Survey Methodology

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SUGGESTED PROCEDURES FOR CONDUCTING A SAMPLE SURVEY
TO DETERMINE WHETHER THE MAJORITY OF PERSONS IN A TARGET AREA
HAVE LOW- AND MODERATE-INCOMES

INTRODUCTION

This document was prepared by Community Planning and Development's Office of Program Analysis and Evaluation to assist staff in HUD's Field Offices, in States, and in localities to develop methods to determine whether a geographic area will meet CDBG program requirements related to low- and moderate-income benefit. In this paper, we assume that State or local CDBG staff without substantial research background will use survey research techniques to take this determination, and we identify the basic techniques for conducting a sample survey that will yield acceptable levels of accuracy.

The purpose of a sample survey is to ask questions of a portion of the population in order to make estimates about the entire population. If we ask proper questions of a randomly drawn sample of adequate size, we can be reasonable sure of the degree of accuracy of our overall estimates. In the survey that is discussed here, we are seeking to determine one thing – whether at least 51 percent of the persons living in a target area have low- and moderate-incomes.

The remainder of this paper is divided in to six major sections, each of which discusses a different major step in administering the survey. In order to obtain accurate results, it is necessary to complete each step properly. You must ask the right questions of the right people and interpret their answers correctly.

While this paper is to assist people without a background in survey research in conducting a successful survey of income, we would recommend trying to locate a source of experienced guidance before proceeding. For example, if there is a local college, a professor might be persuaded to conduct the survey as part of a course. At a minimum, perhaps such an individual or someone with a social science background in a county or areawide planning office will be willing to comment and make recommendations on key parts of procedures.

STEP 1: SELECTING THE TYPE OF SURVEY

Any type of survey that fulfills the criteria discussed below can be used to determine whether an area qualifies as low- and moderate-income. The most commonly used surveys for these applications are: (a) telephone surveys; (b) door-to-door surveys; and (c) mail surveys.

Telephone surveys are relatively easy to conduct. An interviewer just needs to call up, identify the head of the household, or someone competent and knowledgeable enough to answer for the head of household, and proceed with the interview. However, the steps that must be taken before you reach the point of telephoning may prove

difficult. In a telephone survey, you must acquire the telephone numbers of all the households in your target area and devise a method of contacting households without telephones or those with unlisted numbers. It may be preferable to sample door-to-door in small target areas, such as a neighborhood or small town, where it may be difficult to find a list of telephone numbers that identifies everyone in the area while excluding everyone outside the area.

Door-to-door surveys involve a little more work – the interviewers must actually go outside, knock on doors, and do the "leg work" necessary to obtain interviews. However, in small areas this type of survey may be the easiest because you can define the target area by its geographic boundaries and develop procedures for sampling within those boundaries so that no list of households in the area is needed beforehand.

Mail surveys may be the easiest of all. You need a list of all the addresses in the target area, a questionnaire, and postage. However, mail surveys usually yield a very low rate of response, which means a low degree of accuracy. Also, provisions must be made to provide non-English-speaking residents with a questionnaire in their own language. Thus, for estimating low- and moderate-income benefit, we do not recommend this type of procedure, unless you include in your mailing a stamped self-addressed return envelope and count on doing at least one follow-up letter or telephone call to encourage everyone to respond.

Of course, it is possible, and sometimes quite useful to combine these types of survey. For example, if in a door-to-door survey you find that someone is not home, you can leave a note for him or her to telephone the interviewer. Or you can use the telephone to schedule a time when an interviewer will call at the door to conduct an interview. Similarly, you can mail a letter to residents of the target area to let them know in advance when an interviewer will call or visit.

STEP 2: DEVELOPING A QUESTIONNAIRE

It is important that all of the individuals interviewed are asked exactly the same questions and that their responses are recorded correctly. To ensure this, you need a written questionnaire, and you need to have your interviewers write down on each questionnaire the exact responses of each respondent. Each question should be clear, written in simple language, and convey only one meaning. It is usually best to test a draft questionnaire on a few people to ensure that they understand the questions as you thing you are writing them.

The central question of this survey is whether the household being interviewed has an income that is below the low- and moderate-income level for households of the same size. We recommend in door-to-door interviewing that the interviewers carry with them a set of cards, one card each for the household sizes to be considered. On each card should be written the figure for the low- and moderate-income level for a household of that size. For example:

TABLE A
Illustration of Income Cards

Card Number	Persons in Household	Low/Mod Income Level
1	1	$19,800
2	2	$22,650
3	3	$25,450
4	4	$28,300
5	5	$30,050
6	6	$31,850
7	7	$33,600
8	8	$35,400

In proceeding, the interviewer first should make contact with someone who is qualified to speak for the household. After making contact with the head of the household, the spouse of the head of household, or someone in the household who is mature and knowledgeable about household income, the interviewer should introduce him/herself, identify the purpose of the study, and solicit the participation of the respondent.

An adequate questionnaire must be able to provide answers to at least the following two questions:

1. How many people live in your home? (Record number.)

2. (If the interview is being conducted in person, the interviewer then finds the card for the household size of the respondent, and hands it to the respondent, and asks) Would you tell me whether, during the past twelve months, the total income of all members of your household has been above or below the figure noted on this card? (Record Above or Below.) (Note that the interviewer should be prepared to provide a consistent answer to the question, "What should I include as income?")

If the interview is being conducted by telephone, a card obviously cannot be used, and the interviewer should make reference to the income level that is the threshold for a household of the size of the respondent's. For example, if there are three persons in the respondent's household you might ask, "during the past 12 months, was the total income of your household less than or more than $25,450?"

While the necessary questions are brief and simple, there are some additional factors to take into account when designing this questionnaire. First, the questions used in the survey cannot be "loaded" or biased. In this particular case, the interviewer may not imply that the neighborhood will benefit or receive Federal funding if respondents say that they have low incomes. The questions must be designed to determine truthfully and accurately whether respondents have low- and moderate-incomes. It is permissible to note the reason for the survey is to gather information

essential to support an application for funding under the State CDBG program or to undertake a CDBG-funded activity in the area.

Second, you should bear in mind that the questions about income are rather personal. Many people are suspicious or reluctant to answer questions about their incomes – especially if they do not see the reason for the question. A good way to handle this problem is usually to put questions about income at the end of a somewhat longer questionnaire; a local agency can use this questionnaire to gather some information on what the neighborhood sees as important needs or to gather feedback on some policy or project. At the end of such a questionnaire, it usually is possible to ask questions on income more discreetly. If this option is chosen, however, the interviewer should be cautioned that an excessively lengthy questionnaire might cause respondents to lose interest before it is over. The ideal length here would probably be less than ten minutes, although certainly you could develop an even longer questionnaire if it were necessary.

Of course, it is possible to ask only critical questions on income. You should know best how people in your community would respond to such questions. With a proper introduction that identifies the need for the information, you can generate an adequate level of response with just a two-question questionnaire on income level.

STEP 3: SELECTING THE SAMPLE

In selecting the sample of households to interview so that you can estimate the proportion of all individuals who have low- and moderate-incomes, there is a series of steps that must be taken. First, you must define the group whose characteristics you are trying to estimate. Then you must determine how many households in that group must be sampled in order to estimate the overall characteristics accurately. Next you must make some allowances for households whom, for whatever reason, you will not be able to interview. And finally you must actually select the households where you will try to obtain interviews. This section discusses each of these steps.

Defining the Universe. In sampling, the large group whose characteristics you seek to estimate from a sample is known as the universe. If you are trying to determine the proportion of households in a neighborhood with low- and moderate-incomes, that neighborhood is the universe. Instead of a neighborhood, the universe may be a town, it may be as large as a county, or it may be defined some other way. (For purposes of the CDBG program, your universe will be the area that is to be served by a CDBG-funded project.) But before you can draw a sample, you must clearly define what area you want the sample to represent. Let us assume here that the universe is a neighborhood that contains about 400 homes. You will sample from the 400 households residing here so that you may make estimates about the incomes of all the residents of these households.

When you have defined your universe, you next need a method of identifying the individual members of that area so that you can sample them. Ideally, for a given

neighborhood, you would have a list of people living in the neighborhood and perhaps their telephone numbers. Then you would devise a procedure to select randomly the persons you wanted to interview. In reality, you will not have such a list available and you probably will not even have a list of all the households in the neighborhood, so you will have to improvise a little. One way would be to go to the neighborhood and randomly select which homes to go for an interview – the advantage of this method is that the houses are there, so you can go right to them instead of using a list. After collecting information on the various households, you then can make some estimates about the people in the neighborhood and their incomes.

For larger area where travel costs are higher, it may not be practical to go door-to-door and a list of some sort may be absolutely necessary City indexes, if available and up-to-date, usually provide the best source of household information suitable for sampling. Telephone books may be adequate, but keep in mind that you will miss people without telephones or with unlisted numbers. Also, telephone directories usually will have far more people listed than those who are in your defined universe, so you will need to work to eliminate those outside of your target area. Tax rolls are a source identifying addresses in an area, but keep in mind that they identify property owners, whereas your are interested in residents. Also, tax rolls generally identify building addresses, whereas in the case of apartment buildings you are interested in the individual apartments. You can use tax rolls to identify addresses to go to in order to get an interview, but you cannot use them as a basis of a mail or telephone survey (unless you have access to a telephone directory that identifies telephone numbers by property address.)

How big a sample? After you have defined your universe and identified a method of identifying individual households in the universe, you must next determine how many households to select. Assuming that you develop procedures whereby every household in your target area has an equal chance of being included in your sample, you can use Table B below to determine how many households you need to interview to develop a survey acceptable accuracy.

The first column of Table B presents size of neighborhoods you may be interested in. The second column shows about how many households you need to interview from a neighborhood of the size indicated in the first column. This paper uses the hypothetical 400 household neighborhood to illustrate the use of this table. Looking down the column that says "Number of households in the Universe," you find 400 is covered by the "399-650" line. Reading across this line, you see that the sample size required to generate an acceptable level of accuracy is about 250. (See the attached Appendix B for a discussion of how these sample sizes were determined.)

TABLE B
REQUIRED SAMPLE SIZED FOR UNIVERSES
OF VARIOUS SIZES

Number of
Households in the

Universe	Sample Size
1 – 55	50
56 – 63	55
64 – 70	60
71 – 77	65
78 – 87	70
88 – 99	80
100 – 115	90
116 – 138	100
139 – 153	110
154 – 180	125
181 – 238	150
239 – 308	175
309 – 398	200
399 – 650	250
651 – 1,200	300
1,201 - 2,700	350
2,701 or more	400

Unreachables and Other Non-Response. It is important to realize that the sample sizes suggested in Table B indicate the number of interviews that you need to complete, and not necessarily the size of the sample you need to draw. There is almost always a difference. No matter what you do, some households just will not be home during the time you are interviewing, some probably will refuse to be interviewed, some will terminate the interview before you finish, and some will complete the interview, but fail to provide an answer to the key question on income level. In order to be considered an adequate response, the interview must be conducted, and you must obtain complete and accurate information on the respondent's income level. Table C suggests some of the usual rates of response to be expected by a variety of surveys.

TABLE C
Expected Response Rates for
Different Types of Surveys

| | Expected |
Survey Type	Rate of Response
Mail	25-50%
Mail, with letter follow-up	50-60%
Mail, with telephone follow-up	50-80%
Telephone	75-90%
Door-to-door	75-90%

According to Table C, if you were doing a door-to-door sample to obtain 250 interviews in the 400 household neighborhood, you should anticipate that you would need to actually try to interview between 278 and 333 households (250 divided by .75 or .9). Thus, if you were drawing a list from whom to seek interviews, one way to deal with non-response is to oversample – list about 300 households and assume you will interview 250. In door-to-door surveys, it usually is possible to replace unreachables, by trying to obtain an interview next door to the household actually sampled.

Drawing Samples. In sampling you are looking at a portion of everyone in a group and making inferences about the whole group from the portion you are looking at. For those inferences to be most accurate, everyone who is in the group should have an equal chance of being included in the sample. For example, if you are sampling from a list, using a random numbers table (one is included as Appendix A) will provide you with a highly random sample. In using a random numbers table, you take a list of your universe and draw from it according to the table. If, for example, the first three random numbers were 087, 384, and 102, then you would go through your universe list and take the 87th, 384th, and 102nd households to try to interview. Continue until you have achieved the desired sample size.

As indicated above, when sampling from a list, you should oversample. Then, if you encounter unreachables, you should replace them with households in the oversample list in the order they were selected. For example, if you drew a list of 300 households in an effort to obtain 250 interviews, the first household you write off, as "unreachable" should be replaced by the 251st household sampled.

Achieving a purely random sample can be costly, so sometimes it is acceptable to take some shortcuts. If you do not have a list of all the households in a target area or group you are trying to measure, but you know the geographic boundaries of the target area, you might randomly select a point at which to start and proceed systematically form there. In the hypothetical 400 household neighborhood, for example, in trying for 250 interviews, you would need to interview every 1.6th household (400 divided by 250) to ensure that you would cover the entire neighborhood. In whole numbers, this works out to about 2 of every 3 households. Therefore, you could start at one end of the neighborhood and proceed systematically through the entire neighborhood trying two

doors and skipping one. Any households that were selected by this procedure at which an interview was not possible could be replace by the next household you would have skipped. If the sample size called for you to sample one of every six households, you could draw a random number from one to six and start at that household and every sixth household after it, and replace unreachables with every third household in the six household groups.

You will achieve more accurate estimates if you are not too quick to write off a household as unreachable. You are most certain of randomness if you obtain interviews from the households you selected first. Thus, if you are doing a door-to-door survey, you probably should make two or more passes through the area (possible at different times) to try to catch a family at home. Frequently they will be busy, but will say that they can do the interview later – you should make an appointment and return. Only after at least two tries or an outright refusal should a sampled household be replaced. With a telephone survey, at least three or four calls should be made before replacing a household.

STEP 4: CONDUCTING THE SURVEY

To carry out the survey, you have to reproduce sufficient questionnaires, recruit and train interviewers, schedule the interviewing, and develop procedures for editing, tabulating, and analyzing the results.

Publicity. To promote citizen participation in your effort it may prove worthwhile to arrange some advance notice. A notice in a local newspaper or announcements at churches or civic organizations can let people living in your target area know that you will be conducting a survey to determine area income levels. If you let people know in advance how, when, and why you will conduct them, usually they are most willing to cooperate.

As with all aspects of the survey and questionnaire, any publicity must be worded so that it does not bias the results. For example, it is fine to say that the community is applying for a State CDBG grant and that, as part of the application, the community has to provide HUD and the State with current estimates of the incomes of the residents of the target neighborhood. It is not appropriate to say that, in order for the community to receive the desired funding, a survey must be conducted to show that most of the residents of the target area have low- and moderate-incomes.

Interviewers. Anyone who is willing to follow the established procedures can serve as an interviewer. It usually is not necessary to go to great expense to hire professional interviewers. Volunteers from local community groups will serve well. Also, schools, or colleges in doing courses on civics, public policy or survey research frequently may be persuaded may be persuaded to assist in the effort as a means of providing students with practical experience and credit.

Generally, it is best if interviewers are chosen to make the respondents feel most at home. For this reason, survey research companies often employ mature women as their interviewers. When interviewers are of the same race and social class as the responded, the survey usually generates a better response rate and more accurate results. What is most important, though, is that the interviewer will command the attention of the respondent, ask the questions as they are written, follow respondent selection procedures, and write down the responses as given.

Contact and Follow-up. Interviewers should attempt to contact respondents at a time when they are most likely to get a high rate of response from most types of people. Telephone interviews usually are conducted early in the evening, when most people or home. Door-to-door interviews also may be conducted early in the evening (especially before dark) or on weekends. You should try again at a different time to reach anyone in the initial sample who is missed by this initial effort.

In general, you should know best the residents of your community and when they can be reached. What you should avoid is selecting a time or method that will yield biased results. For example, interviewing only during the day from Monday to Friday probably will miss families where both the husband and wife work. Since these families may have higher incomes than families with only one employed member, your timing may lead to the biased result of finding an excessively high proportion of low- and moderate-income households.

Of course, in making contact with a member of the household, the interviewer first has to determine that the person being interviewed is knowledgeable and competent to answer the questions being asked. The interviewer thus should ask to speak to the head of the household or the spouse of the head of the household. If it is absolutely necessary to obtain an interview at the residence sampled, the interviewer may conduct an interview with other resident adults or children of at least high school age only after determining that they are mature and competent to provide accurate information.

As pare of your questionnaire, or at least as part of your training of interviewers, you should develop an introduction to the actual interview. This should be a standard introduction in which the interviewers introduce themselves, identify the purpose of the survey, and request the participation of the respondent. Usually it is also a good idea to not the expected duration of the interview – in this case to let respondents know that the burden to them will be minimal.

You also should emphasize to respondents that their answers will be kept confidential – people are more likely to give you honest answers if they will remain anonymous. You should do your very best to maintain this confidentiality. Usually, the respondent's name, address, and telephone number appear only on a cover sheet. After you complete the survey, you can throw away the cover sheet or at least separate it from the actual interview. If you number both the cover sheets and the questionnaires, you can then match them up if absolutely necessary. What is important

is that people will not just be able to pick up a questionnaire and see what the Jones family income is.

Interviewers also should follow the set procedures for replacing "unreachables" (as discussed above in Step 3). If they must write off an interview, they should not say, "Well, I was refused an interview here, so I'll go over there when I think I can get an interview." This replacement procedure is not random and will hurt the accuracy of your survey results.

The Interview. Interviewers should read the questions exactly as they are written. If the respondent does not understand the question or gives an unresponsive answer, it usually is best to have the interviewer just repeat the question. Questions should be read in the order in which they are written. The respondent's answers should be recorded neatly and accurately immediately as they are provided. At the end of the interview, and before proceeding to the next interview, the interview should always do a quick edit of the questionnaire to be sure that they have completed every answer correctly. This simple check helps to avoid the frustrating mistake of having gone to the time and expense of conducting the interview, but without getting the information you sought.

For the survey here being discussed on low- and moderate-income benefit, note that there may be an important exception to reading the questions in the exact order every time. If you elect to include other questions, and if you place the questions on income at the end, it is possible that a willing respondent will end the interview before you get to the critical question. If it appears to the interviewer that the respondent is about to terminate the interview, it is recommended that he or she immediately try to get an answer to the critical income question.

Editing. Interviewers should turn their completed surveys in to the person who will tabulate and analyze them. That person should review each survey to ensure that it is complete and that each question is answered once and only once in a way that is clear and unambiguous. Question or errors that are found should be referred to the interviewer for clarification. It also may be desirable to call back the respondent, if necessary, to clarify incomplete or ambiguous responses. Note that editing is an ongoing process. Even after you have started to tabulate or analyze the data, you may come across errors, which you need to correct.

STEP 5: DETERMINING THE RESULTS

After you have your data collected and edited, you just need to add up the numbers to see what you have learned. Actually, it is useful to think of this in two parts: (1) tabulating up the responses from the questionnaires and calculating an estimated proportion of low- and moderate-income persons; and (2) determining how accurate that estimate is. The first of these parts can be taken care of by completing the LOW- AND MODERATE-INCOME WORKSHEET, which appears below.

Tabulation. For ease of processing, it may be desirable to enter the responses on to a computer, if one is available. Personal computer packages such as dBase, Lotus 1-2-3, and SPSS-PC all are easy to use in tabulating this type of data. Computers also make it relatively easy to check for accuracy and consistency in the data. However, you can perform the calculations by hand or with a calculator. And you can process the data by putting it on a codesheet, by entering it on a manual spreadsheet, or just by flipping through the completed surveys. Regardless of how you process and tabulate the data, when you are finished you must be able to complete Part A of the LOW- AND MODERATE-INCOME WORKSHEET.

LOW- AND MODERATE-INCOME WORKSHEET

PART A.   INFORMATION CONTAINED IN YOUR SURVEY

1.   Enter the estimated total number of households in the target area.   1. ___650___

2.   Enter the total number of households interviewed.   2. ___250___

3.   Enter the total number of low- and moderate-income households interviewed.   3. ___130___

4.   Enter the total number of persons living in the low- and moderate- income   4. ___450___
households interviewed.

5.   Enter the total number of households interviewed in which the income was   5. ___120___
above the low- and moderate-income level.

6.   Enter the total number of persons living in the households in which   the   6. ___400___
income was above the low- and moderate-income level.

PART B.   CALCULATIONS BASED ON DATA CONTAINED IN YOUR SURVEY

7.   Divide Line 4 by Line 3. (This is the average size of the low-mod household   7. ___3.46___
you interviewed.)

8.   Divide Line 6 by Line 5. (This is the average size of non low-mod   household   8. ___3.33___
you interviewed.)

9.   Divide Line 3 by Line 2. (This is the proportion of households interviewed   9. ___52%___
that have low- and moderate-incomes.)

10.   Divide Line 5 by Line 2. (This is the proportion of households interviewed   10. ___48%___
that do not have low- and moderate-incomes)

11.   Multiply Line 1 by Line 9. (This is the estimate of the total number of   11. ___333___
low-mod households in your target area)

12.   Multiply Line 1 by Line 10. (This is the estimate of the total number of number 12. ___312___
non-low-mod households in your target area)

13.   Multiply Line 7 by Line 11. (This is the estimate of the total of low-mod   13. ___1,169___
persons in your target area)

14.   Multiply Line 8 by Line 12. (This is the estimate of the total number of   14. ___1,039___
non-low-mod persons in your target area)

15.   Add Line 13 and Line 14. (This is the estimate of the total   number of   15. ___2,208___
persons in your target area)

16.   Divide Line 13 by Line 15 and multiply the resulting decimal by 100   16. ___52.94%___
(This is the estimated percentage of persons in your target area that
has low- and moderate-incomes)

PART C.   Instructions and Explanations

1. The number that goes on Line 1 is something you needed to know before drawing your sample. In the course of your survey, you may have refined your original estimate. On Line 1, you should enter your current best estimate of the total number of households in the area.

2. For the number of households interviewed, you actually want the total number of interviews with complete and, as far as you can tell accurate information on the income and size of household questions.

3. When you are completing Part A be sure that the answers are logical. For example, the number of Line 4 cannot be smaller than the number on Line 3 (because every household must have at least one person). Similarly, the number on Line 6 cannot be less than the number on Line 5. Also note that the number on Line 3 plus the number on Line 5 should equal the number on Line 2 – every household is either low- and moderate-income or it is not.

4. Some examples for Part B. For purposes of illustration, assume that you estimated that the target area contained 650 households (Line 1). Assume that you interviewed 250 households (Line 2), of whom 130 had low- and moderate-incomes (Line 3). These low-and moderate-income households contained 450 persons (Line 4). The 120 households with incomes above the low- and moderate-income level (Line 5) contained 400 persons (Line 6). You would complete Part B as follows:

Line 7.   If the households you interviewed contained 450 low-mod persons in 130 households, the number on Line 7 would be about 3.46 (450/130).

Line 8.   If the households you interviewed contained 400 non-low-mod persons in 120 households, the number on Line 8 would be about 3.33 (400/120).

Line 9.   If you interviewed a total of 250 households, 130 of which had low- and moderate-incomes, the number on Line 9 would be about .52 (130/250).

Line 10.   If 120 of the 250 households you interviewed did not have low- and moderate-incomes, the number on Line 10 would be about .48 (120/250).

Line 11.   If your target area contained an estimated 650 households, and you interviewed 250, of which 130 had low- and moderate-incomes, the number on Line 11 would be about 333 (650 X .52).

Line 12.   Continuing with the example, Line 12 would be about 312 (650 X .48).

Line 13.   3.46 persons per low-mod household times 338 low-mod households – Line 13 would be about 1,169.

Line 14.   3.33 persons per non-low-mod households time 312 non-low-mod households – Line 14 would be about 1,039

Line 15.   Total low-mod persons (1,169) plus total non-low-mod persons (1,039) would be about 2,208 estimated total persons.

Line 16.   1,169 low-mod persons divided by 2,208 total persons yields about .5294. Multiplied by 100, this gives an estimate that about 52.94 percent of the residents have low- and moderate-incomes.

<u>Analysis.</u> The estimate you reach for the proportion of residents who have low- and moderate-incomes will be just that – an estimate. If you have done everything right, including random selection of the required number of households, the estimate should be reasonable accurate. If, using the procedures specified here you come up with an estimate of 55 percent or more of the residents of the target area having low- and moderate-incomes, you can be pretty sure that at least 51 percent of the residents actually have low- and moderate-incomes. You can skip over this section, and go down to STEP 6. On the other hand, if your estimate is that less than 51 percent of the people in the area have low- and moderate-incomes, the presumption is that the area is ineligible as a target area. This section, and if fact, the remainder of this paper, probably will not be of much use to you either.

This section is intended for use by those whose survey results indicate that somewhere between 51 and 54 percent of the residents of the target area have low- and moderate-incomes. If your estimates were in the 51-54 percent range, it is probable that a majority of all neighborhood residents have low- and moderate-incomes, but there is less certainty than if you came up with a higher proportion. The closer you estimate is to 51 percent, the less certain you become that the area is low- and moderate-income.

There are a couple of additional analyses you can make to help determine the extent to which your estimate of the proportion of low- and moderate-income residents is correct. First, compare the average size of low- and moderate-income households in your sample with the average size of above low- and moderate-income households. The closer these figures are to each other, the more confident you can be in your estimate. Thus, if you estimate that 53 percent of the residents have low- and moderate-incomes and you found in your sample that both low- and moderate-income families and above low- and moderate-income families had an average of 3.4 people, you can be pretty sure that it is a low- and moderate-income area.

A second simple calculation is to arrange your data into a table such as that outline below as Table D. This table enables you to compare the distribution of family sizes with low- and moderate-incomes with those that are above low- and moderate-income.

In completing Table D, you would count the number of low- and moderate-income families in your survey that had just one person in the household. You would enter this figure under "number" across from "one." You would proceed to enter the number of low- and moderate-income families with two persons, with three persons, and so forth through the "nine or more" category. Adding up all the entries in this column, you enter the sum across from "total," which will be the total number of low- and moderate-income families from which you obtained interviews. Then, considering families that are above low- and moderate-income, you follow the same procedures to complete the "number" column for them. For each income group, dividing the number of one person families by the total number of families in that income group and multiply it by 100, yields the percent of that group that are in one-person households. You should fill in the "percent" columns, using this procedure. Each of the percent columns should total to 100 or so allowing for rounding errors.

TABLE D
TABLE FOR COMPARING THE DISTRIBUTION OF
FAMILY SIZE BY FAMILY INCOME

Number or Persons In the Family	Families With Low- and Moderate-Incomes		Families Above Low- and Moderate-Incomes	
	Number	Percent	Number	Percent
One				
Two				
Three				
Four				
Five				
Six				
Seven				
Eight				
Nine or more	_____	_____	_____	_____
Totals		100%		100%

When you have filled Table D with your data, compare the percentages of the low- and moderate-income respondents with the percentages of the above low- and moderate-income respondents for each family size. The closer the distribution, the greater the degree of confidence you can have in your estimate of the proportion of persons with low- and moderate-incomes. For example, if among your low- and moderate-income group, 10 percent have one person, 40 percent have two persons, and 50 percent have three persons, and among your above low- and moderate-income group 12 percent have one person, 41 percent have two persons, and 47 percent have three persons, you would have a great deal of confidence in your estimate.

Consider a best-case scenario where you estimate that 51 percent of the residents have low- and moderate-incomes. You examine the distribution of household sizes according to Table D and find that in your sample 100 percent of your low- and moderate-income group had just one person and 100 percent of your above low- and moderate-income group had nine or more persons (Yes, this would be a strange neighborhood). This distribution would make it probable that your sample was badly distributed in favor of large above-lower income families and that without the sample error the actual distribution in the target area is that more then 51 percent of the residents have low- and moderate-incomes.

Third, after completing data collection, non-respondents should be briefly analyzed to determine that they were reasonable random. For example, you may want to tabulate the rate of response by street or block in the target area to see whether there are notable gaps in the coverage of your survey. You may want to examine the racial or ethnic background of your respondents and compare them with what you supposed the distribution to be. If you do not detect any major gaps in the coverage of your sample or any probable patterns in the characteristics of your non-respondents, you can be more certain of the accuracy of your estimates.

STEP 6:   DOCUMENTING YOUR EFFORT

The results of your survey will indicate to you with a high degree of accuracy whether your target area is predominantly low- and moderate-income. People who may be auditing or evaluating the program may want to review the procedures and data you used to determine that your target area qualifies under the CDBG program regulations. You should therefore maintain careful documentation of the survey. The contents of that documentation are discussed here.

1.   Keep the competed surveys. This will show that you actually did the survey and that you asked the proper questions.

It is best if each survey has a cover sheet that contains the information that identifies the respondent, such as name, address, and telephone number. Then, when the survey is complete, the cover sheet can be separated from the questionnaires. You can save the questionnaires as documentation of your work, but you maintain the privacy of your respondents.

If you save the cover sheets and save them separately, this provides you with a record of who was contacted. If anyone wanted subsequently to verify that you had not made up that data, they could contact some of the respondents noted on the cover sheet and ask them whether, in fact, they had been contacted on such-and-such a date by such-and-such a person to discuss matters related to community development. The privacy of their original responses still is protected by this procedure.

2.   Keep a list of the universe of households you sampled from and a list of the actual households sampled. This might be one list with the sampled households being checked once they were sampled, and checked twice if they were interviewed. Replacement households should be noted too. There should be some written documentation about the method you used to select households from the list for interviewing. Note that this is a little different from keeping just the cover sheets, since it documents not just who was interviewed, but also who was not interviewed and how interviewees were selected.
If you did a door-to-door sample without starting from a universe list, you should have written down the procedures you used to select the sample, including the instructions to interviewers for replacing sampled households who were interviewed.

3.   To the extent possible, you should retain your data. If you put the data onto a computer, keep a floppy disk with the data and programs you used to tabulate the results. If you do your tabulations from spreadsheets, retain the spreadsheets. If you just leaf through the questionnaires and count up the responses and enter then into a table as your go, keep the tables with the raw data counts.

OVERVIEW OF STEPS IN A SAMPLE SURVEY

Step 1:   Selecting the Type of Survey

a.   Decide whether it is best to conduct a telephone, door-to-door, or other types of survey. Be sure to consider your available manpower, the size of the sample you need, and the means you have available for identifying households to interview.

Step 2:   Developing a Questionnaire

a.   Write your questionnaire. Remember to keep the language as simple as possible. Avoid bias – do not encourage particular answers. Include other questions, if you like, but make sure the survey does not take too long.

b.   Develop a standard introduction for your interviewers to use in approaching the respondents.

Step 3:   Selecting the Sample

a.   Define your universe. What is the area or population for which you are trying to estimate the portion of persons who have low- and moderate-incomes.

b.   Identify a procedure for identifying individual households in the target area. Obtain a <u>complete</u> list of residents, addresses, telephone numbers, or identify a procedure for selection from all of the homes in the area.

c.   Determine the number of interviews you need to achieve an acceptable level of accuracy.

d.   Select your sample (or sample selection procedure). Make sure you can add households to replace refusals. Make sure that the entire universe is covered – that is, that you have not excluded certain areas or groups of people.

Step 4:   Conducting the Survey

a.   Select and train your interviewers. Make sure they are very comfortable with the questionnaire. Make sure they know the importance of randomness and how to select and replace individual households.

b.   Make contact with the sample. Write or phone and let them know you are coming. Or just knock on doors, if this is the procedure you select.

c.   Try again (and again) where contact has not resulted in an interview.

d.   Replace household you have written off as "unreachable."

Step 5:   Determining the Results

a.   Complete the Low- and Moderate-Income Worksheet. What is your estimated percent low- and moderate-income residents? If you results are between 51 and 60 percent, do your data give you any reason to think that this is an over-estimation?

Step 6:   Documenting Your Effort

a.   Save the completed questionnaires – preferably in a form that does not identify the respondents.

b.   Save a list of the respondents – preferably in a form that does not identify their responses.

c.   Save a list of your sampling procedures – this includes your universe list, your original sample, you replacements, your sampling method, and your replacement method.

d.   Save your data.

1. **Survey Methodology and Certification Form** with Required Signatures

2. **Low - and Moderate-Income Worksheet**

3. **Beneficiary Profile** (for Public Facilities and Public Infrastructure)

Communities implementing Public Facilities and Public Infrastructure programs must record demographic information for all households contained in a target area or entire community depending upon the area served by the CDBG activity. This information must be recorded on the **Beneficiary Profile** and be submitted with the survey materials required at the CDBG application submission. The demographic information is garnered from local survey forms or, for HUD listed 51% LMI communities, from U.S. Census Data. You may access this data for your community online at **http://www.census.gov/prod/cen2000/dp1/2kh23.pdf**

REQUIRED SURVEY SUBMISSIONS CHECKLIST

To be considered for approval each survey must contain <u>all</u> of the following completed components packaged in the exact order indicated below on the checklist.

☐ **CDBG Survey Methodology – Page 20**

☐ **Certification Form – Page 21;**

☐ **Low and Moderate Income Worksheet – Page 22**

☐ **Beneficiary Profile – Page 24;**

☐ **Comparison of Distribution of Family Size & Family Income - Page 16;**

☐ **A map detailing all residential units in the survey area <u>and</u> indicating those selected for interview;**

☐ **A copy of the random sample generated from the electronic program or random numbers table;**

☐ **A complete list of all service area households;**

☐ **Copies of all survey forms returned, both complete and incomplete;**

Incomplete or improperly packaged surveys will not be considered for approval.

STATE OF MAINE
COMMUNITY DEVELOPMENT BLOCK GRANT

Survey Methodology and Certification Form
(Attach a map for all target area surveys)

Community: _____   Date: _____

Type of Survey: ☐ Single Community   ☐ Multi-Community   ☐ Target Area

Description of Survey Area: _____

For Single Community or Multi-Community surveys list the original percentage of low-to–moderate-income persons according to the American Community Survey data provided by HUD in the file ACS_2006_lowmod_localgov_me_2014.xlsx (This can be found on the OCD Website) _____%

Survey Method: ☐ Door to Door   ☐ Telephone   ☐ Mail   ☐ Other

If other, explain: _____

Universe Size: _____ (Households)   Sample Size: _____ (Households)

Date Survey Conducted: From _____ to _____
                              MONTH/DATE/YEAR   MONTH/DATE/YEAR

Survey conducted by: _____

Relationship to Community: _____

Survey Narrative
(Describe how the survey was conducted, including details on methodology for selection of random sample, publicity, data collection, system for dealing with non-respondents and tabulation of results and certification process.

_____
_____
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Attach Additional Sheets as Necessary

<u>Certifications</u>

We, the undersigned certify that the information contained in this survey is true and complete to the best of our knowledge and belief, and that the State of Maine, Department of Economic and Community Development, the United States Department of Housing and Community Development or their designees are hereby authorized to verify the information contained herein, as necessary or appropriate.

<u>Signature of Independent Verifier</u>

Must be a CDBG Certified Administrator from a Regional Planning Commission or Statistician for the Maine State Planning Office

Date: _____

_____   _____
                 Authorized Signature   Printed Name and Title

<u>Adoption by Local Board or Council</u>

DATE ADOPTED: _____   Municipal Seal

AUTHORIZED SIGNATURES

Name	**Date**
Name	**Date**
Name	**Date**
Name	**Date**
Name	**Date**

LOW- AND MODERATE-INCOME WORKSHEET

PART A.   INFORMATION CONTAINED IN YOUR SURVEY

1.   Enter the estimated total number of households in the target area.   1. _____

2.   Enter the total number of households interviewed.   2. _____

3.   Enter the total number of low- and moderate-income households interviewed.   3. _____

4.   Enter the total number of persons living in the low- and moderate-income households interviewed.   4. _____

5.   Enter the total number of households interviewed in which the income was above the low- and moderate-income level.   5. _____

6.   Enter the total number of persons living in the households in which the income was above the low- and moderate-income level.   6. _____

PART B.   CALCULATIONS BASED ON DATA CONTAINED IN YOUR SURVEY

7.   Divide Line 4 by Line 3. (This is the average size of the low-mod household you interviewed.)   7. _____

8.   Divide Line 6 by Line 5. (This is the average size of non low-mod household you interviewed.)   8. _____

9.   Divide Line 3 by Line 2. (This is the proportion of households interviewed that have low- and moderate-incomes.)   9. _____

10.   Divide Line 5 by Line 2. (This is the proportion of households interviewed that do not have low- and moderate-incomes)   10. _____

11.   Multiply Line 1 by Line 9. (This is the estimate of the total number of low-mod households in your target area)   11. _____

12.   Multiply Line 1 by Line 10. (This is the estimate of the total number of non-low-mod households in your target area)   12. _____

13.   Multiply Line 7 by Line 11. (This is the estimate of the total number of low-mod persons in your target area)   13. _____

14.   Multiply Line 8 by Line 12. (This is the estimate of the total number of non-low-mod persons in your target area)   14. _____

15.   Add Line 13 and Line 14. (This is the estimate of the total number of persons in your target area)   15. _____

16.   Divide Line 13 by Line 15 and multiply the resulting decimal by 100. (This is the estimated percentage of persons in your target area that has low- and moderate-incomes)   16. _____

PART C.   Instructions and Explanations

1.   The number that goes on Line 1 is something you needed to know before drawing your sample. In the course of your survey, you may have refined your original estimate. On Line 1, you should enter your current best estimate of the total number of households in the area.

2.   For the number of households interviewed, you actually want the total number of interviews with complete and, as far as you can tell accurate information on the income and size of household questions.

3.   When you are completing Part A be sure that the answers are logical. For example, the number of Line 4 cannot be smaller than the number on Line 3 (because every household must have at least one person). Similarly, the number on Line 6 cannot be less than the number on Line 5. Also note that the number on Line 3 plus the number on Line 5 should equal the number on Line 2 – every household is either low- and moderate-income or it is not.

4.   Some examples for Part B. For purposes of illustration, assume that you estimated that the target area contained 650 households (Line 1). Assume that you interviewed 250 households (Line 2), of whom 130 had low- and moderate-incomes (Line 3). These low-and moderate-income households contained 450 persons (Line 4). The 120 households with incomes above the low- and moderate-income level (Line 5) contained 400 persons (Line 6). You would complete Part B as follows:

Line 7.   If the households you interviewed contained 450 low-mod persons in 130 households, the number on Line 7 would be about 3.46 (450/130).

Line 8.   If the households you interviewed contained 400 non-low-mod persons in 120 households, the number on Line 8 would be about 3.33 (400/120).

Line 9.   If you interviewed a total of 250 households, 130 of which had low- and moderate-incomes, the number on Line 9 would be about .52 (130/250).

Line 10.   If 120 of the 250 households you interviewed did not have low- and moderate-incomes, the number on Line 10 would be about .48 (120/250).

Line 11.   If your target area contained an estimated 650 households, and you interviewed 250, of which 130 had low- and moderate-incomes, the number on Line 11 would be about 333 (650 X .52).

Line 12.   Continuing with the example, Line 12 would be about 312 (650 X .48).

Line 13.   3.46 persons per low-mod household times 338 low-mod households – Line 13 would be about 1,169.

Line 14.   3.33 persons per non-low-mod households time 312 non-low-mod households – Line 14 would be about 1,039

Line 15.   Total low-mod persons (1,169) plus total non-low-mod persons (1,039) – Line 15 would be about 2,208 estimated total persons.

Line 16.   1,169 low-mod persons divided by 2,208 total persons yields about .5294. Multiplied by 100, this gives an estimate that about 52.94 percent of the residents have low- and moderate-incomes.

<u>BENEFICIARY PROFILE</u> – (PI and PF Programs)
STATE OF MAINE COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

1. Community: _____

2. Name of Target Area: _____ (If community-wide, state "same as above")

3. Description of Target Area: _____

_____

_____

4. POPULATION

    a. Total Population _____

    b. Total Low/Moderate Income Persons_____

    c. Total Non-Low/Moderate Income Persons_____

    d. Total % Low/Moderate Income Persons_____

5. RACE (INDICATE TOTALS)

    a. White_____   b. Black/African American_____

    c. Asian_____   d. Native Hawaiian/Other Pacific Islander_____

    e. American Indian/Alaskan Native____   f. Asian & White_____

    g. Am Indian/Alaskan Native & White____   h. Black/African American & White_____

    i. American Indian/Alaskan Native & Black/African American_____

6. HOUSEHOLD INFORMATION

    a. Total Number of Elderly_____

    b. Total Number of Severely Disabled_____

    c. Total Female Heads of Households_____

Date Submitted: _____

Authorized Signature: _____   **Title:** _____

Instructions for completing the Beneficiary Profile

Line 1   State name of community.

Line 2   Give name of target area; state "same as above if community-wide.

Line 3   Give a brief description of target area.

Line 4a   In regard to a target area; use the survey results to determine the total population in the service area. In regard to the entire Town or City being the target area, use the latest census information.

Line 3b   In regard to a target area; use the survey results to determine the total number of Low/Moderate Income persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 3c   In regard to a target area; use the survey results to determine the total number of Non-Low/Moderate Income persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 3d   In regard to a target area; use the survey results to determine the total percent of Low/Moderate Income persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5a   In regard to a target area; use the survey results to determine the total number of White, not Hispanic persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5b   In regard to a target area; use the survey results to determine the total number of Black/African American persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5c   In regard to a target area; use the survey results to determine the total number of Asian persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5d   In regard to a target area; use the survey results to determine the total number of Native Hawaiian/Other Pacific Islander persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5e   In regard to a target area; use the survey results to determine the total number of American Indian/Alaskan Native in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5f   In regard to a target area; use the survey results to determine the total number of Asian & White persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5g   In regard to a target area; use the survey results to determine the total number of American Indian/Alaskan Native & White persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5h   In regard to a target area; use the survey results to determine the total number of Black/African American & White persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 5i   In regard to a target area; use the survey results to determine the total number of American Indian/Alaskan Native & Black/African American persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 6a   In regard to a target area; use the survey results to determine the total number of Elderly persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 6b   In regard to a target area; use the survey results to determine the total number of severely disabled persons in the service area. In regard to the entire Town/City being the target area, use the latest census information.

Line 6c   In regard to a target area; use the survey results to determine the total number of Female Heads of Households in the service area. In regard to the entire Town/City being the target area, use the latest census information.

APPENDIX B
DISCUSSION OF SAMPLE SIZES

Samples of the sizes suggested in Table B on Page 6 of this paper are intended to provide an estimate of the proportion of households that say they have low- and moderate-incomes that will be with +/- 5 percent of the proportion that all households in the area would indicate if all were interviewed. Thus, if you interviewed 200 randomly selected households from a 250 household neighborhood and 70 percent indicated that they have low- and moderate-incomes, you could reasonably infer that if you interviewed all 350 households that between 65 and 75 percent of the households would say that they had low- and moderate-incomes.

In the survey being discussed in this paper the confidence interval probably will be a little less than +/- 5 percent. The method here is to estimate the proportion of <u>people</u> who are income-eligible, not the proportion of <u>households</u>. Following the procedures outlined here will result in sampling a fraction of people that is approximately equal to the fraction of households that would be sampled by following Table B (number of people sampled/total number of people = number of households sampled/total number of households). Other things being equal, if you increase the size of your universe and maintain the same sampling fraction, your confidence interval decreases.

Of course, in this application, other things may not be equal. By sampling households as a cluster for gathering data on individuals, we are departing from a purely random selection of individuals. Thus, the actual confidence can be calculated only after the data actually are collected and the variance on household size and income are analyzed. The actual confidence interval should be a little less than +/- 5 percent. But we also included an "analysis" section in the paper to help in determining the extent to which it may be less than +/- 5 percent.

APPENDIX C
A RANDOM NUMBER TABLE

This appendix contains a four-page table of random numbers. It is just that – each number there is random. You can use it going up, down, sideways, diagonally, and you can use any column or combination of columns in drawing your random numbers. The following are some examples of how the enclosed table can be used.

Example 1: Drawing a Sample of 5 of 10. Assume that you have a universe listing 10 households and you want to draw a random sample of 5 households. Look at the next page. Find the number "53" in the upper left-hand corner. Let's start with the "5" and work down the column: the numbers we find are "5," "6," "9," "1," and "3." So from the list of 10 households, the sample of five would include the fifth, sixth, ninth, first, and third household.

Example 2: Drawing a Sample of 5 of 100. Start this time with the "31" in the lower left-hand corner of the table. Let's work across the bottom row from here, and take the numbers "31," "6," "46," "39," and "27." From the list of 100 households, our sample would include the 31st, 6th, 46th, 39th, and 27th households on the list.

Example 3: Drawing a Sample of 5 of 30. Start this time back in the upper left-hand corner and start with the "53" and work across. The numbers in order are "53," "95," "67," "80," "79," "93," "28," "69," and "25." Notice that all of these numbers except for the "28" and "25" are greater than 30. Just skip them until you find a number in your range. Here you would sample the 28th and 25th household on your list and continue until you found three more (which would be the 13th, the 24th, and the 21st).

Example 4:   Drawing a Sample of 5 of 300. Start again with the "53" in the upper left-hand corner. Well, actually let's move over one column and start with the "3 95." Since we need a three digit number to cover the size of our universe list, we can use these three (or any three columns – each number is random). Reading down from the "3 95," we see "3 95," 2 12," "0 16," and "0 59." From the list of 300 households, then, you would take the 212th, the 16th, and the 59th households (as well as how many more you needed – the next two would be the 217th and the 60th).

STATE OF MAINE

STATE OF MAINE
COMMUNITY DEVELOPMENT BLOCK GRANT

Survey Waiver Form

This form must be submitted to OCD prior to conducting an income survey for _**any**_ area with an established LMI percentage of less than _**46%**_.

Community: _____   Date: _____

Proposed Survey Area: _____
_____
_____
Attach a detailed map identifying all residential households in survey area

CDBG Activities Proposed for Survey Area: _____
_____
_____
_____

% Low to Moderate Income of Survey Area as Established by U.S. Census & HUD: _____%

Census Tract(s): _____
_____

Detailed justification for request to conduct an income survey: (Include all local economic and non-economic changes that would reasonably be expected to change the LMI percentage. Such changes may include factory openings or closings, layoffs by a major employer in the service area, or the occurrence of a major disaster (e.g., hurricanes, tornadoes, or earthquakes, etc.)**:**
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Attach additional documentation as necessary.

Signature of Chief Executive Officer	Date
Typed name and Title:	