
B. Collections of Information Employing Statistical Methods

The agency should be prepared to justify its decision not to use statistical methods in any case where such methods might reduce burden or improve accuracy of results. When Item 17 on the Form OMB 83-1 is checked, "Yes," the following documentation should be included in the Supporting Statement to the extent that it applies to the methods proposed:

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection methods to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.

The study shall statistically analyze existing data from Federal, private, and local sources. Then, from a representative sample of 200 Housing Authorities with 500 or more total public housing and housing choice voucher units, the study shall obtain quantitative and qualitative data from a telephone survey of Housing Authority representatives. Finally, using in-person surveys, the study shall obtain detailed quantitative and qualitative data from 150 Housing Authority representatives and local housing authority experts and from 1500 households total from 25 metropolitan Housing Authorities (averaging 60 per housing authority). These shall include 21 Housing Authorities representative of the overall metropolitan sample and 4 Housing Authorities chosen with certainty because of experiments with rent reform -- altogether 25 Housing Authorities in 16 different metropolitan areas.

For the phone survey, using contact information obtained from the Internet and/or telephone lists, the contractor will contact selected staff at each PHA. If a respondent is unable to complete the survey at the time the initial call is placed, they will schedule a later time that is convenient for the respondent. For PHA staff that are not readily available by telephone, the contractor will also attempt to obtain email addresses, which they will use to contact the staff and arrange a telephone interview. They expect a phone response rate of 85 to 90 percent.

Of the 25 Housing Authorities chosen for site visits, all or almost all are expected to participate. Those that do not will be replaced by comparable Housing Authorities in their sampling cells (as described below). Within these 25 Housing Authorities, the newly admitted and waiting list households who are non-disabled and non-elderly will be chosen randomly on the basis of listings provided by the Housing Authority and that are checked by the contractor. Overall, the contractor has a target response rate for households of 80% based on its previous studies. The contractor will attempt to reach people multiple times via telephone, email and/or letters.

Below are excerpts from the sampling design for Housing Authorities proposed by the contractor and accepted by HUD.

General Sampling Design

The objective is to select two random representative samples of Public Housing Authorities (PHAs) for a telephone survey and site visits. The target population for these samples is all PHAs with 500 or more units that are not currently under HUD receivership.¹

It is required to select a sample of 200 PHAs for a telephone survey. Eight PHAs will be selected with certainty because of size and other characteristics.² This means that we need to select 192 PHAs for the survey. An additional sample of 25 PHAs are to be selected for site visits covering a maximum of 16 metropolitan areas. The second sample includes four PHAs that will be selected with certainty, each in a different metro area.³ Thus, we are required to select 21 PHAs from a total of 12 metro areas. To get this sample, we will need to select nine metro areas with at least two PHAs and three metro areas with only one PHA. We propose the following design for the selection of the two samples.

¹ There are currently 10 PHAs under HUD receivership. These PHAs are: Sarasota Housing Authority; Wellston Housing Authority; Housing Authority of City of East St. Louis; Housing Authority of New Orleans; Riviera Beach Housing Authority; Virgin Islands Housing Authority; Detroit Housing Commission; Miami-Dade Housing Agency; Chester Housing Authority; and Housing Authority of Kansas City, Missouri.

² The PHAs selected for certainty in the phone survey sample are: Massachusetts Dept of Housing and Community Development; Seattle, WA; Portage, Ohio; New York City; Chicago; Los Angeles; Philadelphia; and Puerto Rico.

³ The PHAs selected for certainty in the site visit sample are: Tulare County, CA; Keene, NH; Cambridge, MA; and Vancouver, WA.

Signature of Senior Officer or Designee:

Date:

X
Lillian Deitzer, PRA Program Manager,
Office of Investment Strategies, Policy, and Management, Office of the Chief Information Officer

Selection of PHAs for the Telephone Survey

For the selection of this sample, we first stratify the universe of PHAs into two main strata. All PHAs in metro areas are in the first stratum and all PHAs in rural areas are in the second stratum.

Table 1 gives the distribution of metro and rural PHAs in our sampling universe. We also give the total number of housing units in each stratum.

Table 1. Distribution of Rural/Metro PHAs and Units

Type of PHA	Number of PHAs	Total Number of Units	Average Number of Units
Metro	833	2,125,161	2,551
Rural	231	219,399	950
Total	1,064	2,344,560	2,203

Sample Allocation

The first step is to allocate the sample of 192 PHAs to the two strata. If we are interested in PHA characteristics, then it would be efficient to allocate the sample in proportion to the number of PHAs in the population in each stratum. However, we are also interested in the characteristics of individual housing units within PHAs. Since characteristics of both PHAs and housing units are of interest to the survey, we propose to average the two allocations. A slightly modified average allocation is shown in Table 2.

Table 2: Allocation of the Sample to Strata in Rural Areas

Type of PHA	Allocation in Proportion to Number of PHAs	Allocation in Proportion to the Total Number of Units	Proposed Allocation
Metro	150	174	160
Rural	42	18	32
Total	192	192	192

Selection of Rural PHAs

For the selection of rural PHAs, we propose to stratify the universe of rural PHA into three strata based on the total number of units. For allocating the sample of 32 PHAs to three size strata, we again propose a compromise allocation based on the proportion of PHAs and units in each size stratum. The boundaries for size strata are based on the distribution of PHAs by the total number of housing units. We propose to include four largest rural PHAs in the sample with certainty.⁴ The remaining sample of 28 will be allocated to size strata as shown on the next page.

Table 3: Allocation of the Rural Sample to Size Strata

Size Group (Number of Units)	Number of PHAs	Number of Units	Proposed Sample Allocation
500-699	110	64,511	12

⁴ The four largest rural PHAs are: Kentucky Housing Corp; Maine State Housing Authority; Montana DOC; and Vermont State Housing Authority.

700-1499	95	95,501	12
1500+	22	43,151	4
Total	227	203,163	28

For the selection of the sample in each size stratum, we propose to divide each size strata into two groups based on payment standard (above and below the median for the rural group). The sample in each size stratum will be allocated in proportion to the number of PHAs in each group. The sample size in each stratum created for sample selection is shown in Table 4.

Table 4: Distribution of the Rural Sample by Size and Payment Standard Strata

Size group	Payment Standard Below Median	Payment Standard Above Median	Missing	Total
500-699	6	5	1	12
700-1499	5	6	1	12
1500+	2	2		4
Total	13	13	2	28

An equal probability systematic sample will be selected from each stratum after sorting the PHAs by Census region.

Selection of Metro PHAs

We first stratify the universe of Metro PHAs by four size strata. The strata were created based on the distribution of PHAs by size Table 5 gives the distribution of the universe by strata and also gives the total number of units in each size stratum.

Table 5: Distribution of Metro PHAs by Size Strata

Metro Size Group	Number of PHAs	Number of Units	Average Number of Units
500-799	225	143,990	640
800-1999	330	417,856	1,266
2000-3499	137	365,919	2,670
3500+	141	1,197,396	8,492
Total	833	2,125,161	2,551

For allocating the total sample of 160 PHA to size strata, we chose a representation proportional to the square root of units in each strata, which yields an allocation between that proportional to the number of PHAs and that proportional to the total number of units.

For selection of PHAs, each size stratum was further divided into two subgroups using two payment standards and one category of missing. The sample was allocated to each payment stratum within a size grouping in proportion to the number of PHAs in that group. Table 6, on the following page, shows the sample by strata.

Table 6: Sample of Metro PHAs by Size and Payment Standard Strata

Metro Size Group	Below Median Payment Standard	Above Median Payment Standard	Missing	Total
500-799	15	13	2	30
800-1999	25	24	1	50

2000-3499	15	14	1	30
3500+	21	28	1	50
Total	76	79	5	160

Selection of PHAs within each stratum is done by systematic sampling after sorting the PHAs by Census region. This sorting ensures that the sample is representative.

Selection of Metros and PHAs for Site Visits (Final)

In addition to the four HAs and metro areas chosen with certainty, the objective is to select 12 metro areas for sampling a total of 21 metropolitan PHAs. To achieve this, we must select two PHAs from each of nine metro areas and one PHA from each of three metro areas for a total of 21 PHAs. We propose the following sampling procedure for selecting these metro areas and PHAs.

First, we must stratify the population of metro areas into two main strata. All metro areas with only one PHA are in Stratum 1 and all metro areas with more than one PHA are in Stratum 2. Table 1 shows the distribution of metro areas by one PHA and more than one PHA.

Table 1: Distribution of Metro Areas by Number of PHAs

Number of PHAs	Number of Metro Areas
1. One PHA	151
2. More than one PHA	172
Total	323

We propose to select three metro areas from Stratum 1 and the remaining nine metro areas from Stratum 2.

Selecting Multi-PHA Metro Areas

When selecting a representative sample of metro areas containing more than one PHA, it is important to consider three key variables: a) the metro area's unit-weighted average payment standard; b) size of the metro area defined by the total unit count of the largest PHA; and c) the metro area's geographic location. To account for the first two variables, we created four strata for the sample selection. These four are the result of cross classification of two groups of payment standards (above and below the median) and two categories of size (unit count of the largest HA above or below 4,000).

Table 2 shows the distribution of metro areas in the population by the four strata. Since we eventually need to select two PHAs from each selected metro area, the table also shows the total number of PHAs in each stratum.

Table 2: Distribution of Metro Areas and PHAs by Sampling Strata

Stratum	Number of Metros	Number of PHAs	Average Number of PHAs Per Metro
1. 4000+ and above Median Payment Standard	50	311	6.2
2. 4000+ and below Median Payment Standard	25	91	3.6

3. Less than 4000 and above Median Payment Standard	36	120	3.3
4. Less than 4000 and below Median Payment Standard	61	160	2.6
Total	172	682	3.96

Using this distribution, we allocated the sample of nine metro areas to each stratum in proportion to the number of PHAs in the stratum. Table 3 shows this sample allocation.

Table 3: Distribution of the Sample Metros by Sampling Strata

Stratum	Number of Metros	Number of Metros in the Sample
1. 4000+ and above Median Payment Standard	50	4
2. 4000+and below Median Payment Standard	25	1
3. Less than 4000 and above Median Payment Standard	36	2
4. Less than 4000 and below Median Payment Standard	61	2
Total	172	9

To ensure equal geographic representation in the sample, we then stratified metro areas in each stratum by nine Census divisions. This created a total of 36 strata. Table 4 shows the distribution of metro areas by these strata along with the required sample size in each Census division and sampling stratum.

Table 4: Distribution of Metro Areas by Census Division and Size/Payment Standard

Stratum	NE	MA	ENC	WNC	SA	ESC	WSC	MTN	PAC	Total	Sample
1	3	8	4	2	11	0	4	5	13	50	4
2	2	3	4	1	4	8	2	0	0	24	1
3	8	8	4	1	5	0	1	4	5	36	2
4	1	6	10	6	13	6	13	3	3	61	2
Total	14	25	22	10	33	14	20	12	21	171	9
Sample	1	1	1	1	1	1	1	1	1	9	

Selecting Census Divisions and Sampling Strata

First, we must select four metro areas from Stratum 1 (4000+ and above median payment standard). Since our goal is to select one metro area from each Census division, the first step is to select four Census divisions at random (equal probability) from the first row out of eight available. The selected divisions are New England, East North Central, South Atlantic and West South Central. We must then select one of the remaining Census divisions in the second row. The selected division for this row is East South Central. From the third row, we must select two from the remaining Census divisions. The divisions selected here are Middle Atlantic and Pacific. This leaves West North Central and Mountain as the two remaining divisions in the last row.

We must then select one metro area from each Census division within the sampling stratum for which that division was selected. For example, we must select one of the three metro areas in New England that fall under the “4000+ and Above Median Payment Standard” stratum. This selection can either be done at random, giving each metro an equal probability of selection, or with a probability proportional to the number of housing units. Since the probability-proportional selection

gives a higher probability of selection to larger metros, we will choose this method. This selection will lead to more efficient estimates as long as the characteristics of interest are correlated with the number of housing units in the metro.

Selecting PHAs within each Division and Sampling Strata

Once we have selected the sample of nine multi-PHA metro areas, we must select two PHAs from each metro area. Following the logic utilized above, we selected these PHAs with probability proportional to the number of housing units in each PHA. This leaves us with a sample of 18 PHAs that accurately represents the distribution of unit-weighted payment standard, PHA size, and geographic location.

Selection of Single-PHA Metro Areas

When selecting the sample of three metro areas with one PHA, we must consider both PHA size and geographic location. Before selecting the sample, we sorted the list of single-PHA metro areas Census divisions. We then selected three metros using systematic sampling with probability proportional to the number of housing units.

2. Describe the procedures for the collection of information including:

- * Statistical methodology for stratification and sample selection,
- * Estimation procedure,
- * Degree of accuracy needed for the purpose described in the justification,
- * Unusual problems requiring specialized sampling procedures, and
- * Any use of periodic (less frequent than annual) data collection cycles to reduce burden.

The statistical methodology, as summarized in B1, involved stratifying Housing Authorities of 500 or more combined public housing and housing choice voucher units into rural and metro groupings, then into size and payment standard categories within rural and metro, and then into number and size and payment standards of Housing Authorities within metro areas. In this manner, an efficient and representative sample was obtained to get 200 HAs for a phone survey and 25 HAs for site visits and attendant household surveys.

Some of the information from the site surveys and even from the phone surveys will be case studies and open-ended assessments. But much of the information will be close ended and coded data that can be statistically estimated and assigned levels of accuracy in cross-tabulations, frequencies, and occasional multivariate regression. At a high 95% degree of confidence, the phone survey data should enable a proportional statistic with a mean close to .5 to have an estimation error of about .07 and a proportional statistic with a mean close to .1 or .9 to have an estimation error of about .04. At the 95% degree of confidence, the household survey data when applied to half (750) respondents for a proportional statistic with a mean close to .5 will have an estimation error of about .05 and for a proportional statistic with a mean close to .1 or .9 will have an estimation error of about .03. These levels of expected accuracy will enable individual statistics and patterns to be reliably tested for significance. The study does not anticipate specialized sampling procedures beyond the stratification (and probability weighting) that was described in B1. There will not be any periodic data collections except for a one-time follow-up of some respondents in an options period of the contract.

3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

HUD's contractor, Abt Associates, has extensive experience in conducting in-person and telephone interviews with high response rates. They will undertake a number of steps to ensure a high response rate. (1) The surveys will be thoroughly tested for flow and ease of understanding to make the survey process as simple as possible for respondents (2) Advance letters from HUD will be sent all potential respondents explaining the importance of the study and asking for their

participation. (3) Interviewers will be extremely flexible in finding times convenient to respondents to complete the survey. Interviewers will be available in the evening and on weekends to make the interview time most convenient to respondents. (4) Interviewers will attempt to contact respondents multiple times to reach them and ask them to complete the survey. For the household survey, interviews will attempt to contact sample members by phone to schedule an interview. If unreachable by phone, they will contact them in person. (5) Waiting list/new admission households will be paid \$20.00 to compensate them for their time.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of test may be submitted for approval separately or in combination with the main collection of information.

The telephone and in-person interviews with PHA staff were pre-tested at two Housing Authorities. The household survey will be cognitively tested with up to nine respondents who are either on the waiting list or were recently admitted to the public housing or housing choice voucher program.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

HUD consulted with its contractor—Abt Associates and its subcontractors at the Urban Institute and AREA Inc. in developing these data collection efforts. Dr. K.P. Srinath, a sampling statistician at Abt Associates developed the sample selection procedures. He can be reached at 301- 634-1700. Dr. Larry Buron, an economist at Abt Associates, is the lead data analyst for Abt Associates and will oversee the data collection effort. He can be reached at 301-634-1735. The Abt Associates survey group will administer the waiting list/new admission household survey and professional staff from Abt Associates, the Urban Institute, and AREA will conduct the telephone interviews and in-person interviews with PHA staff. Further information for Larry Buron is summarized below:

Abt Associates

Dr. Larry Buron
4550 Montgomery Ave., Suite 800 North
Bethesda, MD, 20814
larry_buron@abtassoc.com
Phone: 301-634-1735
Fax: 301-634-1802