BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF AUTHORIZING ISSUANCE OF A REQUEST FOR PROPOSALS FOR A MODELING SYSTEM TO SIMULATE SOLID WASTE GENERATION, REDUCTION, TRANSPORT AND DELIVERY, AND ENTERING INTO A MULTI-YEAR CONTRACT WITH THE MOST QUALIFIED PROPOSER	RESOLUTION NO. 91-1400A Introduced by Rena Cusma, Executive Officer

WHEREAS, Predicting the response of waste generators and haulers to Metro's policies is necessary for management and long-term planning; and

WHEREAS, Predicting the impact of waste reduction and recycling on delivery tonnages is necessary for rate setting, budgeting, and facility management; and

WHEREAS, Metro's Regional Land Information System (RLIS) can be used to retrieve, analyze, and display data necessary for the above purposes; and

WHEREAS, The FY 1990-91 Metropolitan Service District budgets of the Solid Waste and Planning and Development Departments authorize expenditures of a total of $215,000 for work related to this project; and

WHEREAS, Coordination of these expenditures as a single project will avoid duplication and maximize utility for both management and planning purposes; and

WHEREAS, Pursuant to Metro Code Section 2.04.033(a)(1) Council approval is required because the agreement commits the District to expenditures for continuation of the Project in the next fiscal year; and

WHEREAS, Pursuant to Metro Code Section 2.04.032(d) Council approval is required because one of the contracts is identified as an "A" contract in the FY 1990-91 budget; and

WHEREAS, The resolution was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now therefore,

BE IT RESOLVED:

1. That the Council of the Metropolitan Service District approves the Request for Proposals for a Modeling System for Simulating Solid Waste Generation, Reduction, Transport and Delivery, and entering into a multi-year contract with the most qualified proposer.

2. That the Council approves consolidation of funds to allow the Solid Waste and Planning and Development Departments to jointly work on the Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

3. That the Directors of the Solid Waste and Planning and Development Departments are requested to advertise for proposals and do all other things necessary to solicit proposals for a Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

ADOPTED by the Council of the Metropolitan Service District this 14th day of February, 1991.

Tanya Collier, Presiding Officer

KF:mgs
\SWC\91-1400.RES

BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF AUTHORIZING ISSUANCE OF A REQUEST FOR PROPOSALS FOR A MODELING SYSTEM TO SIMULATE SOLID WASTE GENERATION, REDUCTION, TRANSPORT, AND DELIVERY AND ENTERING INTO A MULTI-YEAR CONTRACT WITH THE MOST QUALIFIED PROPOSER[~~, AND WAIVING THE REQUIREMENT FOR COUNCIL APPROVAL OF THE CONTRACT AND AUTHORIZING THE EXECUTIVE OFFICER TO EXECUTE THE CONTRACT SUBJECT TO CONDITIONS~~]	RESOLUTION NO. 91-1400A Introduced by Rena Cusma, Executive Officer

WHEREAS, Accurate forecasts of waste delivered to regional facilities [~~is~~] are essential for effective solid waste management and planning; and

WHEREAS, Predicting the response of waste generators and haulers to Metro's policies is necessary for management and long-term planning; and

WHEREAS, Predicting the impact of waste reduction and recycling on delivery tonnages is necessary for rate setting, budgeting, and facility management; and

WHEREAS, Metro's Regional Land Information System (RLIS) can be used to retrieve, analyze, and display data necessary for the above purposes; and

WHEREAS, The FY 1990-91 Metropolitan Service District budgets of the Solid Waste and Planning and Development Departments authorize[~~s~~] expenditures of a total of $215,000 for work related to this project; and

WHEREAS, Pursuant to Metro Code Section 2.04.033(a)(1) Council approval is required because the agreement commits the District to expenditures for continuation of the Project in the next fiscal year; and

WHEREAS, Pursuant to Metro Code Section 2.04.032(d) Council approval is required because one of the contracts is identified as an "A" contract in the FY 1990-91 budget; and

[~~WHEREAS, Pursuant to Section 2.04.033(6) of the Metro Code, the Council may at the time it approves a Request for Proposals, Exhibit A, waive the requirement of Council approval of a contract prior to execution of the Contract by the Executive Officer;~~]

WHEREAS, The resolution was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now therefore,

BE IT RESOLVED:

1. That the Council of the Metropolitan Service District approves the Request for Proposals for a Modeling System for Simulating Solid Waste Generation, Reduction, Transport and Delivery, and entering into a multi-year contract with the most qualified proposer.

2. That the Council approves consolidation of funds to allow the Solid Waste and Planning and Development Departments to jointly work on the Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

jointly work on the Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

3. That the Directors of the Solid Waste and Planning and Development Departments are requested to advertise for proposals and do all other things necessary to solicit proposals for a Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

[4. ~~That the Council of the Metropolitan Service District, pursuant to Section 2.04.033(b) of the Metro Code, waives the requirement of Council approval of the contract resulting from the proposal process, subject to the conditions in Exhibit B attached hereto, and authorizes the Executive Officer to execute a contract for the Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery to the most qualified proposer in accordance with the requirements of the Metro Code, if the conditions are met.~~]

ADOPTED by the Council of the Metropolitan Service District this _____ day of _____, 1991.

_____
Tanya Collier, Presiding Officer

KF:mgs
\SWC\91-1400.RES

EXHIBIT A

REQUEST FOR PROPOSALS

MODELING SYSTEM FOR SIMULATING SOLID WASTE GENERATION, REDUCTION, TRANSPORT, AND DELIVERY

RFP #91R-4-SW

Metropolitan Service District
2000 S.W. First Avenue
Portland, OR 97201-5398
(503) 221-1646

January 1991

REQUEST FOR PROPOSALS

Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery

INTRODUCTION

The Metropolitan Service District (Metro) is seeking proposals from qualified firms to develop a modeling system for simulating solid waste generation, reduction, transport, and delivery in the Metro region. The objective is to provide a tool for experimenting with proposed management practices and policies without actually implementing them. Once developed, the simulations will be used by Metro for short-term operational decision making and long-term system planning projects.

The services requested by Metro as part of this project include model design, data collection and analysis, and software development. This Request for Proposals (RFP) does not include details of how tasks are to be accomplished. Instead, it identifies the basic components that must be considered regardless of specific methodology.

Responses to this RFP are expected to propose how each task would be accomplished and give as much detail as possible given the information in this RFP.

BACKGROUND INFORMATION ABOUT METRO

Proposals should consider the following characteristics of Metro and the local solid waste system:

The Metropolitan Service District

The Metropolitan Service District (Metro) was created by the Oregon Legislature in 1977 and approved by the voters of Clackamas, Multnomah and Washington counties in 1978 as a directly elected regional government. Metro is governed by a 12-member council, elected from subdistricts in the region, and an executive officer, elected region-wide. Metro serves the 1.2 million residents of the urban areas of the three-county region. Among other municipal services, Metro is responsible for the management of solid waste disposal and waste reduction facilities.

Metro has developed a Regional Solid Waste Management Plan (RSWMP) that establishes regional policies for waste reduction and management of all aspects of the region's facilities.

The Metro Code provides Metro with its regulatory authority and establishes operational procedures and responsibilities.

Solid Waste Collection and Transport

Solid waste collection is the responsibility of cities and governments in the region. Collection and transport is done by private haulers. There are more than 100 commercial haulers in the region.

Except for the city of Portland, local governments award exclusive franchises to haulers for the collection of waste. Haulers in Portland do not have designated service areas, though this is likely to change in the near future. Metro does not have any regulatory responsibility related to the waste collection industry.

Subscription to a collection service is not mandatory in the region except for multi-family complexes in some cities. Both residential and non-residential generators are allowed to self-haul waste and recyclables to most facilities in the region. As a result, franchised haulers do not collect and transport all waste generated or recycled within their service area.

Haulers currently choose among the facilities that accept the type of waste they are transporting. There has been no directing of haulers to facilities by either Metro or local governments. Some haulers have agreements with private facilities to deliver the waste they collect.

The Metro Code includes flow control authority which allows Metro to direct waste to facilities. To date, this authority has not been implemented. It is expected that some flow control will be necessary as new facilities are built that handle specialized parts of the waste stream.

The mechanism that would be used for directing flow has not been established. Among other approaches, flow control could be based on geographic boundaries, truck type, or generator type.

Disposal of Solid Waste and Recyclables

A total of 1.14 million tons of waste were delivered to regional disposal facilities during 1990. Based on recent waste characterization studies, composition of this waste was 17% construction and demolition debris, 31% residential waste, and 52% non-residential waste.

There is both private and public ownership of disposal facilities.
Metro has agreements with private facilities to accept some of the waste generated within the region.

Disposal fees at public facilities are established by Metro. Fees at these facilities are uniform (except for a lower yard debris rate) and are on a weight basis. Delivery tonnage records are maintained for each commercial hauler with a charge account.

Fees at private facilities are established by the owners. Most charge on a weight basis. Private facilities that accept solid waste are required to pay fees to Metro for the waste they receive from the region. Facilities that process pure loads of recyclables without residual waste are not regulated by Metro. Each solid waste disposal facility reports delivery tonnages to Metro on a monthly basis. These reports only include total tonnages and not type of waste or other information on hauler or generator.

The following table describes the major existing facilities in the Metro region. Tonnages are projections for 1991.

Facility	Function	Ownership	Waste Type	Annual Tonnage
Metro South	Transfer Station	Metro	General MSW	350,000
Metro Northwest	Transfer Station	Metro	General MSW	300,000
Forest Grove	Transfer Station	Private	General MSW	60,000
Hillsboro Reload	Transfer Station	Private	General MSW	15,000
Hillsboro Landfill	Landfill	Private	Non-putrescible	150,000
Lakeside	Landfill	Private	Non-putrescible	80,000
Riverbend	Landfill	Private	General MSW	60,000
St. Johns	Landfill	Metro	Construction debris	120,000
Mass Composting	MSW Compost	Metro	Residential	185,000
Grimm's Fuel	Compost Facility	Private	Yard Debris	17,000
MacFarlane's	Compost Facility	Private	Yard Debris	11,000
Oregon Processing and Recovery Center	Material Recovery Facility	Private	High-Grade	7,000
East County Recycling Center	Material Recovery Facility	Private	Non-putrescible	30,000

Note: MSW = Municipal Solid Waste

At least one new transfer station will be built in the western portion of the region within the next two years. Other major system changes will include a recovery facility for construction and demolition debris, expansion of regional capacity for processing mixed waste that contains a high proportion of recyclable material, and expansion of yard debris processing facilities.

Metro has contracts with the operators of some facilities that establish minimum and maximum delivery tonnages on a daily, weekly, monthly, and annual basis. Contracts such as the one for the MSW Compost Facility also specify the type of acceptable waste.

Local Recycling Programs

Local jurisdictions are responsible for implementing recycling programs such as curbside collection of recyclables. State law requires that monthly curbside collection of principal recyclables be made available in all communities with a population greater than 4,000.

While Metro is encouraging uniformity in recycling programs, there presently exists considerable variation among local jurisdictions. Promotion and education, frequency of collection, and types of recyclables collected vary within the region. Commercial haulers report to Metro on a quarterly basis the type and quantity of recyclables they have collected.

PROJECT DESCRIPTION

The characteristics of solid waste management in the Metro region described above make it difficult to forecast how much and what type of waste will be available for disposal or recycling. It is also difficult to determine whether the actions recommended in the Regional Solid Waste Management Plan have been effective in reaching the goals in the plan.

Multiple facilities that accept the same type of waste and freedom of choice on the part of haulers create uncertainty that may not exist in many other regions. The primary purpose of this project is to produce a simulation system that is capable of dealing with this uncertainty.

Metro will primarily use this system for:

(1) Forecasting waste and recyclable tonnages delivered to facilities by waste type, generator type, transport mode, and geographic origin. It is necessary that forecasts generated from the simulations predict waste flows to facilities with a high degree of accuracy for short-term (1 to 3 year) management decisions as well as predict waste generation rates and flow patterns for long-range (20 year) planning projects.

(2) Predicting behavioral changes in waste generators and haulers in response to factors such as disposal fees and location of facilities.

(3) Estimating changes in waste flow as the result of new recycling and waste reduction activities.

(4) Identifying flow patterns that achieve management objectives.

Metro recognizes that there are many different simulation approaches that could be used to accomplish the above objectives. The consultant will be expected to provided expert technical advice on the advantages and disadvantages of alternative approaches.

Modeling Waste Generation

Regardless of approach, information on waste generation within local areas will be required to simulate waste flow. Some actual data is available. For example, haulers may have records of level of service for residential accounts by address. In most cases, however, the amount and type of waste produced by different generators in small area zones is unknown.

One component of this project will be to develop equations for predicting how much and what type of waste is generated zones where actual data are not available. The relationships between waste generation and attributes of local zones will need to be quantified. The consultant will be responsible for data collection and analysis necessary to accomplish this.

Modeling Waste Reduction, Transport, and Delivery

A second component will be to model the alternative "paths" that waste may take once generated. For some scenarios, there may be a single path for certain waste. For example, one scenario might be that Metro uses its flow control authority to direct all residential waste that is collected by commercial haulers within a given geographic zone to a single facility. Another example would be a hauling company that is known to deliver all waste to a particular facility. Users should be able to specify these known assignments.

The final destination of most waste in the Metro region, however, is determined by a series of unknown and uncontrolled choices made by generators and haulers. Because factors such as travel time do not have the same value to all haulers, not all waste from a particular area is delivered to the same facility. Metro staff visualizes the problem of modeling waste delivery as one of predicting the behavior of generators and haulers in making choices concerning disposal, transport, and delivery.

Following this section is a diagram showing examples of the basic choice options that will be modeled in this project. After known assignments are made, the simulation should use statistical models developed as part of this project to assign remaining waste to collection modes, vehicle type, and facilities.

Simulation Software

The third task will be the development of a simulation computer program. The software or programming language to be used is not being specified by Metro. However, Metro is particularly interested in proposals that fully utilize the simulation potential of Metro's ARC/INFO Geographic Information System (GIS). At a minimum, the GIS will be used to retrieve socioeconomic and environmental data that feed the generation and allocation models and for display of results.

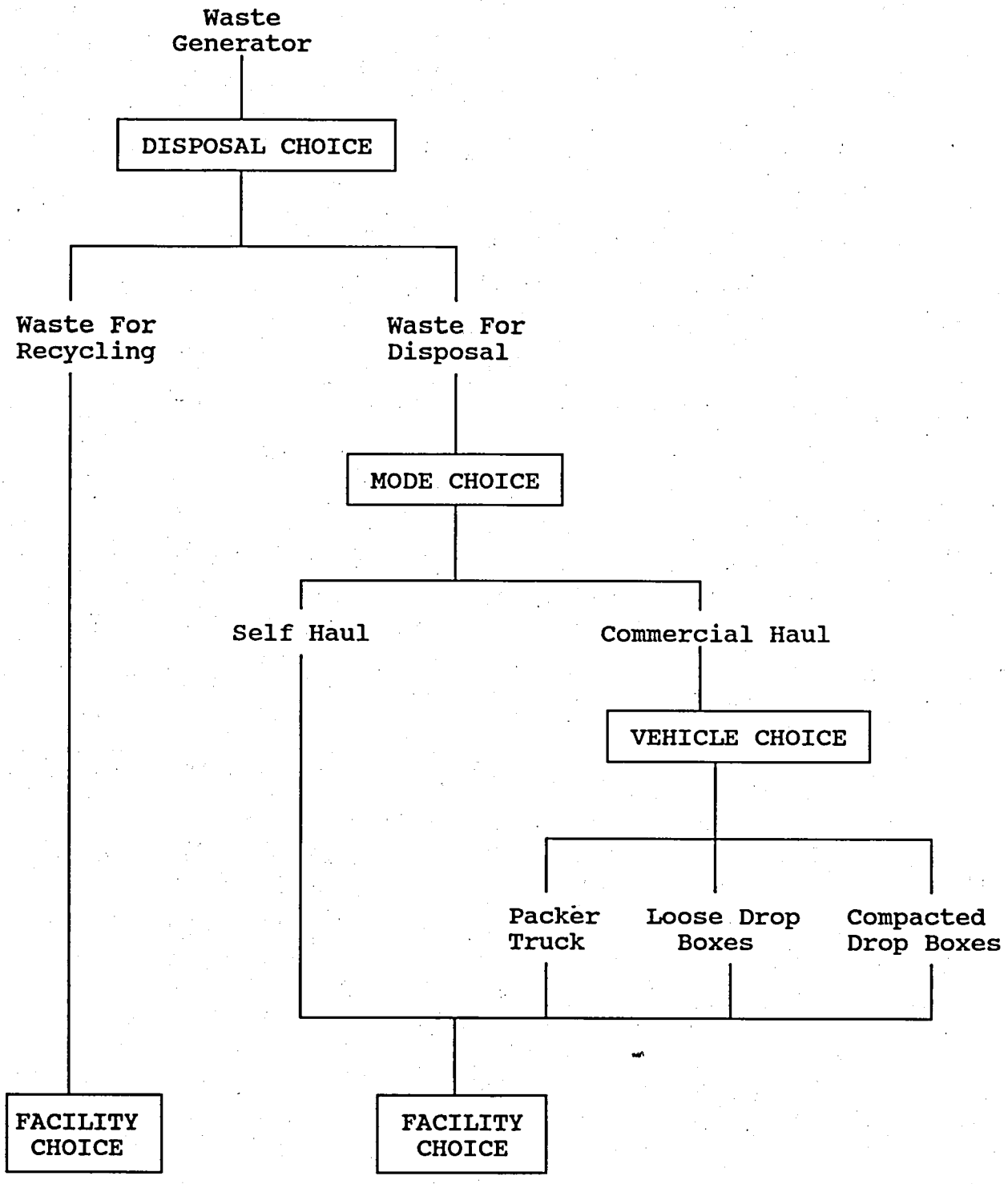
Metro believes that it may be possible to also conduct the simulations using ARC/INFO (or ARC compatible databases such as ORACLE). If so, the software development portion of this project will involve writing ARC macros for user interface with GIS, calculation of attributes using predictive equations, and outputing results.

Existing Metro computer resources that might be relevant to this project include Sun SPARC server/network running EMME/2 transportation software and SAS (Statistical Analysis System) software; Hewlett-Packard 9000 series network running ARC/INFO GIS software; ethernet connection between the Sun and HP networks; and SAS software running on IBM compatible PCs.

It must be possible for Metro staff to easily examine "what-if" questions. For example: What will be the change in delivery tonnage at the Metro Northwest Transfer Station if a new recovery facility is established in northeast Portland that accepts waste at $15 less per ton? How much waste would be received at the MSW Compost Facility if only packer trucks with residential waste from Multnomah County were accepted? In general, users must be able to specify the characteristics of facilities, transport modes, and waste streams and examine how waste flow changes under different scenarios.

The system must be adaptable to the changes that are currently taking place in the region. For example, new facilities are being built that are increasingly more specialized in the type of waste they accept. The transport of waste is also changing from a system where haulers choose among disposal facilities to one where Metro may direct haulers in order to achieve regional policy objectives.

EXAMPLE OF CHOICE OPTIONS AVAILABLE TO GENERATORS AND HAULERS



WHAT THIS PROJECT WILL NOT DO

Metro is not responsible for waste collection. Evaluating collection route alternatives is not an objective of this project. Instead, the focus is on modeling transport and delivery after collection is complete.

This RFP is also not for services to perform economic cost/benefit analyses of different program alternatives. Variables such as disposal fees, transport costs, and market prices of recyclables are only of interest if they help explain the behavior of generators and haulers. Other models that Metro is developing will be used to perform economic analyses.

The simulation model should provide statistical estimates of waste flow not optimal mathematical solutions to management questions. The objective is to compare alternatives scenarios rather than to generate the optimal one given a set of constraints. Therefore, Metro believes that optimization techniques such as linear programming will not be part of this project.

PROPOSED SCOPE OF WORK

Metro believes that the following tasks will be required in order to accomplish the project objectives. Proposers should give a detailed description of how each task and sub-task would be conducted.

Proposers may comment on the proposed tasks and suggest additional ones that may be required. Any changes in the proposed tasks should be accompanied by an explanation of why different tasks would better accomplish the project objectives.

Responses should consider the proposal guidelines listed after each task. Details of proposed workplans should be included to the fullest extent possible. Responses will be used to evaluate understanding of the project and technical qualifications.

Task 1 **Develop statistical model(s) that can be used to estimate waste generation rates within local geographic areas of the Metro region.**

The model(s) must: (1) have a monthly time resolution for short-term forecasts and a yearly resolution for long-term forecasts, (2) allow predictions to be made for different types of generators, and (3) allow the total amount of waste to be disaggregated by material type.

Metro expects generator categories to include at least the following:

Single-family households
Multi-family households
Retail businesses
Industrial
Manufacturing
Other non-residential generators

At a minimum, waste categories will include the following:

Corrugated Paper
Newspaper
Office Paper
Yard Debris
Ferrous Metals
Non-Ferrous Metals
Glass
Food Waste
Wood
Plastic
Construction/Demolition Debris

1.1 Design the waste generation model.

The consultant shall work with Metro staff to design the most appropriate conceptual model of waste generation.

Proposal guidelines:

Proposals should include a description of expected model structure using text and/or mathematical equations as appropriate. Describe the attributes of local areas that will be included in the model as explanatory variables (e.g. employee classification, sales volume, household income).

Proposals should describe the geography of the basic units of analysis (e.g. census tracts, transportation zones, or other units to be defined).

Describe how monthly variation, type of waste, and type of generator will be dealt with in the model. For example, describe whether a multivariate model with material types as dependant variables will be developed or separate equations will be estimated for each material and generator.

1.2 Plan and conduct data collection needed to estimate parameters of the waste generation model.

The consultant shall be responsible for all aspects of data collection. This could include designing and fielding surveys, contacting businesses to request permission to sort waste, and performing field work related to waste sorting and characterization.

Proposal guidelines:

Proposers should assume that no local data currently exist that could be used to establish the relationship between waste generation rates and attributes of local geographic areas. Given this assumption, proposals should describe any data collection that would be necessary to accomplish the project objectives.

Proposers should pay particular attention to the data collection required for estimating non-residential waste generation. Metro believes that sufficient data may exist for estimating parameters of non-residential waste generation equations. Proposer should state whether they believe this is the case.

Proposals should give as much detail as possible about the type of data collection that is proposed, including a discussion of the commitments which would be necessary for long-term data base maintenance. Proposed data sources should be identified and classified as to whether they are primary or secondary sources. If repeated or ongoing surveys are necessary for model maintenance, proposals should comment on sample selection method, method of contact, sampling plan, sampling size, projected reliability, and quality control procedures.

It may be possible that the improvements in model accuracy that could be achieved with local data do not justify the cost of data collection. If the proposal is to use data from other regions, these data must be described in terms of source, accessibility, expected accuracy when applied to the Metro region.

1.3 Conduct the statistical analysis needed to estimate model parameters and determine the best set of variables for predicting waste generation.

The consultant shall be responsible for performing all statistical analyses necessary for developing the waste generation model.

Proposal guidelines:

Proposals should describe the statistical procedures and software that would be used to estimate parameters of the waste generation model. Also describe tests statistical decisions that would be used to evaluate and refine the final equations to be used in the simulation model.

1.4 **Provide Metro with: (1) all data in electronic format, (2) documentation of all statistical analyses including parameter estimates, and (3) documentation of research design, field work, quality control procedures, and methods for updating features of the waste generation model.**

Task 2. **Develop "choice" models to predict the behavior of generators and haulers who decide among alternative modes of transporting waste and facilities for delivery of waste.**

The consultant shall develop models that, at a minimum, describe the following aspects of generator and hauler behavior: (1) the generator's choice of whether or not to separate recyclable material from waste prior to collection, (2) the generator's choice of self-hauling waste or paying commercial haulers to transport waste to a disposal facility, (3) the commercial hauler's choice of what type of vehicle to use for transporting waste, and (4) the hauler's choice of facilities.

2.1 **Design the choice models.**

The consultant shall specify models that quantify the relationships between explanatory variables (e.g. travel time and disposal fee) and the choices listed above. Specification will include a description of variables and the functional form of the models. Metro reserves the right of review and approval of these model specifications prior to implementing other tasks of this project.

Proposal guidelines:

Responses to this task should propose a model structure based on the information provided in this RFP. Use text and/or mathematical equations as appropriate. Define independent and dependent variables.

Proposals should describe how different types of generators will be included in the choice models. Similarly, indicate whether the same models will be used for all parts of the region.

Proposers should also identify and propose solutions to potential problems in modeling the behavior of haulers and generators in the Metro region. For example, the hilly terrain of the region creates steep grades on some main routes to facilities. Regardless of travel time, commercial haulers may avoid these routes and select alternative facilities in order to minimize wear on vehicles.

Another example is the spatial relationships among facilities. Proposals should describe how the effect of such factors will be modeled.

2.2 Plan and conduct data collection needed to estimate parameters of the choice models.

The consultant shall be responsible for all aspects of data collection needed to develop the choice models. This will likely include designing and fielding surveys of haulers at disposal facilities to collect information on geographic origin.

Proposal guidelines:

Metro has collected a limited amount of data that might be relevant to the choice models. For example, previous interviews of haulers at disposal facilities have indicated that not all haulers select the nearest facility. However, existing data are unlikely to be adequate for this project.

For the purposes of responding to this task, assume that Metro does not presently have data that can be used for estimating parameters of the choice models.

As with the waste generation model, proposals should give as much detail as possible about the type of data collection that is proposed, including a discussion of the commitments which would be necessary for long-term data base maintenance. Proposed data sources should be identified and classified as to whether they are primary or secondary sources. If repeated or ongoing surveys are necessary for model maintenance, proposals should comment on sample selection method, method of contact, sampling plan, sampling size, projected reliability, and quality control procedures.

2.3 **Conduct the statistical analysis needed to estimate model parameters.**

The consultant shall perform statistical analyses necessary for developing the choice models.

Proposal guidelines: Describe the statistical procedures and software that would be used to estimate parameters, including statistical tests that would be used to evaluate and refine the final equations to be used in the simulation model. Provide references to similar analyses that have been conducted in solid waste or other fields.

2.4 **Provide Metro with: (1) all data in electronic format, (2) documentation of all statistical analyses including parameter estimates, and (3) documentation of research design, field work, quality control procedures and methods for updating features of the choice models.**

Task 3. **Develop a software system to simulate waste flow in the Metro region using the models developed in Tasks 2 and 3. Provide Metro with programs and all necessary documentation to enable Metro staff to effectively use the system.**

The Consultant shall provide Metro with software that can be used by Metro staff to integrate the waste generation and choice models and perform the type of simulations described in this RFP.

The system must allow users to make simulation runs while systematically altering program parameters to reflect different management strategies. By comparing output from the different simulation runs, the user must be able to estimate the impact that different management strategies would have on solid waste generation, reduction, transport, and delivery.

The system must have the following characteristics:

(1) Linkage must be possible between the simulation software and Metro's ARC/INFO Geographic Information System (GIS). At a minimum, (GIS) will be use for retreiving geographic data used in the simulations and displaying results. It is conceivable that ARC's macro language could also be used to accomplish the simulation.

(2) User-specified assignments of waste to facilities can be made. Assignments may be based on geographic, generator, transport mode, or waste characteristics. These assignments may correspond to existing or proposed management practices. For example, the user may assign all packer trucks within a geographic area to the Mass Composting Facility.

(3) Data files and the algebraic functions developed in Tasks 1 and 2 can be updated as Metro continues data collection in the future.

(4) Specifications of facilities can be easily changed and the effect on waste flow estimated. Facility characteristics will include location, minimum and maximum capacity by waste type, acceptable hauler type, and tip fee.

(5) Specification of recycling programs can be changed and the effect on waste flow estimated. Program characteristics that must be included are affected waste and generator type.

(6) Actual (rather than modeled) waste generation, reduction, and delivery data can be used if available. For example, Metro might have information on exactly how much waste is generated in some areas.

(7) Tabular and graphical reports containing model output can be generated.

Proposal guidelines:

Metro is not specifying the software or programming language to be used for the simulations. Proposers should describe the software they think will best accomplish the project objectives. Include a justification for choosing the software with a list of advantages and disadvantages.

Metro is not aware of any existing solid waste software applications that could accomplish the objectives of this project without major modifications. If the proposal is to use an existing application, the required modifications should be explained in detail.

Proposers should consider using flowcharts to describe how the simulation would be structured. Describe input and output datafiles, data sources, and processing steps. Describe the user interface.

As mentioned in the Project Description, Metro is particularly interested in proposals that fully utilize the potential of Metro's GIS. Proposers should describe how the simulation model will be linked with the GIS.

PROPOSAL INSTRUCTIONS

Five (5) copies of the proposal (printed double-sided on recycled paper preferred) shall be submitted to Metro, addressed to:

Terry D. Petersen
Solid Waste Department
Metropolitan Service District
2000 S.W. First Avenue
Portland, OR 97201-5398

Proposals will not be considered if received after **4:00 P.M. PST, March 15, 1991.** Postmarks are not acceptable.

This RFP represents the most definitive statement Metro will make concerning information upon which proposals are to be based. Any verbal information that is not contained in this RFP will not be considered by Metro in evaluating proposals.

All questions relating to the RFP or the project are to be directed to Terry Petersen. Any questions, that in the opinion of Metro, warrants a written reply or RFP amendment will be furnished to all parties receiving a copy of this RFP. Metro will not respond to questions after February 15, 1991.

POTENTIAL SUBCONTRACTORS

The Contractor will contact the Metro Project Manager prior to negotiating any subcontracts. In the event that any subcontractors are to be used in the performance of this agreement, the Contractor will make a good faith effort, as defined in Metro's Disadvantaged Business Program, (Section 2.04.160, Subsection (b) of the Metro Code), to reach the goals of subcontracting 7% of the contract amount to Disadvantaged Business Enterprises (DBE's) and 5% of the contract amount to Women Owned Business Enterprises (WBE's).

It is recognized that the project tasks require different expertise and experience, and many firms will not possess the resources for completing all tasks. Therefore, Metro will accept joint proposals from a consulting team formed in response to the request or for a single phase only. Metro may seek formation of a consulting team if separate proposals for individual tasks receive the highest score.

Metro does not wish any subcontractor selection be finalized prior to contract award. For any task or portion of a task to be undertaken by a subcontractor, the Contractor shall not sign up a subcontractor on an exclusive basis. The Contractor shall assume responsibility for the day-to-day direction and internal management of the subcontractor effort.

Metro reserves the right, at all times during the period of this agreement, to monitor compliance with the terms of the preceding Subcontractor paragraphs. Contractor shall provide Metro with all information necessary to determine compliance with Metro's Disadvantaged Business Program.

Information regarding Metro's Disadvantaged Business Program can be obtained from Amha Hazen at (503) 221-1646.

PROPOSAL CONTENTS

Proposals should contain the following information and must be valid for ninety (90) days:

1. Signed Letter of Transmittal: Indicate who will be the project coordinator and that the proposal will be valid for ninety (90) days after the transmittal date. State the name, title address, and telephone number of an individual or individuals with authority to contractually bind the company during the period in which Metro is considering proposals.

2. Project Workplan: Describe how the project outlined in the Scope of Work will be accomplished. Present a detailed response to the proposal guidelines listed in the scope of work.

3. Qualifications and Experience: Identify specific personnel assigned to major project tasks, their roles in relation to the work required, percent of their time on the project, and special qualifications they may bring to the project including any pertinent academic training.

   List similar projects undertaken by the Contractor and/or subcontractor(s) for each major component area (i.e. choice models, Geographic Information System software development).

4. Independent Contractor Requirements: Contractor must qualify as an independent contractor pursuant to criteria established in ORS 701.025 and 701.030. In order to be eligible for consideration, Contractor's proposal must demonstrate that Contractor is so qualified.

5. List of Sub-consultants and Sub-contractors: Metro encourages the use of certified DBE's and WBE's. If any portion of the work is to be sub-contracted, include a statement regarding the percentage participation by DBE and WBE vendors, or if good faith efforts have been made as defined by the Metro code, Section 2.04.160. If applicable, complete the attached DBE/WBE compliance forms with your application. A copy of the Metro Ordinance adopting these procedures is also attached (Attachment B). If no portion of the work will be subcontracted, include a statement to this effect in your transmittal letter.

6. Cost/Budget: Present the proposed cost of the project. List hourly rates for personnel assigned to the project, total personnel expenditures, support services, and subconsultant fees (if any).

   Metro will negotiate the final scope of work and cost with the highest ranked consultant. If a satisfactory contract can not be negotiated, the next highest ranked consultant will be selected for negotiations.

7. Exceptions: Proposers wishing to take exception to, or comment on any aspect of this RFP are encouraged to document their concerns in this section of the proposal. Exceptions should be succinct, thorough, and organized.

GENERAL PROPOSAL/CONTRACT CONDITIONS

Limitations of Award:

This RFP does not commit Metro to the award of a contract, nor to pay any costs incurred in the preparation and submission of proposals in anticipation of a contract. Metro reserves the right to accept or reject any and all proposals received as a result of this request, to negotiate with all qualified sources, or to cancel all or part of this RFP.

Contract Type:

Metro intends to award a personal services contract with the selected Contractor of this project. A copy of the standard personal services contract that the Contractor will be required to execute is attached (see Attachment C).

Payment Schedule:

Payments shall be made monthly after receipt of a Metro-approved detailed billing from the Contractor for all work performed in the previous month.

Validity Period and Authority:

The proposal shall be considered valid for a period of at least ninety (90) days and shall contain a statement to that effect. The proposal shall contain the name, title, address, and telephone number of an individual or individuals with authority to bind the company during the period in which Metro is evaluating the proposal.

Insurance Requirements:

The Contractor shall provide (from insurance companies acceptable to Metro) General Liability insurance coverage with a combined single limit of not less than $500,000. Before commencing work under this contract the Contractor shall furnish Metro with a certificate of insurance evidencing coverage as specified, naming Metro as an additional insured. In addition, Contractor shall maintain, in force, workers compensation insurance coverage as required by the State of Oregon.

EVALUATION OF PROPOSALS

Evaluation Procedures:

Proposals that conform to the proposal instructions will be evaluated by a selection committee. Finalists will be interviewed during the week of March 25, 1991. At that time, the proposer should be prepared to give a thirty (30) minute presentation outlining their proposal. The presentation will be followed by a question and answer period.

Evaluation Criteria:

The criteria used in evaluating each submitted proposal shall be as follows:

Criteria	Points
The technical plan for accomplishing the project objectives that are described in this RFP.	40
Previous experience and ability to perform the required work.	30
Project staffing.	20
Cost to perform proposed work.	10

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SOLID WASTE COMMITTEE REPORT

CONSIDERATION OF RESOLUTION NO. 91-1400A, FOR THE PURPOSE OF APPROVING A REQUEST FOR PROPOSALS FOR A MODELING SYSTEM TO SIMULATE SOLID WASTE GENERATION, REDUCTION, TRANSPORT, AND DELIVERY AND ENTERING INTO A MULTI-YEAR CONTRACT WITH THE MOST QUALIFIED PROPOSER

Date: February 6, 1991 Presented by: Councilor McLain

Committee Recommendation: At the February 5, 1991 meeting, the Committee voted 3-0 to recommend Council adoption of Resolution No. 91-1400 as amended. Voting in favor were Councilors McFarland, McLain and Wyers. Councilors DeJardin and Gardner were excused.

Committee Issues/Discussion: Roosevelt Carter, Budget and Finance Manager, explained that Resolution No. 91-1400 combines into one contract three projects for which the Council previously appropriated funds.

Terry Petersen, Associate Solid Waste Planner, explained that staff currently bases its tonnage projections on historical trends. Staff is seeking approval of a request for proposals for a modeling system to simulate waste generation, reduction, transport and delivery. The system will assist solid waste management in developing short-term tonnage-related forecasts, and will assist solid waste planning in developing long-term forecasts. These forecasts will be used in rate setting, budget planning, and facility design and management. The modeling system will also be used to predict the impact of solid waste policies on waste flow.

Mr. Petersen explained that staff also is seeking waiver of Council approval of the contract resulting from the proposal process, because the additional time needed for Council approval would preclude using the modeling system in the current rate-setting process.

Rich Carson, Planning and Development Director, said the project is a cooperative effort between the two departments. He said staff needs better information than is currently available in order to plan and operate a multi-million dollar system.

Councilor McFarland asked why the Resolution did not come before the Council earlier if timing is a consideration. Mr. Carter said that three different projects had been budgeted, two of which were designated "B" contracts by the Council, and one designated "A". Councilor McFarland said that a primary responsbility of the Council is contract approval, and that approving the waiver would not meet that responsiblity.

Councilor McFarland asked how the modeling system would account for decreases in waste due to recycling and reduction efforts. Mr. Petersen said Metro needs a system to look at these factors easily and quickly, to forecast whether or not decreases will occur.

Councilor McFarland asked if there is existing software which could be used. Mr. Petersen said that staff is not aware of any existing software, but that persons responding to the RFP could suggest existing programs which might be suitable.

Councilor McFarland noted that a significant amount of money is involved. She questioned whether and how the expenditure will help obtain better data, and feels uncomfortable with a system based on theoretical predictions.

Mr. Carson said that the solid waste field is rapidly evolving, and Metro needs ways to obtain better information to stay on the leading edge. Becky Crockett, Solid Waste Planning Supervisor, said that the system should save costs, because it will avoid having to develop a separate model for each project in which waste projections are needed.

Councilor McLain said the project makes sense, and should provide greatly needed information. She asked staff to address possible coordination problems. Mr. Carter said Terry Petersen will manage a project team with members from both departments, and will ensure there is no overlap.

With regard to the request for waiver of Council approval, Councilor McLain thought the conditions for waiving Council approval, which are set out in Exhibit B, provide appropriate limitations, and asked if additional conditions might be appropriate. Mr. Carson suggested that the Council could require that the project be included as a line item in the quartertly progress reports.

Councilor Wyers asked if the scope of work had changed since the original designation on the contract list. Ms.Crockett said it had not changed.

Mr. Carter noted that although the intent of the resolution is to ask for approval of a multi-year contract, language to this effect does not appear in the resolution, and should be inserted.

The committee voted 3-0 to amend the resolution to incorporate language authorizing a multi-year contract. The committee voted 2-1 to delete language waiving the requirement for Council approval of the contract (Councilors McFarland and Wyers voting in favor; Councilor McLain opposed).

STAFF REPORT

CONSIDERATION OF RESOLUTION NO. 91-1400 FOR THE PURPOSE OF APPROVING A REQUEST FOR PROPOSALS FOR A MODELING SYSTEM TO SIMULATE SOLID WASTE GENERATION, REDUCTION, TRANSPORT, AND DELIVERY AND ENTERING INTO A MULTI-YEAR CONTRACT WITH THE MOST QUALIFIED PROPOSER, AND WAIVING THE REQUIREMENT FOR COUNCIL APPROVAL OF THE CONTRACT AND AUTHORIZING THE EXECUTIVE OFFICER TO EXECUTE THE CONTRACT SUBJECT TO CONDITIONS

February 5, 1991 Presented by: Roosevelt Carter
Terry Petersen

Predicting how much and what type of waste is generated, recycled, and delivered to facilities is critical for many solid waste management and planning activities. For example, tip fees are based in part on the tonnage expected to be delivered to disposal facilities. Planning for new facilities, such as in Washington County, requires waste flow forecasts. Evaluating the waste reduction benefits of tip fee incentives requires knowledge of how haulers change behavior in response to tip fees. These and many other activities require analysis of waste generation, transport, and delivery.

The Request for Proposals (RFP) is for services to develop a system for simulating waste flow with more accuracy and efficiency. The project will have three key components: (1) quantifying the relationship between waste generation and explanatory variables such as household income and number of employees, (2) quantifying how factors such as travel time and tip fee influence the hauler's choice of disposal facilities, and (3) development of a computer software application compatible with Metro's Regional Land Information System (RLIS) for retrieving, analyzing, and displaying data.

RLIS is an ideal tool for simulating waste flow. The demographic data used to predict waste generation can easily be retrieved for local geographic areas. Simulation of waste flow in "what if" scenarios can done using the programming language of RLIS. Results can be presented in high-quality graphical and tabular output.

A total of $215,000 is budgeted for expenditure in FY 1990-91 for contracts related to this project as shown below.

Department	Item	Amount	Council Designation
P&D	RLIS programming	$ 60,000	B
Solid Waste	waste generation rates	$110,000	B
Solid Waste	delivery patterns	$ 45,000	A

Coordination of these contracts in a single RFP will avoid duplication and maximize benefits to both management and planning.

If approved Resolution No. 91-1400 will grant Council approval of the RFP, allow a multi-year contract, and waive Council approval of the contract award.

EXECUTIVE OFFICER'S RECOMMENDATION: The Executive Officer recommends adoption of Resolution No. 91-1400.

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BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF AUTHORIZING ISSUANCE OF A REQUEST FOR PROPOSALS FOR A MODELING SYSTEM TO SIMULATE SOLID WASTE GENERATION, REDUCTION, TRANSPORT, AND DELIVERY AND ENTERING INTO A MULTI-YEAR CONTRACT WITH THE MOST QUALIFIED PROPOSER, AND WAIVING THE REQUIREMENT FOR COUNCIL APPROVAL OF THE CONTRACT AND AUTHORIZING THE EXECUTIVE OFFICER TO EXECUTE THE CONTRACT SUBJECT TO CONDITIONS	RESOLUTION NO. 91-1400 Introduced by Rena Cusma, Executive Officer

WHEREAS, accurate forecasts of waste delivered to regional facilities is essential for effective solid waste management and planning; and

WHEREAS, predicting the response of waste generators and haulers to Metro's policies is necessary for management and long-term planning; and

WHEREAS, predicting the impact of waste reduction and recycling on delivery tonnages is necessary for rate setting, budgeting, and facility management; and

WHEREAS, Metro's Regional Land Information System (RLIS) can be used to retrieve, analyze, and display data necessary for the above purposes; and

WHEREAS, The FY 1990-91 Metropolitan Service District budgets of the Solid Waste and Planning and Development Departments authorizes expenditures of a total of $215,000 for work related to this project; and

WHEREAS, Coordination of these expenditures as a single project will avoid duplication and maximize utility for both management and planning purposes; and

WHEREAS, Pursuant to Metro Code Section 2.04.033(a)(1) Council approval is required because the agreement commits the District to expenditures for continuation of the Project in the next fiscal year; and

WHEREAS, Pursuant to Metro Code Section 2.04.032(d) Council approval is required because one of the contracts is identified as an "A" contract in the FY 1990-91 budget; and

WHEREAS, Pursuant to Section 2.04.033(6) of the Metro Code, the Council may at the time it approves a Request for Proposals, Exhibit A, waive the requirement of Council approval of a contract prior to execution of the Contract by the Executive Officer;

WHEREAS, The resolution was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now therefore,

BE IT RESOLVED:

1. That the Council of the Metropolitan Service District approves the Request for Proposals for a Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

2. That the Council approves consolidation of funds to allow the Solid Waste and Planning and Development Departments to jointly work on the Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

3. That the Directors of the Solid Waste and Planning and Development Departments are requested to advertise for proposals and do all other things necessary to solicit proposals for a Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery.

4. That the Council of the Metropolitan Service District, pursuant to Section 2.04.033(b) of the Metro Code, waives the requirement of Council approval of the contract resulting from the proposal process, subject to the conditions in Exhibit B attached hereto, and authorizes the Executive Officer to execute a contract for the Modeling System for Simulating Solid Waste Generation, Reduction, Transport, and Delivery to the most qualified proposer in accordance with the requirements of the Metro Code, if the conditions are met.

ADOPTED by the Council of the Metropolitan Service District this _____ day of _____, 1991.

_____
Tanya Collier, Presiding Officer

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