The City of New York
Department of Sanitation
Bureau of Waste Prevention, Reuse and Recycling

Request for Proposals
New York City
Waste Characterization Study

Procurement Identification Number: 82702BR00015

Authorized Agency Contact: Proposers are advised that the Agency's authorized contact person for ALL matters concerning this RFP is:

Robert Lange, Director
Bureau of Waste Prevention, Reuse and Recycling
44 Beaver Street, 6th Floor, New York, NY 10004
(212) 837-8156/ rwlange.nycrecycles@verizon.net

IT IS ILLEGAL TO ENGAGE IN PRACTICES THAT UNDERMINE OR THWART THE FAIR AWARD OF THE CONTRACT RELATED TO THIS RFP. EVERY EFFORT HAS BEEN MADE TO ENSURE THAT THE AWARD OF THIS CONTRACT IS BASED ON JUST AND FAIR PRACTICES. CRIMINAL VIOLATIONS WILL BE PROSECUTED TO THE FULLEST EXTENT OF THE LAW.

THE NEW YORK CITY COMPTROLLER IS CHARGED WITH THE AUDIT OF CONTRACTS IN NEW YORK CITY. ANY PROPOSER WHO BELIEVES THAT THERE HAS BEEN UNFAIRNESS, FAVORITISM, OR IMPROPRIETY IN THE PROPOSAL PROCESS SHOULD INFORM THE COMPTROLLER, OFFICE OF CONTRACT ADMINISTRATION, ONE CENTRE STREET, ROOM 835, NEW YORK, NY 10007, (212) 669-3000. IF YOUR PROPOSAL IS SELECTED FOR AWARD, YOU WILL BE EXPECTED TO SIGN AN AFFIDAVIT STATING THAT YOU ARE UNAWARE OF ANY IMPROPRIETIES THAT CREATED AN UNFAIR ADVANTAGE DURING THE DEVELOPMENT, EVALUATION, AND SELECTION PHASES OF THIS RFP PROCESS.

DEFINITIONS

Alternate Proposer: A Proposer, if any, designated by the City to participate in Contract negotiations in the event the City and the Selected Proposer do not execute a Contract.

BWPRR: Bureau of Waste Prevention, Reuse and Recycling of the New York City Department of Sanitation.

Bid Bond: A security for the Proposer's good faith negotiation of an agreement with the Department, pursuant to its Proposal, from a surety duly licensed to do business in the State of New York, with an office in New York City, to be returned within a period specified by the Department after selection of Proposer.

Characterization: As in "Waste Characterization Study." The general act of analyzing and describing all relevant characteristics of the MSW stream.

City: The City of New York.

Composition: As in "Waste Composition". Refers to the breakdown (relative portions) of a specified set of material categories in each stream under analysis, to be expressed in percentages and whole numbers.

Confidential Information: Proprietary information now or hereafter owned, licensed to, or controlled by a Proposer, including, without limitation, market research methods and data, creative ideas, slogans, drawings, and other information, which is plainly marked "confidential" by the Proposer, but not including information, data, material, or documentation of any type or description in the public domain or such information, data, material, or documentation as may be placed in the public domain during the RFP process.

Contamination: The problem of refuse in the recycling stream.

Contract: An agreement resulting from the RFP process between a selected Proposer and the City to conduct a Waste Characterization Study of New York City's residential and institutional refuse and recycling.

Contractor: The Proposer selected as a result of the RFP process who has executed a Contract registered in accordance with the laws and regulations of the City.

Department *or* DOS: The Department of Sanitation of the City of New York.

District: Sanitation District or Community Board. Sanitation Districts do not conform with school,

election, zip code, or any other type of district.

Evaluation Committee: The committee composed of Department representatives for the purpose of evaluating Proposals and Proposers.

Fiscal Year (FY): The City's Fiscal Year, which begins July 1 of the previous calendar year and ends the following June 30.

Holidays: New Year's Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

Law(s): The City Charter, the City Administrative Code, a local law of the City, federal and state statutes or laws, and any ordinance, rule, order, or regulation having the force of law.

Lost Recycling: The problem of recyclables in the refuse stream.

Municipal Solid Waste (MSW) (1) Refuse and (2) recycling generated by residents and public/non-profit (institutional) entities. In this RFP, MSW does not include commercial waste, which is managed privately in New York City.

Procurement Rules: The City Procurement Policy Board Rules for the procurement of goods and services, adopted August 1, 1990, as such rules may be amended from time to time.

Proposal: The document submitted in response to the RFP as an offer to provide the goods and perform the services described in the RFP.

Proposal Deadline: The date and time set by the City as the deadline for submission of Proposals by Proposers in response to the RFP.

Proposer: A person or entity submitting a Proposal in response to this RFP, encompassing proposed Subcontractors as well.

Recycle or Recycling: Any process by which solid waste is separated, collected, processed, marketed, and returned to the economy in the form of raw materials or products, including but not limited to types of metal, glass, paper, plastic, food waste, yard waste, and tires.

Solid Waste: All putrescible and nonputrescible materials or substances that are discarded or rejected as being spent, useless, worthless, or in excess to the owners at the time of such discard or rejection, unless expressly exempted as such in Local Law 19.

"Special" Study Segments: Segments of this Study focusing on bulk, street-basket waste, C&D material, multi-unit apartment buildings, and containerized service.

Study: This Waste Characterization Study.

Subcontractor: One who contracts with the selected (primary) Contractor, to provide any services that are within the scope of the eventual Contract.

Table of Contents

A compact disc (CD) is also enclosed containing .PDF versions of the RFP and RFP attachments, as well as the backup documentation referenced in the RFP bibliography (Exhibit 4).

Section I. TIMETABLE AND BASIC INFORMATION

A. Pre-Proposal Conference

Date:	Tuesday, August 21, 2001
Time:	10:00 AM
Location:	44 Beaver Street, 12th Floor Conference Room

B. Proposal Due Date, Time, and Location

Date:	December 11, 2001
Time:	10:30 AM

Proposals must be addressed to:

Mr. Ronald Blendermann
Agency Chief Contracting Officer
New York City Department of Sanitation
51 Chambers Street, Room 801
New York, NY 10013

Ten (10) copies of the Proposal must be furnished to the Department. The Proposal is to be submitted with an original letter of transmittal that will be an integral part of the Proposal (see Section IV for instructions).

Proposals will only be accepted if received in the Department's offices (not postmarked) – by mail or hand delivery – by 4:00 PM Eastern Standard Time on the designated date. Proposals must be clearly marked on the outside with the words, "Waste Characterization Study RFP Response," and the PIN Number: 82702BR00015.

Proposals received at this Location after the Proposal Due Date and Time are late and shall not be accepted by the Department, except as provided under New York City's Procurement Policy Board Rules. The Department will consider requests made to the Authorized Agency Contact Person to extend the Proposal Due Date and Time prescribed above. However, unless the Department issues a written addendum to this RFP which extends the Proposal Due Date and Time for all Proposers, the Proposal Due Date and Time prescribed above shall remain in effect.

The Proposal shall be considered valid for a period of at least 210 days from the Department's receipt in order to accommodate post-selection contract review and approval, and contract registration.

C. Anticipated Contract Start Date March 1, 2002

D. Obtaining a Copy of the RFP

The RFP is available from the Contracts Unit, NYC Department of Sanitation, 51 Chambers Street, Room 806, New York, NY 10007; telephone (212) 788-8085.

E. Important Information For Proposers

All prospective Proposers should carefully read Section VI, "General Information For Proposers". This section discusses the rights and responsibilities of the City and Proposers with respect to the RFP and the Proposal process. In addition, Proposers should note the following important points:

- Proposers must attend a pre-Proposal conference;
- The City will reject late Proposals;
- Proposals may not be withdrawn during the 210 days following the Proposal Deadline;
- A Proposal's prices are irrevocable unless the Proposal is withdrawn;
- Proposers may be required to make oral presentations supporting their Proposals;
- The City may withdraw the RFP or reject any or all Proposals;
- The City will not reimburse any costs of preparing or supporting Proposals;
- Inquiries must be in writing and must be addressed to the Department's contact person;
- A $50,000 bond must be submitted with the Proposal as bid security, to be returned upon the selection of a winning Proposal;
- A $150,000 Letter of Credit must be submitted by the Contractor as performance security;
- Contractors must demonstrate insurance coverage in the amount of $5 million general liability, $1 million in auto, and up to statutory limits for workers' compensation.

Section II. SUMMARY OF THE REQUEST FOR PROPOSALS

NOTE: THIS SUMMARY PROVIDES A CONDENSED OVERVIEW OF THE WASTE CHARACTERIZATION STUDY FOR WHICH THIS REQUEST FOR PROPOSALS ("RFP") IS BEING ISSUED. IT IS NOT INTENDED TO REPLACE A FULL REVIEW OF THE RFP IN ITS ENTIRETY. EACH OF THE ITEMS DISCUSSED IN THIS SUMMARY WILL BE DETAILED IN SECTION III OF THE RFP.

A. Purpose of RFP

The New York City Department of Sanitation ("the Department", or "DOS") is seeking (an) appropriately qualified Contractor(s) ("Contractor(s)") to conduct a comprehensive waste characterization study ("Study") of New York City's Department-managed municipal solid waste ("MSW"). Throughout this Request for Proposals ("RFP"), the term MSW will refer to both (1) refuse and (2) recycling generated by residents and public/non-profit (institutional) entities. It will exclude commercial waste, which is managed privately in New York City.

A citywide waste characterization study has not been conducted in New York City since 1989-1990. Since that time, there have been several changes in New York City that are relevant to MSW characterization. First, the Department has implemented a variety of waste prevention, reuse and recycling programs, the largest of which, the Curbside/Containerized Recycling Program, now diverts approximately 20% of residential and institutional MSW to recycling. In addition, during the latter part of this period the City has seen increasing economic prosperity, which has had effects on public infrastructure provision, private construction activity, and general consumption. Finally, the population of the City, while remaining steady in terms of total numbers, has experienced significant demographic changes, the extent of which will be only fully understood with the completion of the Year 2000 Census. Any or all of these phenomena, as well as other non-local economic factors, may have produced changes in MSW composition. Consequently, a new citywide MSW characterization is now needed.

The proposed Study will provide a statistically sound description of the composition of a specified set of waste materials in residential, institutional, and certain other "special"[*] MSW streams. In addition, it will examine several sources of variation in MSW generation rates and composition -- including the season (Spring/Summer/Winter/Fall), housing density, and income (among residents); and season and institution type (among institutions).

[*]"Special" components of the Study will be described in detail in the main body of the RFP.

A.1. **Study Goals**

The Study will provide information vital to the evaluation, maintenance, and possible growth of the City's recycling programs and general sanitation functions. Its major goals are as follows:

1. To characterize recyclable and non-recyclable materials in both the refuse and recycling portions of the total MSW stream;

2. To determine whether additional materials may be appropriate for recycling, or for other methods of handling and/or reducing wastes, in the future;

3. To improve the Department's waste prevention, reuse, recycling, and other sanitation-related public education efforts, especially to aid targeting of demographic groups for outreach and publicity, and to improve the Department's enforcement of existing recycling and other sanitation laws and codes;

4. To inform Department of Sanitation operations, including equipment procurement, facility construction, and collection route structure;

5. To generate information relevant to recycling processors and other entities engaged in market development for New York City's recyclable materials;

6. To the extent feasible, to provide an understanding of how MSW in New York City has changed over the past decade, through comparison of Study results with results from prior NYC waste characterization studies.

A.2. **Areas of Focus - The Study Components**

To achieve these goals, the Study will be divided into five components:

Major Components:

Component 1: **Characterization of Residential MSW** - as generated by residents citywide, with a special focus on bulk waste, and an examination of differences between curbside and containerized methods of setting out MSW.

Component 2: **Characterization of Institutional MSW** - as generated by public and nonprofit institutions citywide.

Special Components *(Focusing on Particular Aspects of MSW)*:

Component 3: **Street-basket MSW** - as generated by the people who utilize the streets in selected commercial districts.

Component 4: **Construction and Demolition Debris, Inter-Agency Fill, and Lot Cleaning Waste** - consisting of inorganic waste collected by the Department from public building projects, City agencies, and vacant lots.

Component 5: **MSW Generated by Selected Multi-unit Apartment Buildings**. Note that this, like Component 1, is an examination of residential waste. But in this case, a subset of this waste will be examined on a different scale, linking buildings that generate MSW to the characteristics of that MSW, with different analytical goals.

B. Service Areas and Program Options

The general method for much of the Study will require the Contractors to sample from designated DOS collection trucks at one or more waste transfer stations, sort samples into material categories, weigh these categories, record data, and perform statistical data analysis on the results. Contractors will designate sample collection routes and sort sites within the five boroughs of New York City, in consultatation with the Department, as part of the project. As will be detailed in the main body of this RFP, the Contractor will have to specify routes, sampling protocol, data recording methods, and analytical techniques so as to enable a statistically sound extrapolation of sample results to the population(s) under study.

B.1. **End Products**

The end-products of this Study will include:

- A series of **reports** in electronic and printed format, including quarterly, annual, and Final reports documenting and summarizing the Study design, Study methodology, and all data gathered and analyzed; and the Study results, as well as a technical manual detailing the procedures and operations carried out for the Study;

- **A user-friendly set of data files** containing all raw data collected during the Study, in a format specified by the Department;

- **A series of presentation materials**, including maps, charts, graphs, photos, video footage, and/or other visual aides suitable for presenting the Study's methodology and findings in public meetings.

All end products must adhere to the Technical and Stylistic guidelines set out in Exhibits 3 and 5, respectively.

C. Anticipated Contract Term

It is anticipated that the initial term of the contract awarded from this RFP will be for three years. The contract may include two two-year options to renew. The Department reserves the right, prior to contract award, to determine the length of the initial contract term and each option to renew, if any. The Department anticipates that work under the contract will commence on or before March 1, 2002.

D. Anticipated Available (Annual) Funding

It is anticipated that the available annual funding for the contract awarded from this RFP will be between $1.5 and $2.0 million. Greater consideration will be given to Proposers that propose more competitive prices (in combination with a high quality program).

E. Anticipated Payment Structure

It is anticipated that the payment structure of the contract(s) awarded from this RFP will be a combination of line-item budget reimbursement and performance-based remuneration. The performance-based payment structures will be tied to specific performance outcome measures and related financial incentives and/or disincentives, as well as unit payments tied to outcomes, and milestone payments tied to outcomes. However, the Department will consider proposals to structure payments in a different manner and reserves the right to select any payment structure that is in the City's best interest.

F. Minimum Qualification Requirements

The following are the Minimum Qualification Requirements of this RFP. Proposals that fail to meet all of these requirements will be rejected.

- prior experience with waste characterization studies;
- possession of or access to sort equipment including: scales, front-end loaders (FELs), and all other equipment as specified in the following RFP; as well as computer equipment for recording and analyzing data in a database and spreadsheet format;
- current or potential supervisory staff with experience overseeing and managing waste characterization studies;
- current or potential line staff and a training plan to prepare them for waste characterization tasks;
- sufficient statistical expertise (or contractual access thereto) to design a waste sampling, analysis, and characterization plan capable of providing statistically significant information about the City's waste stream based on analysis of samples, as outlined in the following RFP.

In addition, the Proposer must have a satisfactory record of performance and business integrity. Award is subject to completion of VENDEX business and principal questionnaires and review of the information in those questionnaires by the City. VENDEX forms will be required from all Subcontractors as well. Material misrepresentation of information presented or failure to disclose material information in the Proposal will result in rejection of the Proposal or, if discovered subsequent to Contract award, revocation of such award.

Finally, the Contractor shall comply with City requirements governing equal employment opportunity.

Section III. SCOPE OF SERVICES

Background

The Department handles collection, transport, and disposal* of MSW from New York City residents and public and non-profit institutions. In addition, it manages a few other waste categories – including street sweepings; lot-cleaning debris; asphalt, millings, and other fill generated by City agencies; and construction/demolition debris from City construction projects. In Fiscal Year (FY) 1999**, institutions and residents generated approximately 3.7 million tons of MSW, approximately 20% of which (around 680,000 tons) was diverted from disposal to recycling under the City's Curbside/Containerized Recycling Program. Other sources of Department-managed waste, including construction and demolition debris, Inter-Agency fill, and lot cleaning, accounted for around 630,000 tons of waste during that year. Roughly a third of this latter amount was recycled into road and fill material.

Since 1989, when the passage of Local Law 19 made recycling mandatory in New York City, the scope and number of the Department's recycling programs have grown. Today, its largest and most comprehensive initiative – the Curbside/Containerized Recycling Program – provides collection of mixed paper and metal/glass/plastic (MGP) recyclables from residents and most public/non-profit institutions. Residents and institutions source-separate recyclables into two streams (each with its associated color), as outlined below:

Color Scheme for Separating Recyclables in New York City

"BLUE"	"GREEN"
Beverage Cartons, Bottles, Cans, Metal, and Foil	*Paper and Cardboard*
beverage cartons small metal items plastic bottles and jugs glass bottles and jars metal cans aluminum foil wrap and trays	paper and envelopes smooth cardboard paper bags newspapers, magazines, and catalogs phone books corrugated cardboard
Go In	*Go In*
a labeled bin (preferably blue) OR a blue translucent bag OR any bin with a blue DOS Recycling decal	a labeled bin (preferably green) OR a clear bag OR any bin with a green DOS Recycling decal

* In some cases, the Department contracts privately for these services.

** this covers the period July 1, 1998 through June 30, 1999

A. Agency Goals and Objectives

This section will detail each of the main goals of the proposed Study.

Goal 1: To characterize recyclable and non-recyclable materials in both the refuse and recycling portions of the total MSW stream.

The proposed Study will provide a detailed understanding of the presence of materials in the (1) recycling stream and (2) refuse stream that residents and institutions generate. This will enable precise calculation of the average capture rate and the theoretically-achievable maximum diversion rate, based on up-to-date knowledge of the presence of recyclables in the total waste stream. This in turn will assist the Department in targeting publicity/enforcement to designated materials that are under-recycled, and to inform processors about the recycling streams they are accepting.

Goal 2: To determine whether additional materials may be appropriate for recycling, or for other methods of handling and/or reducing wastes, in the future.

Over the past decade, community advocates and elected officials have proposed the recycling or composting of other categories of materials, beyond those covered by current programs. They have recommended that textiles, food organics, tires, wood, and/or other categories of materials be considered for recycling/composting collection. Other proposals have addressed programs for recycling or reuse of bulk items, including, but not limited to, furniture. The proposed Study, in establishing an up-to-date characterization of these materials in the MSW stream, will inform any future planning for expansions of the City's recycling or other waste reduction programs.

Goal 3: To improve the Department's waste prevention, reuse, recycling, and other sanitation-related public education efforts, especially to aid targeting of demographic groups for outreach and publicity; and to improve the Department's enforcement of existing recycling and other sanitation laws and codes.

The data gathered in the main portion of this Study will be specific to geographic areas, the four seasons, housing density/income strata, and institution types. Examining how MSW varies according to these characteristics will enable the Department to focus its resources where they are most needed to address: (1) problems of recyclables in the refuse stream ("lost recycling); (2) problems of refuse in the recyclables stream ("contamination"). In addition, the "special" segments of this Study – focusing on bulk, street-basket waste, C&D material, multi-unit apartment buildings, and containerized service – will assist in tailoring outreach and education to these specific needs.

Goal 4: To inform Department of Sanitation operations, including equipment procurement, facility construction and maintenance, and collection route structure.

While the scope of the proposed Study will not include immediate application of updated waste characterization results to current operations, such data will remain relevant in years to come for future planning of how and where to collect, transport, and consolidate New York City MSW.

Goal 5: To generate information relevant to recycling processors and other entities engaged in market development for New York City's recyclable materials.

Markets for recycled metal, glass, paper, and plastic are highly volatile; market price is, in addition, affected by contamination and breakage in delivered recyclables. The Department currently contracts with a number of private vendors for the acceptance and processing of recycled material. Contractual bases for processing fees (payable by the Department to vendors) and purchase prices (payable by vendors to the Department) are calculated using an index that assumes a particular recyclables composition, and factors in market volatility. Results from the proposed Study may confirm these indices, or provide bases for revision.

Goal 6: To the extent feasible, to provide an understanding of how MSW in New York City has changed over the past decade, through comparison of Study results with results from prior NYC waste characterization studies.

As outlined above, the major goal of the proposed Study is to characterize New York City's current MSW stream, so as to inform present and future recycling and disposal policies and procedures. However, to the extent practicable, the Department will use results from the Study to examine changes in NYC MSW since 1990. Because of the limitations of the 1990 Study and other waste characterization studies discussed above, comparability should help shape but should not dictate the structure of the proposed Study.

B. Agency Assumptions Regarding Contractor Approach

This section describes the Department's assumptions about the approach that the Contractor should take that will most likely achieve the goals and objectives set out above. It is divided into four main Tasks:

(B.1) Perform Background Research
(B.2) Plan for Operations and Analysis
(B.3) Execute Sorts and Record Data
(B.4) Analyze Data and Report Results

In formulating responses to this RFP (per instructions in Section 4), Proposers should state in detail how they propose to carry out each of the Tasks to follow. Responses should cover and make clear distinctions among the five distinct Study components, which include:

Major Components:

Component 1: **Characterization of Residential MSW** - as generated by residents citywide, with a special focus on bulk waste, and an examination of differences between curbside and containerized methods of setting out MSW.

Component 2: **Characterization of Institutional MSW** - as generated by the institutions that

DOS serves, citywide.

Special Components *(Focusing on Particular Aspects of MSW)*:

Component 3: **Street-basket MSW** - as generated by the people who utilize the streets in selected commercial districts.

Component 4: **Construction and Demolition Debris, Inter-Agency Fill, and Lot Cleaning Waste** - consisting of inorganic waste collected by the Department from public building projects, City agencies, and vacant lots.

Component 5: **MSW Generated By Selected Multi-unit Apartment Buildings**. Note that this, like Component 1, is an examination of residential waste. But in this case, a subset of this waste will be examined on a different scale, linking buildings that generate MSW to the characteristics of that MSW, with different analytical goals.

Some of the Tasks may entail combining two or more Components. Others may necessitate completely separate analytical methods and operations for each Component. Proposers are encouraged to coordinate Tasks as they deem appropriate.

In all cases, it is essential that Contractors document the methodology, procedures, decisions, definitions, and all other applicable information for a complete historical record of the project, as they go along, and as changes are made. In addition, Contractors must keep a visual record – via photos and/or video recordings – and submit them in a format compatible with specifications in Exhibit 3.

B.1. **Perform Background Research - Task 1**

The purpose of Task 1 is to gather information from a variety of sources for subsequent planning, execution, and analysis/reporting for the proposed Study (Tasks 2 through 4, Section III, parts B.2 through part B.4).

B.1.a. Literature Review

The Contractor will perform a Literature Review that will place the analytical and operational methodology and eventual results of the Study within a broader context of past and current waste characterization research. The end product of the Literature Review will be a section of the Final Report that discusses the similarities and differences between this Study and others that have taken place at different historical periods and/or locations.

The Literature Review should consist of a thorough discussion of timely and relevant national (and possibly international) work on MSW characterization. This discussion should cover – but is not limited to – large-scale, multi-season, waste characterization studies conducted for large municipalities or other jurisdictions in the United States. Areas of focus should include:

- research characterizing waste streams in the U.S.;
- research on how demographic and income characteristics vary with MSW composition;
- statistical techniques (especially issues of sampling, variability, representativeness, number of samples, and sample size);
- sort categories to classify components of MSW;
- comparative recycling programs and methods.

In the Review, Contractors should also seek out information relevant to the "Special" Study Components 3 - 5, documenting, if applicable, prior research on street-basket MSW, C&D waste, and residential MSW generated by multi-unit apartment buildings.

The Contractor should conclude the Literature Review prior to finalizing Task 2 (Section III, part B.2, "Plan for Operations and Analysis"). Proposers should indicate the timing of this portion of Task 1 in the "Proposed Project Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.1.b. Other Background Research

B.1.b.i. *Review of Past Studies*

Contractors should conduct a thorough examination of the final reports submitted to the Department for several past waste characterization studies conducted in New York City, as listed in the bibliography in Exhibit 4. In so doing, they should focus on: (1) analytical, methodological, or operational aspects of prior studies that are particularly relevant to the design of the proposed Study; (2) aspects that suggest procedures to avoid, and (3) questions of comparability between each and the

proposed Study. If necessary, this review may be supplemented with interviews with Department staff or other contact persons (for example, the New York City Department of City Planning, Census Bureau, or other government/quasi-governmental agencies).

The Contractor should conclude the Review of Past Studies prior to finalizing Task 2 (Section III, part B.2, "Plan for Operations and Analysis.") Proposers should indicate the timing of this portion of Task 1 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.1.b.ii. *Background Research for Residential MSW*

In order to plan for representative sampling of residential MSW (Task 2, Section III, part B.2.a), Contractors will need to research the geographic distribution of income and housing density among residents of the 59 Sanitation Districts. Ultimately, this will require the use of Year 2000 Census data mapped on to the Sanitation (Community) District by the Department of City Planning. These data are expected to be available online by September 2001 on the website of Department of City Planning (http:\www.nyc.gov\html\dcp). Other national and municipal data sources may be also consulted in this part of the background research.

In addition, for the purposes of sampling planning, Contractors will need to research historical generation rates for residential MSW (both refuse and recycling) throughout the 59 Sanitation Districts. DOS Personnel will provide Contractors with records and documents detailing collected tonnages, information about collection routes (both curbside and containerized), transfer station/garage locations, and other operational features of the residential MSW collection system.

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The Contractor should conclude the Background Research for Residential MSW prior to finalizing Task 2 (Section III, part B.2). Proposers should indicate the timing of this portion of Task 1 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.1.b.iii. *Background Research for Institutional MSW*

The Department of Sanitation services a wide variety of public institutions – including all schools and City agencies; and many state agencies, museums, universities, churches, community organizations, and other nonprofit/public sector entities. Most institutions are serviced along with residences with curbside collection. Consequently, DOS data about MSW tonnages collected and other operational matters for these routes do not distinguish between institutional and residential generators. Some larger institutions, however, are serviced with containerized collection on special routes. In addition, some City agencies (e.g. the Parks Department) handle some or all collection and transport of MSW to DOS transfer stations themselves. Furthermore, some private nonprofit entities (e.g. universities) may have private or a mix of private and public collection which takes place entirely outside the DOS transfer and disposal system. The Department's institutional collection system therefore represents a broad mix of approaches, and DOS data on MSW generation for institutions as a

whole are not stored centrally, nor in some cases separately, from residential data.

The 1990 Study estimated institutional waste to contribute 12% of the entire waste stream in New York City (with residential MSW accounting for 42% and commercial sources generating 47%). Applying this percentage to the MSW stream to be examined in the proposed Study, therefore, institutional sources are estimated to account for around 22% of all Department-managed waste. However, it should be noted the 1990 Study did not provide documentation for this estimation. It should also be noted that this Study sampled only institutional waste collected through containerized service.

Consequently, a considerable amount of background research will be needed to plan for representative sampling of Institutional MSW. This may include, but is not limited to:

- Public/Nonprofit Institution Survey

This will consist of a comprehensive review of the names, addresses, and pertinent institutional characteristics of all public/non-profit institutions in New York City, using data from the Department of Finance block-and-lot database (to be provided via DOS), as well as other sources to be identified by the Contractor, for the purpose of quantifying and categorizing all institutional waste generators in New York City.

- Institutional Waste Generation History - DOS Containerized

This will consist of a review of DOS data about all separately-serviced (i.e. containerized) institutional routes, including historical data on MSW generation, for the purposes of establishing generation rates for these institutions (these data will be provided to the Contractor by DOS).

- Institutional Waste Generation History - Other

This will consist of a review of other records maintained by the DOS (to be provided by DOS), other City agencies, federal and state agencies, public authorities, and nonprofit organizations (to be obtained by the Contractor, if necessary with DOS clearance) to establish generation rates for institutions served on normal (curbside) DOS collection routes, as well as rates for institutions who privately arrange collection.

- Consolidation of Results

This will involve consolidating information compiled above for the purposes of developing a sampling/sorting plan in Task 2 (Section III, part B.2.b) by: (1) to the extent feasible, developing an estimate of the tonnage of institutional MSW, relative to residential MSW, within the City's MSW stream as a whole; and (2) categorizing New York City institutions into a limited set of "institution types" for waste characterization.

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The Contractor should conclude the Background Research for Institutional MSW prior to finalizing the Institutional portion of Task 2 (see Section III, part B.2.b). Proposers should indicate the timing of this portion of Task 1 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.1.c. Research for "Special" Study Components

DOS staff will provide Contractors with background information about routes that service street baskets only in major commercial districts (Component 3), including those routes that fall in "Business Improvement Districts" (BIDs), which provide consolidation and bagging of street-basket MSW in conjunction with DOS collection. DOS will also provide the Contractor with information about collection of construction and demolition debris, Inter-Agency fill, and lot cleaning (Component 4).

Furthermore, Contractors will need to conduct archival and possibly field research on aspects of multi-unit apartment buildings in New York City – including the geographic distribution of housing types throughout New York City, the range of typical structural characteristics of multi-unit buildings, and other information that will be relevant to planning sampling for Component 5. For this research, Contractors may wish to make use of data from the Department of Finance block-and-lot database (to be provided via DOS), as well as other sources to be identified by the Contractor, for the purpose of identifying a sample of multi-unit apartment buildings for study.

The Contractor should conclude the Background Research for "Special" Study Components prior to finalizing this portion of Task 2 (see Section III, part B.2.c through part B.2.e). Proposers should indicate the timing of this portion of Task 1 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV.A.2.c.ii).

B.2. **Plan for Operations and Analysis - Task 2**

This Task entails the formulation of an analytical and operational plan for the major and special Components of the Study.

B.2.a. Planning for Characterization of Residential MSW

Background

NOTE: THIS SUMMARY IS NOT INTENDED TO SUBSTITUTE FOR A THOROUGH REVIEW OF THE RESULTS OF THE 1990 STUDY. INSTEAD, IT IS MEANT TO PROVIDE A CONTEXT FOR DISCUSSION OF THE RESIDENTIAL MSW PORTION OF THE PLANNING TASK.

In the 1990 Study, characterization of residential MSW in Sanitation Districts, boroughs, and for the City as a whole was developed by sampling from nine demographic strata. Data from the 1980 U.S. Census was used to determine a distribution of income and housing density in each District. From this, the following nine strata were identified:

high density/high income	high density/middle income	high density/low income
medium density/high income	medium density/middle income	medium density/low income
low density/high income	low density/middle income	low density/low income

(Each stratum was assigned a quantitative upper and lower boundary for income and density. Unfortunately, specific information about these boundaries is unavailable because of the poor state of recordkeeping in this project.)

A series of collection routes were then identified as representative of these nine strata. In four separate seasonal sorts, truckloads of residential MSW collected on these routes were taken to transfer stations for one or more random grab samples. Each sample was sorted into component categories. The results of these sorts enabled the estimation of seasonal characterizations of waste for each strata. These estimates were then extrapolated to provide seasonal and annual characterization data for Districts, boroughs, and the City as a whole. This was accomplished by weighting each District, borough, and the City by the population in each income and housing density category.

The proposed Study need not replicate the methodology used in the 1990 Study, but must ultimately make a valid representation of how residential MSW characterization (in its distinct refuse and recycling components) varies by season, income, and housing density throughout New York City. The Study must also provide an accurate characterization of MSW for each borough, and for the City as a whole.

Planning Considerations

Planning should take into consideration (1) sample route selection, (2) sampling timing – including coordinating the sampling of refuse and recycling along the same route, (3) numbers of samples/sample sizes, (4) sort categories, (5) the site of sampling, (6) sort methods, (7) statistical methods to extrapolate sample results to the populations they reflect, (8) the examination of bulk and of variations between curbside and containerized service, (9) organization and compilation of data, (10) screening, selection, training, and supervision of personnel who will work on the project, and (11) cleaning and maintenance of sort facilities, as well as disposal and/or recycling of sorted MSW.

B.2.a.i. *Sample Route Selection*

The residential MSW Study component will involve sampling from a universe of approximately 2.9 million residential units housing over seven million residents citywide. The Department's residential collection operations are divided administratively into five (5) boroughs, seven (7) Sanitation Zones, 59 Sanitation Districts, and 230 Sanitation District Sections, which serve 2,296 recycling routes and 4,883 refuse collection routes each week. The Sanitation Districts are coterminous with the Community Districts in each borough.

In preparing sampling protocols, the Proposer should keep in mind that while most (94%) of

these routes receive curbside collection, the balance receive either containerized service only, or a mix of curbside and containerized pickup. In addition, not all recycling and refuse routes are coterminous. Moreover, some routes serve a mix of residents and institutions, some serve only residents, while other routes are dedicated solely to containerized collection from large institutions or apartment complexes. In total, residents and institutions generate around 12,000 tons per day of MSW (refuse and recycling combined).

DOS will provide Contractors with full details on all routes. Contractors may opt to sample from DOS trucks servicing existing collection routes, or, alternately, to construct specially designated routes to be served by DOS vehicles. Regardless of route, Proposers should plan for minimizing or eliminating collection of non-residential waste (from institutions or street baskets).

B.2.a.ii. *Sample Scheduling*

The frequency of residential refuse collection varies from two to six times per week, depending on volume of waste generated. Curbside recycling is collected weekly. Containerized sites are serviced weekly or in response to service need. Planning collection for the proposed Study should take these factors into account such that both the refuse and the recycling set out during the week on the route is sampled concurrently.

In addition, a major component of this Task will involve developing a four-season plan to capture seasonal variation, particularly in materials such as yard waste, which is known to be highly variable both seasonally and geographically. It is assumed that each sampling cycle will last at least a week to control for variation within the week, and that each of the sample areas will be processed during the same approximate time period. The Study should be planned so as to avoid the following factors that have atypical effects on the waste stream and may bias results:

- Major holidays, including Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas, New Year's, Rosh Hashanah, Yom Kippur, Ramadan, and other religious holidays;
- The conclusion and commencement of the academic year, as well as major breaks during the year, in New York City public schools;
- Unusual weather conditions.

B.2.a.iii. *Determining Number of Samples/ Sample Sizes*

The Study will require planning for a minimum number of samples for each income/density stratum such that a 90% confidence interval for the percent composition of each material in the waste stream (or for major waste categories, at least – see Section III, part B.2.a.iv below) will be approximately ±7.5% of its respective estimated mean.

The number of samples taken will be a function of (1) the number of routes selected for sampling, (2) the number of trucks serving those routes, and (3) the number of "grabs" taken from each truck. From an operational and financial standpoint, there may be benefits to keeping the number of samples small. At the same time, samples must be large enough to ensure a valid result for populations

of the nine strata they are estimating. This will be complicated by the ultimate decision of the number of material categories into which samples will be sorted (as discussed below). In addition, there is the question of how many grabs to take from each truck, and what the specified weight of each grab should be. Consequently, the Proposer should specify and justify a maximum number of grabs per truck. In no case should there be more than two grabs per truck.

Given these constraints, and the formulation of an optimal sampling protocol will be a major feature of this portion of the Planning Task. For further information in this regard, see Section III.C ("Agency Assumptions Regarding Performance-Based Payment Structure") and Section IV, A.2.c.iv ("SPECIAL CONSIDERATIONS - Proposing Alternatives").

B.2.a.iv. *Determining Sort Categories*

In this Study, both the refuse and the recycling portions of MSW will be sorted separately, into comparable material (and, in the case of bulk as described in Section III, part B.2.a.vii below, functional) categories. Exhibit 1 lists material and functional categories that were sorted for in the 1990 study. Exhibit 2 sets forth an "ideal" list of categories that would apply to both the refuse and recycling streams in the current study. However, it is expected that Proposers will propose their own list of categories, taking into account sampling and statistical issues, with this RFP.

It should be noted that once the Study is underway this list may be subject to changes agreed upon by the Department and the Contractor, but overall it is expected that Contractors will sort MSW into material categories that correspond to their composition, recyclability, and hazardousness. Because each sort category will correspond to a recyclable or non-recyclable material, categories should be chosen that will enable assessment of recycling compliance in terms of (1) "lost recycling" (recyclables improperly set out with refuse) and (2) "contamination" (refuse improperly set out with recycling) by sorting both streams for ALL material categories.

With nine sampling strata, four seasons, and the number of samples/sample size determined as per Section III, part B.2.a.iii above, the Department recognizes that it may not be possible to estimate population parameters for percent composition of each and every material category within a 90% confidence interval that is approximately ±7.5% of its respective estimated mean.. Consequently, Proposers are encouraged to plan for the maximization of information by:

- estimating percent composition of major categories within the established confidence interval and conducting subsorts of major categories for further detail;
- relaxing the 90% confidence interval ±7.5% range restriction for highly variable categories, including yard waste and bulk;

or other methods. For further information in this regard, see Section III.C ("Agency Assumptions Regarding Performance-Based Payment Structure") and Section IV, A.2.c.iv ("SPECIAL CONSIDERATIONS - Proposing Alternatives").

B.2.a.v. *Selecting Sampling Site(s)*

Plans must include specification of whether sampling will take place at the point of generation or at a solid waste facility such as a transfer station. If a transfer station site or sites are chosen, the Department may opt to offer DOS-owned and operated sites for this purpose. However, Proposers should prepare Technical Proposals and Price Proposals based on the premise of utilizing private transfer stations.

B.2.a.vi. *Establishing Sort Methods*

Sort methods should allow for the manual sorting of all sampled refuse and recycling into pre-established material or functional categories such that each category can be weighed separately, and the weight recorded along with a sample ID number. Methods should include procedures for quality assurance.

B.2.a.vii. *Establishing Statistical Methods*

The statistical methods used in this component of the Study should allow for the estimation of percent composition, by weight, of designated material categories at a minimum in the refuse stream, in the recycling stream, and in the MSW stream as a whole. The Study will require planning for a minimum number of samples for each income/density stratum such that a 90% confidence interval for the percent composition of each material in the waste stream will be approximately ±7.5% of its respective estimated mean, given the limitations described in Section III, part B.2.a.iii and III.B.2.a..4 above. Statistical methods should also allow for aggregation of results across seasons and strata, the estimation of borough-wide and citywide waste composition, and possibly testing for significant differences among strata and/or boroughs.

B.2.a.viii. *Areas of Special Focus - Bulk and Containerized*

As part of the characterization of residential curbside MSW, or, alternately, in one or more separate "mini-studies", Contractors should investigate the (1) the presence of bulk refuse in MSW and (2) the issue of differences between MSW that is set out in containers vs. MSW set out at curbside. In both cases, Contractors should aim to adhere to the requirements of the overall residential MSW characterization listed above. However, the Department recognizes that the bulk and containerized fractions of residential MSW are small in comparison to overall residential MSW, and have particular characteristics. Thus it may not be possible or practical to apply the same procedures, sort categories, or statistical rigor to the examination of these streams.

- Bulk Items

The Department collects large items in the residential stream, such as unwanted furniture or household appliances. Over the past decade, members of the public have called for special programs to reuse or recycle these bulk items. Many of these proposals rest on the belief that many bulk items can be easily repaired or transformed into other end products. For this reason, the weight, materials composition, and functional composition of residential bulk is of interest to the Department.

Consequently Proposers should plan to assess the following characteristics of residential bulk: functional category, "reusability", material composition, and weight. This may be accomplished as part of the overall residential MSW sort or as a separate exercise. For further details on the structuring of the Proposal in this regard, see Exhibit 2.

- Measuring Variations Between MSW Collected at Curbside Vs. Via Containerized Collection

Approximately 94% of residential routes are serviced by curbside-only pickup, with the balance receiving a mixture of curbside and containerized, or solely containerized, collection. Information about the breakdown of these routes will be provided by DOS to the Contractor. Planning for the residential component of the Study should involve taking these variations into account and distinguishing between curbside and containerized collection when sampling. Since curbside collection represents the majority of residential service, Contractors may choose to focus the overall residential MSW sampling on curbside collection and conduct additional, smaller-scale sorts of residential MSW collected in containers for comparison.

B.2.a.ix. *Organization and Compilation of Data*

As part of the Planning Task, Contractors will design a data recording protocol that includes methods for:

- on-site manual or electronic recording of raw waste sort data, such that data are standardized and quality-assured during the recording process;
- transfer of raw sort data to a database that meets specifications outlined in Exhibit 4;
- quality assurance of data, including checks for missing values, miscoded data, other anomalies; and correction of such anomalies;
- download and printout of raw data as outlined in Section III.B.6.e;
- a chain-of-custody procedure to assure proper data handling and tracking.

B.2.a.x. *Personnel Planning*

Planning will include specifying the number of sorting crews to be used, the size of each crew including supervision, the number of days each season that the crews must be working, and the number of samples to be sorted each day. Included in this will be a plan covering hiring, training, and employment requirements for the sorting personnel, specifying the rationale (in terms of education, experience, etc). for the selection of sorters and supervisors, and the role that supervision will play in quality assurance of the sort operation.

B.2.a.xi. *Cleaning, Maintenance, and Post-Sort Disposal*

The Contractor will be responsible for arranging for proper cleaning and maintenance of sort facilities after each day's sort. The details of such arrangements will depend on whether the site chosen for sorting is owned and operated by the Department (in which case maintenance/cleaning may be conducted by Department personnel), or is a private site. In addition, Contractors will be required to

arrange for proper disposal or recycling of refuse and recyclables after sorting has taken place, services for which may or may not be provided in part or in full by the Department. For the purposes of evaluation, however, Proposers should prepare Technical Proposals and Price Proposals based on the premise of providing all such services privately.

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The Contractor should conclude plans for this portion of Task 2 prior to the initiation of the residential component of Task 3 ("Execute Sorts and Record Data"), as detailed in Section III, part B.3. Proposers should indicate the timing of this portion of Task 2 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV., A.2.c.ii).

B.2.b. Characterization of Institutional Waste

Background

As described above, the Department provides collection, transport, and disposal to a wide variety of public institutions. Many are serviced along with residences with on curbside collection routes, others with containerized collection on special routes, while others handle MSW themselves, or have private or a mix of private and DOS management. A considerable amount of research will therefore need to be done in Task 1 (Section III, part B.1), to plan for characterization of this stream.

Planning Considerations

Planning should take into consideration (1) categorization of institutions into functional groups, (2) sample route selection, (3) sampling scheduling – including coordinating the sampling of refuse and recycling along the same route, (4) number of samples/sample sizes, (5) sort categories, (6) the site of sampling, (7) sort methods, (8) statistical methods to extrapolate sample results to the populations they reflect, (9) organization and compilation of data, (10) screening, selection, training, and supervision of personnel who will work on the project, and (11) cleaning and maintenance of sort sites, as well as disposal and/or recycling of sorted institutional MSW.

B.2.b.i. *Categorization of Institutions*

After conducting background research on DOS- and other-serviced institutions, as described in Section III, part B.1, sampling should be conducted among selected institutions deemed representative of the major categories in New York City. In the 1990 Study, the following nine Department-serviced categories were used:

- schools (elementary/junior)
- schools (senior high)
- hospitals (acute care)
- hospitals (long-term care)

- local and state government office buildings
- shelters
- correction facilities
- transportation hubs
- colleges/universities.

These categories have the two major drawbacks. First, they do not include a number of important institutional categories, including houses of worship, soup kitchens, and nonprofit offices. Second, governmental office buildings include fire and police stations, libraries, as well as more "traditional" type offices – which may have very different waste streams.

Using results from research outlined in Task 1 (Section III, part B.1.b.iii), the Contractor should develop a revised set of institutional categories classified by:

- Size of institution
- Type of client population served
- Recycling or waste reduction activities and arrangements

or other measures that the Contractor deems relevant.

B.2.b.ii. *Sample Route Selection*

This portion of the Study will draw from a sampling universe that is as yet unspecified. However, administration of institutional operations will be, as with residential operations, divided into five boroughs, seven (7) Sanitation Zones, 59 Sanitation Districts, and 230 Sanitation District Sections. As discussed above, some routes serving institutions are curbside and collect from residences as well, while others are designated as containerized-only, serving only one institution. Contractors may opt to sample from DOS trucks servicing existing collection routes, or, alternately, to construct specially designated routes to be served by DOS vehicles.

An important part of formulating a response to this portion of the RFP should be the Proposer's discussion of how to sample from institutions receiving curbside collection. In addition, Proposers may consider alternatives that involve relying solely on sampling containerized institutional waste, and extrapolating to all institutions using statistical methods. For further information in this regard, see Section III.C ("Agency Assumptions Regarding Performance-Based Payment Structure) and Section IV, A.2.c.iv ("SPECIAL CONSIDERATIONS - Proposing Alternatives").

B.2.b.iii. *Sample Scheduling*

The frequency of curbside institutional refuse collection varies from two to eight times per week, depending on volume of waste generated, location, neighborhood density, and the type of institution. Curbside recycling is collected weekly. Containerized sites are serviced weekly or in response to service need. Planning collection for the proposed Study should take these factors into account such that an institution's weekly refuse and recycling is sampled in the same week.

In addition, a major component of this Task will involve developing a four-season sampling plan to capture seasonal variation in MSW components. Each sampling cycle should last at least a week to control for variation within the week, and to ensure that each of the sample areas will be processed during the same approximate time period. The Study should be planned so as to avoid factors that have atypical effects on the waste stream and may bias results (see section III, part B.2.a.ii).

B.2.b.iv. *Determining Numbers of Samples/Sample Sizes*

The same constraints on numbers of samples and sample size that were discussed in regard to Residential MSW (Section III, part B.2.a.iii) apply to the Institutional MSW component.

B.2.b.v. *Determining Sort Categories.*

The same constraints on sort categories that were discussed in regard to Residential MSW (see Section III, part B.2.a.iv) apply to the Institutional MSW component. It should be kept in mind that for the purposes of aggregating overall MSW characterization in New York City, institutional waste should be sorted into approximately the same product and material categories that are used in the residential portion of the study. However, because institutional streams vary according to institution function, some collapsing or expanding of categories may be needed.

B.2.b.vi. *Selecting Sample Site(s)*

Plans must include specification of whether sampling will take place at the point of generation or at a solid waste facility such as a transfer station. If a transfer station site or sites are chosen, the Department may opt to offer DOS-owned and operated MTS's for this purpose. However, Proposers should prepare Technical Proposals and Price Proposals based on the premise of utilizing private transfer stations.

B.2.b.vii. *Establishing Sort Methods*

Sort methods should allow for the manual sorting of all sampled refuse and recycling into pre-established material (or, in the case of bulk, functional) categories such that each category can be weighed separately, and the weight recorded along with a sample ID number. Methods should include procedures for quality assurance.

B.2.b.viii. *Establishing Statistical Methods*

The statistical methods used in this component of the Study should allow for the estimation of percent composition, by weight, of designated material categories at a minimum in the refuse stream, the recycling stream, and the MSW stream as a whole for institutions. The Study will require therefore require planning for a minimum number of samples such that a 90% confidence interval for the percent composition of each material will be approximately ±7.5% of its respective estimated mean, given the limitations already described. Composition should be broken out among major institutional categories, and aggregated by borough and citywide.

The Study will require planning for a minimum number of samples for each income/density stratum such that a 90% confidence interval for the percent composition of each material in the waste stream (or for major waste categories, at least – see Section III, part B.2.a.iv below) will be approximately ±7.5% of its respective estimated mean.

B.2.b.ix. *Organization and Compilation of Data*

As part of the Planning Task, Contractors will design a data recording protocol that includes methods for:

- on-site manual or electronic recording of raw waste sort data, such that data are standardized and quality-assured during the recording process;
- transfer of raw sort data to a database that meets specifications outlined in Exhibit 4;
- quality assurance of data, including checks for missing values, miscoded data, other anomalies; and correction of such anomalies;
- download and printout of raw data as outlined in the following section;
- a chain-of-custody procedure to assure proper data handling and tracking.

B.2.b.x. *Personnel Planning*

Planning will also include specifying the number of sorting crews to be used, the size of each crew including supervision, the number of days each season that the crews will be working, and the number of samples to be sorted each day. Included in this will be a plan covering hiring, training, and employment requirements for the sorting personnel, specifying the rationale (in terms of education, experience, etc). for the selection of sorters and supervisors, and the role that supervision will play in quality assurance of the sort operation.

B.2.b.xi. *Cleaning, Maintenance, and Post-Sort Disposal*

The Contractor will be responsible for arranging for proper cleaning and maintenance of sort facilities after each day's sort. The details of such arrangements will depend on whether the site chosen for sorting is owned and operated by the Department (in which case maintenance/cleaning may be conducted by Department personnel), or is a private site. In addition, Contractors will be required to arrange for proper disposal or recycling of refuse and recyclables after sorting has taken place, services for which may or may not be provided in part or in full by the Department. For the purposes of evaluation, however, Proposers should prepare Technical Proposals and Price Proposals based on the premise of providing all such services privately.

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The Contractor should conclude plans for characterization of institutional MSW prior to the initiation of the institutional component of Task 3 ("Execute Sorts and Record Data," Section III, part B.3). Proposers should indicate the timing of this portion of Task 2 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.2.c. Characterization of Street-Basket Waste

Background

An additional source of MSW generated in the City and collected by the Department is street-basket waste. Three DOS programs for collection of this waste are (1) WEP litter patrol and spot-specific street sweeping; (2) mechanical broom sweeping; and (3) street-basket routes that collect loose refuse in rear-loading trucks. Of these three, the Proposer should plan for the sampling and analysis of the product and material composition of street-basket waste only.

Planning Considerations

All of the planning requirements for the Residential and/or Institutional Study Components apply to this Component as well, with the following exceptions:

B.2.c.i. *Sampling and Route Planning*

Samples should be taken from a representative set of collection routes that serve major commercial areas throughout the five boroughs. These routes will be determined in consultation with the Department. Preliminary suggestions include:

Brooklyn - Downtown Brooklyn
Bronx - The Grand Concourse
Manhattan - Midtown, Downtown
Queens - Flushing, Jamaica
Staten Island - to be determined

Such routes are dedicated to street-basket waste only and thus trucks servicing them will contain no residential curbside MSW. In addition, some of these routes fall in "Business Improvement Districts" (BIDs) which provide consolidation and bagging of street-basket MSW in conjunction with DOS collection. In selecting routes, Contractors should take variations in BID support into account such that the effect of this auxiliary activity is accounted for in the waste characterization analysis.

B.2.c.ii. *Statistical Methods*

The Study will require planning for a minimum number of samples from the major commercial centers in each borough such that a 90% confidence interval for the percent composition of each material in the waste stream (or for major waste categories, at least) will be approximately ±7.5% of its respective estimated mean.

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The Contractor should conclude plans for characterization of street-basket MSW prior to the initiation of the street-basket component of Task 3 ("Execute Sorts and Record Data," Section III, part

B.3). Proposers should indicate the timing of this portion of Task 2 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii)

B.2.d. Characterization of Construction and Demolition Debris, Inter-Agency Fill, and Lot Cleaning Waste

Background

The Department collects construction and demolition (C&D) debris, including concrete, rock, wood, bulk metal, bricks and dirt, and other debris, from New York City Agency construction and demolition projects and from household self-help drop-off sites throughout the five boroughs. Inter-Agency fill is generated by City agencies such as the Department of Transportation, and consists of asphalt, rocks and other inorganic debris that is frequently recycled into road base. Lot cleaning material consists of a variety of inorganic items, among which primarily scrap metal is recycled. Annually, these sources generate 630,000 tons of waste per year, approximately one-third of which is recycled.

Planning Considerations

All of the planning requirements for the Residential and/or Institutional Study Components apply to this Component as well, with the following exceptions:

B.2.d.i. *Sampling and Route Selection*

During a specified period in each season, DOS will provide the Contractor with a list of C&D, Inter-Agency fill, and Lot Cleaning collection assignments throughout the City, and will work with the Contractor to direct samples from these sources for analysis.

B.2.d.ii. *Establishing Sort Categories/Methods*

The Contractor should plan to characterize this waste into component material categories that in some way correspond to the residential, institutional, and other study components. However, because this stream is very different from other types of MSW and will not be aggregated with residential, institutional, and street-basket waste, sort categories need not correspond to those used in other components of the Study, nor do sort methods necessarily have to correspond to those used with more "conventional" streams.

B.2.d.iii. *Establishing Statistical Methods*

The statistical methods used in this component of the Study should ideally allow for the estimation of percent composition, by weight, of materials at a 90% level of confidence (given the limitations already discussed) in this stream for the City as a whole. However, as it is recognized that this stream unlike others in the City, Proposers are encouraged to use latitude and judgement in proposing the best approach to its characterization.

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The Contractor should conclude plans for characterization of C&D MSW prior to the initiation of the C&D component of Task 3 ("Execute Sorts and Record Data", Section III, part B.3). Proposers should indicate the timing of this portion of Task 2 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii)

B.2.e. Characterization of Structural and Operational Recycling Arrangements in Multi-Unit Apartment Buildings

In contrast to smaller housing types, such as detached/attached houses or tenement-style buildings, recycling in multi-unit residential buildings in New York is complicated by the fact that tenants place source-separated recyclables in central "recycling areas," with building maintenance personnel responsible for setting recyclables at curbside on collection days. The volume of waste generated in multi-unit buildings (which must be stored in recycling areas or elsewhere between pickups), as well as the fact that tenants must make trips to recycling areas to deposit recyclables, means that the location, size, arrangement, and maintenance/servicing of such areas may be important determinants of a building's diversion and capture rates, and levels of recycling contamination. Consequently, the goal of this Study Component will be to understand the relationship between these rates and one or more building characteristics.

To this end, the Proposer shall propose one or more strategies for sampling MSW from multi-unit residential buildings, sorting it into material categories (which may or may not correspond with those used in other Components of the Study), and statistically correlating such measurements with observed structural and operational recycling arrangements at the building level. Such arrangements should include, but are not limited to, location and layout of recycling areas, building recycling policies, number of maintenance personnel, structural soundness of buildings, building design, and presence/absence of elevators. Particular issues that the Proposer should take into account when designing such a strategy are: establishing a representative sample of multi-unit buildings, avoiding "observer" bias of results, and collection requirements.

Unlike the data gathered for the overall residential, institutional, street-basket, and C&D streams discussed above, these data will not be aggregated into an overall citywide MSW characterization. Instead, it will represent a targeted subset of residential MSW that yields more detail than the analysis of MSW overall, and specifically furthers our understanding of how the character of both refuse and recyclable MSW varies with structural characteristics of buildings. Consequently, this Study Component need not necessarily follow the schedule, sorting methods, or other operational/analytical aspects of the other four Study Components. However, collection, sampling, sorting, and post-sort disposal plans for this segment are subject to all of the operational considerations outlined above for residential MSW.

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The Contractor should conclude plans for this Study Component prior to the initiation of Task 3 ("Execute Sorts and Record Data," Section III, part B.3). Proposers should indicate the timing of this portion of Task 2 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section

IV, A.2.c.ii).

B.2.f. Field Procedures Manual and Revised Technical Approach

Prior to the initiation of Task 3 ("Execute Sorts and Record Data", Section III, part B.3), the Contractor should record all planned operations in a Field Procedures Manual. In addition, a full and detailed description for all plans for sampling, sorting, data recording, and data analysis for each Study Component should be summarized in a document entitled "Revised Technical Approach," which should consist of a more thoroughly developed version of the Technical Proposal (see Section IV, part A.2) submitted as part of the response to this RFP, taking into account the Background Research conducted in Task 1 (Section III, part B.1) and ongoing dialogue with the Department for the development of Task 2 (Section III, part B.2). These documents must be submitted to the Department in both hard copy and electronic, as outlined in Exhibit 3. They must also be collectively incorporated into the Final Report.

It cannot be stressed enough that the Department requires recordkeeping of such a degree and quality that Contractors produce a complete and accurate historical record of the methodology, procedures, events, documentation/persons consulted, and any other pertinent information to the project. In other words, records must be kept such that all phases of the project would be theoretically replicable in the future.

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Both documents are subject to Department approval before the Contractor proceeds with Task 3 ("Execute Sorts and Record Data", Section III, part B.3). Proposers should indicate the timing of this portion of Task 2 in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.3. Execute Sorts and Record Data - Task 3

This Task involves carrying out the plans for the five Study Components that were developed in Task 2 (Section III, part B.2). For each study Component, this Task will include preparing and testing sort facilities and sort staff, meeting with Department personnel to discuss collection routes and schedules, conducting the actual MSW sampling and sorts (working with DOS on collection), and recording data. It will also include arranging for proper disposal or recycling of MSW after sampling and maintenance/cleaning of sampling facilities.

It should be noted that Department transfer stations, and service personnel at these stations for maintenance, cleaning, and post-sort disposal or recycling, *may* be available. However, the Technical and Price Proposals should be prepared under the premise that such stations and services will be privately provided.

In conducting this portion of the Study, Contractors shall work within the Department's operational constraints, which are as follows:

Hours of Operation

The Department normally operates on a six-day week, 24 hour per day schedule. Much of the refuse and recycling collection occurs during the day shift, while transfer takes place twenty-four hours per day. Household bulk waste is collected with household refuse collections; bulk metal is collected with metal/glass/plastic (MGP) recycling collections.

Truck and Facility Capacity

Contractors must utilize Department of Sanitation trucks (with DOS drivers) for collection. The Department has a fleet of 2,400 trucks, most of which (1,730 trucks) are rear-loaders, although the Department is expanding its use of dual bin trucks, which now number at 300. Typically, rear-loaders have average loads of 6.5 tons for paper recycling, 5.5 tons for MGP recycling, and 12 tons for refuse. Dual-bin trucks, which are used for paper and MGP streams simultaneously (but not refuse), average somewhat less, totaling around 9 tons. The Contractor will be provided with further relevant operating characteristics as needed.

Within these constraints, performance of this Task will include:

B.3.a. Provision of Equipment

The Contractor shall plan to provide all necessary equipment – including shelter, sanitary facilities, sort equipment, and portable scales – and shall outfit all sorting crews with appropriate safety equipment and clothing. If a Department-owned site is selected, the Department may elect to provide front-end loader(s) (FELs) and operator(s) as needed at each DOS sorting site. However, Proposers should prepare responses to the RFP under the premise that FELs and operators will be privately provided.

B.3.b. Staffing

The Contractor will be expected to provide all supervisors, analysts, and support staff needed for all phases of the study. Exceptions to this will Department personnel who will collect and deliver sample loads, and may also be Department personnel who remove waste material from the sorting site and/or operate the front-end loader used for sample grabs, if Department-owned sort site (transfer station) is selected. However, Proposers should prepare Technical and Price Proposals assuming private provision of all staffing except for collections personnel.

Field supervisors, and if possible other field personnel, should have significant prior experience with hand-sort waste characterization studies.

B.3.c. Training/Practice

The Contractor shall train all personnel in all aspects of field study and safety. Up to one full day of sample collection and sorting may be required as a trial run with Department staff in attendance, at the beginning of each seasonal sampling period. All procedures that will be taught should be documented in a written "Training Manual" that will supplement the "Field Procedures Manual" developed in Task 2 (see Section III, part B.2.f).

B.3.d. Supervision/Quality Control

The Contractor shall deploy at least one supervisor at each site at all times during the sampling periods to ensure that protocol is adhered to. Department personnel will have full access to the sort site at all times. The Contractor shall report any unusual occurrences or lapses in protocol during the course of the operation, particularly related to factors which may bias study results.

B.3.e. Litter Control and Post-Sort Disposal/Recycling

The Contractor shall at all times during the sampling periods take measures that are effective, in the judgement of the Department, to prevent any windblown or other form of litter from leaving the immediate sorting area. At any unenclosed sorting site, this may include the installation of a tent and/or litter fencing, as well as provision of services for the removal of any litter that escapes such barriers from the surrounding area. At a marine transfer facility, the Contractor shall provide portable litter fencing to prevent material from entering the water through adjacent barge slips. The Contractor shall leave each site broom clean at the end of each daily shift, and shall arrange for proper disposal and recycling of sorted MSW after each sort.

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It should be noted that the timing of each Study Component of Task 3 need not be concurrent. Proposers should indicate this timing of each Component of this Task in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii)

B.4. **Analysis and Reporting - Task 4**

This Task shall involve analysis of data gathered during the Execution Task 3 (see Section III, part B.3) and periodic reporting of results – in written, graphic, and meeting formats – to the Department.

Performance of this Task will include:

B.4.a. Developing Waste Generation Estimates

Analysis will include calculation of MSW generation rates among the sampled generators. Waste generation within the residential stream shall be measured as a function of time, weight, and

population units (e.g., pounds per housing unit per week). Generation rates for institutions shall be calculated based on a common activity unit, such as employment (pounds per employee per week). Rates for street baskets and C&D generators should be calculated based on a common unit per unit of time. Using this time unit, generation estimates should then be combined to provide an overview of Citywide waste generation as a whole.

B.4.b. Calculating Descriptive Statistics for Waste Composition

The Contractor shall summarize mean, median, standard deviation, maximum, and minimum relative percent and absolute composition values for each stream (residential, institutional, street-basket, and C&D) as well as broken-out by season, borough, income, housing type, and income-housing type combination (for the residential stream); by institution type (for the institutional stream); by commercial zone (for the street-basket stream); and any other factors the Contractor deems necessary or useful.

B.4.c. Calculating Inferential Statistics for Waste Composition

Using predictive statistical techniques, the Contractor shall use sample results to estimate parameters of the population under study for each waste stream. This shall include presentation of confidence levels and sensitivity analyses for all statistical calculations. Specifications for each stream are as follows:

B.4.c.i. *Residential Data Calculations*

Demographic research about the geographical distribution of housing and income characteristics throughout the City, as accomplished in the Background Research and Planning Tasks 1 and 2 (see Section III, parts B.1.b.ii and B.2.a), will prepare the Contractor to examine data on residential waste in relation to housing density, income level, seasonality, and quantity per capita or per household. The Contractor will use the information gathered from the study areas to estimate waste characterization in areas of the City sharing similar demographic characteristics, and to provide aggregate statistics at a borough-wide and citywide level. If feasible, this analysis may also include comparison among income/density strata or boroughs to test for significant differences in waste composition.

B.4.c.ii. *Institutional Data Calculations*

This shall consist of extrapolating sample data to estimate citywide results for all institution categories sampled.

B.4.c.iii. *Comparison of Current Study Results with Prior Results*

The Contractor shall compare data and findings from this Study with published waste characterization data, as summarized in the Contractor's Literature Review (see Section III, part B.1.a). This comparison should include, but is not limited to, the Department's 1990 Study.

B.4.c.iv. *Aggregating Results*

The Contractor shall aggregate results from residential, institutional, and street-basket streams to generate an breakdown of MSW composition for New York City as a whole, both seasonally and annually. C&D results may be presented separately from this MSW aggregate.

B.5. **Conducting Monthly Meetings - Task 5**

Although the Department will maintain continuous liaison with the Contractor throughout the term of the project, the Contractor's project manager should meet monthly, at a minimum, with the Department's project manager and other Department personnel for the purpose of presenting a status report, reviewing progress, and seeking necessary guidance in solving problems. After each meeting, the Contractor's project manager shall, within 24 hours, provide a written summary of issues discussed for approval by all parties present, to the Department's project manager and other Department personnel in attendance.

B.5.a. Scheduling

Within five (5) working days of notice to proceed, the Contractor shall submit to the Department's project manager the following:

- a finalized Timetable stating dates for all Tasks in the Scope of Work, for each Study Component;
- project organization structure, including a staffing table with names, titles, and contact information of personnel assigned to the project.

B.6. **Reporting - Task 6**

All written reports must adhere to quality and stylistic guidelines outlined in Exhibit 5, and all reporting materials must follow the format specifications in Exhibit 3. Each written report must first be submitted as a *draft*. Comments from the Department should be incorporated into the final version of each draft. All draft and final submissions shall be both in hard copy and in electronic format, the latter via ZIP disk or CD.

Specific reports required are as follows:

B.6.a. Procedures Manual/Revised Technical Approach

As described in Section III, part B.2.f, the Contractor, in consultation with the Department, shall develop two documents describing Study procedures, to be used as a mutual reference guide during the course of the study. The first, the "Field Procedures Manual," should summarize all planned field operations, and should be revised as these operations actually take place to note procedures followed, unusual events, and all other information pertinent to this phase of the project. **It cannot be stressed**

enough that the Department requires recordkeeping of such a degree and quality that Contractors produce a complete and accurate historical record, so as to ensure that all phases of the project are theoretically replicable.

In addition, a full and detailed description of the methodology for sampling, sorting, data recording, and data analysis should be summarized in a document entitled "Revised Technical Approach," which should consist of a more thoroughly developed version of the Technical Proposal (see Section IV, A.2) submitted as part of the response to this RFP, taking into account the Background Research conducted in Task 1 (Section III, part B.1), and ongoing dialogue with the Department for the development of Task 2 (Section III, part B.2), .

A draft of these documents shall be completed prior to the initiation of Task 3 (Section III, part B.3),. At the conclusion of the Study, the "Field Procedures Manual" should be updated as necessary to reflect changes in field operations during the course of the actual study. In addition, Contractors must keep a visual record of sort operations – through photos and/or VCR recordings – and submit them in an format compatible with specifications in Exhibit 3.

Proposers should indicate the timing of the submission of these documents in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.6.b. Monthly Summaries

Brief written summaries of progress shall be submitted by the Contractor each month at least three (3) working days prior to the monthly meetings.

B.6.c. Quarterly Report

The Contractor shall submit a report not more than ninety (90) calendar days after completion of each season's round of sampling. This report shall detail the activities and summarize the findings of the quarter. Report elements shall include:

- an Executive Summary;
- descriptive statistics on waste composition, broken out by borough and sampling strata (for residential waste), by institution type (for institutional waste), and as appropriate for other Study components;
- a preliminary Citywide extrapolation of the data;
- discussion of how results differed from previous quarter (if applicable);
- discussion of operational, statistical, or other problems that arose during the quarter;
- a description of data recording, entry, coding, quality assurance, and analysis methodology used during the quarter.

Contractors should indicate this timing of each quarterly report in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.6.d. Final Report

Within thirty (30) calendar days after the completion of the fourth and final round of seasonal sampling, the Contractor shall deliver a draft of the Final Report to the Department project manager. This report should be a cumulative and, if necessary, re-organized compilation of all previous reporting, with additional narrative, analysis, or graphic presentation as needed to fully document all phases of the Study.

Report elements shall include, but are not limited to:

- an Executive Summary;
- descriptive statistics on waste composition, broken out by borough and sampling strata (for residential waste), by institution type (for institutional waste), and as appropriate for other Study components; for each quarter and for the year;
- Citywide extrapolation of the data;
- a description of data recording, entry, coding, quality assurance, and analysis methods used throughout the study;
- a description of statistical methodology used.

The Department will review this draft and return it to the Contractor with comments within a time period specified in the contract. The Contractor shall deliver the amended Final Report within ten (10) calendar days after receipt of the Department's comments.

This Report will be used to summarize and discuss the Study's results within the Department and for public information. It should therefore adhere to the highest professional standards and be written in language appropriate for such a readership, as well as conform to DOS's technical and stylistic requirements. Consultants should make efforts to produce a report that is visually engaging as well, within the technical guidelines (see Exhibits 3 and 5 for guidelines on these standards).

Contractors should indicate this timing of the Final report in the "Proposed Study Timetable" to be submitted in the RFP response (see Section IV, A.2.c.ii).

B.6.e. Generating Data Files

Along with each quarterly and Final Report, the Contractor shall download all raw and final (analyzed) data into one or a series of data files, as per specifications outlined in Exhibit 3, and shall document the content and layout of these data files on paper. This documentation shall include a printout of all raw data.

B.6.f. Presentations

Along with the Final Report, the Contractor shall provide appropriate presentation materials summarizing major findings of the study, to be designed in consultation with the Department. The Contractor shall also provide hard copy and electronic versions of visual records made over the course

of the Study, in the form of photos, slides, maps, and graphics; and video footage (see Exhibit 3, "Technical Specifications").

C. Agency Assumptions Regarding Performance-Based Payment Structure

Performance-based payment structures help assure that the selected Proposer(s) will perform the work under the contract(s) awarded from this RFP in a manner that is cost-effective for the Department, and most likely to achieve the Department's goals and objectives. They generally involve structures that tie full or partial payment to pre-established quality criteria. For example, payment for an aspect of a Task would not depend simply upon the documented completion of this task, but its completion according to a set of standards mutually agreed upon between the Department and the Contractor at the time the contract was drafted..

Areas in which performance-based payment structures are particularly relevant include:

C.1. **Literature Review Thoroughness**

Payment of the literature review portion (see Section III, part B.1.b) of the "Background Research" Task might be contingent not merely upon its timely completion before initiation of the characterization phase, but based on the *comprehensiveness* of the end-product. Proposers are encouraged to formulate their price proposals such that the Department will be assured that the Literature Review will present sophisticated, complete, and up-to-date coverage of academic and trade literature in the area of waste characterization, with particular attention to topical areas corresponding to each study component.

C.2. **Adequacy of Background Research**

Similarly, payment of the "Background Research for Residential MSW" and "Background Research for Institutional MSW" portions of the "Background Research Task," (Section III, part B.1) should be contingent not merely upon its timely completion before initiation of the characterization phase, but based upon its direct applicability to design of the Residential and Institutional MSW characterization planning Tasks. Proposers are encouraged to formulate their price proposals such that the Department will be assured that their background research on (1) current NYC demographics and (2) institutional waste generators will be adequate to formulate a statistically sound and maximally representative sampling plan.

C.3. **Soundness of Statistical Method**

As this RFP demonstrates, the Proposers' specification of sample size, number of samples, materials sort categories, sampling periods, and other sampling/statistical elements for each Study component will be crucial to striking the optimal balance between (1) the validity of results and (2) the minimization of project costs and operational burdens. The Department recognizes that this is perhaps the most challenging part of this proposal. Proposers are encouraged to formulate their price proposals such that the Department will be assured that the Contractor makes the best possible effort, according to

state-of-the art statistical methods, to strike this balance.

C.4. **Recordkeeping**

As discussion of the 1990 Study in Section III notes, the Department has been dissatisfied with the level of recordkeeping in prior projects. Proposers are encouraged to formulate their price proposals such that performance measured via timely, consistent, accurate, and accessible recordkeeping can be tied to some portion of contract payments.

C.5. **Data Compatibility**

Proposers are encouraged to formulate their price proposals such that payment for those portions of Tasks involving the timely generation of data files is tied to the quality (in terms of error correction and user-friendliness) of these files. Proposers should consult Exhibit 3 for details.

C.6. **Clarity/Accessibility of Report Writing**

Proposers are encouraged to formulate their price proposals such that the Department will be guaranteed quarterly and Final reports that are clearly written in plain language. Project results should be creatively summarized and made accessible to the educated lay reader. Proposers should consult Exhibit 5 for further details on stylistic requirements.

Section IV. FORMAT AND CONTENT OF THE PROPOSAL

Instructions: This Section describes the format and content requirements for submitting a proposal in response to this RFP. Proposals should be prepared as two separate documents. The first is a Technical Proposal (including a "Proposed Timetable"). The second is a Price Proposal. Initially, Proposers should only submit the Technical Proposal to the Department. Only those Proposers who have been notified that their proposals have been placed on a short list will be requested to provide a Price Proposal.

Proposers should provide all information required in the format below. The proposal should be typed or printed on both sides of 8 ½" x 11" recycled content paper. Pages should be paginated. The proposal will be evaluated on the basis of its content, not length.

A. Proposal Format

A.1. **Proposal Cover Letter**

The Technical Proposal should be accompanied with a letter of transmittal, to be addressed to Mr. Ronald Blendermann, containing a brief summary of the key points of the Proposal. The letter must also include

- The name and address of the Proposer;
- The name, title, address, and telephone number of an individual who is authorized to commit the Proposer to the Contract;
- The name, title, address, and telephone number of an individual whom the Department may contact regarding questions and clarifications;
- The name of the proposed Contractor Representative;
- The names and addresses of any Subcontractors;
- Statement that all information submitted in support of the Proposal is accurate and factual;
- If applicable, acknowledgment of receipt of any addenda to the RFP, naming and stating the number of addenda received, using Attachment 2, "Acknowledgment of Addenda";
- An identification of the responding firm's principal-in-charge, project manager, or other key personnel involved with the Proposal development;
- A statement that the Proposal will remain in effect for 210 days after receipt by the Department;
- The signature of an individual who is authorized to bind the prime Contractor contractually.

A.2. **Technical Proposal**

A.2.a. Experience

A.2.a.i. *Experience with Projects of Similar Purpose and Scope*

The Technical Proposal shall contain a summary of Proposer's experience with waste characterization, emphasizing multi-season, field-sort studies of significant size performed for

municipalities, as evidence of the firm's expertise in the field.

Citation of relevant projects must include project completion dates, dollar values, and the name, address, and telephone number of a representative of the client who is familiar with the respondent's performance, as well as a written summary of the project and any reports that were generated from it.

A.2.a.ii. *General Experience*

The Technical Proposal shall include a brief summary of the Proposer's recent general experience, as evidence of the firm's strength and depth. In particular, the Proposer must demonstrate experience analyzing the material composition of municipal solid waste. Such experience shall include (1) waste characterization of a major municipal solid waste stream using a multi-season approach, (2) field sorting techniques, (3) sampling techniques, and (4) statistical analysis.

A.2.a.iii. *Personnel Qualifications*

The Technical Proposal shall include resumes of the key personnel, including field supervisors who would be involved in this project, their responsibilities, and their level of commitment to the project. Each resume should be concise, featuring relevant experience and skills. If resumes are submitted on personnel not currently employed by the Proposer, a statement must be provided from that person indicating willingness to accept employment if the contract is awarded.

A.2.a.iv. *References*

Proposers should attach a listing of at least two relevant references, including the name of the reference entity, a brief statement describing the relationship between the Proposer and the reference entity, and the name, title, and telephone number of a contact person at the reference entity.

A.2.b. Organizational Capability/Financial Statement

The Proposal should demonstrate the Proposer's organizational (i.e., programmatic, technical, and managerial) capability to provide the work described in Section III. In addition, Proposers should attach a chart showing where, or an explanation of how, the proposed services will fit into the Proposer's organization. Proposers should also attach a copy of their latest audit report or certified financial statement, or an explanation of why no report or statement is available.

A.2.c. Proposed Approach

This portion of the Technical Proposal should begin by demonstrating the Proposer's understanding of the project's goals, and should illustrate an appreciation of New York City as a unique study environment. In this regard, Proposers are encouraged to critically review the Department's 1990 Study and the other prior NYC waste characterization studies (outlined in Exhibit 4), noting in particular – in the Work Plan section described below – problems with past studies that the Proposer's own

approach will avoid.

The Technical Proposal must provide a detailed description of the approach and manner in which each numbered point in each Task outlined in the Section III will be undertaken, referring to the different Study Components where applicable. Of particular relevance will be the Proposer's strategy for sampling, sorting, and analyzing data such that the Study's stated goals will be met with efficiency and statistical accuracy. Proposers are encouraged to be creative and to think critically and broadly when proposing the Study Approach. This may include suggesting improvements, revisions, or additions to the guidelines for the proposed Study as presented in this RFP; however, all cases in which Proposers depart from the RFP format or content must be clearly marked as such.

A.2.c.i. *Work Plan*

The Technical Proposal should include a concise description of how the Proposer intends to structure the project in terms of allocation of the firm's resources, including analytic staff, to respond to the project demands in a timely and effective way. An organizational chart for key personnel including field supervision shall be provided with an explanation of their prime responsibilities. A hiring plan for sorting crews shall be included.

The Technical Proposal must identify the names and addresses of any Proposed subcontractor(s) and describe the nature and extent of the work to be performed by each, as well as providing all background information required by the Proposer. The utilization of subcontractors shall not relieve the responding firm of full responsibility for the work to be performed.

In this section, the respondent shall identify any arrangements, facilities, or services which may be required of the Department to perform the work.

A.2.c.ii. *Proposed Study Timetable*

The Technical Proposal shall include a proposed Timetable, clearly outlining milestones and deliverables and their submission date relative to contract signing. In developing this Timetable, Proposers should take into account the following dates:

April 2001	*US census releases NYC specific counts, for the purpose of Congressional redistricting*
September 2001	*Dept. of City Planning publishes census data mapped to community districts*

A.2.c.iii. *Respondent's Supplementary Information*

This RFP should be used by Proposers as an outline for preparing their proposals. Proposers who wish to submit information not specifically requested in this RFP should do so in this section. Additional work should be clearly identified as such. Supplementary information will be given consideration; however, all proposals must adhere to the guidelines of this RFP.

A.2.c.iv. *SPECIAL CONSIDERATIONS - Proposing Alternatives*

Each numbered item in Section III* corresponds to a distinct aspect of the scope of work for this RFP. In general, if Proposers design their Proposal in accordance with these items, the Department will be able to assess the approach and costs associated with each portion of each Task independently.

However, there are several phenomena that may affect one or more of the Tasks in complex ways. In these cases, Proposers are encouraged to develop one or more alternative proposals for these segments of the project – both in terms of technical approach and cost. These phenomena include:

- Lack of information about Institutional MSW generators in New York City

Designing and executing separate sorts for residences and institutions served by curbside routes may involve manually mapping routes, and specifying methods for separating residential from institutional collection A less desirable alternative might be to sample from curbside routes without distinguishing between MSW generated by residents and MSW generated by institutions, and then to apply statistical techniques to the resulting data to correct for this problem.

In addition, consideration must be given to institutions that handle their MSW privately. Collecting, sampling, and sorting from these sources will involve different arrangements than collecting, sampling, and sorting DOS-managed institutional MSW.

In formulating the Technical and Price Proposals, Proposers may address these problems by proposing several alternatives for the Residential and Institutional components of the Study.

- Sorting Residential Bulk

The goals of sorting bulk residential waste into functional categories differ from the overall goal of determining the materials breakdown of the residential MSW stream. In order to accurately characterize the bulk residential stream, Proposers may propose to conduct a separate "sub-Study", to sample bulk from entire truckloads, or to conduct other alternative means of assessing bulk MSW.

In formulating the Technical and Price Proposals, Proposers may propose one or more alternatives approaches to this portion of the Study.

*e.g. part B.1.b.ii, etc.

- Material Categories/Numbers of Samples

As described throughout Section III, a larger number of material sort categories may require a larger number of samples. For this reason, it may be desirable to estimate composition of major material categories such that a 90% confidence interval for the percent composition of each material in the waste stream will be approximately ±7.5% of its respective estimated mean, and then perform secondary and even tertiary sorts for general information. However, in so doing, some important information may be lost. In formulating their proposals, Proposers are encouraged to present alternatives that weigh the operational, analytical, and financial costs and benefits of larger and smaller numbers of sort categories and samples, and associated statistical implications.

In addition, for each alternative, the Proposer should specify and justify a maximum number of grabs per truck. In no case should there be more than two grabs per truck.

A.3. **Price Proposal**

If a respondent's firm is placed on a short list of applicants, a Price Proposal will be requested, and is due within 48 hours of request. The Price Proposal shall include the bid price with a cost breakdown for each numbered point of each Task outlined in the Section III, for each Study Component. If alternatives are presented for any one point, each should be assigned a separate bid price. The Price Proposal shall include direct labor costs, overhead, direct expenses, Proposed subcontractor costs, and profit. Overhead and profit shall be applied to direct labor costs only. The person-hour breakdown shall be shown along with the firm's overhead and profit multiplier.

Proposers are encouraged to propose innovative payment structures. The Department reserves the right to select any payment structure that is in the City's best interest. For the purposes of comparison, Proposers should submit a Price Proposal that meets the following standards:

A.3.a. Proposed Pricing

The Price Proposal should follow the format suggested in the attached Price Proposal Form (Attachment 3). For each Study Component, the Proposer should follow the Scope of Services described in Section III of this RFP, breaking out each item of each Task category as applicable.

In additionally, the Proposer should include details of any performance-based payment structures proposed, per Section IV.A.3.b, below.

A.3.b. Performance-Based Payment Structure

Performance-based payment structures tie payment, in whole or in part, to specific outcome measures, financial incentives and/or disincentives, and/or liquidated damages. Proposers are encouraged to list and describe performance-based payment structures that will optimize success-based payments for both the Department and Contractors themselves.

The Department's assumptions regarding performance-based payment structures (discussed in Section III, part C) represent what the Department believes to be most likely to achieve its goals and objectives. However, Proposers are encouraged to propose measures, incentives, and disincentives which they believe will most likely achieve the Department's goals and objectives in a cost-effective manner. Proposers may also propose more than one approach. While the Proposer's proposed performance-based payment components may not be scored by the Department's Evaluation Committee, they will be considered by the Department in awarding the contract and structuring its payments.

A.4. **Acknowledgment of Addenda**

Proposers must acknowledge the receipt of any addenda to this RFP which may have been issued by the Department prior to the Proposal Due Date and Time, using the "Acknowledgment of Addenda" form provided, Attachment 2.

A.5. **Performance Security**

As security for the Contractor's performance of its agreement with the Department, the Contractor shall furnish an irrevocable Letter of Credit in an amount equal to one hundred and fifty thousand dollars ($150,000.00) issued by a solvent bank or trust company duly licensed to do business in the State of New York, with an office in the City, which shall be payable to the City of New York.

The Department will have the right to draw down on the Letter of Credit for any failure of the Contractor to meet the terms and conditions of its Agreement with the Department.

B. Proposal Packages

B.1. **Technical Proposal Package Contents ("Checklist")**

The Technical Proposal Package should contain the following materials. (Note: Proposers should utilize this section as a "checklist" to assure completeness prior to submitting their proposal to the Department).

(1) A sealed envelope labeled "Technical Proposal," containing one original set and ten (10) duplicate sets of the documents listed below in the following order:

___ Letter of transmittal
___ Statement of Qualifications and Interest
___ Understanding of the Project
___ Proposed Approach, including
- Work Plan
- Proposed Study Timetable

___ Experience with Projects of Similar Purpose and Scope
___ General Experience
___ Personnel Qualifications – including resumes and or description of qualifications for key staff positions
___ References for Proposer and (if applicable) each Proposed subcontractor
___ Organizational Chart
___ Audit Report or Certified Financial Statement or a statement as to why no report or statement is available
___ Respondent's Additional Comments and Proposals
___ Completed Acknowledgment of Addenda (Attachment 2)
___ Completed and notarized Proposer's Affirmation of Non-Debt (Attachment 4)

(2) Bid Bond

Proposers should submit a Bid Bond substantially in the form as supplied by the Department (see Attachment 5) from a surety duly licensed to do business in the State of New York, with an office in New York City, in an amount equal to fifty thousand dollars ($50,000.00). The Bid Bond or other

form of security for each unsuccessful Proposer will be returned within thirty (30) days of the Department's selection of a Proposer. The Bid Bond of the selected Proposer will not be returned until a Letter of Credit in a form acceptable to the Department, is received.

The Bid Bond should be submitted in a separate sealed envelope *inside* the envelope containing the Technical Proposal. Make sure a complete return address appears on both the inner Bid Bond envelope and the Technical Proposal Envelope.

Outer Envelope Instructions:

Both the Technical Proposal and the Bid Bond shall be submitted in an 8½" x 11" format, with foldouts from this basic size utilized as necessary. The cover of each shall clearly state the project title and the respondent's name and return address. The Technical Proposal should be enclosed in a sealed outer envelope. This outer envelope should have a label showing:

- The Proposer's name and address, the Title and PIN # of this RFP, and the name and telephone number of the Proposer's Contact Person.

- The name, title, and address of the Authorized Agency Contact Person:
  Mr. Ronald Blendermann
  Agency Chief Contracting Officer
  New York City Department of Sanitation
  51 Chambers Street, Room 801
  New York, NY 10013

B.2. **Price Proposal Content**

If a respondent's firm is placed on a short list of applicants, the Department will request a Price Proposal. This is due within 48 hours of request and should be submitted in a sealed envelope containing one original set and ten (10) duplicate sets of the Price Proposal (see "Price Proposal Form," Attachment 3).

The Price Proposal shall be submitted in an 8½" x 11" format, with foldouts from this basic size utilized as necessary. The cover shall clearly state the project title and the respondent's name and return address. The Price Proposal should be enclosed in a sealed outer envelope. This outer envelope should have labels showing:

- The Proposer's name and address, the Title and PIN # of this RFP, and the name and telephone number of the Proposer's Contact Person.

- The name, title, and address of the Authorized Agency Contact Person:
  Mr. Ronald Blendermann
  Agency Chief Contracting Officer

New York City Department of Sanitation
51 Chambers Street, Room 801
New York, NY 10013

Section V. EVALUATING THE PROPOSAL

A. Evaluation Procedures

The Proposal will be evaluated according to the following process:

A.1. Initial Determination of Responsiveness

All proposals accepted by the Department will first be reviewed to determine whether they are responsive or non-responsive to the requisites of this RFP, as per the criterial of eligibility outlined in Section II, part F. Proposals that are determined by the Department to be non-responsive will be rejected.

A.2. Preliminary Evaluation

The Department's Evaluation Committee will evaluate and rate all remaining proposals based on the Evaluation Criteria outlined below, scoring proposals on a 100 point scale. Based on these scores, the Evaluation Committee will establish a first short list of those determined to be most competitive. The Evaluation Committee will restrict further consideration to this short list of Proposers.

A.3. Oral Interviews

Proposers making the short list will be required to make an oral presentation. At the presentation, the Proposer will have an opportunity to demonstrate expertise in waste characterization. Proposers will be expected to discuss their overall strategy for this project as a whole, as well as for each of its components. The oral presentation should be based on the Proposer's "Technical Proposal" (see Section IV, part A.2), but need not completely conform to this document. Proposers may expand, add, or change original ideas at their discretion. An oral presentation is **mandatory** to be further considered for a Contract, and is an integral part of the Criteria for Evaluation set forth in part B below.

Oral Presentations are limited to ninety (90) minutes and Proposers are requested to inform the City in advance of the number of persons expected to attend (see Attachment 1 "Oral Presentation Response Form"). Attendees must include the principle individuals who would be assigned to the Study.

A.4. Follow-Up Evaluation

After interviews are held and evaluated by the Evaluation Committee, the Committee may then rescore proposals under consideration according to the same Evaluation Criteria used in the Preliminary Scoring. Further consideration will be restricted to this second short list of Proposers, who will be required to submit Price Proposals within 48 hours of notification.

A.5. **Final Determination**

The determination of award will be based on the Proposer's final score on the Technical Proposal and the cost as outlined in the Price Proposal.

NOTE:

Although discussions may be conducted with proposers submitting acceptable proposals, the Department reserves the right to award contracts on the basis of initial proposals received, without discussions; therefore, the proposer's initial proposal should contain its best programmatic, technical, and price terms.

There is no set minimum or maximum number of Proposers who may make the first and second short lists. There is also no pre-determined point value necessary in order to make the short lists. The number of Proposers who make the short lists will depend on the quantity and quality of proposals received. Each short list will end where there is a clear break in points.

B. Criteria for Evaluation

The following are criteria that the Evaluation Committee will use, weighted as indicated, to score the Technical Proposal. Selection will be based on a one -hundred (100) point system (see Attachment 6, "Sample Rating Sheet").

B.1. **Preliminary and Follow-Up Evaluations**

The Preliminary Evaluation (which will determine the first short list) and the Follow-up Evaluation (which will determine the second short-list) will be based on one hundred (100) points:

B.1.a. General Weight: 15 points

These criteria include: overall compliance with the RFP and completeness of response, as well as clarity, understandability, and conformity to instructions. These criteria also include accessible, sophisticated, coherent writing style, as outlined in Exhibit 5. They also include assessment of the Proposer's ability to keep detailed, accurate, and up-to date records on all aspects of the project.

B.1.b. Proposer's Experience Weight: 15 points

These include: general demonstration of recent organization experience, to provide evidence of the firm's strengths; and demonstration of recent experience with significant waste characterization projects similar to the project described in this RFP.

B.1.c. Project Staffing Experience Weight: 10 points

The qualifications of members of the project team, with regard to their assigned responsibility, will be evaluated, as will their level of commitment to the project.

B.1.d. Financial Resources and Stability Weight: 10 points

This includes the Proposer's ability to remain solvent, stay in business, obtain working capital, employ proper auditing procedures, and keep proper financial records, in light of its other business commitments.

B.1.e. Overall Proposal Quality Weight: 50 points

These criteria will include the Proposer's understanding of and responsiveness to the project objectives as outlined in the RFP; the comprehensiveness and thoroughness of the Proposer's approach and work plan; the Proposer's commitment and organization of resources to ensure timely delivery of project; the appropriateness, efficacy, and soundness of proposed project methodology; the statistical approach to be taken; and the feasibility of the proposal, especially in terms of its strategy for generating practical solutions in a complex and constrained operational environment.

B.2. **Oral Presentation Evaluation**

In the oral presentation, Proposers will be judged on their proposed approach to characterizing New York City's MSW, taking into account the distinct Study Components and operational/analytical challenges of this massive undertaking, as outlined in this RFP. Of particular importance at this oral presentation will be: the Proposer's communicative ability (in interaction with the Evaluation Committee), the feasibility of the Proposer's recommendations, and demonstration of a full understanding of the Department's goals, objectives, concerns, and requirements for the proposed Study.

B.3. **Price Proposal Evaluation**

For those making the second short list, cost will be considered based on the Price Proposal submitted. The Proposer achieving the best combination of technical score and price shall be recommended for a Contract.

C. Questions

All questions relating to the RFP or the project should be directed to Robert Lange at the Bureau of Waste Prevention, Reuse and Recycling, New York City Department of Sanitation, 44 Beaver Street, 6th Floor, New York, NY 10004, 212-837-8156, or at rwlange.nycrecycles@verizon.net. Any questions which in the opinion of the Department warrant a written reply or RFP amendment will be furnished to all parties receiving a copy of this RFP. Verbal information which is not contained in this RFP or subsequent amendments, and/or other written correspondence, will not be considered by the Department in evaluating the proposals.

D. Basis for Contract Award

A contract will be awarded to the responsible Proposer(s) whose proposal(s) is/are determined to be the most advantageous to the City, taking into consideration the price and such other factors or criteria which are set forth in this RFP. Contract award shall be subject to the timely completion of contract negotiations between the Department and the selected Contractor.

Section VI. GENERAL INFORMATION TO PROPOSERS

A. **Complaints.** The New York City Comptroller is charged with the audit of contracts in New York City. Any Proposer who believes that there has been unfairness, favoritism or impropriety in the proposal process should inform the Comptroller, Office of Contract Administration, 1 Centre Street, Room 835, New York, NY 10007; the telephone number is (212) 669-3000. In addition, the New York City Department of Investigation should be informed of such complaints at its Investigations Division, 80 Maiden Lane, New York, NY 10038; the telephone number is (212) 825-5959.

B. Applicable Laws. This Request for Proposals and the resulting contract award(s), if any, unless otherwise stated, are subject to all applicable provisions of New York State Law, the New York City Administrative Code, New York City Charter, and New York City Procurement Policy Board (PPB) Rules. A copy of the PPB Rules may be obtained by contacting the PPB at (212) 788-7820.

C. General Contract Provisions. Contracts shall be subject to New York City's General Contract Provisions, a copy of which is available through the Authorized Agency Contact Person.

D. Contract Award. Contract award is subject to each of the following applicable conditions and any others that may apply: New York City Fair Share Criteria; New York City MacBride Principles Law; New York City Burma Law; submission by the Proposer of the requisite New York City Department of Business Services/Division of Labor Services Employment Report and certification by that office; submission by the Proposer of the requisite VENDEX Questionnaires/Affidavits of No Change and review of the information contained therein by the New York City Department of Investigation; all other required oversight approvals; applicable provisions of federal, state, and local laws and executive orders requiring affirmative action and equal employment opportunity; and Section 6-108.1 of the New York City Administrative Code relating to the Local Based Enterprises program and its implementation rules.

E. Proposer Appeal Rights. Pursuant to New York City's Procurement Policy Board Rules, Proposers have the right to appeal Agency non-responsiveness determinations and Agency non-responsibility determinations and to protest an Agency's determination regarding the solicitation or award of a contract.

F. Multi-Year Contracts. Multi-year contracts are subject to modification or cancellation if adequate funds are not appropriated to the Agency to support continuation of performance in any City fiscal year succeeding the first fiscal year and/or if the Contractor's performance is not satisfactory. The Agency will notify the Contractor as soon as is practicable that the funds are, or are not, available for the continuation of the multi-year contract for each succeeding City fiscal year. In the event of cancellation, the Contractor will be reimbursed for those costs, if any, which are so provided for in the contract.

G. Prompt Payment Policy. Pursuant to the New York City's Procurement Policy Board Rules, it is the policy of the City to process contract payments efficiently and expeditiously.

H. Prices Irrevocable. Prices proposed by the Proposer shall be irrevocable until contract award, unless the proposal is withdrawn. Proposals may only be withdrawn by submitting a written request to the Agency prior to contract award but after the expiration of 210 days after the opening of proposals. This shall not limit the discretion of the Agency to request Proposers to revise proposed prices through the submission of best and final offers and/or the conduct of negotiations.

I. Confidential, Proprietary Information or Trade Secrets. Proposers should give specific attention to the identification of those portions of their proposals that they deem to be confidential, proprietary information or trade secrets and provide any justification of why such materials, upon request, should not be disclosed by the City. Such information must be easily separable from the non-confidential sections of the proposal. All information not so identified may be disclosed by the City.

J. RFP Postponement/Cancellation. The Agency reserves the right to postpone or cancel this RFP, in whole or in part, and to reject all proposals.

K. Proposer Costs. Proposers will not be reimbursed for any costs incurred to prepare proposals.

L. Charter Section 312(a) Certification.

The Agency has determined that the contract(s) to be awarded through this Request for Proposals will not directly result in the

displacement of any New York City employee.

_____ _____

(Agency Chief Contracting Officer) Date

Exhibit 1

FOR REFERENCE – Waste Composition Sort Categories
used in the Department of Sanitation's 1990 Waste Composition Study

PAPER	
corrugated, kraft, linerboard	U
newsprint	U
office/computer paper	U
magazines/glossy	U
phone books and paperbacks	U
non corrugated	U
other mixed paper	¡
PLASTIC	
clear HDPE containers	U
colored HDPE containers	U
LDPE films/bags	
green PET containers	U
clear PET containers	U
PVC	
polypropylene	
polystyrene	
miscellaneous plastic	
YARD WASTE	
grass/leaves	¡
brush/prunings	
OTHER ORGANIC	
lumber	
textiles	·
rubber/leather	
fines	
disposable diapers	
food waste	·
miscellaneous organic	
GLASS	
clear glass containers	U
green glass containers	U
brown glass containers	U
miscellaneous glass	¡
ALUMINUM	
beverage containers	U
other aluminum containers	U
miscellaneous aluminum	U
FERROUS	
ferrous food containers	U
other ferrous	U
BIMETAL	
bimetal cans	U
INORGANIC, NON-HAZARDOUS	
non-bulk ceramics	
miscellaneous	
HOUSEHOLD HAZARDOUS WASTE	
pesticides	
non-pesticide poisons	
paint/solvent/fuel	
dry cell batteries	
car batteries	
medical waste	
miscellaneous	
BULK	
upholstered	
steel	U
aluminum	U
wood	
mixed	
stoves	U
refrigerators	U
dishwashers	U
other	
ferrous	U
non-ferrous	U
miscellaneous wood	
rugs/carpets/textiles	·
tires	
miscellaneous	

Notes:

U = recyclable category – i.e, currently accepted in the curbside Recycling Program

¡ = partial recyclable category – see discussion on the following page

· = category may benefit from refinement – see discussion on following page

BULK was defined as items not fitting in a closed 30-gallon container

The sort categories on the previous page were used in the Department's 1990 Waste Composition Study ("1990 Study"). These sort categories may be used as a guide for sort design in this proposal. At the same time, Proposers should note that because the 1990 Study was conducted before the City's curbside Residential Recycling Program was up and running, some of its sort categories are not useful for understanding recycling composition, in several ways:

1. In 1990, the "Other Mixed Paper" category included paper towels, tissue paper, napkins, plates, and cups; plastic- or wax-coated paper; hardcover books; and soiled or contaminated paper (including soiled smooth paper and cardboard). These categories of paper are not accepted for recycling under the current Recycling Program. In addition, this category included paper beverage containers (milk cartons, juice boxes, etc). which the Program *does* accept, but which are placed with the metal/glass/plastic stream (see Section II).

2. The 1990 study categorized leaf waste and grass clippings together. The Department's current leaf collection program does not accept grass clippings, because they cause odor problems in outdoor composting.

3. The "Miscellaneous Glass" category in the 1990 study included: small glass shards (of any color); intact or minimally broken glass containers (of colors other than clear, amber, or green); and other non-recyclable glass (windows, fish tanks, lightbulbs, glassware). Under the current Recycling Program, only intact or minimally broken containers, regardless of color, are accepted.

Proposers should formulate waste sort categories that address these problems, in terms of providing data pertinent to the analysis of recycling and recycling programs. In addition, Proposers should be aware that planning for future enhancement of recycling programs may require a refinement of organic and textile sort categories. In particular:

4. The "food" portion of the organics component of the 1990 study combined material suitable for backyard or centralized, source-separated composting (vegetable and starch material) with material unsuitable for such purposes (animal products and oils). A subsort of the two categories would enhance composting planning, and may also inform evaluation of the impact of garbage disposals (grinders) on waste reduction.

5. The textile fractions of the organics and bulk components of the 1990 did not differentiate between clothing and other small textiles suitable for donation to charity, and unsuitable textiles (rugs, clothing bolts, contaminated cloth). A subsort of the two categories would enhance textile recycling planning.

FOR REFERENCE – "Ideal" Non-Bulk MSW Material Categories - Proposed by DOS

NOTE: the refuse and recycling streams would, under ideal conditions, each be sorted separately into the following categories in order to assess composition of each stream, capture rate for recyclables and contamination rate of recycling. Data from both streams would be aggregated to give an overall composition of MSW as a whole.

PAPER
clean corrugated, kraft, linerboard
clean newsprint
clean office/computer paper
clean magazines/glossy
clean phone books and paperbacks
clean non corrugated
other recyclable mixed paper (clean, non-tissue, non-beverage container).
tissue and other non-recyclable paper
soiled paper that would be recyclable if clean

BEVERAGE CONTAINERS
milk and juice cartons
juice boxes

PLASTIC
clear HDPE containers
colored HDPE containers
LDPE
films/bags
green PET containers
clear PET containers
PVC
polypropylene
polystyrene
miscellaneous plastic

YARD WASTE
grass
leaves
brush/prunings

OTHER ORGANIC
lumber
clothing textiles
other textiles
rubber/leather
fines
disposable diapers
compostable food
non-compostable food
miscellaneous organic

GLASS
intact clear glass containers
intact green glass containers
intact brown glass containers
intact other color containers
leaded, plate or other non-recyclable glass
shards

ALUMINUM
beverage containers
other aluminum containers
miscellaneous aluminum

FERROUS
ferrous food containers
other ferrous

BIMETAL
bimetal cans

INORGANIC, NON HAZARDOUS
non-bulk ceramics
miscellaneous
fines

HOUSEHOLD HAZARDOUS WASTE
pesticides
non-pesticide poisons
paint/solvent/fuel
dry cell batteries
car batteries
medical waste
miscellaneous
motor oil

NOTE: Recyclable categories (under NYC's current program) are **in bold**. Refuse categories are *in italics*. Note that this includes items that are non-recyclable by definition, as well as those that are not recyclable (i.e. refuse) if they are heavily soiled.

FOR REFERENCE – Possible Bulk MSW Categories - Proposed by DOS

The following is a very preliminary list of bulk items that might be sorted into categories for weighing, inventory, and assessment of "reusability". A final list of bulk categories will, however, be developed after consultation between DOS and the Contractor.

FURNITURE
wood
metal
plastic
mixed

FURNISHINGS
carpets
shades/blinds
other

HOUSEHOLD APPLIANCES
refrigerators
stoves
small metal appliances
small mixed/nonmetal appliances
computers/peripherals

BULK TOYS
swimming pools
other

BULK RUBBER
hoses
tires
other

BULK CERAMICS
toilets
sinks
other

HOUSEHOLD REMODELING
drywall
rubble
brick
other

OTHER
glass
ferrous
non-ferrous
wood (treated vs. non-treated)
plastic
mixed

Exhibit 3

Technical Specifications

1. Waste Generation and Composition Data

Data on sample weights at the sort site shall be entered into a database program designed such that each record will have *at least* the following fields or columns:

- unique numeric identifier
- date
- operator id
- identifiers to aggregate data according to sample period, sample site, and other relevant grouping criteria
- material category(ies)
- comments (open field)
- subsort indicators (if applicable)

A database program should be used such that raw data can be downloaded in a .DBF file format. While Contractors may use spreadsheet or statistical applications for computation and analysis, raw data must be stored in a database format.

The Contractor shall provide the Department with an accompanying file layout document summarizing the names, definitions, order/location, and properties of each column or field, and shall further consult with Department staff on the structure and organization of the data before the data collection phase of the project begins.

A final version of raw data files shall be submitted in .DBF and printed form to the Department as part of Task 6 (see Section III, part B.6.e). after having undergone a quality review.

2. Statistical Analyses and Tables

As noted above, raw data may be analyzed in a spreadsheet or statistical package, according to the Contractor's preference. Tabular results should be summarized and submitted to the Department as Excel files – with data sources, methods, and all relevant information clearly documented for each analysis product – as monthly summaries and quarterly reports are turned in. Final versions of tabular results should be converted to Adobe Illustrator or other Quark-compatible format, for submission as an .EPS or high-resolution .JPG file.

Exhibit 3

Technical Specifications

3. Graphic and Photo Image Formats

All charts and graphs must be submitted in Excel, with underlying data present in each chart file. Final copies of all charts and graphs must also be converted to Adobe Illustrator or other Quark-compatible format, for submission as an .EPS or high-resolution .JPG file. Charts should use Department of Sanitation-approved colors (orange and blue, and other green shades – to be specified by the Department during the reporting stage). Charts and graphs should be submitted on CD or ZIP disk.

Photos taken during the study must be submitted digitally as a .JPG or .EPS file labeled with date, time, and content, on CD or ZIP disk.

All video footage should be recorded on a digital video (DV) camera and submitted as a digital video cassette tape labeled with date, time, and content. Contractors should also purchase and supply DOS with a digital video deck to view these tapes.

4. Text Format

All literature reviews, background research pieces, procedures manuals, monthly/quarterly/Final reports, and other reporting documents must be provided to the Department in electronic and printed versions. All text should be in Corel WordPerfect (v. 6/7/8/9) Text documents should be minimally formatted, with no embedded objects (text boxes or graphics) in the text document. Instead, objects such as tables, graphs, charts, photos, or other images should be referenced in the text and saved separately in the file formats specified above. Hard copies of all text and accompanying image files should be printed out and collated for easy reading by Department personnel.

Documents should be saved to CD or ZIP disk, and given meaningful names and file properties that will enable identification of content and – if applicable – draft version.

Exhibit 4

Bibliography - For Reference

Proposers are strongly encouraged to review the following documents as part of preparation of response to this RFP, noting in the RFP itself where the Department has indicated its preference for similar or different/improved study design. These documents are on the enclosed CD in .PDF format.

For the Department's 1990 Waste Composition Study:

NYC Department of Sanitation, A Comprehensive Solid Waste Management Plan for New York City and Final Generic Environmental Impact Statement, Appendix Volume 1.2, Waste Stream Data, August 1992

NYC Department of Sanitation Operations Planning Evaluation and Control, New York City Waste Composition Study 1989-1990 (four volumes)

For the Department's Staten Island Waste Composition Study:

HDR Technologies. Report on Staten Island District 3 Waste Composition Analysis (June 1997)

For the Department's Low-Diversion Districts Waste Composition Study:

NYC Department of Sanitation, Mixed Waste Processing in New York City: A Pilot Test Evaluation (October 1999)

For the Department's Backyard Composting Waste Composition Study:

Waste-Tech, Inc. The New York City Backyard Composting Study Post-Implementation Report, (November 1998)

NYC Department of Sanitation, Backyard Composting in New York City: A Comprehensive Program Evaluation (June 1999)

Exhibit 5

Stylistic Guidelines

Interim and Final reports submitted to the Department will be used in the creation of public documents for City government officials, nonprofit groups, and the public. For this reason, it is crucial that writing is accessible to the layperson, yet also reflects the formal, structured style of this government agency.

Part of the evaluation criteria outlined in Section V above will be the respondent's ability to meet these guidelines, as demonstrated by the content of their proposal. Guidelines for text quality are as follows:

Accessibility

Waste management is a technical field that uses jargon extensively. While this cannot be avoided, each specialized word should be clearly and simply defined the first time it is used. If a more widely known alternative for the word exists, it should be substituted provided this does not lessen the report's accuracy. Terms should be used consistently, with reinforcement of meaning where appropriate. Contractors are encouraged to create glossaries for reader reference. Further, any calculations that are referenced in the text should be clearly explained with a formula.

During planning meetings with BWPRR, Contractors will have opportunity to discuss the report's audience with Department staff. This audience should be kept in mind at all times as reports are being written. In general, writing should be geared to the educated layperson.

Executive Summary

Reports should contain an Executive Summary, which should be as concise and engaging as possible. Major findings should be highlighted. Ideally, Executive Summaries should be limited to three pages, and should not include footnotes.

Tables, Graphs, and Charts

Reports frequently make reference to data that can only be displayed in a chart, table, or graph. When preparing these important supplements, Contractors are expected to label and explain all column or row headings, or chart elements. Symbols and abbreviations must be clearly defined. Tables, charts, and graphs must reference the data source, with notation of the time period reflected. Although complete data should always be reported in appendices, Contractors are encouraged to use graphics to summarize data, following the technical specifications outlined in Exhibit 3.

Cumulative Reporting

All interim reports should be written with the idea of building toward an eventual, comprehensive, Final Report that will give a full analytical and historical account of each aspect and component of the waste characterization Study, as described in this RFP.

Proposers are directed to the NYC Department of Sanitation's 1999 report, <u>Backyard Composting in New York City: A Comprehensive Program Evaluation</u> (drafted by BWPRR) for example of preferred style.