Metro

Regional Environmental Management Department

Comments on Solid Waste Rate Reform Project

October 1996

A Report by the Office of the Auditor

METRO

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Summary

This analysis responds to the Regional Environmental Management Department's request for public input to the Metro Solid Waste Rate Review Project.

According to the Department, the ultimate objective of the exercise was to help design appropriate methods of funding Metro's solid waste management system in the future. Specifically, the purpose for the Rate Review Project was to correct perceived problems with Metro's current solid waste rates and:

- Make rates more fair;
- Stabilize rates over time;
- Reduce potential conflict of objectives between Metro's role as a promoter of recycling and regulator of facilities and its financial interest in the flow of waste;
- Examine performance of Metro's funding options under different conditions that may arise in the future; and
- Reassess the rate structure before a crisis occurs.

From April 17 through October 1, 1996, Department staff and members of five stakeholder groups participated in this rate reform exercise. At the culmination of their discussions, the stakeholders overwhelmingly urged no changes be made to the status quo.

The Metro Auditor's Office reviewed and analyzed the interim and final reports of these meetings, personally observed several of the meetings, studied technical reports and articles authored by solid waste rate experts and consultants and interviewed Department staff. Based on this research, it appears to us:

- The status quo is the problem and not the solution. It does not achieve Metro's objectives regarding rate structure;
- The Department's projections of potential revenue shortfalls should show worst-case and likely scenarios

to judge whether they may occur earlier and/or be more severe than expected;

- The stakeholders were largely biased toward maintenance of the status quo. Nearly all of those casting "votes" at the September 30 and October 1 meetings represented facility owners and operators or collection and hauling companies; and

- Rate reform efforts should emphasize effects on individual residential and commercial rate payers more than in the present exercise.

In summary, we believe the rate reform exercise has not achieved Metro's objectives. There is currently no solid waste revenue crisis facing Metro. However, the Department believes the revenue stream is likely to be threatened in the future. We believe the Regional Environmental Management Department, with the assistance of appropriate consultants as needed, should institute an in-house study:

- Of ratemaking principles and practices in utility industries that can be or have been adapted to solid waste management;

- Of rate structures other governmental entities use to fund their solid waste programs using those principles and practices;

- To identify one or more rate structures from these sources that might work more effectively for Metro;

- To develop potential rate structures tailored to Metro's needs (including projected revenue requirements under best, worst and likely conditions) in sufficient detail they can be evaluated by stakeholders; and

- To request stakeholder input focused on replacing the current rate structure with one of the improved options.

Our observations on the rate reform exercise and potential options are discussed in Chapters Three and Four.

Chapter 1

Background on Rate Structure and Need for Reform

Current System

About 95 percent of Metro's solid waste system is currently funded through two types of user fees established by Metro Ordinance -- the regional user fee and the Metro tip fee. The regional user fee is a surcharge on all waste generated in the Metro area that is ultimately disposed for a fee. Since 1994, this fee has been $17.50 per ton and is charged at all disposal sites. This fee is intended to pay for the costs of Metro's solid waste programs or functions that provide regional benefits under the theory the broadest group of rate payers should fund these activities.

The Metro tip fee, on the other hand, is the charge for waste delivered to Metro-owned transfer stations. Since 1992, this fee has been $75.00 per ton, including the regional user fee discussed above. It pays for transfer station costs, e.g., transfer, transport and disposal; portions of regional programs; debt service; DEQ fees; host fees; and excise tax.

Changing Priorities

Metro's solid waste management priorities have changed in the past ten years. In the mid-1980s, Metro focused on building a replacement disposal system for the St. Johns landfill, which is nearing closure. Major disposal system components are now in place: three transfer stations, a disposal contract for long-term landfill capacity and facilities for dry waste recovery and recycling. Recycling efforts, from source-separated (curbside) programs and specialized processing facilities, also aid disposal efforts. The private sector is expanding into more specialized elements of the disposal system.

Metro's current priorities have shifted from developing disposal options to building on past accomplishments in recycling and waste reduction and on environmental

stewardship. The Regional Solid Waste Management Plan for the next ten years focuses on programs such as hazardous waste management, post-closure environmental monitoring of the St. Johns Landfill, illegal dumpsite enforcement and cleanup, disaster debris management, community information, program evaluation and regional solid waste monitoring and reporting. A stable funding base independent of the volume of waste disposed is more appropriate for ensuring provision of these services in the future.

Reasons for Study

Metro's Regional Environmental Management Department (the Department) is reviewing and may revise its means of raising revenues for solid waste management. The solid waste system revenue base is becoming uncertain with the current emphasis on recycling and waste reduction; Metro's revenue shrinks as the tonnage delivered to disposal sites decreases. Regional recycling levels have almost doubled in the last decade to 43 percent, and the newly adopted goal is 53 percent by 2005. Currently, the only significantly expanding components of Metro's revenue base are industrial process waste, contaminated materials from environmental clean-up and remediation efforts, and mixed putrescibles (waste containing organic material that can be rapidly decomposed by microorganisms). These are all wastes that cannot now be feasibly reduced or recycled.

The Department was motivated to examine solid waste rate options at this time by a number of factors including the need to:

- Change rates so they are more fair;
- Help stabilize rates over time;
- Reduce potential conflict of objectives among Metro's roles as promoter of recycling, regulator of facilities, and its financial interest in flow of waste to its own and designated facilities; and
- Examine its funding mechanisms from time to time, especially when potential problems are foreseeable.

Problems include loss of revenue due to a rise in material recovery facilities, the potential loss of flow control, and a long-term disposal contract that makes it difficult to compete economically for waste.

The Department believes now is an excellent time to examine Metro's rate structure and plan for the future. There is no crisis constraining the range of options or the time frame to analyze and implement them.

These are not new issues. For example, an editorial in the July 27, 1993 issue of The Oregonian stated:

> *"Metro's solid waste disposal fees need an overhaul. Otherwise, the system will die of its own success.*
>
> *"Under a user fee system, as more people recycle and the amount of garbage declines, per-ton fees must increase substantially to pay for fixed costs. Instead of reaping significant rewards for recycling, Metro residents feel penalized.*
>
> *"The financing system...leaves Metro unable to deal effectively with legitimate concerns raised by businesses about fees charged for industrial waste...Metro's current rate structure leaves the agency little ability to deal with such concerns.*
>
> *"The key to Metro may be to broaden its rate base..."*

Assisted by a consultant, Metro undertook the Solid Waste Revenue System Study (January 1994). This study reported several potential rate options for additional review. Other consultants engaged by Metro reported the solid waste industry bears many similarities to utility industries. They stated since Metro's current system of revenue collection is almost solely weight-based, it violates several fundamental principles of sound ratemaking, including:

- the rates do not accurately track costs or reflect the costs of services;

- the rates are inequitable; and
- the rates lead to revenue instability.

They concluded problems with Metro's current revenue collection system may be remedied with pricing structures from utility industries which place primary emphasis on identifying, tracking and appropriately assigning costs.[1]

Another consultant engaged by Metro stated many government agencies have seen declining levels of materials disposed in their solid waste systems. This decline is due to recycling and waste reduction programs and the development of lower-cost, privately owned disposal alternatives that are often in competition with public sector facilities. In these situations, agencies have been confronted with decreasing revenues to fund all solid waste facilities, programs and services in their systems.[2] In response to reductions, alternative methods of generating revenues sufficient to fund all, or a substantial share of, solid waste management costs are under consideration by other government agencies.

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[1]Source: The Applicability of Utility Ratemaking Principles to Solid Waste Pricing; Energy International, Inc.: April 1995.
[2]Source: Draft Metro Solid Waste Rate Reform Project: An Overview of Selected Programs Where Solid Waste Generator Fees Are Applied As a Significant Source of Revenue; Gershman, Brickner and Bratton, Inc.; July 1996.

Chapter 2

1996 Rate Reform Exercise

The tonnage on which Metro receives revenues is influenced by recycling and reduction programs as well as use of lower-cost privately owned disposal alternatives. Fortunately, Metro's current revenue stream is not yet threatened by these conditions because the area's population growth offsets per capita reductions in waste disposed.

The current problem in funding Metro's solid waste management system lies not in the number of dollars, but in their distribution. Metro's Executive Officer asked a number of stakeholders to participate in a round table discussion of solid waste rate reform. The ultimate objective of this exercise was to help design appropriate methods of funding Metro's solid waste management system in the future.

The Department believes Metro's long-term revenue stream is threatened. Department staff believe if solid waste user fees are not increased from the current $75 and $17.50 per ton, substantial revenue shortfalls may occur in about 5 years. Using projections derived from Region 2040 growth plan as a baseline, staff estimated potential shortfalls may range between $3.5 to $6.1 million annually by 2001 unless fee changes are made. These estimates may be low because inflation was factored into transport and disposal costs but not into solid waste management costs. Furthermore, if all of the Regional Solid Waste Management Plan programs are in place and perform as expected, disposal of mixed solid waste in landfills in 2000 will be over five percent less than the amount disposed in 1995, further exacerbating the shortfall.

The Department staff highlighted a number of financial issues and objectives in the current exercise and expect them to remain important in the future. The first issue is rate payer equity. When all costs of integrated solid waste management are recovered through a weight-based disposal fee, a generator's waste reduction efforts have

the effect of reducing not only its disposal cost but also support for programs of universal benefit such as recycling. The distribution of system costs becomes tilted toward generators who have fewer options for reducing disposal while the distribution of system benefits remains roughly the same for all generators. In particular, recycling infrastructure is funded less by generators that recycle and more by generators with limited options for recycling who must remain in the system.

Other issues concerned reasonable rates and incentives for waste reduction. The cost of solid waste programs of universal benefit tends not to vary with disposal tonnage. When these programs are funded entirely by tip fees or the regional user fee, generators with limited recycling options are faced with ever-increasing disposal charges. These high rates provide an economic incentive for generators to reduce their waste, and may lead to illegal dumping as generators attempt to reduce their disposal costs.

High rates also may induce excess capacity or shelter inefficient operations for processing and recycling, because companies may build more and larger processing and recycling facilities than would be justified by a market without the rate incentive. They may also operate at less than optimum levels. Because the rates are so high, these companies can still be profitable, which masks the excesses and inefficiencies and passes them on to rate payers.

The current rate structure can result in conflicting objectives as well as instability of rates. Metro's waste reduction policies and procedures undermine the Metro disposal system's financial viability. A diminishing waste stream reduces the rate base for Metro services that do not vary with disposal tonnage such as enforcement. The only response available under the current system is to raise rates, providing additional incentives for rate payers to leave the system and further destabilize it.

Stakeholders at the roundtable discussion were initially provided a list of rate options by the Department, and the Executive Officer requested information on how the options could affect them. The options included:

- Status quo
- Focus on disposal services
- Focus on environmental services
- Differential rates
- Generator fee on residential only
- Generator fee on all generators
- Other

The request, as well as background information, was addressed to members of 5 stakeholder groups: 1) recycling and environmental advocates and recycling companies; 2) owners and operators of landfills, material recovery facilities and similar businesses; 3) business and individual rate payers; 4) local jurisdictions including Metro and the Department of Environmental Quality; and 5) haulers. Subsequent to the request, stakeholders were provided expanded information on the options.

The Department staff reiterated to stakeholders the main reason for Metro's examination of its methods of collecting solid waste revenues. Metro is concerned the current system has become inequitable for certain classes of solid waste rate payers, and these inequities are at risk of increasing over time. Staff explained the regional user fee (a flat rate levied against tonnage disposed) is not dependent on the type of waste or cost of services connected with it, thus every disposer pays a uniform charge for non-uniform service. It is especially inequitable and burdensome to rate payers who cannot feasibly reduce disposal or those with large amounts of heavy waste.

Stakeholder group meetings were facilitated by a solid waste consultant and Metro staff. The main messages given to Metro by the stakeholders were:

- Stakeholders generally needed more details and information about what was being funded before suggesting methods for raising revenue;

- Any rate design should incorporate a number of characteristics related to incentives, equity, and adequacy of revenues; and

- The current system has faults, but there was no strong consensus for a major change until or unless Metro can demonstrate that the principles of rate design are better met by an alternative rate structure.

After additional information was provided to address these concerns, the same stakeholders met again to discuss the data and put together some alternative rate reform packages. A matrix listing various rate options and the criteria to be considered in evaluating revenue options and other matters was provided to the stakeholders. They were asked to develop rate reform packages for one or more of several options.

Metro staff and the solid waste consultant summarized the information and recommendations developed during those meetings. The report stated that, based on the stakeholder's input thus far, ". . . we [the Department staff] are focusing our analysis on developing rate options that have one or more of the following features:

- Differential Metro tip fee based on waste type and cost of service.

- Tiered regional system fee (regional user fee) based on waste type.

- Environmental service charge or generator fee, if it can be implemented cost-effectively and provide Metro with fiscal accountability."

Subsequently, Department staff presented a revised staff report on rate options to about 300 citizens. It was intended to stimulate discussion between Metro and its rate payers and other regional solid waste stakeholders, and to help readers evaluate four rate options: 1) status quo, 2) a tiered regional system fee, 3) an environmental service charge, and 4) a combination of the last two. The Department evaluated the options; highlights of the options are summarized in Appendix A. Report recipients

were invited to attend meetings this fall to comment on proposed rate options. Approximately 40 to 50 individuals attended. A "straw poll" showed nearly all attendees were members of the solid waste industry -- facility owners and operators or collectors and haulers. A few were members of environmental or recycling organizations or local governments, and two identified themselves as individual rate payers.

Chapter 3

Auditor's Observations on the Rate Reform Exercise

Based on the work we have done to date, we have a number of observations on how well the exercise addressed Metro's objectives. We surveyed the adequacy of the Department's process for gathering information and obtaining recommendations on possible rate options. We used a number of sources to evaluate the project. We reviewed data developed and reports generated by the Department to date in the current exercise. We also studied the documentation developed in 1993 and 1994 leading toward and including the Solid Waste Revenue System Study. We reviewed reports of earlier rate reform studies done by consultants engaged by Metro. In addition, we reviewed a number of technical reports and articles on rate-making options considered by other government agencies facing problems similar to Metro's (see Appendix B).

Observations on Objectives and Purpose

The objectives and purpose of the exercise were described well: the rate structure (especially the regional user fee) should be changed because the current one is inequitable and unstable and does not complement the changing direction in Metro's management of solid waste. Problems with the current structure were identified in the request for stakeholder participation. However, when asking for stakeholder input, the Department asked them to consider a number of options that did not address the problem. As a result, a substantial portion of the input was not directly relevant to the objectives Metro wanted to achieve.

When drafting their recommendations for the Executive Officer (scheduled for October 30, 1996), the Department staff should more clearly focus on the objectives of the exercise. They should reiterate the status quo is the problem and not the solution. They should also recommend to the Executive Officer those

specific rate and revenue options that clearly meet Metro's purpose and objectives to meet solid waste management needs in the future. The Department staff should be bold in defining such options and avoid temporary remedies.

Metro should also acknowledge the rate reform objective of developing a rate structure that will ensure revenue sufficiency in the future without raising the tip fee. Estimates by Department staff project significant revenue shortfalls in five years under best-case assumptions. These projections were based on: 1) the status quo fee schedule, 2) Metro's 2040 population growth planning assumptions, and 3) inflationary adjustments to contractual obligations for transfer station operations, transport, disposal and labor. Using these projections, the Department staff estimate the tip fee would have to be increased about $6 to $9 per ton.

The Department staff warn these are very conservative assumptions about future inflationary effects on revenues. Higher inflation or inflation in all of the Department's cost components will increase the shortfall and the need to further increase the tip fee. Department staff estimate, if all of the Regional Solid Waste Management Plan programs are in place and perform as expected, waste disposal would decline by 2000 by over five percent; increasing the shortfall and the need to increase the tip fee. We believe the Department should quantify these potential revenue shortfalls and tip fee needs.

Observations on the Process

The process used by the Department to identify and invite interested parties to engage in the rate reform process was participatory and provided input to Metro. However, had the exercise been more clearly focused, the input could have been concentrated on problems Metro now acknowledges and those that may become significant in the near future.

As stated earlier, stakeholders were given a number of options to consider, some of which did not address the stated objective and purpose of the exercise. For example:

- Status quo was an option. The Department knew the current system was flawed and needed to be revised.

- The status quo does not address the regional user fee's failure to link waste charges with services received by rate payers.

Four of the stakeholder groups (all but business and individual rate payers) could be reluctant to propose changes to the existing rate system. These stakeholder groups were principal architects in developing the system, and they are comfortable with it. It meets their needs regarding recycling, their financial bottom line, and their existing alliances and relationships with each other.

The fifth group, which also presumably contributed to development of the system to some extent, is made up of business and individual rate payers. This group principally has one interest: trying to keep rates reasonable. Because of the diverse composition of this group, it is not organized as well as the other interest groups.

Each stakeholder group purportedly had equal influence, but the number of players in each was not equal. The recycling and environmental advocate groups and recycling companies are not numerous. There are less than 20 corporate facility owners and operators. There are about 140 franchised or licensed collection and hauling companies, some of whom are owned and/or controlled by the facility owners and operators. There are officials of 24 cities, three counties and the Department of Environmental Quality in the government group. *The business and individual rate payers group represent the concerns of an estimated 373,000 individual households and 41,000 businesses.* During the exercise, some participants observed the individual and business rate payer group was "thin on rate payer representatives" and, since they are Metro's ultimate customers, Metro might consider adding more rate payers and citizens without a solid waste industry connection or weight the information they offer more heavily.

Chapter 4

Review of Potential Options

Based on our work, we have the following observations on the options described in the Department's September 18, 1996 report.

Status Quo

While Department staff intended to use this option as a control condition against which to measure the other proposed options, it was still considered viable in this exercise. During meetings this fall, participants overwhelmingly chose this option. As mentioned previously, maintaining the current rate structure ignores the purpose and objectives of the ongoing rate reform study. Department staff have already stated the current structure is inequitable and unstable and they believe it has to be changed.

Department staff reported the current structure could be modified by reallocating revenue requirements between the bases for the regional user fee and the tip fee. The example given, to reallocate debt service from the tip fee to the regional user fee, would drop the former fee by $4 per ton and increase the latter by $3 per ton. Although the disposal component would decrease by $4, the overall tip fee would decrease only by about $1 since the regional user fee is included in the tip fee.

The decreased tip fee would slightly benefit those waste generators who cannot recycle or reduce their waste volume and must dispose of it at Metro's transfer stations. The regional user fee on wastes disposed outside of the transfer stations would rise by the full $3 per ton which could incrementally increase recycling. It would increase the costs of those industries that cannot recycle or reduce their waste and must dispose of it at landfills outside the transfer stations. This increased cost may stimulate more illegal dumping or other activities intended to avoid the higher fees.

Tiered Regional System Fee

Although this fee option is still tonnage-based, Department staff believe it is an improvement over the status quo. Waste generators who cannot feasibly reduce waste volumes or those with large amounts of heavy waste would realize cost savings; examples include those disposing of petroleum-contaminated soil and industrial process waste. In addition to addressing the equity issue, this option is intended to keep current generators of this waste in Metro's system and providing revenue to Metro. Some similar generators have already legally avoided Metro's system by disposing of their wastes in landfills as "beneficial materials" which are exempt from Metro's fees.

Most waste generators, such as those disposing of mixed putrescible wastes, have no feasible means of reducing waste volume. Mixed putrescible waste includes most household and restaurant waste and other perishables. These generators would see no rate reductions unless future waste reduction solutions are developed. If such solutions remain undeveloped, instead of cost reductions, these generators may see significant increases in Metro tip fees by 2001.

Department staff evaluated the option's agreement with key criteria in comparison to the status quo:

Fairness This option provides a fairer rate to solid waste generators than the status quo because it matches costs paid into the system more closely with benefits. This option will not benefit all categories of generators evenly; those disposing of large quantities of petroleum-contaminated soil or industrial process waste will especially benefit. The option does nothing for individual residential and commercial generators and may become less fair if tip fee charges significantly increase in later years.

Rate Stability Because the rate structure is more fair, the system may be used more, thus stabilizing rates. Waste generators currently disposing of about 94,000 tons of petroleum-contaminated soil and certain industrial process waste would benefit from the fee. On the other hand, generators disposing of about 987,000 tons of mixed wastes would not benefit; they could see significant

increases in tip fees by 2001. This could destabilize the system if those generators take measures to avoid the higher costs.

Fiscal Accountability Because Metro would rely on delivery of waste by type under the tiered regional system fee, shortfalls in one category could not be offset by a windfall in others. This would improve accountability but revenues may become unstable on a year-to-year basis. This could require annual rate adjustments for those categories of generators contributing to the shortfall.

Reasonable Rates Rates would be more reasonable for about 10 percent of the generators but less reasonable for the remainder (based on fiscal year 1996-97 revenue tons). In the long term, rates would begin to creep up because they are still tonnage-based. This is shown in the schedule on page 7 of the September 18, 1996 report showing Metro tip fees for mixed and industrial waste (Appendix C).

Administration There is little change in the amount and cost of administration. Enforcement and other oversight may significantly increase because of the incentive for generators to dispose of wastes in the lowest rate categories or, if rates increase in some categories, dispose illegally. At present, oversight is on tonnage only. Under this fee option, oversight of waste type will become equally important and probably more difficult.

Environmental Service Charge (Generator Fee)

This option is not a pure generator fee. Instead, it is a combination of generator fee, Metro tip fee and regional user fee.

Generator fees are fixed charges to generators of solid waste. They are designed to cover certain costs of the integrated solid waste management system: services such as hazardous waste management, landfill closure and waste reduction programs. They are justified by the costs of infrastructure, planning, mandated actions and environmental management which are induced by residence or business activity in the region. Generator fees, usually combined with tip fees,

have been used by some agencies to recover all or major portions of their solid waste system costs.

Metro consultants have reported the generator fee is gaining favor and becoming more widely applied. This fee is assessed to residents and/or businesses based on the amount of services consumed rather than tonnage disposed. A number of agencies throughout the country have used generator fees to recover all or major portions of their solid waste system costs.

If Metro wanted to use a pure generator fee and not a combination of fees, it could eliminate the regional user fee and greatly reduce the Metro tip fee. It would remove Metro's need to "chase the waste" in pursuit of its financial interests. Metro has not proposed this option in this rate reform exercise. Instead, it proposes the environmental service charge. This charge would establish stable funding for certain programs as provided by the generator fee while retaining economic incentives (through the regional user fee) to support regional recycling and fiscal accountability at Metro.

The environmental service charge option is the only option proposed in this exercise that breaks the link between disposal and funding for non-disposal activities. It is also the only proposal that may reduce assessed costs to all waste generators, including individual residential and commercial rate payers, during this era of growing regional growth. Since it is directly charged to residential and commercial generators, it is not included in the Metro tip fee nor the regional user fee, resulting in significant reductions in those fees.

The environmental service charge's performance relative to key criteria is:

Rate Stability This option's strongest feature is system stability achieved by levying certain fixed costs over a revenue base that is less volatile than disposal tonnage. It better achieves rate stability than either the status quo or the tiered regional system fee. Depending upon how it is constructed, it could be used to eliminate the regional user fee and greatly reduce the Metro tip fee.

Fairness This option aligns costs of programs with all of the generators receiving benefits; therefore, it is a more equitable rate design than the status quo. It may be more costly than the tiered regional system fee for some categories of generators such as those disposing of heavy industrial process waste and petroleum-contaminated soil. However, it may be cheaper for residential and commercial rate payers who dispose of most of the mixed putrescible wastes. As a group, this latter category of generators dispose of more than 10 times the tonnage of the other two groups.

Fiscal Accountability The generator fee portion of the environmental service charge recovers fixed expenses that do not vary by the level of disposal, which encourages a stable funding base for those programs. The Metro tip fee and regional user fee portions of the environmental service charge promote fiscal accountability by relating variable costs to tonnage of waste disposed. Rate payers will be aware of increases in Metro's costs; their oversight will encourage efficiency and economy of operations. This design feature should ensure fiscal accountability as effectively as any of the other options.

Reasonable Rates This option is designed to be cost-neutral to residential and commercial rate payers. The charge may even fall over time because the revenue base is fixed or increases very slowly. As the number of residential and commercial rate payers increases with regional growth, the cost elements included in the environmental service charge are spread over a larger population. The rates may not be as reasonable as the tiered regional system fee in some generator categories, but they are more reasonable than any of the other options to the residential and commercial rate payers.

Administration The generator fee would be more expensive to administer: about $600,000. The most feasible way to administer the fee would be through haulers who would be compensated for their additional costs of collecting the fees. Some self-haulers would be able to avoid the system. If administered through local public sewer-water systems, more coverage may be

available. However, the City of Portland is currently unable to accommodate third-party billings and a new system capable of that is not expected until 1998 or later.

Incentives Since this option would significantly reduce disposal rates (tip fee and regional user fee), it may discourage recycling. This may not be as threatening to Metro's recycling goals as many think because recycling programs have become institutionalized and may be less sensitive to price.

Combination Tiered Regional System Fee and Environmental Service Charge

Compared to the status quo, residential and commercial rate payers would see a slight reduction in disposal costs based on Metro's FY 1996-97 budget but may see a slight increase under a low-growth scenario in 2001. Industrial users would see a significant decrease in disposal costs under the same conditions. The comments on individual performance on criteria remain essentially the same as for the environmental service charge and the tiered regional system fee discussed above.

The Department staff report this option has the strongest performance on criteria. They believe the advantages of implementing each option were compounded, especially with respect to fairness and rate stability. They also thought rates would be made more reasonable and could be retained over time. A significant portion of incentives to recycle and operate efficiently would be maintained. Administrative costs would probably increase.

Under this option, most categories of generators would be winners compared to the status quo. Some, like disposers of large volumes of industrial process waste and petroleum-contaminated soil, would gain more. Residential and commercial generators would likely benefit slightly.

Tiered Metro Tip Fee

This fee is not an option included in the September 18, 1996, report of options to be analyzed. The Department staff did not include it as an option because they believed it was beyond the scope of the rate reform exercise.

They said studying tiered Metro tip fees would involve detailed analysis of capital and staffing costs at the transfer stations. Department staff are soliciting the data as part of the current request for proposals for transfer station operation.

Appendix A

Major Features of Solid Waste Rate Reform Options

Status Quo

- Ignores purpose and objectives of rate reform study
- Inequitable system
- Unstable source of funding

Tiered Regional System Fee

- Unstable source of funding
- Fees paid by individual rate payers will probably increase
- Less costly to waste generators disposing of bulky, heavy materials
- Encourages current generators of waste to remain in Metro system
- Increased cost of enforcement and oversight

Environmental Service Charge (Generator Fee)

- Stable source of funding for certain fixed costs
- More reasonable rates for most waste generators
- Breaks link between disposal and funding for non-disposal activities
- Better alignment of program cost and generators receiving benefits
- More costly to administer in current environment
- Overall, reduces incentive to recycle because disposal rates may be lower

Combined Regional System Fee and Environmental Service Charge

- Stable source of funding
- More reasonable rates for most waste generators
- Individual rate payers may see a slight increase in disposal costs in a few years
- Less costly to waste generators disposing of bulky, heavy materials
- Encourages current generators of waste to remain in Metro system
- Breaks link between disposal and funding for non-disposal activities
- Better alignment of program cost and generators receiving benefits
- Overall, reduces incentive to recycle because disposal rates may be lower
- Increased cost of enforcement and oversight

Appendix B

Technical Reports and Articles Regarding Options For Solid Waste Rate Making

A Mini-Course on Rate Making for Energy Utilities; Barkovich and Yap; June 1992.

The Applicability of Utility Rate making Principles to Solid Waste Pricing--Report No. 9510R493; Energy International, Inc.; April 1995.

Cost of Solid Waste Management: 1986, 1991 and 1996; MSW Management; Harvey W. Gershman; 1993

Determination of Charge Levels for Solid Waste Generator Pay Systems; Journal of Urban Planning and Development; June 1995.

Economic Flow Control--Tulsa Solid Waste Program; Neel-Shaffer, Inc.; Undated, but after April 1994.

Enterprise Funds; MSW Management; Tim Bratton; 1994.

Metro Solid Waste Rate Reform Project: An Overview of Selected Programs Where Solid Waste Generator Fees Are Applied as a Significant Source of Revenue (draft report); Gershman, Brickner and Bratton, Inc.; July 1996.

New Flow Control Methods Being Tried by Local Governments, Moody's Says; Solid Waste Report; January 1996.

Raising Revenue to Support Waste Services; Timothy Bratton, June 1994.

Report on Analysis of Rate Setting Practices; Black and Veatch; June 1993.

Revenue Alternatives, Metro Service District; ECODATA; June 1993.

Solid Waste Rates in the 90's--Cost of Service: A Key Component; RW Beck and Associates; September 1991.

Survey of Recent Innovations in Funding Solid Waste Systems; Synergic Research Corporation; November 1993.

Appendix C

Rate Options for Solid Waste

Discussion Draft

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September 18, 1996

METRO

Purpose of This Report

The Regional Environmental Management (REM) department at Metro is investigating new options for funding its solid waste system. The rate options in this draft report are intended to stimulate discussion and provide information that will help the reader answer the question, "Is this option a good idea?" The information that is generated by this discussion draft will be transmitted to the Executive Officer and Council as they move to consider action on solid waste funding options later this fiscal year.

Motivation

Several factors motivate REM to examine solid waste rate options at this time. These are:

- To make the rates fairer
- To stabilize the rates over time
- To reduce the potential conflict of objectives between Metro's roles as promoter of recycling and regulator of facilities and its financial interest in the flow of waste
- To examine performance of Metro's funding options to changing conditions
- To reassess the rate structure now when there is no immediate crisis.

Background

Working with its Solid Waste Advisory Committee and Rate Review Committee in 1993, Metro investigated general options for restructuring its solid waste rates. This process resulted in a report to Metro Council that recommended further investigation of the following approaches:

- Status Quo
- Differentiated tip fees and surcharges
- Generator Fees
- Advance Disposal Fees
- Licensing and franchising fees
- System Management Fee

In 1995, REM began to examine these options more closely. Early study showed: (1) that the status quo, differentiated rates, generator fees, and the System Management Fee merit study in detail. (2) Advance Disposal Fees are unlikely to be effective if implemented at the regional level, and are better pursued at the State or Federal level. (3) Fees from licensing or franchising are most appropriate as dedicated sources of funding for certain costs of Metro's regulatory programs. As the system-wide financial impact of these fees is relatively small, they are not addressed in this report. However, nothing in this report precludes the use of license and franchise fees.

In 1996, REM began a series of meetings with approximately 60 solid waste stakeholders consisting of representatives from the hauling industry, solid waste facility operators, environmental and recycling advocates, governments, industry, and ratepayers. Working with this group, REM narrowed the rate options under consideration to:

- Status Quo
- Differentiated Regional User Fee, renamed the Tiered Regional System Fee
- Differentiated metro tip fee
- Generator fee, now named the Environmental Service Charge

The stakeholders also identified the key criteria for evaluating these options. These are listed under Method, below. This discussion draft describes these options in detail, including design, estimates, and performance on evaluation criteria.

The rate structures of this discussion draft result in rate reductions for most individual generators. Additional changes in rates may result from decisions about the level of programs at REM. At present, two projects that may have additional effects on REM rates are under way or about to get under way: the Rate Review Committee will study options for REM's fund balances; and the Executive Officer is designing an administration action plan to set strategic directions for REM.

Method

REM analyzed the performance of three rate options, as well as the status quo, under two different scenarios (high and low tonnages) regarding economic activity, disposal, and recycling levels. The **Tiered Regional System Fee** is a schedule of tip fees that addresses the fairness issue. The **Environmental Service Charge** is a fixed charge for fixed costs that focuses on the stability issue. A combination of the two, **Both Options**, melds critical features of each to become a third option. The options were evaluated on the following criteria:

- Fairness
- Rate stability
- Fiscal accountability
- Reasonable rates
- Administration
- Recycling and economic incentives

In addition, the analyses used computer models to simulate conditions that balance the needs to: 1) clearly show the differences between the rate structures, 2) provide realistic results, and 3) remain simple. Calculations are specific, subject to the stated assumptions, and data. Appendix A contains an outline of the conditions of the analysis.

Option: The Status Quo

Description. Metro currently finances most of its solid waste functions through flat, per-ton charges (tip fees) on disposal. The Regional User Fee, currently $17.50 per ton, is a surcharge on all waste generated in the Metro area and ultimately landfilled. The Metro Tip Fee, currently $75 per ton, is charged on all waste delivered for disposal at either of the two Metro transfer stations. The Metro Tip Fee includes the Regional User Fee.

Rates are set annually by Metro ordinance. The rates, by component, are shown in the following table.

Metro Solid Waste Rates, Fiscal Year 1996-97

Regional User Fee	**$**	**17.50**
Transfer Stations		
Transfer station fixed costs		9.50
Transfer station operation		7.20
Transport and disposal		39.25
DEQ and Host Fees		1.55
Subtotal: Metro transfer stations	**$**	**57.50**
Metro Tip Fee:		
Regional User Fee +		
transfer station subtotal	**$**	**75.00**

Because the Metro Tip Fee is designed to recover the cost of transfer station operation from users of the stations, it is levied on waste that is delivered to Metro transfer stations only. Programs that have a regional benefit are funded by the Regional User Fee, which is levied on the regional tonnage base. These regional programs are:

Regional Services Funded by the Regional User Fee

Metro Recycling Information	Environmental Monitoring
Management Services	Waste Prevention & Composting
Enforcement	Recycling System Development
Hazardous Waste	Grants
Avoided Disposal	RSWMP Planning
Disposal System Engineering	Technical Services (econ., data base)
Engineering Technical Services	Waste Reduction Education
St. Johns Landfill closure	Admin., overhead, interfund transfers

Both the Regional User Fee and Metro Tip Fee include Metro excise tax in the amounts of $1.22 and $5.12, respectively. Excise tax revenues help to fund the general government functions at Metro: the Council, Executive Officer, Auditor, regional planning, and so forth. The balance of the revenues raised by the Regional User Fee and Metro Tip Fee fund solid waste programs and services at Metro. The revenues

that are expected to be raised through solid waste fees during the next year are shown in the next table.

Metro Revenues from Solid Waste Fees
Fiscal Year 1996-97
(million $)

	Regional User Fee	Metro Tip Fee	Total
Solid Waste	$ 15.1	$ 39.3	$54.4
Excise Tax	1.1	2.9	4.0
Total	$16.2	$42.2	$58.4

These amounts do not include approximately $900,000 in excise tax that is levied on disposal charges at privately-owned facilities. This additional excise tax is not collected by Regional Environmental Management, and is not part of this solid waste rate options project.

The cost to dispose of various types of waste under the status quo is shown in the next table. Generators of waste showing $75 in the tip fee column are assumed to dispose of waste at Metro transfer stations, while waste showing $17.50 is assumed to be disposed at privately-owned facilities.

Remittance to REM Under the Status Quo for Generators of Various Types and Amounts of Waste

Type of Waste	Annual Disposal	Tip or User Fee (per ton)	Annual Cost of Status Quo
Residential waste	1,500 lbs.	$75.00	$56.25
Commercial waste	30 tons	$75.00	$2,250
Mixed dry waste	10 tons	$17.50	$175*
PCS‡	10 tons	$17.50	$220*
Industrial‡	80 tons	$17.50	$1,775*

PCS = petroleum contaminated soil.

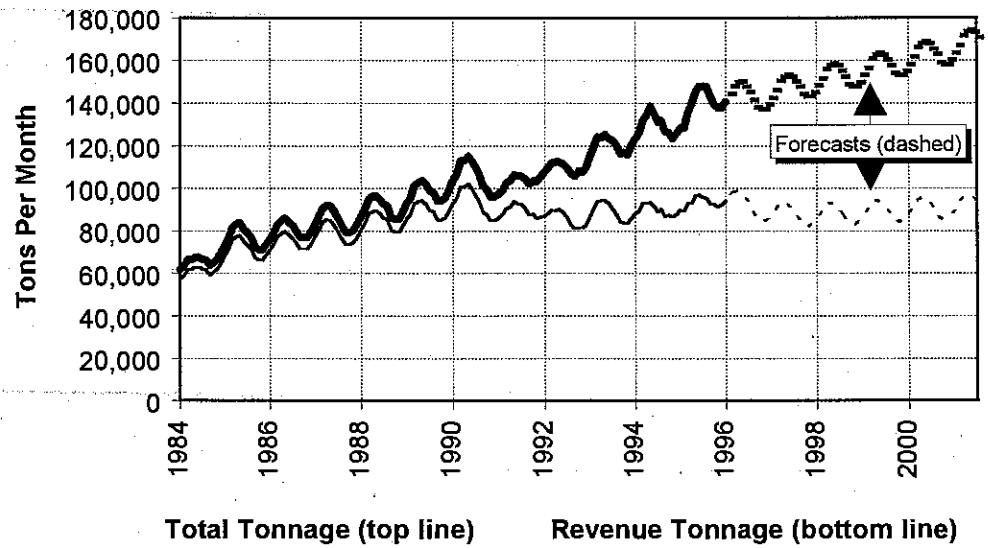
* Remittance to REM only; excludes Metro excise tax on disposal charge at privately owned facilities.

‡Generators of these wastes are assumed to dispose of 0.6 and 5 tons, respectively, of mixed waste at Metro transfer stations per year in addition to the listed materials. The disposal cost of mixed waste is included in the Annual Cost of the Status Quo.

Rate Stability. Since 1992, tip fees have been $75 per ton at Metro transfer stations and $17.50 per ton on waste disposed at privately-owned facilities. The tip fees have remained stable for four years largely because REM has been able to trade cost savings (*e.g.*, a ramp-down in landfill closure costs as that project nears completion) for cost increases (*e.g.*, contractual obligations to adjust transfer, transport and disposal costs with inflation).

Despite regional growth that has increased generation of solid waste, the tonnage on which Metro obtains revenue has been comparatively flat during the 1990s. The following chart depicts the trends.

Total Tonnage vs. Metro Revenue Tonnage
(Six-Month Moving Average of Monthly Data)



Total Tonnage (top line) **Revenue Tonnage (bottom line)**

The growing wedge between total tonnage and revenue tonnage is a cumulative consequence of various Metro policies toward the waste stream including:

- Exemption of source-separated recyclable materials from Metro fees
- Support and promotion of recycling and recovery activities
- Petroleum contaminated soil delivered to processors does not incur Metro fees
- Materials used for beneficial purposes at landfills do not incur Metro fees
- Waste delivered from outside the district is exempt from Metro fees

In Fiscal Year 1996-97, the era of planned and predictable cost savings will draw to a close with the last contribution to the St. Johns Landfill closure account. After this time, REM will once again face upward pressure on costs due to inflation. And as long as REM relies on disposal for its revenue base, a significant shrinkage in tonnage (*e.g.*, due to recycling efforts and/or economic slowdown) exacerbates this effect.[1]

[1] In FY91-92, closure of the local landfill and ramp-up of residential curbside recycling combined to produce a tonnage shortfall that resulted in a $4.6 million revenue shortfall in that year alone.

The following tables quantify the long-run consequences of the Status Quo.

If tip fees are not changed from the current $75 and $17.50 per ton, revenue shortfalls under the two disposal scenarios (high and low tonnage) would be:

Revenue Shortfalls Under Existing Rate

Year 2001 Scenario	Solid Waste Revenues	Metro Excise Tax
Low Tonnage	$5.7 million	$400 thousand
High Tonnage	$3.3 million	$200 thousand

If, on the other hand, tip fees are adjusted match revenue requirements, the rates would be:

Required Rates Under Existing Structure

Year 2001 Scenario	Regional User Fee	Metro Tip Fee
Low Tonnage	$16.40	$84.35
High Tonnage	$14.60	$81.35

The reader should note that these estimates are made by assuming inflation only for costs on which REM is contractually obligated to make inflationary adjustments. Further, the inflation assumption is only 3 percent per year. *These are very conservative assumptions about the future inflationary path for REM.* Higher inflation, or inflation in all of REM's cost components will increase the estimates above. (See Appendix A.)

The reader will note that the projected Regional User Fees are less than the current $17.50. This is a consequence of (1) the conservative inflation assumptions described above, and (2) the current rate structure, in which the cost of St. Johns landfill is allocated to the Regional User Fee. Elimination of this component constitutes a significant reduction of the Regional User Fee. However, this effect is more than offset by the upward cost pressures on the Metro Tip Fee, which results in the indicated revenue shortfalls if the rates are not adjusted.

Rate Equity. Historically, reliance on flat tip fees has served REM's financial needs and has helped achieve regional waste reduction goals. The flat fee is simple, easy to understand, and relatively inexpensive to administer. When recycling rates were low and large quantities of recyclables were still being discarded by all types of generators, flat rates efficiently "squeezed" recyclable materials out of the waste stream. However, higher waste reduction rates cannot be achieved equally by all generators; certain generators have no feasible opportunity to reduce or recycle and no disposal option but to landfill. Thus, these generators pay an increasingly larger share of REM's costs over time as others reduce their disposal costs by recycling. They become essentially "captive" payers in the system. Because contributions to funding the system are based

solely on the weight of waste disposed under flat per-ton disposal fees, this also gives rise to inequities when the correlation between weight and system benefits is poor.

Examples of wastes that are likely to incur solid waste charges out of proportion to benefits under a flat rate:

- Some industrial process wastes, especially those that must be landfilled by law, but have no economically viable recovery option under current technology.
- Contaminated soil and other wastes from cleaning up or redeveloping land.
- Non-hazardous materials from the clean-up of hazardous spills and other accidents that threaten the environment. For these wastes, landfilling is often the best management practice.

Remedies. Two rate options designed to rectify these problems are described in the following sections. The Tiered Regional System Fee is a schedule of fees intended to address the equity issue. The Environmental Service Charge is a fixed charge for fixed costs that addresses the stability issue. These options are complementary, and the combination of the two is described in the final section.

Option: Tiered Regional System Fee

Description. The Tiered Regional System Fee[2] is a schedule of user fees based on waste types. It would replace the current flat Regional User Fee. Differentiated rates are analyzed for three classes of waste: mixed waste, petroleum contaminated soil (PCS), and "low-grade" industrial process and site cleanup wastes.[3] The schedule for the current fiscal year and 2001 under the two scenarios would be:

Waste Class	1996-97	Year 2001 Low	Year 2001 High	per
Tiered Regional System Fees				
Mixed	$15.80	$18.00	$15.80	ton
PCS	$8.00	$9.15	$8.15	ton
Industrial	$6.00	$6.80	$6.00	ton
Metro Tip Fee				
Mixed	$75.90	$86.00	$82.60	ton
Industrial	$66.00	$74.70	$72.90	ton

All rates include Metro excise tax at 7¼%
The Metro Tip Fee includes the Tiered Regional System Fee, plus DEQ charges and a host community fee. PCS is not accepted at transfer stations.

[2] This name was suggested by stakeholders at the July session.
[3] These wastes are defined in Appendix B.

REM staff and solid waste stakeholders have examined other waste types that may be considered for differentiation as conditions and policies warrant over time. These include:

- Mixed putrescible waste (contains organics)
- Mixed dry waste (contains no organics)
- Organic waste (contains no non-organic material)
- Residuals from processing recyclables
- Hazardous waste from small-quantity generators
- Wood waste
- Yard debris
- Non-recyclable paper
- Medical waste
- Household hazardous waste

These materials have not been analyzed individually for this report. However, discussion should center on whether there are additional materials that should qualify for the Tiered Regional System Fee. The discussion should consider the evaluation criteria—fairness, incentives, and administration in particular. For example, a generator's difficulty with recycling some or all of its waste stream may not be a sufficient defining characteristic to be eligible for a rate lower than the mixed waste rate. Metro maintains an economic incentive to recycle, recover, or reprocess certain wastes by imposing full fees on landfilled materials. For example, organic waste is currently difficult to recycle, but Metro has committed in its regional plan to find recycling solutions for it. The effect of differential pricing on the ability to meet waste management goals should be a primary consideration in the discussions on differential rates.

The Tiered Regional System Fee is, like the Regional User Fee, a surcharge on the Metro Tip Fee. The Metro Tip Fees listed above are differentiated only to the extent that the Tiered Regional System Fee is differentiated. Further differentiation of the Metro Tip Fee is discussed below and need not be limited to differentiation by waste type.

Design. The Tiered Regional System Fee is intended to align benefits more closely with costs for certain rate payers and would primarily affect the "captive" payers described in the Status Quo section above.

The Tiered Regional System Fee is calculated by assigning the costs of certain regional programs to waste classes that derive a primary benefit from the program. For this report, calculations are as follows:

1. For each program, determine which waste types should bear some cost of the program. (In the table below, the pattern of charges shown next to each program reflects the decision as to which waste types should contribute to funding that program.)
2. Allocate the costs of programs across waste types. (The basis for the allocations below is disposal tonnage.)
3. For each waste type, divide the total allocations by disposal tonnage to get the base rate.
4. Add in Metro excise tax to obtain the Tiered Regional System Fee.

These steps are applied to the assumptions of the current budget as follows in the table on the next page.

Calculating the Tiered Regional System Fee

Revenue Requirements Based on FY 1996-97 Budget
Revenue Requirements in $000s

Regional Service	Mixed Waste	PCS	"Low-Grade"	Revenue Requirements
Metro Recycling Information	$ 589	$ 18	$ 38	$ 646
Management Services	934			934
Enforcement	685	21	44	750
Hazardous Waste	3,512			3,512
Avoided Disposal	1,783	55	115	1,953
Engineering: Disposal System	436	13		450
Engineering: Technical Services	212			212
St. Johns Landfill	362	11	23	396
Environmental Monitoring	1,326	41	86	1,453
Waste Prev. & Composting	1,001			1,001
Recycling System Dev.	865	27		891
Grants	1,255			1,255
RSWMP Planning	594	18		612
Tech. Svcs. (econ., data base)	754	23	49	826
Waste Reduction Education	239			239
Total Revenue Requirements	*$14,548*	*$227*	*$356*	*$15,131*
Revenue base (tons per year)	987,289	30,300	63,900	1,081,489
Base Rate/Ton	$14.74	$7.49	$5.57	$13.99
Tiered Regional System Fee*	***$15.80***	***$8.03***	***$5.97***	***$15.01***

* Includes Metro excise tax

A key design criterion of this fee is the choice of programs to allocate to each differentiated waste type. The fee level for each waste type is a direct consequence of the allocation rules. Accordingly, the Tiered Regional System Fee, if adopted, should be accompanied by a clear statement of allocation rules.

Impact on Selected Generators For comparison with the costs of the Status Quo to selected generators, the following table shows the cost of the Tiered Regional System Fee option to firms or households that generate the indicated materials in the indicated quantities:

Cost of the Tiered Regional System Fee to Selected Generators

(Calculations Based on FY 1996-97 Budget)

Type of Waste	Annual Disposal	System or Tip Fee (per ton)	Annual Remittance to REM	Change from Status Quo
Residential waste	1,500 lbs.	$75.00	$56.25	no change
Commercial waste	30 tons	$75.00	$2,250	no change
Mixed dry waste	10 tons	$15.80	$158*	$17 less/yr.
PCS‡	10 tons	$8.03	$125*	$90 less/yr.
Industrial‡	80 tons	$5.97	$853*	$922 less/yr.

‡ Disposal charges for .6 and 5 tons of mixed waste per year, respectively, are included in the Annual Remittance to Metro.

* Remittance to REM only; excludes Metro excise tax on disposal charge at privately owned facilities.

Implementation. The Tiered Regional System Fee would be administered similarly to the current Regional User Fee, which is collected by each solid waste facility in the Metro system. Each facility adds Metro charges to its tip fee and imposes them at the time of disposal, and each solid waste facility subsequently remits these fees to Metro on a monthly or quarterly basis.

A simple application procedure would be available to generators wishing to take advantage of differential rates under the Regional System Fee. If granted, Metro would inform designated facilities of the rate to be charged to loads of the eligible material delivered by the certified generator.

The Tiered Regional System Fee would require increased inspection and auditing efforts, but REM anticipates that these needs could be made available by reallocation of existing resources.

Performance on Criteria. The key criterion for the Tiered Regional System Fee is fairness; indeed, its primary purpose is to provide a fairer rate to solid waste generators—one that matches the costs paid into the system more closely with benefits received. The following table provides an overview of the ranking of this option based on the criteria established by the stakeholders earlier this year.

	Ranking (5 is best)				
Criterion	1	2	3	4	5
Fairness					✓
Stability			✓		
Fiscal Accountability				✓	
Reasonable Rates				✓	
Administration				✓	
Incentives			✓		

Rate Stability. Insofar as the Tiered Regional System Fee is a fairer rate structure, the system is likely to be used more, which would help stabilize rates as a secondary benefit.

Fiscal Accountability. A large measure of fiscal accountability is built into any rate structure that relies on a variable revenue base to recover all costs. The Tiered Regional System Fee improves upon the accountability of the Status Quo by requiring REM to rely on delivery of waste by type. For example, currently a shortfall in mixed waste can be made up, dollar-for-dollar, by overages of industrial waste. Under a tiered system, a shortfall could not be made up by a windfall in another, lower-priced waste category.

Reasonable Rates By design, rates will be more reasonable for large classes of generators who now incur the same flat Regional User Fee. However, the tiered rate structure does not solve the basic problem that such a system will experience upward pressure on costs, and therefore, on rates.

Administration. Administration is little changed from the current system. Enforcement, auditing, and the accuracy and reliability of the forecasting and rate-setting

functions will become more critical, but this is not expected to induce any significant new costs that cannot be covered by existing resources or within the new rate.

Incentives. Recycling incentives are not greatly affected by this option, as lower rates are proposed only for wastes that provide little opportunity for recovery, based on current and foreseeable technological and economic feasibility.

Bottom Line. If adopted, the Tiered Regional System Fee would replace the current flat Regional User Fee. The following rates would apply if in effect for FY 1996-97:

- Mixed waste: $16 per ton
- Petroleum contaminated soil: $ 8 per ton
- Industrial/"low-grade" waste: $ 6 per ton

The Metro Tip Fee would remain at $75 per ton for mixed waste under this option. The fee for industrial waste delivered to transfer stations would fall to $66. The charge at the curb for most residential and small commercial accounts would be unchanged.

Tiered Rates at Metro Transfer Stations. Aside from the differentiation that results from adding on the Tiered Regional System Fee, it is beyond the scope of this study to calculate differentiated Metro Tip Fees. REM's current request for proposals to operate the Metro transfer stations addresses the issue of differentiated Metro Tip Fees.

Tiered Metro Tip Fees should be included in the discussion of this report. To be consistent with the principles of this report, tiered fees should be based on costs and appropriate waste management policies. Metro Tip Fees need not be limited to differentiation by waste type—for example, the time on site, peak-time deliveries, and number of transactions all induce different costs and could form the basis for differential rates at transfer stations.

Option: Environmental Service Charge (Generator Fee)

Description. The Environmental Service Charge (ESC) is a flat fee charged directly to generators for certain regional services that are currently funded by the Regional User Fee. The fee recovers some costs of certain fixed expenses that are not directly related to disposal such as landfill closure, debt service, and enforcement. If adopted, the ESC would be collected from solid waste generators and would allow a reduction in both the Metro Tip Fee and Regional User Fee. The schedule for the current fiscal year and 2001 under the two waste disposal scenarios (high and low tonnage) would be:

Generator Type	1996-97	Year 2001 Low	Year 2001 High	Monthly fee per:
Residential	$0.50	$0.47	$0.47	/household
Commercial	$12.50	$11.70	$11.70	/account*

* The indicated ESC for commercial accounts is an overall average. The actual charges would vary by service level or level of generation.

Tip Fees Under an ESC Option				
		Year 2001		
	1996-97	Low	High	Fee per:
Reg. User Fee	$11.75	$13.00	$11.50	ton
Metro Tip Fee	$66.00	$74.70	$72.60	ton

All rates include Metro Excise Tax at 7¼%.
The Metro Tip Fee includes the Regional User Fee, DEQ charges, and a host community fee.

Design. The ESC analyzed in this report recognizes two basic customer ("generator") classes: residential and commercial generators of solid waste. Costs are allocated to each generator class based on explicit allocation assumptions. The ESCs are designed to recover the fixed costs shown in the table below. Any costs not listed below are recovered through the Regional User Fee or Metro Tip Fee.

FY 1996-97	Costs by Generator Type		Program Cost Recovered by ESC	
Program or Cost Center	Residential	Commercial	Amount	Percent
St. Johns Landfill Closure	$79,200	$237,700	$316,900	80%
Environmental Monitoring[a]	290,500	871,600	1,162100	80%
Debt Service on Bonds	581,400	1,504,100	2,085,500	78%
Renewal & Replacement[b]	128,000	331,100	459,100	78%
Hazardous Waste Program	0	1,053,600	1,053,600	30%
Solid Waste Enforcement	187,600	562,800	750,400	100%
Disposal contract[c]	393,100	1,016,800	1,409,900	78%
Total revenue recovered	$1,659,800	$5,577,700	$7,237,500	
Generator Base (accounts)	*373,414*	*40,669*		
Base Rate per Generator	$4.45/year	$137/year		
Total Charge per Generator	**$6.00/year**	**$150/year***		

The total charge includes Metro excise tax, administration costs, and an allowance for uncollectable accounts.
* The commercial charge is an overall average. The actual charge is based on service level. See Table __.
a Principally, post-closure activities at St. Johns Landfill.
b A capital contingency account that must be maintained under conditions of the bonds.
c Fixed payment only. Guarantees capacity in general purpose landfill for generators in the Portland Metro area.

The charge per residential account is determined by dividing the number of households into the revenue requirements for the residential class, then adding in the Metro excise tax. Because of the large variation among the size of nonresidential generators, the commercial class is divided into subclasses based on the level of waste generation, and individual rates are determined for each subclass. The charges in the tables above and below depict an overall average rate for commercial accounts. Charges by commercial subclass are shown in the table on the next page.

Service Level Equivalents (in cubic yards per week)	Monthly Rate per Account
up to 1/2	$ 1.06
1/2 up to 2	4.28
2 up to 5	9.60
5 up to 15	24.71
15 up to 25	59.46
25 up to 40	107.07
40 up to 75	200.53
75 and over	267.29

The overall level of revenues recovered by the ESC depends on the costs allocated to it. In the extreme, the cost of all regional programs ($15.1 million in FY96-97) could be recovered through an ESC. In this case, the Regional User Fee ($17.50 per ton in FY96-97) would disappear, and the Metro Tip Fee would fall to $54 per ton. The choice of programs allocated to the ESC in the example above is primarily motivated by: (1) fiscal accountability, (2) rate stability, and (3) the efficacy of the Regional User Fee as an economic tool to encourage recycling and other management objectives. A discussion of these criteria as they relate to design of the ESC follows.

Fiscal Accountability. As the ESC provides a fixed, relatively stable revenue stream, the amount of variable costs or personnel costs that are allocated to it should be minimized. Otherwise, these costs would be more "protected" than if recovered from a variable revenue base. The costs allocated to the ESC are largely fixed costs that have a distinctly regional benefit and do not vary by the current level of disposal. It is in the region's financial interest to ensure a stable funding base for these programs.

Rate Stability. In general, the costs allocated to the ESC are fixed over time or increase very slowly. Thus, with regional growth expanding the revenue base, the ESC is designed to remain stable or even fall over time.

Incentives. The Regional User Fee is an effective incentive for recycling and a useful management tool for Metro's regulatory functions. To allocate the cost of all regional services to the ESC would eliminate Metro's surcharges on disposal, and thereby eliminate a useful and efficient management tool.

The level of the ESC for each generator class depends on allocation assumptions. For example, for the ESCs above, 25% of the cost of the enforcement program is allocated to the residential class, while 75% is allocated to the commercial class. These ratios are based on the amount of activity induced by each sector. In contrast, under the current system, all allocations are based on the weight of waste disposed, which is presently about 44% residential and 56% commercial. This implicit allocation procedure is inequitable whenever disposal (by weight) does not correlate with benefits, as is the case with the enforcement example above.

Impact on Selected Generators For comparison with the costs of the Status Quo to selected generators, the following table shows the cost of the Environmental Service Charge option to households and firms:

Cost of the Environmental Service Charge to Generators of Selected Waste Types
(Calculations Based on FY 1996-97 Budget)

Type of Waste	Annual Disposal	Env. Service Charge	Tip or User Fee (per ton)	Annual Remittance to REM	Change from Status Quo
Residential waste	1,500 lbs.	$6	$65.92	$55.41	84¢ less/yr.
Commercial waste	30 tons	$123	$65.92	$2,101	$149 less/yr.
Mixed dry waste	10 tons	$55	$11.75	$172*	$3 less/yr.
PCS	10 tons	$13‡	$11.75	$172*	$48 less/yr.
Industrial	80 tons	$55‡	$11.75	$1,325*	$450 less/yr.

* Remittance to REM only; excludes Metro excise tax on disposal charge at privately owned facilities.
‡ ESC based on commercial service levels of .6 and 5 tons of *mixed waste* per year, respectively. The disposal cost of mixed waste is included in the Annual Remittance to Metro.

Implementation. After examining several implementing and billing mechanisms (including licensed/franchised haulers, public sewer-water systems, property tax bills, local jurisdictions, private energy utilities, private communications utilities, and a new dedicated system), two viable options for implementing an ESC appear to be: public sewer-water systems and licensed/franchised haulers. Both of these are considered below.

Public Sewer-Water Systems. This option has fairly universal coverage, ranging around 90 percent of affected parties and could be administered through inter-governmental agreements. However, this option is problematic in that no clear economic signal on solid waste can be sent when a charge shows up on the bill for an unrelated utility. Furthermore, water/sewer agencies carry almost no account information related to solid waste disposal that could form the basis for calculating equitable solid waste rates. Realistically, this option could not be implemented for a minimum of two years throughout Metro, as the system for the City of Portland is currently unable to accommodate third-party billings, and a new system will not be in place until 1998 or after.

Haulers. The ESC charges in the table above were estimated on the assumption that billings will be made through licensed and franchised haulers. Staff has assumed that Metro will assist with set-up costs and remunerate haulers for billings. The approach does not require that information on haulers' accounts or other proprietary information be submitted to Metro, only that records be kept that can be subject to audit. The *system-wide* cost of administration is estimated at $600,000, which includes costs to Metro and remuneration of haulers.

Performance on Criteria. The key criterion for the ESC is to achieve rate stability by levying certain fixed costs over a revenue base—households and businesses—that is less volatile than disposal. The ESC better achieves this objective than the Status Quo or the Tiered Regional System Fee. To see this, refer back to the previous table on

rates. Under the ESC, the Regional User Fee varies by $1.25 or less, despite wide swings in revenue tonnage, and the Metro Tip Fee can be capped at approximately $75 in the long run, despite contractually incurred cost increases. Furthermore, because the number of households and employees grows over time, the ESC itself falls as long as regional growth remains higher than the rate of inflation in fixed costs.[4]

The table below illustrates the ranking of this option based on the established criteria.

	Ranking (5 is best)				
Criterion	1	2	3	4	5
Fairness				✓	
Stability					✓
Fiscal Accountability			✓		
Reasonable Rates				✓	
Administration		✓			
Incentives		✓			

Fairness. The Environmental Service Charge allows a more equitable rate design in that costs of programs can be aligned more readily with those receiving the benefit.

Fiscal Accountability. This is designed into the ESC. Costs of programs and personnel services remain allocated largely to the tonnage base.

Reasonable Rates. The ESC option is cost-neutral to rate payers at the time of conversion and falls over time as the revenue base increases with regional growth.

Administration. The implementation options described below utilize existing billing and administration channels to the greatest possible extent. Nonetheless, more costs will be incurred under this option, as it adds administrative elements to the current system.

Incentives. As this option reduces the variable cost of disposal (*i.e.*, tip fees at regional facilities), it tends to act against recycling incentives. However, recycling price elasticities have been falling over time as curbside and other recycling programs have become more institutionalized and therefore less sensitive to price.

Bottom Line. If an Environmental Service Charge were in place for FY 1996-97, the following rates would apply:

- Residential: $6 per household per year
- Commercial: $150 per commercial account (*on average*) per year
  (The actual rate would vary by level of generation.)

Under this option, the Regional User Fee would fall to less than $12 per ton, and the Metro Tip Fee would fall to about $66 per ton. If adopted, the Environmental Service Charge would be collected from solid waste generators and would allow a reduction in both the Metro Tip Fee and Regional User Fee.

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[4] Some fixed costs in the Environmental Service Charge—e.g., debt service and fixed contract payments—are truly fixed, as they contain no inflationary adjustment clauses.

Option:
Both the Tiered Regional System Fee and Environmental Service Charge

The Tiered Regional System Fee and Environmental Service Charge are not mutually exclusive. If both options are in place, the charges would be:

	1996-97	Year 2001 Low	Year 2001 High	per
Environmental Service Charge				
Residential	$6.00	$5.60	$5.60	/ household
Commercial	$150	$140	$140	/ account*
Tiered Regional System Fee				
Mixed Waste	$12.45	$14.35	$12.60	per ton
PCS	$5.80	$6.80	$6.00	per ton
Industrial	$3.75	$4.40	$4.50	per ton
Metro Tip Fee				
Mixed	$66.60	$76.10	$73.70	per ton
Industrial	$58.00	$66.20	$65.10	per ton

All rates include Metro excise tax at 7¼%.
The Metro Tip Fee includes the Tiered Regional System Fee, plus DEQ charges and a host community fee. PCS is not accepted at transfer stations.

Impact on Selected Generators For comparison with the costs of the Status Quo to selected generators, the following table shows the cost of both options to households and firms:

Cost to Selected Generators of a System Including Both an Environmental Service Charge and a Tiered Regional System Fee
(Calculations Based on FY 1996-97 Budget)

Type of Waste	Annual Disposal	Env. Service Charge	Tip or User Fee (per ton)	Annual Remittance to REM	Change from Status Quo
Residential waste	1,500 lbs.	$6	$66.92	$55.93	32¢ less/yr.
Commercial waste	30 tons	$123	$66.92	$2,130	$120 less/yr.
Mixed dry waste	10 tons	$55	$12.45	$179*	$4 more/yr.
PCS	10 tons	$13‡	$5.82	$111*	$109 less/yr.
Industrial	80 tons	$55‡	$3.76	$690*	$1085 less/yr.

* Remittance to REM only; excludes Metro excise tax on disposal charge at privately owned facilities.
‡ ESC based on commercial service levels of .6 and 5 tons of *mixed waste* per year, respectively. The disposal cost of mixed waste is included in the Annual Remittance to Metro.

Performance on Criteria. The discussions under each of the options above are valid here; implementation of both the Tiered Regional System Fee and the Environmental Service Charge does not change individual performance on criteria in any essential ways. The advantage of implementing both options is compounded. As has been noted, the primary purpose of the Tiered Regional System Fee is to make Metro's system of solid waste charges fairer. But the Tiered Regional System Fee has little effect on rate stability—the criterion on which the ESC is most effective. Both options

do well and complement one another on Fiscal Accountability and Reasonable Rates. For example, the Tiered Regional System Fee makes rates more reasonable for large classes of generators, and the Environmental Service Charge helps to retain those rates over time. Implementing both options would improve stability via the ESC, while maintaining a significant portion of the system-wide economic incentives to recycle and the Metro-specific incentive to operate efficiently. Only administration costs go up somewhat if both are implemented, but by little more than the cost of the Environmental Service Charge alone.

Bottom Line. If both options were in place, the Tiered Regional System Fee schedule would be $12.50, $6, and $4 per ton, respectively, for mixed waste, PCS and industrial waste, and the Metro Tip Fee would fall to about $67 per ton for mixed waste, and $60 for industrial waste delivered to Metro transfer stations.

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Appendices

Appendix A
Description and Assumptions on Projections Used in this Analysis

The empirical work underlying this analysis is designed to illustrate the performance of various rate options under different scenarios regarding economic activity, disposal and recycling levels. It is, frankly, an art to choose those conditions of simulation that balance the needs to: (1) clearly illuminate differences between the rate structures, (2) provide realistic results, and (3) remain simple, and not confound the analysis with unrelated causes and effects. An example of the latter would be the difficulty of isolating the reasons for different performance between a rate option and the Status Quo if key budget assumptions—such as the rate base to which transfer station management is allocated—were also to change. Accordingly, the following assumptions were adopted for this report.

- Costs are based on the programs and estimates for FY 1996-97.
- Current year rates are calculated under the tonnage expectations and budget assumptions for FY1996-97, including allocation assumptions.
- Costs and rates are estimated under low- and high-tonnage scenarios for the year 2001. More details on these projections are provide below.
- No change in programs is assumed for the future scenarios. This is not a policy statement, but once again a simplifying assumption designed to isolate differences due to different rate structures, not due to changes in independent decisions on underlying program levels.
- No changes in major contracts (transfer station operations, transport, disposal, labor) that would result in significant cost savings or increases.
- Costs are inflated only where REM has contractual obligations to make inflationary adjustments for inflation (transfer station operations, transport, disposal, labor). Materials, minor contracts, and other services are set at FY 1996-97 rates. *This means the revenue shortfalls and required rate increases shown in the text are likely to be understatements of true shortfalls or rate increases.*
- No change in recycling levels at transfer stations.
- Zero tip fee (price) elasticities on tonnage flows and recovery decisions.
- Performance of rate options is compared with performance under the FY 1996-97 rate structure and ordinance rates.

Growth Scenarios

The calculations in this report are based on FY 1996-97 budget assumptions for the current rates, and on high and low 5-year projections to test performance under different cost and disposal conditions. The projections are derived from Region 2040 growth as a baseline. The implicit growth rate in the Region 2040 Plan has the number of households increasing by approximately 9% during the next five years, and the number of employees by approximately 11% during the same time frame. These rates

imply that disposal will be 9 to 10 percent higher in five years under a baseline Region 2040 projection.[1]

High and low regional tonnage scenarios were established by doubling and halving the baseline rate, respectively. Thus, regional tonnage is up roughly 5% in the low scenario, and up by almost 20% in the high scenario.

However, the rates of change in various types of waste can differ significantly from the overall rate. During the next five years, the rise of MRFs will alter delivery patterns among solid waste facilities. Under a high-growth scenario, non-residential waste—construction and demolition debris in particular—grows relatively faster than the overall rate of growth. Under slow growth, the relationship among growth rates is reversed. Deliveries of dry waste to landfills and MRFs in 2001 reflect these effects. Under the low scenario, Metro transfer stations receive 40,000 fewer tons per year than under the baseline; but they receive 40,000 more tons under the high scenario. PCS deliveries remain constant over time, while special and industrial wastes are double their current delivery levels. The following table shows these tonnage growth assumptions explicitly.

Tonnage Delivered to Regional Facilities

Waste Type or Facility	1996	Year 2001 Low	Year 2001 High
Metro	720,942	680,000	760,000
Other wet	72,000	70,000	75,000
Dry disposal	150,000	30,000	75,000
PCS	45,000	45,000	45,000
Special, etc.	90,000	180,000	180,000
MRFs	120,000	260,000	300,000
Total tons	*1,199,938*	*1,265,000*	*1,435,000*

Metro does not levy tip fees and surcharges on all waste that is delivered to solid waste facilities. The origin of waste, recovery rates, and materials put to beneficial uses in landfills affect the amount of revenue tonnage available to Metro. The revenue tonnage (and other potential revenue bases) that are consistent with the projections above are shown in the table on the following page.

[1] Disposal does not track regional growth precisely because of the effects of waste reduction and post-collection recovery efforts. The 9-to-10 percent rate is consistent with the underlying assumptions of the Regional Solid Waste Management Plan (Metro, January 1996). However, if all RSWMP programs are in place and perform as expected, disposal would decline by over 5% by the year 2000 (see RSWMP p. 9-14). In this sense, the financial effects of the low scenario in this report are not as extreme as under RSWMP.

Revenue Bases under Scenarios			
Revenue Base	1996	Year 2001 Low	High
Metro	720,942	680,000	760,000
Other wet	72,000	70,000	75,000
Dry disposal	134,347	26,869	67,173
PCS	30,300	30,300	30,300
Special, etc.	63,900	127,800	127,800
MRFs	60,000	130,000	150,000
Total tons	*1,083,485*	*1,064,969*	*1,210,273*
Single Family HHs[2]	429,211	469,990	469,990
Multi-family HHs[2]	104,150	110,363	110,363
Employees	864,655	959,603	959,603

[2] For purposes of solid waste projections, "single family households" reside in structures having up to four units, and multi-family reside in structures containing 5 or more units.

Appendix B
Definitions of Waste Types for the Tiered Regional System Fee

Mixed Waste. Any solid waste delivered and accepted for disposal at a Metro transfer station or directly hauled to a Metro Designated Facility, that is not Petroleum Contaminated Soil or Industrial/Low-Grade Waste as defined below.

Petroleum Contaminated Soil (PCS). Soil into which hydrocarbons, including gasoline, diesel fuel, bunker oil or other petroleum products, have been released. Soil that is contaminated with petroleum products but also contaminated with a hazardous waste as defined in ORS 466.005, or a radioactive waste as defined in ORS 469.300, is not included in the definition. [Metro Code 5.01.010(m)]

Industrial/Low-Grade Wastes. Generation of industrial/low-grade waste is the principal defining aspect of the generator class covered by the Tiered Regional System Fee. Some important characteristics of low-grade waste serve to distinguish it from other categories of waste streams. These defining characteristics are:

1. There are few opportunities for recovery of materials;
2. There are no appropriate alternatives to disposal than delivery to a landfill;
3. Containment in a landfill is often the best waste management practice;
4. Waste is often generated in large quantities;
5. The level of service required from Metro by generators is low.

This class is comprised of near-inert and homogenous wastes for which there is no realistic alternative to disposal than delivery to a landfill. For certain wastes, disposal may be the only realistic option if there is no possibility of reduction, recycling, or recovery, or if the best waste management practice is containment at an appropriate disposal site. Industrial/Low-Grade waste typically arises from industrial processes or remediation or cleanup events. Acceptable waste for the class contains no cultures, stocks, or biological, hazardous, infectious, medical, pathological, putrescible, or radioactive waste; or more than two percent by weight of recoverable materials under best available technology.

Examples of Industrial/Low-Grade Waste:

1. Waste slag, kyanite, and similar inert residuals from metal refining operations.
2. Sewage screenings and grits.
3. Relatively homogeneous loads of non-recyclable paper and other fiber products suitable for fiber-based fuel.
4. Asbestos and asbestos-containing materials from cleanup or remediation projects under compliance with all applicable regulations.
5. Contaminated soil, residue, or debris from the cleanup of a spill or release of chemical substances, commercial products, or hazardous materials, and which are not hazardous wastes as defined by ORS 466.005 unless an excluded waste (such as PCS), below.

6. Other waste requiring a permit from DEQ for hauling and/or disposal unless an excluded waste, listed below.
7. Other wastes meeting the general definitions and requirements for low-grade waste unless an excluded waste, listed below.

Examples of excluded wastes:

1. Waste containing cultures, stocks, or biological, hazardous, infectious, medical, pathological, putrescible, or radioactive waste as defined by Federal, State or Metro statute, code, regulation, or administrative rule. Whenever definitions differ, the most restrictive will apply.
2. Waste containing more than two percent by weight of recoverable materials under best available technology.
3. Petroleum contaminated soil (PCS). PCS is a separate waste class under the Tiered Regional System Fee. It is current Metro policy to waive fees on all PCS that is processed under Metro's PCS management standards. This fee waiver is intended to encourage delivery of PCS to facilities that process PCS according to these standards. Franchises for PCS processing (and associated fee arrangements) are granted under an open application process. Applicants may include landfill operators.
4. Residuals from mixed solid waste processing at Metro-franchised facilities. It is current Metro policy to waive fees on mixed waste that is delivered to franchised processing facilities that accomplish material recovery as a primary operation (Metro Code, Chapter 5.02.045), but to levy fees on processing residuals that are ultimately landfilled. These fee arrangements are designed to encourage delivery of mixed waste to recovery facilities, and to encourage high recovery rates within the facilities. Franchises for mixed waste processing (and associated recovery rate arrangements) are granted under an open application process. Applicants may include landfill operators. Accordingly, residuals from processing mixed solid waste are excluded from an Industrial/Low-Grade rate in order to: (a) maintain economic incentives that encourage delivery of mixed solid waste to franchised facilities, and (b) to avoid conflict with fee arrangements established under individual franchises.
5. Wastes subject to testing, sampling, or inspection under Metro or another jurisdiction or authority but for which inspections have not been performed. If best waste management practices require testing, sampling or inspection of waste, it is not Metro's policy to provide an economic incentive or reward if such practices have been foregone.

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Response to the Report

M E M O R A N D U M

METRO

DATE: October 25, 1996

TO: Alexis Dow, Metro Auditor

FROM: Mike Burton, Executive Officer

RE: Analysis of Solid Waste Rate Reform Project: A Report by the Office of the Auditor.

Thank you for the opportunity to review your draft of the above-captioned document.

I agree in general with your conclusions on the major issues. In particular, I agree that the status quo rate structure does not resolve the problems identified by REM staff. However, your statement that "the rate reform process has not achieved Metro's objectives" should be placed in context. At the outset, we agreed to listen to our stakeholders with an open mind and without pushing a preferred option. We hoped that the "best" option would emerge. We played by these rules, and the fact that stakeholders support the status quo—perhaps with reservations—points out that stakeholders do not necessarily buy into our statement of the problem. We have further work to do with stakeholders in this regard, but nothing in the process precludes us from undertaking this effort, as you also suggest on page 2 of your report.

I have instructed my staff to incorporate your final report with the public responses that have been solicited for this project.

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Please rate the following elements of this report by checking the appropriate box.

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Details	❑	❑	❑
Length of Report	❑	❑	❑
Clarity of Writing	❑	❑	❑
Potential Impact	❑	❑	❑

Suggestions for our report format: _____

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Other comments, ideas, thoughts: _____

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Name (optional): _____

Thanks for taking the time to help us.

Fax: 797-1799
Mail: Metro Auditor, 600 NE Grand Avenue, Portland, OR 97232-2736
Call: Alexis Dow, CPA, Metro Auditor, 797-1891