
Program Evaluation: Solid Waste Management Grants

*Prepared for the Committee on Legislative Research
by the Oversight Division*

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TABLE OF CONTENTS

COMMITTEE ON LEGISLATIVE RESEARCH	ii
LETTER OF TRANSMITTAL	iii
CHAPTER ONE - INTRODUCTION	page 1
CHAPTER TWO - EFFECTIVENESS OF SOLID WASTE REDUCTION EFFORTS	page 4
Status of 40% reduction goal	
Cost of waste reduction grants	
Achievement of waste reduction strategies	
Lack of end-markets	
CHAPTER THREE - STATE WASTE REDUCTION AND RECYCLING GRANTS - DISTRICT GRANTS ...	page 7
Limit state grants to statewide significance	
Use funds to contract for services	
District reporting	
Evaluation of grants	
CHAPTER FOUR - SOLID WASTE MANAGEMENT PLANNING ...	page 10
Solid waste disposed of outside the state	
Statewide solid waste management plan	
Other alternatives	
CHAPTER FIVE - EXECUTIVE SUMMARY	page 12
Conclusions and Recommendations	
APPENDIX 1 Agency Response	

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February, 1999

Members of the General Assembly:

The Joint Committee on Legislative Research adopted a resolution in May, 1998, directing the Oversight Division to perform a program evaluation of the Department of Natural Resources' Solid Waste Management Program's grant program which included the examination of records and procedures in the Solid Waste Management Program to determine and evaluate program performance in accordance with program objectives, responsibilities, and duties as set forth by statute or regulation.

The accompanying report includes Oversight's comments on internal controls, compliance with legal requirements, management practices, program performance and related areas. We hope this information is helpful and can be used in a constructive manner for the betterment of the state program to which it relates.

Respectfully,

Handwritten signature of Robert M. Clayton, III in cursive.

Representative Robert M. Clayton, III
Chairman

Handwritten signature of Harry Wiggins in cursive.

Senator Harry Wiggins
Vice Chairman

Chapter I - Introduction

Purpose

The General Assembly has provided by law that the Committee on Legislative Research may have access to and obtain information concerning the needs, organization, functioning, efficiency and financial status of any department of state government or of any institution that is supported in whole or in part by revenues of the state of Missouri. The General Assembly has further provided by law for the organization of an Oversight Division of the Committee on Legislative Research and, upon adoption of a resolution by the General Assembly or upon adoption of a resolution by the Committee on Legislative Research, for the Oversight Division to make investigations into legislative and governmental institutions of this state to aid the General Assembly.

The Committee on Legislative Research directed the Oversight Division to perform a program evaluation of the Department of Natural Resources' Solid Waste Management Program for the purpose of providing information to the General Assembly regarding proposed legislation and appropriation bills.

Background

Pursuant to Senate Bill 530 passed in 1990 and Senate Bills 60 and 112 passed in 1995 the Solid Waste Management Program (SWMP) within the Department of Natural Resources (DNR) works to manage and reduce the amount of solid waste disposed of in landfills. Senate Bill 530 established a goal to reduce the amount of waste disposed of in landfills by 40% by 1998. A twenty-member Solid Waste Advisory Board was established in 1990. They are responsible for advising the SWMP regarding solid waste problems in the districts, proposed rules, and the development of improved methods of minimizing solid waste recycling and waste recovery. The Board also advises the SWMP on the criteria to be used in awarding grants.

To facilitate the desired reduction in solid waste disposal, the DNR awards grants to districts, counties, cities, or any other person or entity involved in waste reduction or recycling. The twenty local Solid Waste Management Districts established in the state are also responsible for administering solid waste management grants. Funding for the grant programs comes from a

per-ton surcharge imposed on each ton of solid waste disposed of in Missouri landfills. The same surcharge is collected at solid waste transfer stations for waste being transported out-of-state. The fee was set at \$1.50 in 1990. As the fee is indexed for inflation, it is currently, \$1.81 per ton. Since the inception of the Solid Waste Management Fund over \$54 million have been collected as follows.

Solid Waste Management Fund

<u>Fiscal Year</u>	<u>Amount Collected</u>
1991	\$3,793,082
1992	7,530,370
1993	6,760,404
1994	7,174,011
1995	7,199,522
1996	7,074,871
1997	7,354,145
1998	<u>7,426,256</u>
	\$54,312,661

There are 28.83 FTE in the Department of Natural Resources paid a total of \$778,975 from the Solid Waste Management Fund. These employees are responsible for eliminating illegal solid waste disposal, administering the Solid Waste Management Program, and carrying out other duties imposed in Chapter 260 RSMo.

Within the SWMP there are four staff members who administer the Waste Reduction and Recycling grants awarded by the SWMP. They are also responsible for carrying out the SWMP's duties related to the District grant program. Since 1993, the SWMP has awarded 208 Waste Reduction and Recycling grants. The total amount awarded was approximately \$15 million.

In the same time period, the 20 Solid Waste Management Districts throughout the state awarded approximately 850 district grants. The amount awarded in district grants was approximately \$20 million.

Since the inception of the grant program grants were awarded to government entities, solid waste management districts, not-for-profit organizations and private entities.

**SWMP and District Grants Awarded by Category
 1993 - 1998**

<u>District Grants</u>	<u>SWMP Grants</u>	
42%	38%	awarded to local governments
6%	30%	awarded to not-for-profit entities
20%	24%	awarded to private enterprise
21%	8%	awarded to districts
11%	-	awarded to Unknown entities

For our evaluation we selected 10 Waste Reduction and Recycling grants and 20 district grants for detailed review. Two of the businesses that received district grants were no longer in business. From 1993 to 1998, 18 of the 30 grant recipients in our sample received three or fewer additional grants, six grantees received from four to nine other grants from either the SWMP, EIERA, or one of the solid waste management districts. Six organizations were awarded from 11 to 20 other grants.

Objectives

The program evaluation of the SWMP's grant programs included the inspection of records for the purpose of providing information to the General Assembly for their consideration of proposed legislation and appropriation bills. The Oversight Division's evaluation focused on three main objectives as noted below:

- Determine whether the grants administered by the Solid Waste Management Districts have effectively reduced the amount of solid waste going into landfills;
- Determine whether the Solid Waste Management Program's Waste Reductions and Project Grants have effectively reduced the amount of solid waste being disposed of in landfills;
- Evaluate whether the Solid Waste Management Program's method for calculating waste reduction is appropriate;

Scope/Methodology

Our evaluation included interviewing SWMP personnel, reviewing policies and procedures of the SWMP and reviewing compliance with certain statutes relating to solid waste management.

Oversight Division staff also visited state and district grant recipients in St. Louis, Kansas City and the southeast Missouri area.

Our scope was not limited to any specific fiscal years; however, certain areas were evaluated since the inception of the SWMP grant program in 1993.

Chapter 2 - Effectiveness of Solid Waste Reduction Efforts

The State has not achieved the goal of a 40% reduction in the amount of solid waste disposed of by weight by 1998, although approximately \$34 million has been awarded in the form of Waste Reduction and Recycling and district grants.

Since 1993, approximately \$34 million has been awarded in the form of Waste Reductions and Recycling and district grants, however, the State has not achieved its goal of a 40% reduction in the amount of waste disposed. Section 260.225(3) RSMo. directed the SWMP to develop a model plan to be used by Solid Waste Management Districts designed to achieve a reduction of 40%, by weight, in solid waste disposed, by January 1, 1998. According to the SWMP calculations, for 1997, the most recent year for which information is available, the state has achieved a reduction of approximately 30% in 1997.

A substantial portion of the reduction in waste disposal can be attributed to legislation passed banning the disposal of certain items in landfills. The most significant category of waste banned was yard waste. In the 1987 *Statewide Resource Recovery Feasibility and Planning Study*, yard waste was estimated to be approximately 17% of the waste stream in urban areas. The statewide average amount of yard waste in the waste stream was estimated to be 8.3%. Because, according to the Missouri State Census Data Center, approximately 70% of the population lives in urban areas, the statewide weighted average amount of yard waste in the waste stream in 1987 would likely have

been higher than 8.3%. Even using 8.3%, the ban on yard waste alone has accounted for 28% of the reduction. Excluding yard waste from the reduction calculation, the reduction rate achieved would be 21.6%.

40% of the grants sampled did not directly reduce the amount of waste diverted from landfills. Of the grants reporting a reduction in the amount of waste disposed of, the costs ranged from \$18.67 to \$13,802 per ton.

The SWMP has calculated the per-ton cost of waste diverted from landfills through grant activities since 1993 to be \$88.61 a ton for state waste reduction and recycling grants and \$126.48 a ton for district grants.

The Oversight Division examined a sample of state project and district grants. Of the 30 grants sampled, 18, or 60% reported the number of tons diverted from landfills. The results of our sample are consistent with the SWMP's estimate that 40% to 50% of the grants do not generate a reduction in the amount of waste disposed of directly. Grants for education and public awareness programs typically did not report a reduction in the amount of waste disposed of in landfills. There is no way to measure waste diverted as a result of these initiatives.

Oversight calculated the cost per-ton of waste diverted using state project grants to range from \$18.67 to \$7,123. The cost per-ton for district grants ranged from \$26.39 to \$13,802. With the small sample and wide range of costs an arithmetic average is not beneficial. During the period, solid waste disposal costs were approximately \$30.

Even though the 40% goal has not been met, according to the SWMP the readily attainable elements of the system have been implemented. Therefore, it can be expected the costs per-ton of waste diverted from landfills would likely exceed the costs reported.

According to the DNR, it appears the readily attainable elements of the solid waste management strategies have been implemented.

Since 1990, the Department of Natural Resources has been working towards reducing the amount of waste disposed of in landfills by 40% by 1998. One of the primary methods used by the SWMP to accomplish this goal was awarding district and waste reduction and recycling grants to districts, counties, cities, and private entities interested in waste reduction and recycling. Based on measures provided by DNR, these efforts have resulted in a reduction of waste disposed of in landfills of approximately 30%.

According to the SWMP, through the initiatives of SB 530 and SBs 60 and 112 the more readily attainable elements of the solid waste stream have been diverted. Grant funds have been used over the past several years in developing a statewide solid waste management infrastructure. Most residents of the state are now offered various solid waste management services and have the opportunities available for recycling and waste reduction. DNR noted that the remaining amount of recoverable materials and behavioral changes necessary in order to meet the 40% reduction goal will likely be much more difficult to accomplish. As a result, it appears grant funds given for waste reduction and recycling projects will provide a smaller and smaller percentage reduction in the amount of waste being disposed of in landfills.

A significant problem in solid waste management is the lack of adequate end markets for recycled goods.

Based on conversations with various grant recipients, it appears there currently are not adequate end markets available for many recyclable commodities. Oversight noted several instances where grant recipients were not able to find an adequate, sustainable end market for certain recyclable materials collected due to widely fluctuating prices. Without a sustainable and stable end market for recyclable commodities, prices for recyclable materials will continue to fluctuate widely and collection efforts for certain marginal materials may suffer, resulting in an increase in these items being disposed of in landfills.

Some type of financial assistance to entities involved in the development of a sustainable end-market for recycled commodities may yield a better return for the state's costs.

Chapter 3 - State Waste Reduction and Recycling Grants - District Grants

The SWMP's Waste Reduction and Recycling grants should be limited to projects of a statewide significance.

It would appear that using the SWMP's grants to fund projects of statewide significance would be a better use of state funds.

It has been desirable to manage solid waste issues at the local level. Accordingly, solid waste management legislation has vested a substantial portion of the funds collected in the Solid Waste Management Fund with the twenty Solid Waste Management Districts throughout the state. However, the state SWMP is also authorized to award grants or loans for solid waste management projects to any district, county or city of the state or to any person or entity involved in waste reduction and recycling.

Because the solid waste management districts are at the local level they are more familiar with the services currently being provided. Additionally, the districts should know what services or activities are needed to best carry out the district's solid waste plan. Some of the people we interviewed expressed concern that the SWMP was awarding grants in districts. There were concerns that the grants were supplanting services that were being provided in the districts. In some cases it was perceived the grants were giving one company a competitive edge over another. For example, the SWMP has awarded a grant to a recycler to purchase a bailer so his operation would be more efficient and conceivable more profitable. A grant was awarded to a lawn and garden company to purchase a yard waste chipper. As a result, he obtained a contract for

processing yard waste which had been banned from the landfill.

The SWMP should fund projects that benefit all of the districts or the state as a whole. Some examples of grants that should be funded at the state level are technical assistance, statewide educational programs, and studies of statewide waste management issues.

Some of the funds used by the SWMP for Waste Reduction and Recycling grants may better be used to contract for services.

Using some of the funds reserved for state grants to contract for services would give the department more control over the type of services or projects that would be completed.

The SWMP is authorized to award grants or loans for solid waste management projects. Applicants submit proposals to the SWMP annually. Grant proposals are submitted for a wide variety of solid waste projects. Proposals are then evaluated and selected for funding.

In one example, the SWMP, as the agency responsible for reducing the amount of solid waste disposed of in landfills, wanted to know the composition of the municipal solid waste that was being disposed of in the state. Because the funding mechanism available to the SWMP to obtain this type of service is grants, the SWMP had to wait until a proposal to provide the desired study was submitted, and scored high enough to be funded before the study could be commissioned.

The SWMP attempted to narrow the scope of proposals submitted by including additional evaluation points for targeted materials and solid waste management activities in 1998. However, it would appear, contracting for services would give the program more control over the type of services or projects that would be completed.

Funds used in contracting for services are typically from the program's expense and equipment budget which is considered an administrative expense. Section

260.335(2) RSMo placed a 15% cap on the amount of funds that can be used for administration. Using funds to contract for services rather than awarding grants may require a change in the statutes.

Solid Waste Management District reporting to the DNR is not in sufficient detail.

The Solid Waste Management Districts are required to report to the SWMP on the progress of each of the grants awarded by district. In numerous files reviewed at the SWMP office, we noted the grant reporting provided by the districts was not in sufficient detail for the SWMP to provide adequate oversight. It appears most of the grant recipients have compiled the required progress reports because the files reviewed at the solid waste management district's office or the grant recipient's office appeared to have complete quarterly and final reports.

Information available at the district level would be beneficial to the SWMP in developing statewide solid waste management strategic plans and policies. Additionally, the SWMP is ultimately responsible for the disbursement of the money from the Solid Waste Management Fund. Although the SWMP has initiated a program to audit the districts periodically, without regular detailed reporting of the progress on district grants the program cannot be certain the funds are being expended as intended.

The Department of Natural Resources, Solid Waste Management Program does not perform formal evaluations of the grant successes or failures.

The SWMP does not do any formal evaluation of the success or failure of state project or district grants. Quarterly reports are submitted to the SWMP for all the state project grants, and are available for the district grants. The SWMP indicated they believe the success or failure of a grant project is related more to the commitment of the grant recipient and the business environment. However, Oversight believes an objective evaluation of the grant outcomes would be beneficial to the SWMP as well as the districts in funding future projects. This type of evaluation should show what type of projects have been successful in

reducing waste. It would also document the problems and impediments encountered by grant recipients, including, if appropriate, the business environment.

Chapter 4 - Solid Waste Management Planning

The SWMP cannot reliably determine the amount of solid waste that is generated in Missouri and hauled directly out-of-state.

The SWMP cannot reliably determine the amount of solid waste that is generated in Missouri and hauled directly out-of-state for disposal. The SWMP's method for calculating the generation and reduction of solid waste is based on numerous estimates. There is very little concrete solid waste data available. One of the estimates used is the amount of the waste hauled directly out-of-state. This is obtained by calling the landfills outside the state to determine how much Missouri waste was accepted.

The SWMP must be able to determine the amount of waste that is generated in Missouri and subsequently disposed of in a landfill outside the state. It would be possible to obtain better information if legislation required the haulers to report to the SWMP.

The Department of Natural Resources has not complied with state law relating to the development of a statewide solid waste management plan.

Section 260.225, RSMo, requires the Department of Natural Resources to develop a statewide solid waste management plan in cooperation with local governments, regional planning commissions, districts, and appropriate state agencies. The Department of Natural Resources has not complied with Section 260.225, RSMo, as a statewide plan has not been developed.

Without a statewide solid waste management plan, districts, counties, and cities cannot develop solid waste management systems that are consistent with the needs and goals of the state as a whole. In addition, without a statewide plan, it is more difficult to evaluate the state's progress toward solid waste management goals.

Other alternatives, such as, tax credits, pay-as-you-throw laws, or incineration should be considered.

A solid waste management infrastructure appears to be in place, and the average per-ton cost of diverting solid waste from landfills remains significantly higher than disposal costs. Consequently, it can be expected that future costs per-ton of waste diverted from landfills would likely exceed the costs reported. Accordingly, the current solid waste management grant program may no longer be the most effective way to reduce the amount of waste disposed of in landfills.

There are other alternatives to solid waste management that, if implemented, may serve to reduce the amount of solid waste disposed of in landfills. Some of the alternatives to be considered are:

Tax Credits

It may be possible to use tax credits to stimulate markets for recyclables, by encouraging businesses to use recycled materials in manufacturing.

Pay-as-you-throw laws

Pay-as-you-throw laws require solid waste customers to pay for the amount of waste they actually dispose of. These types of laws encourage consumers to shop wisely for items that generate less waste and to recycle when possible.

Incineration

As technology becomes available to reduce the environmental impact in terms of air or water pollution, incineration may provide a means to convert waste to energy and reduce the amount of waste being disposed of in landfills.

Chapter 5 - Executive Summary

Conclusion and Recommendations

The General Assembly passed laws in 1990 and subsequently in 1995 for the purpose of managing and reducing the amount of solid waste disposed of in landfills in Missouri. Senate Bill 530 (1990) established a goal of 40% reduction in the amount of solid waste disposed of in landfills by 1998. The 40% reduction goal has not been reached. The most current data available indicates the state has reduced solid waste disposal by 30%. However, the Department of Natural Resources' Solid Waste Management Program has determined all the readily attainable elements of a solid waste management infrastructure have been implemented.

To date, over \$54 million in per-ton surcharge fees have been collected from the disposal of solid waste. Since 1993, approximately \$34 million has been dispersed in the form of grants to solid waste management districts, not-for-profit organizations and private entities. The Department of Natural Resources calculated the average per-ton cost of waste diverted from landfills through grant activities since 1993 to be \$ 88.61 for state Waste Reduction and Recycling grants and \$126.48 per ton for Solid Waste Management District grants. Oversight calculated the actual cost per-ton of waste diverted from the landfills in the grants sampled ranged from \$18.67 to \$13,802. Because the readily attainable elements of a solid waste management program have been implemented it is probable the per-ton cost of diverting additional solid waste from the landfills would likely be higher than historical costs.

One necessary component of the solid waste management system that has not been implemented is a stable end-market for recycled goods. Without a sustainable market for recycled products long-term waste diversion will be difficult to sustain.

Oversight recommends the previously established 40% reduction goal be reviewed to determine the state's benefit in relation to the anticipated costs. The Oversight Division recommends the General Assembly consider whether continued funding of the grant programs is beneficial. If the General Assembly chooses to continue a grant program, the Oversight Division

recommends the General Assembly consider requiring grant funds be awarded to entities involved in the development of a recyclable commodity market in order to establish a sustainable and stable end-market for recyclable materials.

If grant programs continue to be a part of the state's efforts to manage solid waste, the DNR should strive to improve the reporting and decision making process. The Oversight Division recommends the General Assembly encourage the DNR to require the Solid Waste Management Districts to submit information to the SWMP for use in solid waste management planning and policy development as well as in administering grant programs. Also, the Oversight Division recommends the General Assembly encourage the DNR to perform formal evaluations of the successes or failures of the state waste reduction and recycling project and district grants. This information should be used in future funding decisions.

The Oversight Division recommends the General Assembly encourage the DNR to restrict the use of state project grants to those having a statewide significance. Additionally, it is recommended the General Assembly consider amending the state statutes to allow a portion of the funds set aside for waste reduction and recycling project grants be used to contract for research, technical assistance or educational opportunities of a statewide significance.

The DNR cannot reliably determine the amount of waste that is generated in Missouri and disposed of out of state. The Oversight Division recommends the General Assembly consider legislation requiring solid waste haulers to report to the SWMP the amount of solid waste hauled directly to an out-of-state landfill.

The Oversight Division recommends the General Assembly consider other methods of solid waste management, such as, tax credits to stimulate market for recyclables, pay-as-you-throw laws requiring solid waste customers to pay for the amount of waste they actually dispose of, or incineration to convert waste to energy. As the Department of Natural Resources develops the statewide solid waste management plan required by statute, other alternatives to managing solid waste should be included in the plan.

We acknowledge the cooperation and assistance of staff of the Department of Natural Resources during the evaluation process.


Jeanne Jarrett, CPA
Director

APPENDIX 1

In 1997, the SWMP empaneled a group of 16 individuals of various backgrounds with interest in solid waste management to examine the existing grants program and make recommendations for improvements. The most telling outcome of this groups work was the recommendation to target projects which deal with waste issues of statewide significance. It was envisioned that a series of request-for-proposals (RFP's) could be developed using existing information from the waste characterization study, assessment inventory, and district input to address the most critical needs statewide. In this scenario, the SWMP would identify what activities were needed, and directly contract for those projects to be done. The payment mechanism would be through grants or loans to the successful RFP respondent. Adoption of this type of grant process would require modification of the existing rule (10 CSR 80-9.040). A draft of this modified rule has been widely circulated for comment, but has not yet been formally proposed. In the interim, however, the SWAB and the department have developed a series of bonus points to be used in addition to the existing grant criteria. Since 1997, these points have been given to projects which deal with activities or commodities of significant interest in Missouri. Through a survey of SWAB members, the bonus points list for 1998 has been further modified to award additional points to projects addressing targeted needs.

In 1996, the program worked with the solid waste management districts to create surveys which would inventory the available services in each city and county for managing solid waste. This survey, usually referred to as an assessment inventory, included solid waste collection, recycling, yard waste management, and services for banned items. Each district was required to submit their assessment inventories to remain in compliance with planning requirements. Several goals were accomplished by the inventories: creating lists of available services to answer citizen inquiries; indicate what services were needed, and where; highlight achievements since the passage of SB 530; develop targets for grant funding; and assist planning efforts at both the state and local level. This year the districts are required to revise the inventories, which will continue to help plan local and state programs. In the future, the program will continue to work with the districts to revise the inventories and explore other avenues for assessing the state's solid waste needs.

SB 60 strengthened the department's ability to tie district funding to submittal of planning documents. However, the Supreme Court ruling on the Jefferson City, et. al. v. Missouri Department of Natural Resources regarding SB 530 planning requirements opened the door for districts to unravel if too much pressure is applied. This ruling indicated that cities and counties do not individually have to meet the rigorous planning requirements of SB 530. These requirements are borne only by solid waste management districts. The planning requirements provide much of the initial attraction to local governments in joining districts. They saw the joint planning effort as less painful than creating a SB 530 plan individually. If a district were experiencing difficulty in maintaining interest and participation on the part of it's cities and counties, the additional pressure of lengthy planning documentation may contribute to their demise. Any additional requirements placed on the districts must be developed in light of this situation.

Districts are required to report quarterly on the progress of their subgrants per 10 CSR 80-9.050. As such, the rule requires only minimal detail about the amount of waste abatement, type of material, problems encountered, and any administrative issues. When provided conscientiously, this information is usually adequate for SWMP staff to evaluate each district's progress. Recent audits of the districts have indicated inadequate or non-reporting as a finding, and steps have been taken to remedy this with the districts. Through workshops and the audit resolution process, the districts better understand their reporting responsibilities and why the department must have this information to assess the statewide solid waste picture and properly account for grant funds. The SWMP has also developed draft language to revise the District Administrative Grant Rule (10 CSR 80-9.010) to ensure greater accountability.

In an effort to respond to questions about the long-term success of project grant recipients, in February 1998, SWMP staff initiated an on-site review process to look at past recipients. Because of the sheer number of past grantees, a computer generated random sample was done to identify 10 projects to evaluate. Two SWMP grant managers visited each facility and focused on what the project set out to do, what it had accomplished during the grant period, and what its status was at the time of the visit. A detailed report and photographs accompanied each visit and was developed into a formal presentation before the SWAB. It was noteworthy that all of the projects sampled had achieved a degree of success and nearly all had accomplished their original objectives. Despite the variety of project themes, it was obvious that entrepreneurial savvy, flexibility in overcoming unforeseen obstacles, and hard work were common denominators of all the projects still in operation. The SWAB appeared to be very interested in the results of this report and has encouraged the program to evaluate past grantees on an annual basis in the future. Because of the excellent response, the program will conduct a random evaluation of 10 grants each spring, and report to SWAB. Based upon the success of this process for project grants, the districts have been encouraged to conduct and present similar evaluations for their subgrantees. This information would supplement the information currently derived from quarterly reporting and the contract audit process.

Solid Waste Management Planning

If the amount and composition of solid waste generated and disposed of by Missouri is to be determined, it is proposed that methods be implemented to improve accuracy. Solid waste is like many commodities in that it is subject to import and export from one state to another. This is especially true in Missouri, due to the location of major metropolitan centers near state borders.

Data for waste generation and disposal is derived from a variety of sources. The accuracy of that data would be greatly improved by legislation requiring haulers to report, at a minimum, the quantity and origin/destination of their shipments. In addition, solid waste facilities may also provide information about the origin of solid waste accepted at their landfill or transfer station, as well as information relating to its composition.

The addition of this data to existing tonnage fee reports would allow for a much more realistic estimate of Missouri's progress toward waste reduction. It would also be useful to other states and encourage them to provide reciprocal data. However, the most important effect would be to provide valuable insight for the strategic planning of future waste reduction/management efforts.

Section 260.225, RSMo, requires the Department of Natural Resources to develop a statewide solid waste management plan in cooperation with local governments, regional planning commissions, districts, and appropriate state agencies. The development of the mandated state solid waste plan is an ongoing activity of the SWMP. This plan was originally envisioned to incorporate the solid waste management district plans which were required by the enactment of SB 530 in 1990. Toward this end, the SWMP developed and disseminated the *Model Plan for Comprehensive Solid Waste Management* in 1991 as a guide for the districts in preparing their plans. The program performed an extensive review process on the district plans through 1996. In 1996-97, the SWMP worked cooperatively with the districts to compile an inventory of existing solid waste services available throughout Missouri as a base for assessing future needs. Also in 1996-97, the program funded a two phase study to characterize the composition of the municipal waste stream. Two years ago, the SWMP began an internal development phase for the statewide solid waste management plan, and in 1998, initiated the mandated public participation aspect of the planning process by contracting for a citizen survey of current solid waste management practices.

Viable alternatives to current disposal options and continued provision of incentives for proper solid waste management are necessary to meet Missouri's future needs until a sustainable infrastructure is fully developed. Tax credits already in place for recycling machinery purchases may be expanded to encourage use of recycled materials as feedstocks and for the procurement of products made of recycled materials. Widely accepted concepts such as unit-based pricing and full-cost accounting should continue to be encouraged in the grant process through bonus points, and should receive additional recognition in municipal government for stimulating recycling and providing services in the most cost effective manner.

Unit-based pricing, or "pay-as-you-throw," programs provide a direct economic incentive for individuals to reduce the amount of waste they generate and increase the amount they recycle. In communities with unit-based programs, the reported average reductions in waste amounts range from 25 to 45 percent. Local officials often assume that illegal dumping will increase once residents are asked to pay for each container of waste they generate. Most communities have found that this is not the case when they offer their residents convenient recycling, yard waste management, bulky material collections, and other services that allow individuals to reduce waste legally. Some communities also create voucher systems to help reduce trash collection costs for lower income residents.

Methods for increasing the number of unit-based pricing programs include legislative mandates, policy directives, educational campaigns, technical assistance, and financial assistance.

Communities may require technical or financial assistance to complete a full cost accounting of solid waste services, which forms the strongest foundation for calculating an appropriate unit-based fee structure. Assistance may also be needed to ensure that the community offers the recycling and other services needed for successful implementation of unit-based pricing. The Solid Waste Management Fund (SWMF) has the potential to provide the assistance needed to expand the adoption of unit-based pricing programs.

The Missouri Integrated Waste Management hierarchy places incineration with energy recovery after recycling and before land filling or incineration without energy recovery. Incineration with energy recovery can include projects with single waste streams, such as pelletized paper, or mass burn incinerators that accept the municipal solid waste (MSW) that also can be disposed of at a sanitary landfill.

Although incineration with energy recovery is a viable means for managing waste, several factors must be considered. Experience to date for MSW incinerators indicates that they must consume large amounts of waste in order to be economically feasible. It is likely that only the large urban areas in Missouri are capable of supporting such facilities. Because flow control ordinances for solid waste have been struck down, it is very risky for either public or private entities to start down the path of building MSW incinerators. The need for a steady high volume flow of waste also can discourage waste reduction and recycling programs. Reducing the amount of residual waste can negatively impact the incinerator.

Because of the nature of municipal solid waste, the ash that results after incineration may contain concentrations of materials which cause it to be a regulated hazardous waste. The cost for proper disposal adds to the cost of operating the incinerator. Finally, the siting process for an incinerator of this size would undoubtedly be contentious and protracted. Although the emissions would have to meet current air pollution control standards, the public often assumes the worst when it comes to any type of incineration process.

The department has supported efforts to pelletize certain waste streams or use processed waste tires for the purpose of generating energy. However, each project must be considered in light of the viability for recycling the waste stream into new products. Through recycling, materials can be potentially used several times before eventual incineration or disposal. Incineration can only use the material once.

Conclusions

An evaluation of this sort must be viewed as a yardstick of achievement and an opportunity for improvement. Noteworthy in this program evaluation is what is not mentioned; the responsible stewardship of over 50 million dollars from the SWMF. Too often it seems, public funds are not spent according to the intent of the law or to the high standards of accountability demanded by our constituency. I am proud that our department has wisely administered the SWMF, although I

Ms. Jeanne Jarrett
Page 8

acknowledge that waste reduction and recycling initiatives are costly and often difficult to implement.

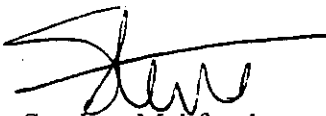
Solid waste management issues are at a crossroads in virtually every state in America. Reduction goals, economics, and tough political choices dominate the popular solid waste literature. According to *BioCycle* Magazine (May 1998), in its annual survey of the nation, all 50 states have set some kind of waste reduction goal. Of the 14 states with a 25 percent reduction goal, only six had met or exceeded that rate by their deadlines. Of the eight states with 40 percent goals, none had achieved that by their respective deadlines. Furthermore, only Missouri (30 percent, 1997) and Texas (not reporting) had deadlines prior to the year 2000. To put Missouri's achievement in greater perspective, of the nine states which have adopted ambitious 50 percent goals by 2000, to date only two have equaled or exceeded Missouri's 30 percent rate!

The findings and recommendations of this evaluation have validated the past efforts of the SWMP and will serve to stimulate the continued development of new rules and programs to best serve the solid waste needs of our constituency. With this information and the recommendations of the House Interim Committee, the department will finalize draft rules already created in the work group process, and move ahead in targeting our limited resources to greatest effect.

I thank you for your continued interest in Missouri's environmental and economic welfare. Please feel free to contact Mr. Jim Hull, Director of the SWMP at (573) 751-5401 if you require additional information or clarification.

Sincerely,

DEPARTMENT OF NATURAL RESOURCES



Stephen Mahfood
Director

SM:jbj