construction/Demolition (C&D) Material Recovery

Significant reductions in tonnage delivered to landfills can be accomplished through successful C&D material recovery efforts. Successful programs in other areas need to be studied to identify how such efforts can be fitted to mid-Missouri's needs. This effort will require education/outreach efforts and may result in development of partnerships and physical facilities to enable creation of critical amounts of materials to enable their use in alternative applications such as road base materials or energy products.

12. Direct Reuse Programs

Columbia has one direct reuse facility that collects used binders and other materials that can be reused by teachers. The District wishes to investigate spreading this model to other communities. Habitat for Humanity ReStores serve a similar function in the construction industry. In Jefferson City, the Missouri State Agency for Surplus Property (MOSASP) obtains surplus property from the Federal Government and donates it to eligible nonfederal entities for a service charge. Other existing direct reuse facilities in the District include pawn shops, secondhand stores, antique shops, flea markets, and swap meets.

4.3.1 District Input

In a working meeting with Gredell Engineering, MMSWMD Staff and several Board Members identified, through brainstorming, forty-one (41) solid waste topics as potential "Targets" for improving solid waste management service in the District. This list of 41 ideas was circulated to District Board Members, Advisory Board Members and other Stakeholders. Members and Stakeholders were asked to rank the items based on their individual or organizational perspective.

Gredell Engineering analyzed the responses from the Members and Stakeholders, and selected the top 50% of ranked ideas for further evaluation. This list of the top 50% topics was further streamlined through combining like items to create a final list of twelve (12) "Targets for Service Improvement".

In conjunction with District Staff, Gredell Engineering created a brief description of the 12 Targets, and put them in the order of the most responses and the highest "rankings" by members or stakeholders. This order of Targets represents the rank by weighted responses, but not necessarily the District's priority level for each Target. Likewise, the absence of an Item does not mean that it is not an important solid waste management issue for the District.



4.3.2 Stakeholder Public Meeting Input

At each of the eight (8) public meetings, written comments forms were available to Stakeholders attending the meetings. A separate form was available for response to each of the twelve (12) individual Targets for Service Improvement. A paraphrased summary of the written comments received at the public meetings, organized by Target, follows:

1. Household Hazardous Waste (HHW) Management

- *The State (MDNR) needs to make Conditionally Exempt Small Quantity Generator policies that produce a revenue stream for HHW centers, and make legal, affordable hazmat service available to small business/institutions*
- *Need affordable methods of hazardous waste disposal for small businesses.*

2. Appliance Recycling

- *Revive/advertise the Freon Certification (extraction) program, to make use of certified extractors.*
- *Require appliance retailers take old appliances for recycling*

3. Public Outreach

- *Youth education is key, start young to create life-long recyclers*
- *MMSWMD should continue to advertise its services via the website and direct mailings.*
- *Use MORA to develop video and other PSA resources to share.*

4. Electronic Waste Management

- *Would like help from the District to create partnerships between sheltered workshops and e-waste recyclers.*
- *Require electronics retailers to take old electronics for recycling*
- *Should e-waste be separated from whole solid waste management system? Is some efficiency or volume lost by separating many types of waste streams for recycling? Make e-waste part of HHW?*

5. Grant Focus: Diversion or Conversion?

- *Develop a business that produces heating pellets from paper and textiles.*

6. Partnership Potential

- *Potential partnerships between a "green waste" recycling contractor and municipal governments. "Green waste" consists of tree branches, yard waste, etc., which are recycled to create mulch, compost, and firewood.*



- *More active participation from cities and counties within the District is needed, so that the entire burden of solid waste management is not on the District staff alone.*

7. Scrap Tire Management

- *Combine tire, HHW, e-waste, white good District collection events for a “one-stop shop” for the community.*
- *If EPA creates rules that make scrap tire recycling difficult, put pressure on EPA to suggest/create viable alternatives.*

8. Rural Recycling

- *Mandatory rural solid waste collection is more important than rural recycling programs. Illegal dumping is a bigger problem than landfill diversion of rural waste through recycling. County commissions should “lead the charge” to close illegal dumps and stop dumping.*
- *Opportunities for flat glass recycling?*

9. College and University Recycling

- *College recycling programs should take advantage of the compact concentrations of people on campuses which could possibly generate viable amounts of material from a relatively small area.*

10. Recycling and Material Recovery Facilities

- *MRFs are a great asset to the District’s solid waste management system, and these facilities should not be evaluated only on a cost/benefit basis.*
- *Facilities that accept as many materials as possible, in addition to facilities with a large capacity for waste handling, are vital to the District. Partnerships are key to financial viability for these facilities.*

11. Construction/Demolition (C&D) Material Recovery

No written comments received

12. Direct Reuse Programs

No written comments received

4.4 Opportunities for District Income and Partnerships

Solid waste management districts are empowered by state statute to “enter into contracts with any person for services related to any component of the solid waste management system.” This is in addition to the more specific allowance to contract with “any city or county within the district”. Any contract or agreement may be entered into so long as it allows the district to fulfill



its responsibilities under RSMo260. Such agreements could be structured for funding to the district to provide resource recovery and recycling activities. The exact nature of such a contract is contingent on the ability of the parties to create a commercially viable relationship. Such a relationship would only be appropriate if no private firms are providing the service(s) the contract would supply.

Because such relationships are so hard to develop, the main source of extra funding for solid waste management districts is through private or governmental grants. The District may seek to obtain some grants to use for its own activities, such as a demonstration or outreach activity. Other grants could best be sought in conjunction with a member government, a private firm, or a public-private partnership. In the case of a private firm, the District's role would probably be to help obtain the grant for the use of the other parties.

The District could work to facilitate viable partnerships by continuing to host solid waste management "summits" for varying groups of stakeholders. The District can bring together different groups with partnership potential, then facilitate discussions and information sharing (e.g. sheltered workshops and small recycling businesses).

Grants can come from state agencies such as the Environmental Improvement and Energy Resources Authority (EIERA) or the Department of Economic Development (DED) for market development activities, and possibly from the MDNR Energy Center for alternative energy grants. EIERA grants cover 75% of the cost of manufacturing equipment and machinery (up to a maximum of \$50,000), to either manufacture products that contain recovered materials, or to add value to recovered materials that will be used by others.

During federal fiscal years 2009 and 2010, the potential for obtaining funds for projects starting new companies is being discussed as a growing opportunity. Information on grants from all federal agencies can be accessed at <http://www.grants.gov>. Grants can also come from the United States Department of Agriculture (USDA) for infrastructure, rural development business expansion, or development activities.

USDA Rural Development (RD) operates the Renewable Energy Systems and Energy Efficiency Improvements Program. The program is designed to help agriculture producers and rural small businesses reduce energy costs and consumption and help meet the nation's critical energy needs. The funding is available in the form of grants (\$1,500 to \$500,000), guaranteed loans (\$5,000 to \$25 million), and loan and grant combinations. Feasibility study grants (\$1,500 to \$50,000) are one option that could help determine the viability of new recycling businesses with a renewable energy or energy efficiency component. This is a highly competitive national program with matching funds requirements. Application materials for this or other RD financial assistance program may be obtained by contacting the USDA Rural Development State Office, listed at http://www.rurdev.usda.gov/recd_map.html or by downloading at <http://www.grants.gov>.



Private foundation grants are another source of funding, but due to the recent downturn in the economy these groups have less funds available now than in years past. USDA Resource Conservation and Development Councils in Missouri have sponsored 2-3 day short courses on how to apply for public and private grants.

Another potential source of funding for the District is the possibility of selling advertising in the MMSWMD newsletter. This is already being done in other districts with MDNR approval. Selling advertisements on the District's website is another option, but MDNR recommends that districts check with their legal counsel to make sure such advertisements will not create a conflict of interest, or the appearance thereof.

One portion of the 2009 federal stimulus programs provides for a federal government salary for employees hired into green industries. Information on program details can be obtained from Central Missouri Community Action. Such staff could perform many activities, such as developing educational materials and assisting with feasibility studies.

5.0 GUIDANCE FOR FUTURE SOLID WASTE MANAGEMENT SYSTEMS AND PROGRAMS

As previously stated in Sections 3.0 and 4.0, waste management “systems” can be both publicly owned and operated or privately owned and operated, while waste management “programs” are typically promoted and/or managed by public agencies. The District can have an influence on the development and direction of “systems”, but ultimately the individual District members or the private businesses within the District boundaries will make final decisions on development and direction of waste management systems. However, the District can influence the development and direction of “systems” by its programs. Since the District is governed by the individual District members, the decisions on how to promote and develop the direction of new or future programs is ultimately determined by “the will of the people” that live within the District boundaries.

Approximately 60% of the households in the District are considered “urban” and approximately 67% of the District’s population lives in the two most populous counties – Boone and Cole Counties. Boone County had the highest estimated percentage population growth between 2000 and 2008. Also, approximately 50% of the District’s population lives in the largest city within each county. These statistics suggest that the future systems and programs of the District must be balanced to meet the needs of the “urban” households, while not neglecting the needs of the “rural” households.

5.1 Future District Systems Guidance

As described in Section 3.1, the District’s systems have been broken down into five categories: reduction and reuse; recycling; composting; targeted waste streams; and disposal and processing. Where appropriate, the twelve targets for service improvement (Section 4.3) have been incorporated into the guidance for new or future systems.

5.1.1 Reduction and Reuse

By definition, waste reduction must be practiced by the waste generators, be they individuals, government agencies or private businesses. Therefore, waste reduction is not a “system”, but a “program”. Therefore, waste reduction will be addressed in Section 5.2.

The existing direct re-use facilities fall into one of three categories: government agencies (Missouri State Agency for Surplus Property or MOSASP); community-based organizations (Habitat for Humanity and The Reusables); and “for-profit” businesses. There is a limited amount of influence that the District can have on these facilities, because they all exist for specific reasons and have specific, targeted purposes.



- MOSASP is a well established agency that exists in the District due to the State government headquarters location in Jefferson City. This agency could potentially benefit from additional publicity in order to expand its customer base. It would be difficult to increase the amount of materials accepted for “direct reuse” from non-governmental agencies.
- The existing community-based reuse systems provide a focused outlet for good quality, re-usable products. These are a narrow group of organizations that operate “fund raisers” for community assistance programs or to serve a specific community need. They should be encouraged to expand the materials that they accept and the number of geographic locations from which they operate to expand their market base and increase their accessibility to the District populous.
- The existing “for-profit” businesses are based on the economic model of “supply and demand”. They range from national “chains” (e.g., Goodwill) to small, local entrepreneurial shops to individual “garage sales”. The larger businesses might benefit from grants to promote their businesses, expand their facilities or acquire specialty equipment. For the small businesses and individuals, the District could consider the development of a “bulletin board” or other “free” advertising list accessible through their web site or provide links to other local web-based barter and trade lists (i.e., Craigslist).

The materials that are currently being directly reused include office furniture, construction materials, household items and clothing. In order to achieve greater direct-reuse diversion from disposal within the District, waste generators need to be educated that there are options other than disposal available to them. The District can impact this through its education programs or through soliciting grant applications from the direct reuse facilities for advertising and self-promotion.

5.1.2 Recycling

The District’s recycling systems can be categorized as either: collection of recovered materials; or outlets (or end use) for recovered materials. Both are necessary components of a successful recycling program.

The collection systems for recovered materials are among the most mature systems within the District, meaning that they have been in existence the longest and are the most wide-spread and sophisticated. The development of these systems is typically driven by both the demand for service by the public and the financial value of the recovered materials. These systems are essentially “public services” provided to the customers, both individual households and smaller businesses. Large businesses that generate large quantities of recovered materials (i.e., OCC or paper) are able to develop their own internal recycling collection systems due to the financial advantages to their bottom line.

Outlets, or end uses, for the recovered materials are equally important, but are more susceptible to financial market forces. These systems require foresight and management to optimize the financial benefit of the recovered materials. Commodity markets are typically not influenced by local economic or business conditions, but are impacted by regional, national or international commodity markets.

The collection systems must be viewed as a public service that will always “cost” the customer a direct or indirect fee to utilize. The actual cost depends on the “outlet markets” and will fluctuate (sometimes wildly) over time. These systems can be provided by “for-profit” companies, like as a contractor providing curbside service to households within a local governmental agency. Outside of incorporated areas, the service will be dependent on the density of populations and the degree of “convenience” offered to the customer or household. The District can encourage intergovernmental partnerships or public-private partnerships to optimize the services and minimize the costs. **The District should continue to support certain equipment purchases to add efficiencies to the collection systems, thus minimizing costs. By helping minimize the costs, recycling collection services may be able to be provided to new service areas throughout the District.**

The recovered materials outlet systems are more often controlled by private businesses and are more dependent on regional, national and international commodity markets. However, development of energy recovery from recovered materials may provide an opportunity for local outlet market development. **The existing power plants within the District should be encouraged to develop opportunities for experimentation with locally generated recovered materials as renewable energy sources or alternative energy sources. State, county and local economic development agencies should be provided with information about the quantities of recovered materials available within the District and the collection systems that are in place that can provide sustainable material flows. The grant process should be promoted as another piece of the financial incentives available to industries looking to locate or expand in mid-Missouri.**

Manufacturing Using Recovered Materials

There are currently very few manufacturers using locally-generated recovered materials in the District. The relatively low population and population density of the District limits the total amount of recovered materials available in mid-Missouri and works against the economic concept of “economies of scale”. However, mid-Missouri’s central geographic location within the state and with respect to the two largest population centers, plus access for both truck and rail transportation systems and strong employee work ethics give mid-Missouri many advantages for the future development of manufacturing facilities that would utilize recovered materials. Local Chambers of Commerce and state and local economic development agencies are constantly working with prospective in-state and out-of-state industries to expand or locate new facilities in their communities. **The District should develop partnerships with state and**



local economic development agencies to promote the availability of grants for industries that will utilize locally recovered materials for the manufacture of new products.

Rural Recycling

Recycling service gaps exist in the rural, sparsely populated areas of the District. **While the District cannot force a recycling service to cover a particular geographic area of the District, they can potentially promote the development of an entrepreneurial business by advertising opportunities to the existing recycling industry and to the general public in order to educate the public and the business community about existing needs and potential opportunities.**

The recycling collection services in the more rural, less densely populated geographic areas of the District are heavily supported by not-for-profit “sheltered workshops” and other not-for-profit industries that promote employment opportunities for physically, mentally or emotionally challenged individuals. These organizations have two primary advantages to private, for-profit businesses in providing this service. First, not-for-profit industries have a financial advantage due to their tax status and potential subsidy. Secondly, their clients/workers enjoy and excel at the type of work required to separate, sort and process mixed or commingled recyclables. In addition, these types of businesses provide a two-fold benefit to the local community: a recycling collection outlet; and employment opportunities. Because of their “not-for-profit” status and the dual benefits that they provide to the community, the District and their membership should promote the expansion and viability of these industries, through District grants and through financial partnerships that promote “win-win” situations in the community.

Glass Recycling

It seems to be common knowledge within the solid waste management community that the general public consistently expresses a desire to have local recycling opportunities for glass containers. At this time, glass recycling is marginally self-sustaining from a financial standpoint, but the availability of glass recycling is seen by the general public as a “litmus test” for the success of local recycling systems. **Establishing sustainable glass recycling within mid-Missouri is an example of where public/private partnerships may be the best business arrangement. The real or perceived benefit to the public from a viable glass recycling outlet may allow the District, a city, or a county to financially support and/or subsidize a glass recovery process to the point of financial sustainability.**

5.1.3 Composting

The District’s composting systems can also be categorized as the collection and processing of yard wastes and as outlets (or end uses) for the processed materials. As with recycling, both are necessary components of a successful composting program. For purposes of this

discussion, “composting” includes both active composting, passive composting and “mulching” of yard wastes (leaves, limbs and grass clippings).

As with recycling, the collection, processing and outlet systems for “composted” yard waste materials are among the most mature systems within the District. Overall, the yard waste collection and processing systems are considered to be stable and sustaining systems, as evidenced by the lack of mention in the twelve targets for service improvements. The development of compost systems has historically been driven by the demand for service by the public, due primarily to the “ban” on disposal of this material in sanitary landfills in the 1990’s. So these systems are also “public services” provided to the customers, both individual households and local small businesses. Commercial businesses that generate large quantities of yard waste materials either pay to use the local public service or it is economically attractive for them to process their own yard waste materials in order to minimize the impact to their bottom line.

The outlets, or end uses, for composted materials are generally “local” markets, due to the cost to transport the product long distances and to the fact that the “raw materials” (e.g., yard waste) are readily available in every community. Supply of raw materials is steady and demand for the end product is dependent on the quality of the finished product. The less processed or refined the “finished compost”, the less desirable and, therefore, less valuable, the end product is to the public.

Collection of yard waste must be convenient to the customer and cost effective to the governmental entity providing the service. The District can assist with equipment purchases to make collection as efficient and cost effective as possible, but there are limitations based on size of the community.

Processing costs can also be minimized primarily by providing grants to purchase processing equipment. If the District assists in the purchase of processing equipment, they will also increase the desirability of the end product and thus indirectly increase the “outlet” markets for the finished compost or mulch. Long-term, the potential for recovery of energy or the production of alternative fuels from yard waste materials may offer the most financially attractive and environmentally sustainable end use. However, the transportation costs may currently be prohibitive in generating the quantities necessary in one location to make energy recovery or alternative energy production financially feasible. As energy costs are inevitably going to increase over time, the financial feasibility of energy recovery from yard waste materials will likely become increasingly more attractive.



5.1.4 Targeted Waste Streams

Targeted waste streams, as used in this context, include infectious wastes, scrap tires, household hazardous wastes, and electronic wastes. Each type of targeted waste stream is discussed individually below.

Infectious Waste

- Infectious waste is uniquely regulated under the Missouri Solid Waste Management Law. The District has one facility located within its boundary, but other “systems” may operate within the District as collection only, and without specific facilities within the system. **The District should promote awareness of the requirements for infectious waste packaging, transportation, processing/treatment and disposal as a general public service.** However, the existing systems are “market driven” and likely cannot be improved significantly with District involvement. alone

Scrap Tires

- Like yard waste, scrap tire (or waste tire) systems are driven primarily by a “ban” of this material from disposal in sanitary landfills in the 1990’s. In addition, a significant public health issue is caused by the illegal dumping of large quantities of tires in rural areas. While tire retailers are required to provide disposal opportunities, this is not a free service. A state-wide waste tire system has been developed in response to the disposal ban and regulation of tires, however, this system primarily addresses the storage of larger quantities of tires and the subsequent processing and disposal of the collected tires. The District has taken a pro-active approach to providing a collection system for smaller quantities of waste tires from individuals within the district. Although the number of tires available from individuals theoretically decreases with each tire collection event, the tire collection events remain very popular with individuals and government officials within the District. **Therefore, the District should continue with the waste tire collection events held in individual counties and rotated throughout the District every two to three years until the number of tires drops precipitously.**

Household Hazardous Waste

- The household hazardous waste (HHW) collection system in the District has historically been very limited. The City of Columbia has provided a permanent collection facility with a limited number of operating days since the 1990’s. More recently, the City of Mexico has opened a permanent collection facility using a different operating model provided by a commercial hazardous waste company based in Arkansas. The District governance has targeted the establishment of additional household hazardous waste facilities throughout the eight counties of the District as its #1 target for service improvement. The operational model used by the City of Mexico (and several other municipalities throughout the state) has the potential to provide a very economical system. **The District should work with at least one community within each county**



to support the establishment of a permanent HHW collection facility using the operational model used by the City of Mexico.

Electronic Waste

- Electronic waste is an emerging national issue for municipal solid waste landfills. The large quantity of waste, the potentially recoverable natural resources in the form of “precious metals” and the potential environmental impact from those precious metals have created a public policy demand for the diversion and recycling of electronic wastes from the municipal solid waste stream. A 2008 Missouri law (and subsequent rule currently under development) will require the removal of certain electronic wastes, such as computer equipment from the municipal solid waste stream, but many electronic appliances and devices are exempt from this law. Therefore, there is a public demand for electronic recycling service. However, adequate local systems are not yet in place to collect electronic wastes to meet the public demand. **The District should continue to provide special event collections, while seeking to encourage local government or private entities to establish more permanent, local collection systems.**

5.1.5 Disposal and Processing

Considering the available airspace in the three active landfills currently operating in the District, sufficient solid waste disposal space will be available in the District for the ten (10) year planning period of this guidance document (2009-2019). **The District should take a supportive position for any appropriately sited and designed solid waste disposal facility or solid waste processing facility proposed in Region H.**

As an alternative to disposal, District consideration should be given to projects and facilities that promote the conversion of solid waste to energy. When the EPA implemented the Resource Conservation and Recovery Act in the early 1980's, it established a hierarchy for Solid Waste Management systems. This hierarchy is summarized as: Reduce; Reuse; Recycle; Dispose. In the 1980's, energy recovery was relegated to the same status within the hierarchy as landfill disposal. At that time, energy was recovered from solid waste by mass combustion of mixed solid waste streams. This led to the conclusion that using solid waste for energy production would preclude the recovery of plastics and fiber products from the waste stream and, in part, prevent recycling from gaining public popularity and acceptance.

The current national, social, and political climate is emphasizing energy efficiency, sustainability and energy independence. This theme will likely remain a high government priority for the foreseeable future. Development of new technologies that can convert non-recoverable organic wastes into liquid fuels has opened new avenues for producing energy from solid waste.

Within the District, the University of Missouri-Columbia campus currently utilizes tire-derived fuel in partnership with DNR and the Department of Corrections. The Central Electric Power



Cooperative power plant at Chamois, Missouri has tested and used a variety of alternative fuels over the years, some produced within the District boundaries and some from outside of the District. Outside of the District, the Missouri cities of Chillicothe and Marshall have used pelletized waste paper as fuel in their municipally-owned electric plants.

During the public meeting process, interest was expressed in the development of a pellet fuel manufacturing facility that could serve multiple communities by utilizing a combination of waste paper. This effort could also include the use of sustainable agricultural fibers.

The District should consider opportunities to partner with the local energy industry to utilize locally recovered materials as fuel sources. This is particularly important to the smaller, local energy facilities currently located within the District's border. The District can consider financial support of technologies that convert wastes into liquid fuels or other forms of energy. Initially, the District could support these efforts through funding for feasibility studies and then later, in implementing new industry through viable public, private or public-private partnerships.

5.2 Future District Program Guidance

As described in Section 3.2, the District's programs have been identified as the Grant Program, solid waste (targeted waste stream) collection events and a broad educational program. Future solid waste activities conducted in the District may be funded by public or private entities. Where appropriate, the twelve Targets for Service Improvement (Section 4.3) have been incorporated into the guidance for new or future programs.

5.2.1 Grant Program

The Grant Program is a very important tool for achieving the goals of the MMSWMD, and at least one half of the funding received from MDNR each year must be used for this program. Each year, the District should identify those plan implementation elements that can best be achieved by the District, versus those that can be best implemented by other entities through the grant process. District grants can support existing non-profit and for-profit partners and enable new businesses to overcome the initial costs of entry into waste management-related opportunities.

Existing grant procedures are well constructed. The following recommendations for future grant programs offer guidance for how to better assure that grant monies awarded in the program are addressing the District's Targets for Service Improvement.

- **Use Plan Implementation (PI) funds to continue to refine system needs so that the grant program can better target key District needs. An example would be to investigate the potential for local firms to cooperate to pick up pallets,**

cardboard or other wastes on location, or a waste characterization study. If a study shows a need, then the grant program can target that area.

- Promote grants to cities, counties and industries that reduce waste at the source. This could include funding of “waste audits” or industry or community specific educational programs that target waste reduction approaches such as “consumer activism” with regard to packaging materials.
- Annually review, and if appropriate, adjust the bonus point system to reward applications that most closely address the District’s plan to improve solid waste management in the District.
- The District should consider using a request for proposals (RFP) process for some District grant awards. This process can better address situations where a major program gap needs to be filled by some entity or partnership other than the District. Functionally, this means that for some grants, rather than identifying a targeted area, the District would develop, either internally or through a contractor, a project scope document and then invite applicants to submit proposals that would address that scope of work. This process takes more District resources to implement, but it may result in the District funding major projects that are tailored to addressing specific District needs rather than projects that tend to address applicant needs with somewhat less impact toward meeting long-term District goals.
- Focus on supporting and encouraging businesses that create markets for recovered materials.
- For education/outreach grants, award more points to projects that: involve partnerships, are tied to increasing material recovery, involve large audiences (e.g. teachers) that will share the message with other groups, and projects that can reach rural audiences.
- Encourage partnership development through the bonus point system and in the RFP process.
- Target grant awards into areas identified through the Public Meeting and questionnaire processes including:
 - Filling service gaps in the most rural areas of the district
 - Local market development and recovered material use
 - Projects that convert waste to fuels or energy recovery from wastes.

- **Education and outreach**
- **Continued support of sheltered workshops and other non-profit partners**
- **Consider using grants to clean up small, illegal dump sites identified by private landowners using the following criteria: the wastes are “historic” and were not placed by the current landowner; there is a “public benefit” to the clean-up (i.e., removes an aesthetic “eyesore” or eliminates a source of direct water pollution); there is a recycling component to the clean-up; and there is an educational component to the clean-up. The educational component can be in the form of signage to discourage future dumping and promotion of the District’s goals and objectives to the local public.**

5.2.2 Collection Events

The District's collection events have been an effective tool and have played an important role in filling the gaps in the solid waste collection and processing services. The collection events have rightfully targeted specific wastes for which there does not exist a sustainable, financially viable collection system for recovered materials, but for which there exists a technically feasible (if not financially feasible) outlet for the recovered or diverted materials. These special events have historically targeted household hazardous wastes, waste tires and, more recently, electronic waste. Positive comments were received regarding the collection events from both individual citizens and public officials throughout the District. **These collection events should be continued, to the extent that the District budget allows and the public demand for the service continues.**

Over time, the development of public or private self-sustaining systems may eliminate the need for certain District collection events. For example, the future establishment of additional, permanent household hazardous wastes facilities may lessen or negate the need for future, collection events. Additionally, as future, specific waste categories are identified as either undesirable for landfill disposal or attractive for recycling and/or resource recovery, the District may organize and implement a new type of collection event in response.

The District should consider organizing major appliance collection events in the future. These events could become popular and viable for the collection of older major appliances if scrap metal markets become limited because of depressed prices, or for the collection of newer appliances, largely composed of plastics, as they reach the end of their service lives.

5.2.3 Education Programs

The District has established a good base for education and outreach activities. Some suggestions are provided to build upon and improve the effectiveness of this base. The key to



gaining acceptance for waste reduction, reuse and recycling is to emphasize not only the environmental benefits, but also the economic and social benefits of such activities.

- **Build upon the work the District has begun with colleges and universities. Students could help develop public service announcements regarding proper waste management actions for use on college radio stations as well as in newspapers. They could help develop and produce video announcements for use on cable public access channels. A stipend could be provided either through district DO/PI funds or through grants awarded to schools.**
- **Identify recycling programs in small communities and provide them with publicity materials and resources to expand their client bases, thus increasing material diversions.**
- **Continue to populate the District's website with information on the District as well as general solid waste information materials.**
- **Promote or advertise recycling or resource recovery business opportunities or service gaps within geographic portions of the District.**
- **Work with local economic development groups and Chambers of Commerce to promote the reuse, recycling and resource recovery opportunities in the District.**
- **Promote waste reduction practices to consumers/citizens and businesses/industries throughout the District.**



6.0 MEASURING DISTRICT EFFECTIVENESS

The effectiveness of the District's Guidance Plan is dependent on proper and thorough governance and administration in the District, active involvement from the District's stakeholders, and awareness of potential obstacles to the Plan's success.

6.1 Measurements of Service Improvement

Measurement of progress within the District's twelve (12) Target areas is integral for evaluating Plan effectiveness. A measureable goal must be delineated for each Target. These goals represent improvements to be made across the next 10 years (2009-2019). Methods of progress measurement for each of the Targets are outlined below:

- 1. Household Hazardous Waste (HHW) Management**
 - *Increased number of permanent HHW facilities established in the District.*
 - *Increased number of operational days that HHW facilities are open to the public.*
- 2. Appliance Recycling**
 - *Increased number of sustainable, local appliance reuse/recovery/recycling opportunities in the district.*
- 3. Public Outreach**
 - *Conduct periodic public outreach surveys to actively engage the District stakeholders in developing district guidance.*
- 4. Electronic Waste Management**
 - *Eliminated some or all of the District-funded Electronic Waste Collection events due to the presence of sustainable, local electronic recycling outlets.*
- 5. Grant Focus: Diversion or Conversion?**
 - *Modified the grant process as needed to target conversion of recovered materials to products or energy, in accordance with state laws, regulations or policies.*
- 6. Partnership Potential**
 - *Modified the grant process as needed to target public-public, public-private or private-private partnerships.*
- 7. Scrap Tire Management**
 - *Eliminated some or all of the District-funded Scrap Tire Collection Events due to the presence of sustainable, local recycling outlets OR due to the lack of demand from the public.*



- *Eliminated private tire dumps with over 250 scrap tires.*
 - *Updated scrap tire management in light of current state laws, rules and policies.*
- 8. Rural Recycling**
- *Increased recycling outlets/opportunities in all towns with a population of over 500.*
 - *Increased recycling opportunities for rural citizens within each County.*
- 9. College and University Recycling**
- *Promoted the establishment of more campus office recycling programs.*
 - *Promoted the establishment of more campus beverage container recycling programs.*
 - *Hosted annual College/University Summit for campus waste management representatives.*
- 10. Recycling and Material Recovery Facilities**
- *Promoted the establishment of additional public or private resource recovery facilities OR*
 - *Promoted the establishment of a cooperative resource recovery facility within the District.*
- 11. Construction/Demolition (C&D) Material Recovery**
- *Assisted commercial and/or residential construction companies located within the District in developing "job site" recycling systems.*
- 12. Direct Reuse Programs**
- *Developed website links to direct reuse programs.*
 - *Developed website links to direct reuse or resale listings.*

6.2 Potential Obstacles to Plan Effectiveness

Several issues could potentially limit or diminish the effectiveness of this Guidance Plan. One potential obstacle to the MMSWMD effectively implementing some of its Targets for Service Improvement is the lack of recognition from the public/communities that recycling is a service, and therefore requires a pay structure of some kind. Recycling services, especially those funded by grant monies, can be perceived to be "free" services, which can result in a reluctance on the part of municipalities, organizations, and individuals to adequately fund local recycling collection and processing facilities or services. Despite the diligent efforts of the District, the Missouri Department of Natural Resources and the US EPA, more work is still needed to inform



and educate policy makers, businesses and the general public as to how reduction, reuse and recycling can benefit our environment and our economy. This potential for a lack of adequate funding for recycling services could limit the scope of some of the District's most ambitious recycling programs.

A second potential obstacle to the complete success of the District's plans is the reality of global economics, as it relates to the recovered materials market. The highly fluctuating values of recovered materials can make it difficult for small businesses to remain financially viable during times of depressed market prices. A potential solution to this obstacle is for recycling businesses to enter into partnerships with municipalities, not-for-profits, and others, so that they could be somewhat sheltered from the volatility of the recovered materials resale markets. The development of local markets for recovered materials is a critical barrier that must be overcome if the District is to create a locally viable, self-contained system for resource recovery, and for full recycling of these materials into new products. Partnerships are a means of overcoming this barrier, but federal and state governments must be supportive of non-traditional methods of recycling, such as conversion of organic materials to energy products, either in coordination with fiber reuse or as stand-alone energy systems. However, it must be noted that the development of public-public partnerships with other solid waste management districts will be difficult due to the low population densities and physical distances between communities in the other solid waste management districts surrounding the District.

District policy should periodically be reviewed and updated to reflect changes to state solid waste management laws, rules and policy. This will help ensure that the District guidance plan does not restrict future participation in available programs.

6.3 Evaluation of Grant Effectiveness

Grant effectiveness should be measured in terms of output and outcomes. Outcomes are the impact realized by creating outputs. In some cases output and outcome may be the same, i.e. the purchase of a baler enables a recycler to increase tonnage output. In this case, the output is essentially the same as the outcome – increased resource recovery. All grant applications should include a discussion of expected outcome results. For instance, if a grant's output is a teacher workshop, the expected outcome might be increased levels of recycling at the school. Grantees should be required to provide output and outcome data to the District. Both output and outcome measures should be tracked in a manner that allows results to be readily compared over a period of years.

Metrics for tracking outputs might include: tons of solid waste diverted, processed, or reclaimed, numbers of tires collected, and pounds or gallons of hazardous waste collected. To track the outputs of information or outreach activities, the number of events and the number of people attending each event should be tracked.



The following recommendations are provided to improve the District's ability to track and measure grant effectiveness:

- Build upon the grant tracking system used by the District since 2007. Focus on tracking key data such as: recipient type, county location, grant amount, match amount, and materials diverted.
- Be consistent with grant tracking terminology.
- Document changes to District data tracking methods that occur as a result of changes to MDNR grant policies and requirements. If grant program requirements change in a significant way, make sure that those changes and their impacts on District data tracking are well documented.
- The District will commit resources to develop and maintain a tracking system.



Appendix 1

District Stakeholder Questionnaire- Summary Report

Appendix 1
District Stakeholder Questionnaire - Summary Report

Summary of Responses to Select Questions

Total Number of Surveys Returned = 77

Which best describes the organization you represent and its location?

Manufacturing	1	1%
Commercial	16	22%
Institutional	18	24%
K-12	5	7%
University	5	7%
Other*	23	31%
Private Citizen	6	8%
Total	74	

* Known "Others" include: sheltered workshops, a river cleanup organization, a direct-reuse school supply store, and a church

Which best describes the county you represent and its location?

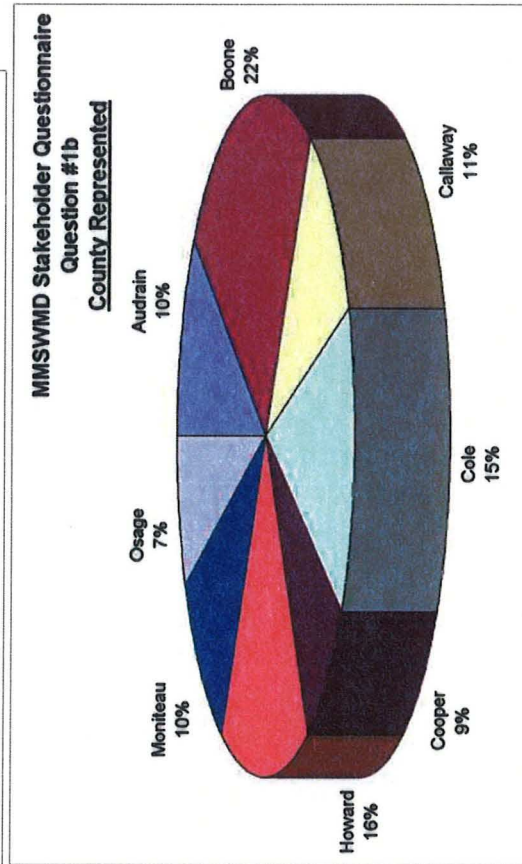
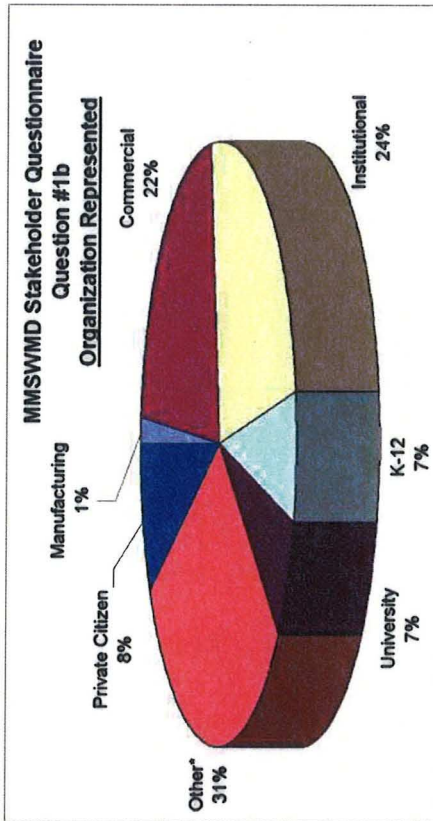
Audrain	8	10%
Boone	19	23%
Callaway	9	11%
Cole	12	15%
Cooper	7	9%
Howard	13	16%
Moniteau	8	10%
Osage	6	7%
Total	82	

Does your organization have a recycling program?

Yes	48	67%
No	24	33%
Total	72	

Is your organization interested in waste reduction, reuse and/or recycling efforts?

Reduction	38	30%
Reuse	36	28%
Recycling	54	42%
Total	128	



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Appendix 1
District Stakeholder Questionnaire - Summary Report

Summary of Responses to Select Questions

Is your organization interested in waste reduction, reuse and/or recycling efforts?

If Yes, indicate targeted materials

Paper	45	22%
Glass	30	14%
Metal	35	17%
Plastic	41	20%
C/D	19	9%
Food Waste	14	7%
Yard Waste	24	12%
Total	208	

Are you interested in waste management partnerships to create cost-effective reuse or recycling opportunities?

Yes	41	57%
No	11	15%
Already Are	20	28%
Total	72	

Were you aware of the Mid-Missouri Solid Waste Management District before receiving this survey?

Yes	65	87%
No*	10	13%
Total	75	

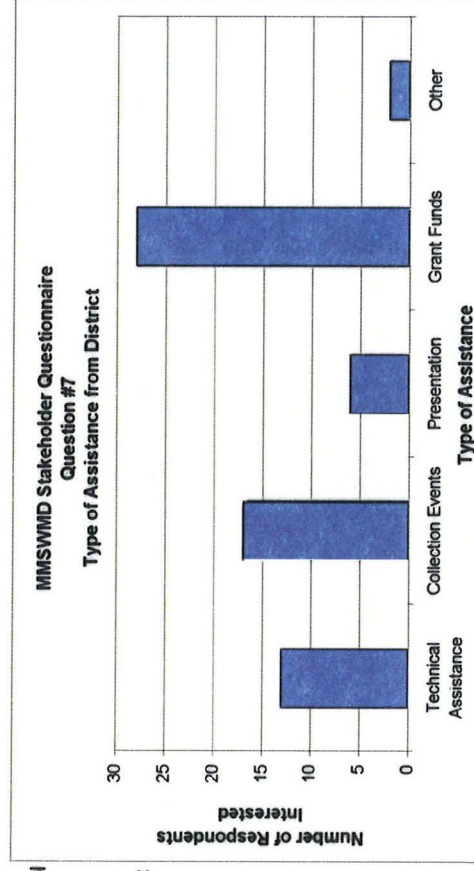
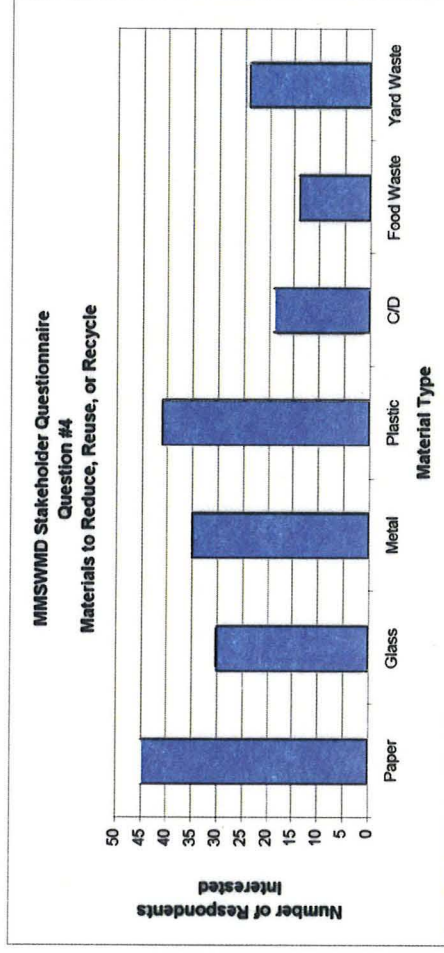
* Those who responded "No" included Kraft Foods, Boonville R1 School District, Village of Wardville Board of Trustees, Stephens College, Cole County R5 School District, KRCG-TV, Braik Brothers Tree Care and Green Waste Recycling, United Security Bank, and two (2) private citizens in Howard County

If you have received assistance from the District, please indicate what type:

Technical Assistance	13	20%
Collection Events	17	26%
Presentation	6	9%
Grant Funds	28	42%
Other	2	3%
Total	66	

Have you applied for a grant through the District?

Yes	30	42%
No	42	58%



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**Appendix 1
District Stakeholder Questionnaire – Summary Report**

Summary of Written Comments from Questionnaires

Question #8 – Suggestions for improving the District's grant process

Compliments (no suggestions for improvement)

- "I believe the district has and is doing a great service for our community" – Kingdom Projects, Inc.
- "No-they are great!" – Sheltered workshop
- "We had a good experience"
- "Good process from my perspective"- City of Columbia
- "I think their grant system runs very smoothly. I like multiple grant cycles for grantees" – Reusables Program
- "Satisfied" – Handi-Shop

Grant Application is Too Long

- "We received a grant to get partial cost of bin paid for - though New World- many years ago. Took a lot of time to fill out..." – St. Stanislaus Church
- "Shorter grant application" – Ryan Enterprises

More Grant Money

- "more money" – University of Missouri
- "More Money" – Jeff City Community Development

Responsiveness of District

- "Return requested information in a timely manner." – Cole County hospital

Question #9 – What type of assistance would help you?

Grant Program-Related

- "Continue the grant programs" – Kingdom Projects, Inc.
- "More Money" – Jeff City Community Development
- Further grant opportunities
- Continue matching grant program – City of Columbia
- Assistance with completing a grant request form

Specific Recycling Programs

- "I do wish there was a downtown office/restaurant recycling program in Columbia. Massive amounts of recyclable materials are being landfilled here in the downtown area." – MO River Relief
- "Comingled plastic (saran, EVA, PVC) with a zipper and food/ grease waste" – Kraft Foods

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District Stakeholder Questionnaire – Summary Report**

Summary of Written Comments from Questionnaires

- For you to continue the tire waste, e-waste, and Columbia's HHW events – City of Hallsville
- Assistance in reducing food waste and yard waste. Would like to enhance our recycling program to include glass products. Our students and staff actively embrace any and all recycling efforts and compete against other schools in recovering of recyclables. – Stephens College
- Technical Assistance and grants to reduce or reuse yard waste and can recycling
- Have our city get behind electronic recycling
- Waste tires
- Have pick-ups more often
- Have recycling containers available in communities at public events – Village Square Association
- Hazardous waste recycling options for small business – Hometown Glass
- Flat glass recycling opportunities for small business – Hometown Glass

Education/Public Outreach

- Education regarding what is available at what cost; acquiring a collection method or centralized collection point etc. – Village of Wardsville
- Education or Professional Development Grant Funding – Boonville School District
- Canned and ready to go PSAs for cable television, printed handouts. Already have link to MMSWMD
- Information first. Don't know where to begin. We are a small school – Columbia Public Schools
- More publicity in small towns about the need for recycling of cardboard and cans-metals
- Educational issues regarding ways to limit recycle waste – United Security Bank
- Where to start a program and cost effective solid waste fees

Economic/Business Concerns for Recycling

- “Finding ways to use the commodities ourselves so we are not dependent on brokers' prices and the economy.” – Sheltered Workshop
- “Financial assistance to purchase equipment without borrowing funds or funds to apply toward labor to produce the output from our recycling activities.” - Information Management & Securities, LLC
- A new sorting belt. Fixing old equipment. Funds are not available to buy or fix odd equipment – Civic Recycling
- markets for recyclables – University of Missouri
- funding- we are operating our recycling center at a loss since the price of cardboard etc. plummeted -Handishop
- My Reusables program is 8 years old and continues to grow. I need a larger donated space. That would be the most help to me. – Reusables, Inc.
- Bins, pick-up – KRCG-TV

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**Appendix 1
District Stakeholder Questionnaire – Summary Report**

Summary of Written Comments from Questionnaires

- I need manpower to get recycled materials to a central location on campus – Lincoln University
- Continuing to build the local recycling infrastructure. – MO State Recycling Program
- Machines used for metal recycling
- Glass crusher

Partnerships

- Cost sharing – City of Ashland
- Working with Local cities that have a Shelter Workshop or recycling program – Audrain County Commission
- Our company is interested in producing Green waste recycling service to all central MO by operating recycling containers for tree and yard waste – Braik Brothers Green Waste Recycling
- Partnership with New World to have recycling. Materials trucked to STL is absurd especially when New World (Local) would be glad to work with you – St. Stanislaus Church
- Would like to expand to a county or regional recycle center. Hoping to grow in the county/region with recycling/reuse and green initiatives. – Endless Options, Inc.
- Keep trying to get waste generators and waste recyclers together - Ryan Enterprises
- Need cost effective way to have other classes of materials recycled. Need partner to pick up glass, plastic, and metals. – Central Methodist University

Appendix 2

District Stakeholder Public Meetings- Summary Report

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**Appendix 2
District Stakeholder Public Meetings – Summary Report**

**Summary of Written Comments
From Eight (8) Public Meetings Held in District
March and April 2009**

1. Household Hazardous Waste (HHW) Management

- The State (MDNR) needs to make Conditionally Exempt Small Quantity Generator policies that produce a revenue stream for HHW centers, and make legal, affordable hazmat service available to small business/institutions
- Need affordable methods of hazardous waste disposal for small businesses.

2. Appliance Recycling

- Revive/advertise the Freon Certification (extraction) program, to make use of certified extractors.
- Require appliance retailers take old appliances for recycling

3. Public Outreach

- Youth education is key, start young to create life-long recyclers
- MMSMWD should continue to advertise its services via the website and direct mailings.
- Use MORA to develop video and other PSA resources to share.

4. Electronic Waste Management

- Would like help from the District to create partnerships between sheltered workshops and e-waste recyclers. (Boonslick Industries workshop has recently been receiving “hundreds of pounds” of e-waste monthly at their facility, with little to no ability to recycle these materials)
- Require electronics retailers to take old electronics for recycling
- Should e-waste be separated from whole solid waste management system? Is some efficiency or volume lost by separating many types of waste streams for recycling? Make e-waste part of HHW?

5. Grant Focus: Diversion or Conversion?

- Develop a business that produces heating pellets from paper and textiles.

6. Partnership Potential

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**Appendix 2
District Stakeholder Public Meetings – Summary Report**

**Summary of Written Comments
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March and April 2009**

- Potential partnerships between a “green waste” recycling contractor and municipal governments. “Green waste” consists of tree branches, yard waste, etc., which are recycled to create mulch, compost, and firewood.
- More active participation from cities and counties within the District is needed, so that all of the burden of solid waste management is not on the District staff alone.

7. Scrap Tire Management

- Combine tire, HHW, e-waste, white good District collection events for a “one-stop shop” for the community.
- If EPA creates rules that make scrap tire recycling difficult, put pressure on EPA to suggest/create viable alternatives.

8. Rural Recycling

- Mandatory rural solid waste collection is more important than rural recycling programs. Illegal dumping is a bigger problem than landfill diversion of rural waste through recycling. County commissions should “lead the charge” to close illegal dumps and stop dumping.
- Opportunities for flat glass recycling?

9. College and University Recycling

- College recycling programs should take advantage of the compact concentrations of people on campuses which could possible generate viable amounts of material from a relatively small area.

10. Recycling and Material Recovery Facilities

- MRFs are a great asset to the District's solid waste management system, and these facilities should not be evaluated only on a cost/benefit basis.
- Facilities that accept as many materials as possible, in addition to facilities with a large capacity for waste handling, are vital to the District. Partnerships are key to financial viability for these facilities. (example - Resource Mgmt in St. Louis needs 200 tons/day material processed to reach the financial break-even point in operations)

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**Appendix 2
District Stakeholder Public Meetings – Summary Report**

**Summary of Written Comments
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March and April 2009**

11. Construction/Demolition (C&D) Material Recovery

No written comments received

12. Direct Reuse Programs

No written comments received