Child and Adult Care Food Program (CACFP)

Assessment of Sponsor Tiering Determinations

2007

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EXECUTIVE SUMMARY

The purpose of this assessment is to identify improper payments arising from the misclassification of Family Day Care Homes (FDCHs) for Tier I or Tier II program reimbursements. The Improper Payments Information Act of 2002 (Public Law 107-300) requires all Federal agencies to calculate the amount of improper payments in Federal programs and to conduct detailed assessments of vulnerable program components periodically. This assessment of the FDCH component of the U.S. Department of Agriculture's (USDA's) Child and Adult Care Food Program (CACFP) involved producing a national estimate of the share of FDCHs that are classified in the wrong reimbursement tier. Misclassifications translate into improper payments because misclassified FDCHs do not receive the appropriate level of reimbursement for the meals and snacks provided to the children participating in the program. This is year 3 of the assessment, the base year having been conducted in 2005.

A nationally representative sample of sponsor files for 3,284 Tier I and Tier II FDCHs, from 91 distinct sponsors in 14 States, was used to develop national estimates of improper over- and under-payments. This represented approximately 2 percent of all FDCHs and 10.5 percent of all sponsors. Assessment data were obtained through onsite abstraction of randomly sampled FDCHs at the sponsor location. Data were collected on the number of meals reimbursed, by tier type (Tier II FDCHs can be reimbursed at Tier I rates for the meals of individual children who are income eligible), meal type, month—from October 2006 through September 2007—and the tiering decision information from the sponsors' files.

Using a methodology based on Food and Nutrition Service (FNS) guidelines for establishing the tiering status of an FDCH, the analysis involved comparing the tiering status assigned by the sponsor, and a determination of what tiering level the documents on file actually supported. Whenever there was a discrepancy between these two determinations, a procedural misclassification was identified.[1] Overall, slightly more than 21 percent of all FDCHs were found to have a procedural misclassification; for instance, their file documentation did not support the tiering determination. Slightly more than 84 percent of these procedural misclassifications were attributable to errors in the School Boundary Area method for determining Tier I status, including inadequate documentation linking an FDCH to an eligible school, or inadequate documentation of an eligible school.

Independent validation procedures were then used to confirm the Tier I status of FDCHs with procedural errors. The independent validation reviewed only the documentation present in the FDCH sponsor's file and was limited to using only the existing documentation to determine whether the Tier I status could be supported by using either the School Boundary Area method— the primary validation method for an independent attempt—or by using the Census Block Group method—the secondary validation method. The Census Block Group method was attempted only in cases where the School Boundary Area method resulted in either an

[1]A procedural error may or may not lead to improper payments, which are addressed later in this document.

inconclusive or lower tiering status determination.[2] After these procedures were applied, 96.82 percent of all FDCHs were found correctly classified. The rate of misclassification was determined to be 3.18 percent for all FDCHs and 4.09 percent for Tier I FDCHs (see Exhibit A).

Exhibit B shows the estimated costs associated with the verified estimates of misclassifications, including findings from both the primary and secondary validation processes. The total amount of improper payments[3] associated with misclassified FDCHs for this assessment is estimated at $10.9 million, with a 90 percent confidence range between $8.1 and $13.6 million, which represents 1.6 percent of the total FDCH meal reimbursements in 2007.

The total estimated expenditures for meal reimbursements for all FDCHs (covering October 2006 to September 2007) were $699,736,802 (see Exhibit C).

[2]It should be noted that the School Boundary Area method was attempted first in the independent verification procedures for all tiering methods, except for the cases where the original tiering status was determined using the Census Block Group method. In such instances, the original method was first attempted independently, and then the School Boundary Area method was attempted. This ordering is outlined in the algorithms presented in Chapter 3 of this report.

[3]The sum of the overpayments to Tier I homes and the absolute value of the underpayments to Tier II homes.

Exhibit A: Estimated Misclassification Rates in FY 2007, by Tiering Status

Type of FDCH	Pre-Verification Estimate of Misclassification Rate	Lower Limit*	Upper Limit*	Pre-Verification Estimate of FDCHs Incorrectly Classified**	Pre-Verification Estimate of FDCHs Correctly Classified	Estimated Total FDCHs[4]
Tier I	28.5 %	25.9%	31.0%	29,912	75,205	105,118***
Tier II	0.66%	0.45%	0.89%	252	37,822	38,074***
All Tier I or Tier II	**21.1%**	**18.78%**	**23.35%**	**30,164**	**113,028**	**143,192**
Type of FDCH	**Preliminary Verified Estimate of Misclassification Rate**	**Lower Limit***	**Upper Limit***	**Preliminary Verification Estimate of FDCHs Incorrectly Classified**	**Preliminary Verification Estimate of FDCHs Correctly Classified**	**Estimated Total FDCHs**
Tier I	4.63%	3.79%	5.46%	4,819	99,348	104,167***
Tier II	0.66%	0.46%	0.86%	249	37,293	37,541***
All Tier I or Tier II	**3.58%**	**2.93%**	**4.22%**	**5,068**	**136,641**	**141,708**
Type of FDCH	**Final Verified Estimate of Misclassification Rate**	**Lower Limit***	**Upper Limit***	**Secondary Verification Estimate of FDCHs Incorrectly Classified**	**Secondary Verification Estimate of FDCHs Correctly Classified**	**Estimated Total FDCHs**
Tier I	4.09%	3.19%	5.00%	4,263	99,904	104,167***
Tier II	0.66%	0.46%	0.86%	246	37,293	37,541***
All Tier I or Tier II	**3.18%**	**2.50%**	**3.87%**	**4,512**	**137,196**	**141,708**

*90 percent confidence level. **All sampled FDCHs for which Tier I status cannot be documented, either initially or through follow-up, are deemed incorrectly classified. ***Total FDCHs estimated from sample. Source: *2007 CACFP Tiering Assessment*, weighted estimates. Final verified findings include the outcomes of the secondary verification of FDCHs, with procedural errors using primarily the Census Block Group method.

[4]For the 2007 wave, the total number of FDCHs for pre-verification was based on the original weights, using FNS data for the average number of FDCHs for the first 6 months of the fiscal year. This year, for secondary verification, weights were adjusted separately, by tier. This adjustment ensures that the weighted percentages for each tier will correspond to the totals by tier and the numbers that are reported in FNS documents. In addition, weights were adjusted using data for the entire fiscal year compared with data for the first 6 months of data. Therefore, the total number of FDCHs will be slightly different for pre-verification and secondary verification.

Exhibit B: Costs of Verified Misclassifications in FY 2007

Primary Verification*	Estimated Costs**	Lower Bound Estimate***	Upper Bound Estimate***	Estimated Total FDCHs
Misclassified Tier I FDCHs	$12,189,838	$9,782,934	$14,596,742	104,176****
Misclassified Tier II FDCHs	$123,804	$41,918	$205,689	37,541****
All Misclassified FDCHs	**$12,313,642**	**$9,867,052**	**$14,760,231**	**141,708**
Secondary Verification*	**Estimated Costs****	**Lower Bound Estimate*****	**Upper Bound Estimate*****	**Estimated Total FDCHs**
Misclassified Tier I FDCHs	$10,750,282	$8,037,505	$13,463,059	104,176****
Misclassified Tier II FDCHs	$123,804	$41,918	$205,689	37,541****
All Misclassified FDCHs	**$10,874,086**	**$8,115,612**	**$13,632,559**	**141,708**

*Data for Primary Verification presents the findings after the initial wave of independent follow-up of procedural errors using the School Boundary Area method had been conducted. Secondary Verification presents the findings after the Census Block Group method had been attempted on the remaining procedural errors. **Cost estimates are the seasonally adjusted expected values, where the expectation takes into account the average number of meals and snacks for which a Tier II home would be compensated at the highest (Tier I) level. ***90 percent confidence level. ****Total FDCHs estimated from the sample. Source: *2007 CACFP Tiering Assessment*.

Exhibit C: Meals and Expenditures Reimbursed at Tier I and Tier II Rates

Type of FDCH	Number of Meals and Snacks	Expenditures	Share of Meals and Snacks	Share of Expenditures
Tier I	500,901,471	$626,992,597	80%	90%
Tier II	123,118,097	$72,744,205	20%	10%
Total	**624,019,568**	**$699,736,802**	**100%**	**100%**

Source: *2007 CACFP Tiering Assessment*. National, weighted, seasonally adjusted estimates based on sponsor files for 3,284 FDCHs.

Chapter 1.
Introduction to the Assessment

CHAPTER 1. INTRODUCTION TO THE ASSESSMENT

The Improper Payments Information Act of 2002 (Public Law 107-300) requires Federal agencies to identify and reduce improper over- and under-payments in various programs, including the Child and Adult Care Food Program (CACFP). The purpose of this assessment is to identify improper payments arising from the misclassification of family day care homes (FDCH) for Tier I or Tier II program reimbursement. Specifically, the objectives of the assessment are to—

1. Develop the program assessment design and methodology for producing nationally representative estimates of the number of FDCHs participating in CACFP that have been assigned an incorrect tiering status.

2. Collect the required data to develop nationally representative estimates of FDCHs participating in CACFP that have been assigned an incorrect tiering status.

3. Report an estimated range, from the highest to the lowest likely amount of the cost, in terms of misallocated meal/snack reimbursements, of misclassifying FDCHs as Tier I, as well as the underpayments associated with inaccurate Tier II designations.

The 2007 Assessment mirrors many of the procedures established over the last two waves of this assessment (the Base Year 2005 Assessment, and the 2006 Assessment).[5] This report presents the assessment design and methodology, a discussion of the data collection procedures, analysis outcomes, and the findings for the 2007 Assessment.

The U.S. Department of Agriculture's CACFP plays a vital role in improving the quality of day care by reimbursing providers for their costs of meals and snacks. Each day, 3.27 million children receive nutritious meals and snacks through CACFP.[6] USDA's Food and Nutrition Service (FNS) administers CACFP by allocating grants to States. Independent centers and sponsoring organizations enter into agreements with State agencies to assume administrative and financial responsibility for CACFP operations.

Since the establishment of CACFP in 1968 (Section 17 of the National School Lunch Act [42 U.S.C. 1766]), the number of children served has grown and the method of compensating for meals has changed. Participation was originally limited to center-based child care in areas where poor economic conditions existed. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) changed the meal reimbursement structure for FDCHs by establishing two tiers of reimbursement rates (Tier I and Tier II). This change to CACFP occurred to target program benefits more closely at low-income children. Now, FDCHs in low-income areas or operated by low-income persons meeting the guideline of being at or below 185 percent of the Federal Poverty Guidelines are classified as Tier I and are reimbursed for

[5]*Child and Adult Care Food Program (CACFP): Assessment of Sponsor Tiering Determinations, 2005 Final Report & Child and Adult Care Food Program (CACFP): Assessment of Sponsor Tiering Determinations 2006 Final Report*.

[6]Expectmore.gov. Information on the Food and Nutrition Service—Child and Adult Care Food Program Assessment. Available at *http://www.whitehouse.gov/omb/expectmore/detail/10003009.2006.html.*

meals at higher rates than are all other FDCHs, referred to as Tier II FDCHs. All other FDCHs, referred to as Tier II FDCHs are reimbursed at lower rates, meaning they receive less money per meal served. Tier II FDCHs can still receive the higher Tier I reimbursement rates for meals served to children from families with incomes at or below 185 percent of the Federal Poverty Guidelines, but the individual child's eligibility must be documented.

Sponsoring organizations are responsible for determining that FDCHs meet CACFP eligibility criteria, providing training and other support, designating each FDCH as either Tier I or Tier II, and monitoring the FDCHs to ensure that they comply with applicable Federal and State regulations. Sponsors receive and verify the meal claims of FDCHs for CACFP reimbursement, forward the claims to their State CACFP offices, and receive the meal reimbursements, which they then distribute to the FDCHs.

The following chapters present a summary of the design and data collection procedures, as well as the assessment findings for the current year.

Chapter 2.
Assessment Design and Methodology

CHAPTER 2. ASSESSMENT DESIGN AND METHODOLOGY

The purpose of this chapter is to explain the procedures that were adopted to meet the assessment design objectives. The assessment design was based on the design used for the 2005 wave, where the key methodological tasks were to (1) establish a procedure to verify the current tiering status of FDCHs as they are listed in the sponsors' files, (2) develop a sampling design to estimate the misclassification rate within an upper and lower bound of 2.5 percentage points at the 90 percent confidence level, and (3) estimate the upper and lower bound of the amount of overpayments associated with misclassified Tier I FDCHs and underpayments associated with misclassified Tier II FDCHs.

Consistently with the approach used in the 2006 wave, the current assessment included a two-stage approach to allow for follow-up verification procedures for cases where there is an initial misclassification resulting from insufficient or incomplete documentation at the sponsor level (procedural misclassifications). The first stage consists of preliminary findings based on the data available from the sponsors' files and the tiering algorithms developed for the assessment, which are described below. The second stage consists of independent verification using relevant information from the files and additional methods to establish independently the tiering status of the FDCHs in error.

STAGE 1 VERIFICATION: ESTABLISHING PROCEDURES TO VERIFY THE CURRENT TIERING STATUS OF FDCHS

Overview of the Assessment of Tier I Status

The assessment design was based directly on the regulations set forth in 7 C.F.R. §226.2. The definitions of tiering status are as follows:

Tier I day care home means (a) a day care home operated by a provider whose household meets the income standards for free or reduced-price meals, as determined by the sponsoring organization based on a completed free and reduced-price application, and whose income is verified by the sponsoring organization of the home in accordance with §226.23(h)(6); (b) a day care home located in an area served by a school enrolling elementary students in which at least 50 percent of the total number of children enrolled are certified eligible to receive free or reduced-price meals; or (c) a day care home located in a geographic area, as defined by FNS on the basis of Census data, in which at least 50 percent of the children residing in the area are members of households that meet the income standards for free or reduced-price meals.

A Tier II day care home is a day care home that does not meet the criteria to be classified as Tier I. Sponsors are responsible for the determination of the tiering level of each FDCH.[7] There

[7]The tiering determination is one of the primary responsibilities of sponsors, which make the decision based on official guidelines found in the FNS guide (*Child and Adult Care Food Program: Eligibility Guidance for Family Day Care Homes*), which details the requirements for Tier I status.

are two broad methods for FDCH tier determination status in CACFP: 1) Area Eligibility and 2) Income Eligibility. Area Eligibility methods rely on the geographic location of the provider in an area where at least 50 percent of the total number of children residing in the area live in a household that meets the income standards for free or reduced-price meals. Proof of Area Eligibility can be shown in one of two ways—

A. *School Boundary Area*: The provider must be served by a school enrolling elementary students in which at least 50 percent of the total number of children enrolled are certified eligible to receive free or reduced-price meals.

B. *Census Block Group:* The provider must be located in a Census block group in which at least 50 percent of the total number of children residing in the area live in a household that meets the income standards for free or reduced-price meals.[8]

In contrast, Income Eligibility methods rely on proof that the household income of the FDCH provider meets the criteria for free or reduced-price school meals (185% of the Federal Poverty Guidelines or below), which can be achieved through one of two means—

A. *Provider's Documented Annual Income*: A completed income eligibility statement for the provider that lists all household members and associated income. (Sponsors are required to verify income eligibility information through such documents as pay statements and tax returns from households).

B. *Categorical Eligibility:* The FDCH provider is currently participating in a Government means-tested program that has a household income eligibility level less than or equal to 185 percent of the Federal Poverty Guidelines (e.g., Food Stamp Program, Temporary Assistance for Needy Families [TANF], or Food Distribution Program on Indian Reservation [FDPIR] programs.

[8]There may be some confusion about using the Census approach to establish Tier I status, because of the instructions in FNS's *Child and Adult Care Food Program: Eligibility Guidance for Family Day Care Homes*. In a section entitled "Questions & Answers About Classification of Family Day Care Homes," the third question is: "If there is a conflict between Census data and elementary school free and reduced price enrollment data, how should a determination be based?" The answer on page 18 is: "Census block group data should not be used when relevant, current-year information on free and reduced price eligibility in neighborhood elementary schools is available." This answer mirrors the discussion on pages 6 and 7 of FNS's CACFP document, where the use of Census data is limited to relatively few situations (rural area, magnet school, and local area do not reflect elementary school conditions). However, §226.15 (f) states:

> *Day care home classifications. Each sponsoring organization of day care homes shall determine which of the day care homes under its sponsorship are eligible as Tier I day care homes. A sponsoring organization may use current school or Census data provided by the State agency or free and reduced price applications collected from day care home providers in making a determination for each day care home. When using elementary school or Census data for making Tier I day care home determinations, a sponsoring organization shall first consult school data, except in cases in which busing or other bases of attendance, such as magnet or charter schools, result in school data not being representative of an attendance area's household income levels. This directive only requires that sponsors check school data; they may use Census data even if relevant school data are available.*

An FDCH can be classified as a Tier I home on the basis of one of three grounds—

1. If the income of the proprietor is at or below 185 percent of the Federal Poverty Guidelines (Income Eligibility).

2. If a home is located in the catchment area of an elementary school in which at least 50 percent of the students are eligible for free and reduced-priced meals (Area Eligibility—School).

3. If the home is in a Census tract in which at least 50 percent of the children under 13 years old are in families with household income at or below 185 percent of the Federal Poverty Guidelines (Area Eligibility—Census).

A Tier I designation is only valid for a limited period (depending on the method of qualification). FDCHs that were classified as Tier I FDCHs on the basis of Area Eligibility—School can keep this classification for 5 years, while Tier I FDCHs that are classified on the basis of proprietor's income must be reviewed every year. Tier I classifications on the basis of Census information are valid until the next Census data are available. FNS does not require sponsors to make changes in Area Eligibility during these periods, even if there is reason to believe that there has been a change in status. In contrast, a Tier II designation never has to be reviewed, unless the FDCH requests a review of its status.

The assessment design developed a series of algorithms based on the various methods that can be used to make the tiering determination, keeping in mind that any FDCH that does not qualify as a Tier I is automatically a Tier II. Each of these approaches to proving eligibility for the Tier I status requires a detailed listing of the necessary dated documents that must be in the sponsor's file for an FDCH to be properly classified as Tier I. Each of these four approaches or "algorithms" is explained in detail below.

Procedures for Verifying Tier I Status

Area Eligibility: School Boundary Area

The following algorithm specifies the evidence considered acceptable for determining[9] Tier I area eligibility on the basis of local elementary school boundary data.

1. The tiering decision was made after October 1, 2003.

2. The FDCH provider's address must be linked to a specific school. All of the following are acceptable forms of documentation:

[9]In one State in this assessment, the State agency, rather than the sponsors, determined the tiering status on the basis of school and census eligibility. While this is inconsistent with the CACFP rule that the sponsors have to determine eligibility, FNS instructed that the State determinations be accepted as valid even though there was no documentation onsite in the sponsors' files.

- A dated official school boundary-identifying map
- Pages from a dated address directory linking the FDCH's address to a specific elementary school
- A dated and signed letter from a local school official indicating that the FDCH's address is served by the school
- A report (initialed and dated) of a telephone call to a school official indicating that the FDCH's address is served by the school
- A printed copy of a Web site linking addresses to specific elementary schools; some form of date must be present.

3. The named school must have at least 50 percent of its students eligible for free or reduced-price meals. Acceptable documentation includes—
   - A dated State master list of schools indicating which elementary schools are eligible or showing the percentage of children receiving free and reduced-price meals
   - A dated and signed letter from a local school official indicating that at least 50 percent of enrolled children are eligible for free or reduced-price meals.
4. If there was no documentation in the file about the share of students at the listed school eligible for free and reduced-price meals, the lists provided by the States identifying whether the elementary school met the eligibility standard were checked.

Area Eligibility: Census Block Group

The following algorithm specifies the evidence considered acceptable for determining Tier I area eligibility based on Census Block Group data.

1. Documentation that the address lays within a specific block group. Acceptable documentation includes an official map, output generated from geo-mapping software, or output linking specific addresses to Census block groups.
2. Documentation that 50 percent of children under 13 years old within the block group live in households with income less than or equal to 185 percent of the Federal Poverty Guidelines.

Income Eligibility: Provider Income

The following algorithm specifies the evidence considered acceptable for determining Tier I income eligibility on the basis of the provider's income, which must be less than or equal to 185 percent of the Federal Poverty Guidelines for the number of people in the household.

1. A signed and dated application (equivalent to the CACFP Meal Benefit Income Eligibility Form to request free and reduced-price meals). This form must contain the provider's Social

Security Number and be completed after October 1, 2006 (based on the data window for this assessment).

2. A listing of all of the sources of income for each member of the household with income. Income from retirement accounts or from child care payments was included.

3. No business loss can be used to offset other sources of income.

4. Each source of income must be dated to show that it documents income from April 1, 2006 on.[10] However, tax return forms for 2005 were acceptable, as long as the provider indicated that the information on the return reflects current household income.

5. Each source of income had to be dated and validated by one of the following:

   - Tax Forms 1040 or Schedule C (for business income obtained from running an FDCH)
   - Recent pay stub
   - Letter from employer
   - Ledger or tax books
   - Benefit award letter
   - Court decree or divorce agreement (for child support)
   - Bank statement (for direct deposit of Social Security or other monthly retirement check)
   - Copy of checks to document benefits or child support/alimony.

Income Eligibility: Categorical Eligibility

The following algorithm specifies the evidence considered acceptable for determining Tier I income eligibility on the basis of the provider's eligibility for other Government means-tested programs.

1. All forms had to be dated after October 1, 2006.

2. A certification, letter, or printout of a TANF State Program award letter showing that the provider was eligible for TANF benefits at the time of tiering evaluation.

3. A certification, letter, authorization card, or printout showing that the provider was eligible for Food Stamp Program benefits at the time of tiering evaluation.

4. A notice of eligibility for FDPIR showing that the provider was eligible for FDPIR benefits at the time of tiering evaluation.

5. A certification, letter, authorization card, or printout showing that the provider was eligible for another qualifying Government income-based program at the time of tiering evaluation.

[10]For this year's assessment, the most recent tax return forms would be from year 2006. These forms could have been filed anytime between January 1, 2006 and April 15, 2006 However, when available, tax return forms dated from January 1, 2005 were accepted as valid if they were signed and dated.

Verifying Tier II Status

Because all FDCHs that are not designated as Tier I are assigned Tier II status, no supporting documents are required for that designation. If upon entry into the program, an FDCH is certified as Tier II, sponsors are under no obligation to recertify it, unless the provider requests recertification to determine whether the FDCH qualifies as Tier I. To verify the status of Tier II FDCHs, the assessment used the following protocol:

1. For each selected FDCH designated as Tier II by the sponsor, the onsite field data collector reviewed the sponsor's records to determine the date of program certification.

2. All the documents in the file that might be used to qualify the home for Tier I status were copied. It was then determined whether these documents were sufficient to qualify the home as Tier I.

3. The onsite sponsor files were examined to determine if there was evidence that the FDCH had requested recertification. If it had, an investigation was conducted to determine in which elementary school catchment area the FDCH was currently located. Once the FDCH-elementary school link was identified, the school was investigated using the State's master list for the appropriate year to see whether the school qualified as having more than 50 percent of its students eligible for free and reduced-priced meals.

STAGE 2 VERIFICATION: APPROACH FOR INVESTIGATING PROCEDURAL ERRORS—CASES WHERE THE DOCUMENTATION SUPPORTING THE TIERING DETERMINATION IS INCOMPLETE OR INCONCLUSIVE

As previously described, the second stage of the tiering misclassification approach provided the procedures for follow-up assessment of the FDCH's assigned tiering level when the documentation in the sponsor's file was found insufficient or inconclusive. Chapter 3 provides a detailed discussion of the enactment of these procedures. In this section, the decision algorithms developed to address inconclusive or incomplete documentation supporting a tiering determination for each method of the decision making process are presented. Each tiering determination method (Area—School Boundary Area, Area—Census Block Group, Income—Categorical Eligibility, and Income—Provider Income) had a specific algorithm that was developed to pursue other means of verifying the tiering determination.

Area Eligibility: School Boundary Area

For FDCHs assigned to a tiering level on the basis of the elementary school serving their area, the following procedures were developed:

1. The existing documentation in the FDCH file was used to identify the local elementary school. In cases where the documentation did not indicate a local elementary school, MapQuest was used to identify the closest school, which was used as the starting point for

verification, or the State local education agency (LEA) was contacted to identify the nearest elementary school.

2. The telephone numbers of the schools were obtained from the Web site of the National Center for Educational Statistics or from other Web-based sources.

3. Each of the schools was called to verify that the FDCH was served by the selected school. The calls also verified that the elementary schools serving the FDCHs had at least 50 percent of their students eligible for free or reduced-price meals.

4. If a school representative indicated that the FDCH was not in the school's attendance area, we requested that the proper school be suggested for the selected address. For this alternative, the same contact procedures were followed until a definitive response was obtained to confirm that the FDCH location was within the school catchment area. If a new school was identified, the State list documenting the elementary schools that have at least 50 percent of the students eligible for free or reduced-price meals was cross-checked to verify that the newly identified school met the guidelines to allocate free and reduced-priced meals.

5. If the FDCH was unable to be verified using the school list, an attempt was made to validate the tiering determination using the Census Block Group method.

6. The existing documentation was used to identify the address of the FDCH.

7. The Census' "FairData"[11] database at Norfolk State University was used to query for the respective address by Census track.

8. If the Tier I FDCH had an address in a Census track where less than 50 percent or more of the children under age 13 live in households at or below 185 percent of the Federal Poverty Guidelines, the FDCH was considered misclassified by this method. If it met the criteria for Census Block Group, it was assigned the tiering status supported by this method.

9. If the follow-up verification of the school successfully resolved the status of the school, but resulted in a lower tiering status, the Census Block Group method was assessed for the tiering determination it would assign to the FDCH when possible. The tiering criteria (School or Census) that would assign the tiering status with the highest level of reimbursement to the FDCH were adopted.

[11]This interactive map was developed for local groups who need highly detailed (street-level) Census information to identify neighborhoods and communities for CACFP sites. The default map shows percentage themes for the population under age 13 and below the 185% Federal income poverty level. The tool was developed by the Norfolk State University Department of Political Science and uses Census 2000 adjusted data as the basis for the map generation.

Area Eligibility: Census Block Group

In the case of FDCHs assigned to a tiering level based on inconclusive Census data (no record of the Census block group on file), the following procedures were developed to verify their tiering status:

1. The existing documentation in the FDCH file was used to identify the address of the FDCH.

2. The Census's "FairData" database was used to query for the respective address, by Census track.

3. If the FDCH had an address in a Census track where less than 50 percent or more of the children under age 13 live in households at or below 185 percent of the Federal Poverty Guidelines, the FDCH was considered misclassified as Tier I.

4. If the validation procedure supported a tiering determination using the method that resulted in a lower tiering status than the one originally assigned by the sponsor, the address was used to match the FDCH with a school to assess the correct tiering status based on that method. Once a school was identified, the follow-up investigation verified whether the identified school was on the selected State's list of eligible schools that have more than 50 percent of their students eligible for free and reduced-priced meals. If that link existed, then the school method was used to determine the tiering status of the FDCH.

5. The tiering criteria (School or Census) that assigned the FDCH the tiering status with the highest level of reimbursement was adopted for the FDCH.

Income Eligibility: Categorical Eligibility or Provider Income

For FDCHs with inadequate income tiering documentation, either categorical or provider income, the following procedures were employed to verify the tiering status of the FDCH:

1. Sponsor documentation was used to identify the local elementary school. In cases where the documentation did not indicate a local elementary school, we used MapQuest or contacted the State LEA to identify the nearest one.

2. The telephone numbers of the schools were obtained from the Web site of the National Center for Educational Statistics or other Web-based sources.

3. Follow-up verification telephone calls were made to determine whether the FDCHs were indeed served by elementary schools in which at least 50 percent of the students are eligible for free or reduced-price meals. Each of the schools was called to verify that the address of the FDCH was served by the identified school.

4. If a school representative indicated that the FDCH was not in the identified school's service area the representative was asked for information on the correct school assigned to the

FDCH. For this alternative, the same contact procedures were followed until a definitive response was obtained. If a new school was identified, it was cross-checked against the State's lists of schools (in which at least 50 percent of the students were eligible for free or reduced-price meals) to verify that it appeared on the list.

5. If the case's tiering status was confirmed using the School Boundary Area method, but the tiering status was lower than the sponsor assignment, the case was reviewed using the Census Block Group method.

6. Alternatively, if the FDCH was not verified with the School Boundary Area method, the case was reviewed using the Census Block Group method.

7. If neither attempt at verification resulted in evidence supporting the sponsor's Tier I status determination, the FDCH was considered misclassified.

8. However, if the FDCH was determined to have met the Census Block Group criteria, its status was verified as Tier I. In all cases, the criteria that assigned the tiering status with the highest level of reimbursement to the FDCH were adopted.

DEVELOPING A SAMPLING DESIGN: CONSTRUCTING A SAMPLE

For this assessment, a sampling strategy was required to produce national estimates of an error rate with 90 percent certainty for no greater than ±2.5 percentage points; for instance, if the results of the assessment indicated that 20 percent of all FDCHs were misclassified, then the computed confidence level with 90 percent certainty would lie between 17.5 and 22.5 percent. Appendix 2 provides a discussion of the statistical details of the sampling.

To minimize any design effect, each FDCH had approximately the same probability of selection. The approach chosen produces approximately the same probability of selection for every FDCH while retaining a diversity of States.

On the basis of the data provided by FNS, 14 distinct States were sampled. The original sample called for 7 sponsors per State—except California, where 13 sponsors were selected—resulting in 92 sponsors. From those sponsors, the original sample called for 210 FDCHs per State, and 420 FDCHs for California, which was sampled twice.

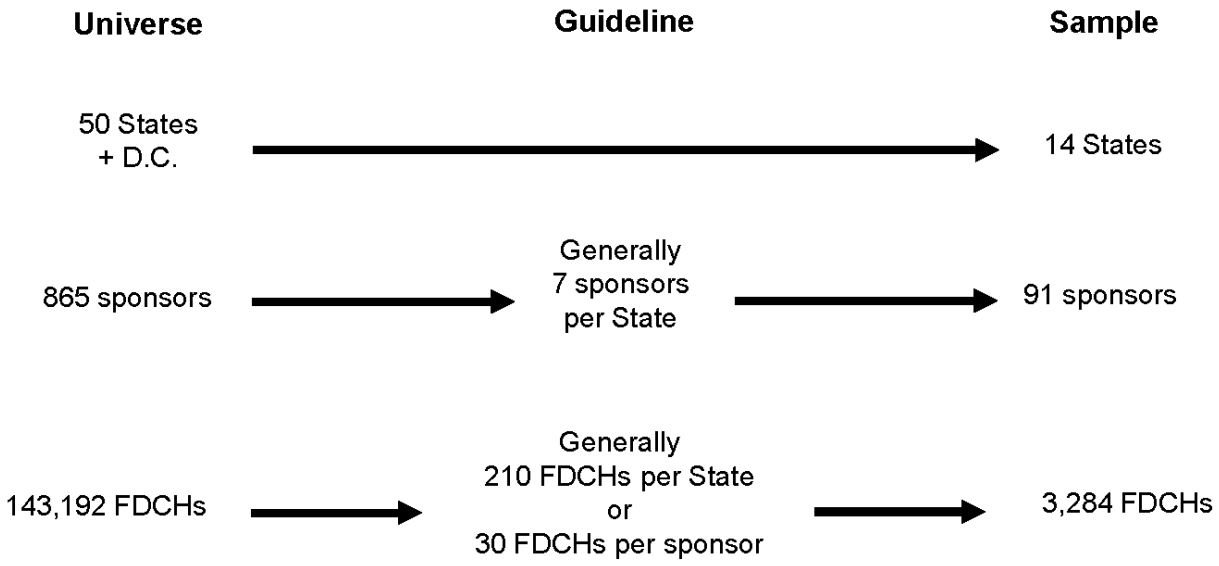
The sponsors within each State were chosen randomly, based on the number of FDCHs served by each sponsor. The next step involved choosing the FDCHs to be included in the assessment. An FDCH was eligible for selection if it had been reimbursed for meals served during September 2007—the quality control month for this year's assessment.[12] For each sponsor, 30 FDCHs that had been active in September 2007 were randomly selected; an additional 11 FDCHs were selected as possible replacements. Some sponsors were so large that they were

[12]Sponsors have up to 90 days to submit initial or revised meal counts, so September 2007 was the last month in which reliable final data were available to the data collectors beginning in December of 2007.

selected more than once. For sponsors that had been selected more than once, multiples of 30 FDCHs were chosen, depending on the number of times the sponsor had been selected (see Appendix 2 for details).

During the data collection, one sponsor was replaced, as it had closed, while the assessment unexpectedly lost a sponsor and was unable to replace it. A replacement sponsor was contacted, but declined to participate in the assessment. After consultation with FNS, it was decided not to pursue an additional replacement, as the data collection period was nearly over. To address the impact of losing a sponsor, extra FDCHs were selected in other sponsors, both within the selected State and within other States, to replace the FDCHs from the lost sponsor. All extra cases were included in the sample to decrease the variance associated with dropping a sponsor. As a result, the final sample included 14 states, 91 sponsors, and 3,284 FDCHs. Exhibit 2.1 summarizes the sampling procedures that were used to construct the sample.[13]

Exhibit 2.1: Sample Selected, by Sampling Level



ESTIMATING THE SHARE OF MEALS AFFECTED IN MISCLASSIFIED FDCHS

Determining the cost of each misclassified FDCH required different approaches for Tier I and Tier II FDCHs. The cost of any misclassification took into account the fact that the meals of some children in Tier II FDCHs are reimbursed at Tier I rates.

[13]The data supplied for sampling reflected the number of FDCHs determined to be active in the first 6 months of fiscal year 2007, from FNS files. They were the most recent data available. It should be noted that because of the size of several States, they are certain to be selected at least once each year; some other States are almost certain to be selected at least once. In selecting the 91 unique sponsors for the sample, some States had the probability of being selected more than once because of their size. Larger sponsors proportionate to the State are certain to be selected each time at least once, given that the state has been selected. In the case of one sponsor that is dominant within a large state, it is almost certain to be selected every time.

For Tier II FDCHs, a misclassification meant that all of the meals should have been reimbursed at Tier I rates. Therefore, the added cost of reimbursement at the higher Tier I rate had to be applied to all of the meals that were originally reimbursed at Tier II rates.

In misclassified Tier I FDCHs, the added costs only applied to the meals served to children who do not qualify individually for Tier I reimbursement rates, even if the FDCH was classified as Tier II. However, no information was available to determine how many children in each misclassified Tier I FDCH would qualify for the higher reimbursement rates. Consequently, an estimate of this number was developed based on the experience of Tier II FDCHs in the State where the FDCH was located.

As Exhibit 2.2 shows, at a national level, an estimated 17 to 18 percent of meals at Tier II FDCHs were reimbursed at Tier I rates. The variation across States, however, was quite large. In State 13, for example, between 5 and 7 percent of meals in Tier II FDCHs were compensated at the higher rate. In contrast, the corresponding percentages for State 11 were 39 to 78 percent. These State ratios by meal type were used to develop a national estimate of the number of meals that would have been reimbursed at Tier I rates for misclassified Tier II FDCHs.

Exhibit 2.2: Share of Tier I Meal Types at Tier II FDCHs, by State

State	Tier I Breakfasts	Tier I Lunches/Dinners	Tier I Snacks
1	17%	20%	20%
2	44%	45%	46%
3	17%	17%	16%
4	18%	18%	18%
5	14%	15%	14%
6	29%	26%	25%
7	6%	8%	7%
8	13%	16%	18%
9	7%	10%	9%
10	15%	14%	14%
11	78%	48%	39%
12	36%	39%	38%
13	7%	5%	6%
14	17%	19%	17%
National Estimate	**17%**	**18%**	**18%**

Source: *2007 CACFP Tiering Assessment.* Table contains weighted estimates based on sponsor files for 837 Tier II FDCHs. Percentages by State are for descriptive purposes only, because State-level samples are too small to produce robust State-level estimates.

Annual Estimates of Under- and Over-Payments Because of Misclassifications

Choosing to use FDCHs that were reimbursed in a single month (September 2007) affected how the annual estimate of improper payments associated with misclassified FDCHs were estimated. Ideally, the sample would have been drawn from all FDCHs that were active at any point from October 2006 through September 2007. That was not feasible; instead, the sample was drawn only from FDCHs that had reimbursable meals in September 2007. By using only FDCHs active during that month, FDCHs that did not have reimbursable meals in September 2007 but had been active during some of the prior 11 months (October 2006 through August 2007) were missed. To compensate for this loss, FDCHs that were active in September 2007 were treated as if they were open all 12 months of the year. For many FDCHs, this was not true, because they had been part of the program for less than 12 months or because they had no reimbursements for at least 1 month of the year. Consequently, the meals that were added to the FDCHs for which they had actually not been reimbursed are assumed to offset the meals that were missed from FDCHs that were active at some point during the previous 12 months but were not active in September 2007.[14]

In the 2005 base year assessment, one of the problems was that 17 sponsors did not provide meal counts for all 12 months. This year, there was only one sponsor that did not provide a maximum number of 12 months of meal counts; it provided a maximum number of 9 months. To account for this deficiency, an "adjusted" yearly total of meals was created, by type of meal and level of reimbursement (Tier I or Tier II). It was done by taking an average monthly meal count by type of meal and level of reimbursement, based on the number of months during which the FDCH had reimbursed meals, and multiplying it by 12. Before finding the average monthly meal count, a seasonality factor—based on the national total meals served, by type and by month—(see Appendix Table A.2) was calculated for each month the FDCH had reimbursed meals. This was done to avoid any bias associated with specific months during which the FDCHs were open. Therefore, the average monthly figures were first seasonally adjusted, by month, before they were combined into yearly totals.

Similarly to income guidelines, reimbursement rates are computed on an annual basis and are based on the period July 1 through June 30. As the data collection period covered two different reimbursement rate periods—July 1, 2006 through June 30, 2007; and July 1, 2007 through June 30, 2008—75 percent of the rates from the July 1, 2006 through June 30, 2007 were applied, and 25 percent of the rates from July 1, 2007 through June 30, 2008. This method was only necessary to calculate the cost of lunch and dinner meals, as they were the only rates that increased from the previous year.[15]

[14]This approach results in an unbiased annual estimate of the number of meals served. However, because the sample could not be drawn from all homes that had been active at some point from October 2006 through September 2007, the variance of the final estimates was higher.

[15]This weighting method does not have an effect on the amount of under- and over-under payments, as the difference between Tier I and Tier II reimbursement rates does not change from year to year, although the rate itself does increase. However, the weighting method does affect total expenditures for Tier I and Tier II.

At this point, the total under- and over-payments resulting from tiering misclassification were computed. The cost of each Tier I FDCH that was not validly classified was determined by the sum of equations 2.2 to 2.4, presented below.

(2.2) Breakfast loss = 12 * AvgMonthlyBrks * (1 - BRSHAREState) *

[0.75 * (1.06 - 0.39) + 0.25 * (1.11 - 0.41)]

where…

BRSHAREState = the share of breakfasts in Tier II FDCHs in that State that were reimbursed at Tier I rates

AvgMonthlyBrks = the average number of breakfasts served by the FDCH in a month

0.75 * (1.06 - 0.39) + 0.25 * (1.11 - 0.41)] = the difference between Tier I and Tier II payments

(2.3) Snack loss = 12 * AvgMonthlySnks * (1 - SNSHAREState) *

[0.75 * (0.58 - 0.16) + 0.25 * (0.61 - 0.17)]

where…

SNSHAREState = the share of snacks in Tier II FDCHs in that State that were reimbursed at Tier I rates

AvgMonthlySnks = the average number of snacks served by the FDCH in a month

0.75 * (0.58 - 0.16) + 0.25* (0.61 - 0.17) = the difference between Tier I and Tier II payments

(2.4) Lunch/Supper loss = 12 * AvgMonthlyLDs * (1 - LNSHAREState)*

[0.75 * (1.97 - 1.19) + 0.25 * (2.06 - 1.24)]

where…

LNSHAREState = share of lunches and suppers in Tier II FDCHs in that State that were reimbursed at Tier I rates

AvgMonthlyLDs = the average number of lunches and suppers served by the FDCH in a month

0.75 * (1.97 - 1.19) + 0.25 * (2.06 - 1.24) = the difference between Tier I and Tier II payments

To obtain an estimate of the monies not paid to Tier II FDCHs that were misclassified, a similar strategy of getting monthly totals was followed. Because the share of children who were already being reimbursed at Tier I rates was known, no State-based estimates were needed.

The national estimates of monies under- and over-compensated to Tier I and Tier II FDCHs was simply the total of each misclassified FDCH multiplied by its respective weight.

Estimating Upper and Lower Bounds of the Misclassification Rate

In the complex survey design used in this assessment, the calculation of the variances of the estimates is likewise complex. The Taylor expansion method was used to estimate sampling errors of estimators.[16] This method obtains a linear approximation for the estimator and then uses the variance estimate for the approximation to estimate the variance of the estimate.

For a multistage sample design, the variance estimation method depends only on the first stage of the sample design. Therefore, the required input includes only first-stage clusters or primary sampling units (PSUs) and first-stage stratum identification. There is no need to input design information about any additional stages of sampling. The variance estimation method assumes that the first-stage sampling fraction is small or that the first-stage sample is drawn with replacement. If the sampling rate varies (unequal probability sampling), as it does in this assessment, one can create strata that approximate a uniform sampling rate.

The PSUs (clusters) in the assessment were the States. However, one State (California) was a certainty and one (Minnesota) was a near certainty. In those two States, each sponsor became a PSU. In Minnesota, one of the sponsors was large and was sampled four times; the large sponsor was divided into four PSUs and two of the smaller ones were combined.

The clusters were then paired up into "strata." The strata were designed so that clusters in the same strata were of the same kind (State or sponsor), in the same State (for sponsors), and with similar probabilities of selection. As in the 2006 wave, there were 32 clusters and 16 strata in this year's sample. The average probability of selection of the two clusters within a stratum was entered as the sampling rate of the stratum. This pairing of clusters is common in many variance estimation procedures, particularly when one needs to use a finite population correction.

The first estimate was the proportion of misclassifications, obtained for the total population and for the Tier I and Tier II domains separately. The estimate was obtained by adding the weights of the FDCHs incorrectly classified and then dividing them by the sum of the weights.

The second estimate was the total dollars associated with meals in validated misclassified FDCHs (113 Tier I FDCHs and 7 Tier II FDCHs). In this case, the average was first obtained and then was multiplied by the reported total number of FDCHs (see Appendix Table A.1). In this

[16]The SAS procedure SURVEYMEANS was used. For further explanation of the statistical qualities of this approach, see http://www.pop.upenn.edu/cores/computing/sasdoc/sashtml/stat/chap11/sect3.htm.

way, the variance of the estimates of the total number of FDCHs in the program did not have to enter into the variance.

The variance estimates have their own error of estimate. As a result, when calculating the confidence intervals, one must take into account the variance of the variance estimates. To do so, one must first obtain the degrees of freedom (the number of clusters minus the number of strata) and multiply the standard error by the *t* value for the 90 percent confidence interval for the degrees of freedom in question.

Chapter 3.
The Data Collection Process

CHAPTER 3. THE DATA COLLECTION PROCESS

The data collected for this assessment were abstracted from sponsors' files onsite in a highly organized operation. Trained field data collectors abstracted the files containing documentation to support the tiering determination from sampled sponsors and FDCHs; meal count information was collected for a 12-month period (October 2006 to September 2007). This discussion outlines the processes used to collect the assessment data.

OVERVIEW OF THE DATA COLLECTION INSTRUMENT USED FOR THE ASSESSMENT

The primary data collection instrument for the assessment, the Tiering Determination Instrument, was developed using algorithms (discussed in Chapter 2) that were created for validating a tiering determination based on the tiering method used. The data collection instrument did not include the algorithms used for validating the determination; they were applied separately, after the initial field data collection efforts. The Tiering Determination Instrument is a paper form created to collect the essential data elements needed to verify sponsors' tiering designations. The instrument was used for Tier I and Tier II FDCHs, with the objective of recording all of the available information. The 2007 instrument (see Appendix 3) was slightly modified from the previous version used for the 2006 Assessment.

Training the Data Collectors

A comprehensive training was developed for the 17 field data collectors recruited for this assessment. All but two of the field data collectors had participated in the assessment during the base year, and all of the field data collectors had experience in the field, having worked on other national studies. In addition to reviewing the sampling design and the intricacies of the data collection instrument, the training also reviewed methods developed during the previous assessment cycles to ensure that the sponsor identified all the relevant documentation onsite. Data collectors received additional training in strategies to help the sponsors provide all the available information used in making the most recent tiering determination.

To prepare for the field data collection, each of the data collectors participated in a 3-day training session held in Baltimore, Maryland, in late November. The training provided a comprehensive background on the program, understanding of the methods used to make a tiering determination, and hands-on review of—and practice with—documentation likely to be onsite in sample files. The purpose was for the data collectors to gain familiarity with the actual types of documents that would be encountered in the field and from which data would be abstracted.

Arranging Site Visits

The process of arranging the actual onsite data abstraction began with efforts in creating the sample (described further in Appendix 2). After the States for the sample were selected, FNS regional offices contacted State representatives. Then Macro contacted States (first by mail, then

by telephone) to explain the purpose of the project, enlist their support, and determine whether there were any unique features in how the CACFP operated in their State. The first task was to get the requisite information to pull the sponsor sample for each State, including the number of sponsors and the number of FDCHs for each sponsor.

Once the sponsors were selected, they were sent a letter of introduction that explained the purpose of the assessment. A follow-up telephone call was made to ask questions about where sponsor tiering determination documents were kept. The exact date of each site visit was established by the data collectors, who called the relevant sponsor contact to establish a mutually convenient time for the visit.

Collecting Data at Sponsor Administrative Sites

When the data collectors arrived at the locations of the sponsors, they presented the sponsors' representative with the list of FDCHs that were to be abstracted. This was the first time the sponsors were provided with the list of FDCHs to be studied. Once at the site, most of the data collectors were left alone to complete the abstraction. Once on site, data collectors abstracted the necessary information and asked the sponsors additional questions about the location of data for the sampled files as necessary.

The primary data collection task was to complete the Tiering Determination Instrument and photocopy all relevant documents in each FDCH's records, beginning with the meal counts. This information was collected first because each data collector needed to verify that the sampled FDCHs had received reimbursements in September 2007. If the meal count records indicated that some of the sampled FDCHs did not have meal reimbursements in September, the FDCH was dropped. The data collector used the ordered list of replacement FDCHs to replace FDCHs that were not in scope.

The remaining data collection tasks involved the identification of appropriate documentation in each file. In all Tier I files and some Tier II files, it was critical to identify any documentation attempting to demonstrate eligibility for Tier I status. Documentation about Tier II FDCHs was collected to determine whether any of them were eligible for Tier I status. Because Tier II is the default status, no documentation is needed. Consequently, the vast majority of Tier II FDCHs had no documents in their folders other than the sponsor statement indicating that the FDCH was a Tier II FDCH. However, any indication that Tier I status was applied for was abstracted for the FDCH. If there was information showing that an FDCH tried to qualify for Tier I status in more than one manner, all of the data were collected and evaluated.

Data collectors completed the remaining portions of the tiering determination instrument, copied the appropriate documents, and conducted closeout activities for the visit with the sponsors. Data were then transmitted to Macro for final review. Once these data files were received, trained project staff reviewed them and made the final determination as to whether the FDCH was correctly classified, while editing the file.

Creating the Data Analysis File

After the data collection instruments were returned, they were checked for completeness and legibility. Recorded meal counts were carefully reviewed, as was the supporting documentation for each case. These edited data collection instruments were double-key entered with a 100 percent accuracy check.

After all of the instruments had been transferred to an electronic format, a thorough review of the data elements was conducted to verify meal counts, check for missing data elements, and verify that all listed elementary schools met the standard of at least half of its students being eligible for free and reduced-price meals (when such documentation was missing from the file). Tiering classifications were carefully evaluated for correctness. Because of the complexity of the income eligibility process (there were often many sources of income from different family members), every FDCH for which income data were entered was rechecked to ensure that all of the fields were correctly edited and entered.

Data Validation Procedures

The outcomes of the data validation procedures are presented in Chapter 4, but the following discussion highlights the steps taken in applying the validation algorithms to cases identified as misclassified in the initial analysis. Once the analytic data set was created, a computer analysis program was developed to determine which FDCHs were improperly classified and why. Although these cases were technically deficient, it was likely that most of these FDCHs were indeed Tier I eligible, based on the outcomes of a similar process in the 2006 Assessment. To confirm the status of these procedural errors, a series of follow-up validation operations were undertaken for each type of error in a sequential manner.

The procedural errors that occurred in cases attempting to use School Boundary Area as the basis for Tier I status were verified by using the validation algorithm described in Chapter 2. When the documentation did not support a clear FDCH-elementary school link, the MapQuest feature was used to identify the nearest elementary school, which was then tentatively chosen as the elementary school serving these FDCHs. This was only a preliminary allocation that was verified by follow-up telephone calls. Once all the FDCHs had identified a school, the telephone numbers of the schools were obtained from the National Center for Educational Statistics Web site[17] or other Web-based sources. Each of the schools was called to verify that the address of the FDCH was served by the selected school. In most cases, the person answering the telephone (often an administrative assistant or secretary) was able to give a definitive response. If not, other school representatives were contacted until a definitive answer was obtained.

When school representatives said that the FDCH was not in their attendance area, they were asked to suggest the appropriate school for that specific address. In most cases, an alternative school was given. When no alternative option was given, MapQuest was used to identify the

[17]http://nces.ed.gov/ccd/schoolsearch/.

next most likely school. This school was then contacted to verify that it served the address listed for the FDCH. This process was repeated until a definitive positive answer was received. Once a new school was identified, the State lists of eligible elementary schools with at least 50 percent of the students eligible to receive a free or reduced-price meal were used to confirm that the correct school was on the list. If the school was not on the list, the FDCH was considered misclassified. The Census Block Group method was then used to determine if these misclassified cases should remain misclassified and receive the lower tiering status. The Census FairData CACFP Mapper was used to follow up on these cases. In instances where the Census method indicated that the FDCH qualified for Tier I status, that status was maintained by the case. In all other instances, the FDCH remained misclassified.

For cases that attempted to use the Census Block Group method as the basis for the initial tiering determination, procedural errors were followed up by first using the information in the existing file to conduct the Census lookup independently. Cases for which the Census method did not validate the Tier I status, the follow-up then moved to use the existing data to identify an elementary school for the FDCH, and continued with the established procedure for identifying and verifying an FDCH-elementary link and the eligibility of the elementary school. Cases for which there was no information allowing for a school match, or cases for which where the School Boundary method resulted in the lower tiering status, remained misclassified.

For FDCHs where the procedural errors were related to the provider income method, the existing documentation was first reviewed to determine whether an elementary school could be identified. If so, this information was used to attempt the School Boundary method tiering determination. For the remaining FDCHs where no school was identified, research was conducted using MapQuest to identify a possible elementary school, then calls were made to confirm the link between the FDCH and the elementary school in question. In cases where the calls indicated that the FDCH-school link did not exist, the Census method was used to validate the tiering determination. In cases where the school was not on the State list of qualifying schools, the Census method was also employed to validate the tiering determination. Of these cases, those Tier I FDCHs for which the Census method confirmed the lower tiering status retained the misclassification designation.

For FDCHs where the documentation did not support a Tier I determination based on categorical eligibility, the documentation was reviewed to determine whether there was any evidence to support investigation by Census. The FDCH address was used in the Census FairData CACFP Mapper; the results were then used to confirm or deny the Tier I status of the FDCH. In cases where the Census method did not confirm the original Tier I determination, an attempt was made to qualify the FDCH based on the School Boundary method. The Census method was attempted in these cases first because the available evidence in files where categorical eligibility is used often did not contain any identifying information outside of the FDCH's address. Cases for which the School Boundary method was determined unviable remained misclassified.

Chapter 4.
Results of Data Collection, Validation, and Analysis

CHAPTER 4. RESULTS OF DATA COLLECTION, VALIDATION, AND ANALYSIS

This chapter presents the outcomes of the data collection, follow-up validation, and analysis, beginning with a summary of the analysis findings preceding the data validation efforts. An overview of those FDCHs classified as Tier I and meal reimbursements by tier is presented first, followed by misclassification rates based on reviews of documentation in sponsor files during the initial data collection period. Outcomes of the analysis of procedural misclassifications are then presented, followed by the revised misclassification rates and their associated costs.

In this section, all percentages shown are weighted and derived from the Assessment sample. Actual numbers of FDCHs cited are unweighted. As expected in a sample that uses probabilities proportional to size, the weighted percentages are often very close to those that would have been obtained from unweighted data.

TIER I SHARE OF FDCHS AND MEAL REIMBURSEMENTS

This discussion begins with a summary of the analysis of data based on the initial data collection activities. On the basis of the sampling and weighting procedures of this data collection preceding the follow-up validation activities, 73.4 percent of FDCHs were classified as Tier I by their sponsors (see Exhibit 4.1) during the 12-month Assessment period.[18] The findings reflect considerable variation across sponsors and States on the share of Tier I FDCHs. As Exhibit 4.1 indicates, at the State level, two States had more than 90 percent of their FDCHs classified as Tier I, and two States had fewer than 60 percent of its FDCHs designated as Tier I. At the sponsor level, 14 sponsors classified all of their FDCHs as Tier I, while 10 sponsors classified 50 percent or less of their FDCHs as Tier I (see Appendix Table A.4).

[18]Based on weighted data. Of the 3,284 surveyed FDCHs, 2,417 were classified as Tier I.

Exhibit 4.1: Share of FDCHs Classified as Tier I by their Sponsors, by State, Before Data Validation

State	Tier I Share
2	98%
13	93%
11	86%
7	77%
6	77%
3	76%
14	74%
10	71%
12	71%
4	69%
8	68%
1	63%
9	59%
5	47%
National Estimate	**73%**

Source: *2007 CACFP Program Assessment*. Based on sponsor files for 3,284 FDCHs. Percentages by State are for descriptive purposes only because State-level samples are too small to produce robust State-level estimates.

Another way to look at the use of program resources is by the share of expenditures for Tier I reimbursed meals and snacks. This figure is greater than the share of Tier I FDCHs for two reasons. First, because Tier I meals are reimbursed at much higher rates, the monetary share of Tier I reimbursed meals was higher than the share of FDCHs. Second, at Tier II FDCHs, many meals and snacks (17 to 18 percent nationally) were reimbursed at Tier I rates because of the income status of individual children. Consequently, the national estimate from this assessment concludes that 80 percent of the meals and snacks, and 90 percent of expenditures were for Tier I reimbursed meals and snacks (see Exhibit 4.2) during the assessment period.

Exhibit 4.2: Meals and Expenditures Reimbursed at Tier I and Tier II Rates, 2007

Type of FDCH	Number of Meals and Snacks	Expenditures	Share of Meals and Snacks	Share of Expenditures
Tier I	500,901,471	$626,992,597	80%	90%
Tier II	123,118,097	$72,744,205	20%	10%
Total	**624,019,568**	**$699,736,802**	**100%**	**100%**

Source: *2007 CACFP Tiering Assessment*. National, weighted, seasonally adjusted estimates based on sponsor files for 3,284 FDCHs.

The most common way in which FDCHs were qualified by their sponsors for Tier I status was through area eligibility using the local elementary school (73.2%), followed by provider income (12.1%), area eligibility using Census (5.3%), and income eligibility by categorical documents (0.83%). Approximately 8 percent of FDCH records included at least partial documentation for two or three different approaches (see Exhibit 4.3).

Exhibit 4.3: Basis of Tier I Qualification and Procedural Misclassification Rates—Original Data Collection Sponsor Files

Documentation Type	Percentage of Documentation*	Procedural Misclassification Rate	Weighted National Estimates of Tier I FDCHs
School	73.2%	28.7%	22,066
Income	12.1%	29.2%	3,695
Census	5.3%	16.9%	936
Categorical	0.8%	21.5%	187
Multiple Types of Documentation	**8%**	**28.1%**	**2,348**

*The percentage of documentation sums to more than 100% because of rounding. Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 2,417 Tier I FDCHs (unweighted).

Initial analysis also produced a misclassification rate for the tiering status of FDCHs. After all the data were extracted from sponsor records of the sampled FDCHs, the tiering algorithms were applied to determine whether the available documentation supported the listed tiering status assigned by sponsor. The lack of supporting documentation or ambiguous documentation was deemed a procedural error and was flagged for follow-up verification in the secondary validation data collection, as described in Chapter 3. Of the 2,417 Tier I FDCHs, sponsors did not have adequate supporting documentation of this status for 693 FDCHs. Of the 867 Tier II FDCHs, 7 had documents in the file showing that they were eligible for Tier I status. In percentage terms, the weighted procedural misclassification rates were 28.5 and 0.66 percent for Tier I and Tier II FDCHs, respectively. For the Nation as a whole, the overall estimated procedural misclassification rate was 21.1 percent.

Exhibit 4.3 also displays the procedural misclassification rate by type of approach used to qualify for Tier I status. For sponsors using multiple types of documentation, an FDCH was considered procedurally misclassified if the documentation in the file did not support Tier I classification regardless of which approach might have been used.[19] The highest rate of procedural error (29.2%) occurred when sponsors used income eligibility as the basis for the tiering determination. However, as the exhibit illustrates, the largest percentage of FDCHs (73%) were classified through the School Boundary Area approach.[20] Hence, the vast majority of procedural errors involved linking an FDCH with an eligible school. The large proportion of

[19]It is worth emphasizing that the FDCH was considered procedurally and not substantively misclassified. In 8 percent of cases, sponsors attempted to qualify FDCHs for Tier I status using two or three criteria. The procedural misclassification rate relates the percentage of times that the use of a specific criterion—without regard to the number of criteria they may have attempted—failed to support the claim for Tier I status. Thus, when sponsors attempted to use the characteristics of the local elementary school solely, they failed to document the school's eligibility almost 29 percent of the time. However, in the majority of such cases, further investigation led to the conclusion that the FDCH was indeed qualified for Tier I status, even though sponsor documentation was inadequate. For about 8 percent of the FDCH records examined, sponsors attempted to use multiple approaches. In about 28 percent of these instances, none of the approaches supported the sponsor's classification of Tier I.

[20]As Exhibit 4.3 indicates, 73 percent of FDCHs attempting to qualify for Tier I status attempted to do so on the basis of the local elementary school only. However, including the 8 percent that took multiple approaches, some involved the use of local elementary school demographics, raising the overall rate to 80 percent.

procedural errors associated with the School Boundary method is similar to findings in the two previous studies.

Exhibit 4.4 provides additional information on the specific types of errors found in the FDCH files. In about 36 percent of these potential errors, there was no date on the School Boundary map, while slightly more than 24 percent of these cases lacked an official map. There were also many FDCHs in which the income statement of the provider did not adequately meet the requirements of the program. The most common problem was a missing element on the income eligibility application (almost 7%), followed by errors in verification of self-declared financial information. This was resolved in some cases, when legitimate documentation on both income and expenses were present in the file. Otherwise, it was not possible to accept self-declared information. Missing element documentation errors included incomplete income eligibility forms (not properly signed, dated, or not including the provider's Social Security Number), and failure to date or document a source of income.

Exhibit 4.4: Causes of Tier I Procedural Misclassifications

Causes of Misclassification	Percentage	Weighted National Estimates of Tier I FDCHs with Procedural Misclassifications
School Boundary Area Method		
No Date on Map	36.0%	10,769
Inappropriate or Missing Map	24.2%	7,237
Expired Date on Map	12.3%	3,681
No Date or Initial on Memo	3.4%	1,009
School Not Eligible	2.1%	642
Provider Income Method		
Missing Element on Income Eligibility Application	6.9%	2,053
Unacceptable Ledger Sheet	3.06%	916
Excess Income	2.9%	879
No Documentation for Income Source	0.34%	103
Categorical Eligibility Method		
Categorical Missing Element	0.76%	228
Census Block Group Method		
Census Incomplete or Missing Documentation	3.13%	936
No Documentation of Method in the Sponsor File		
No Documentation	4.88%	1,460
Total	**100.0%**	**29,912**

Source: *2007 CACFP Assessment*. Weighted estimates based on sponsor files for 2,417 Tier I FDCHs.

In this year's Assessment, 13 sponsors with at least half of their FDCHs classified as Tier I had procedural misclassification rates at or above 50 percent. Conversely, 5 sponsors with at least 50 percent of their FDCHs classified as Tier I did not have a single error relating to classification in their files (see Appendix Table A.4).

As for Tier II FDCHs, the 7 misclassified FDCHs did have documentation in the file showing that the home was Tier I qualified (4 cases had evidence on the basis of income, while 3 cases had evidence on the basis of the School Boundary method). There was proper documentation of Tier I status, but the wrong tiering level had been assigned by the sponsor.

RESULTS OF THE INDEPENDENT TWO-STAGE VALIDATION APPROACH OF TIERING DETERMINATIONS WITH PROCEDURAL MISCLASSIFICATIONS

As described earlier, independent verification of the FDCH's tiering level was conducted when the documentation in the sponsor's file was found to be insufficient or inconclusive. It was not within the scope of the Assessment to review any other documentation other than what was present in the FDCH sponsor file. Follow-up for FDCHs with procedural errors was limited to using the existing documentation to determine if the Tier I status could be supported by using either the School Boundary method, the primary validation method, or the Census Block Group method, secondary validation method. As described in Chapter 3, the Census Block Group method was only attempted in cases where the School Boundary Area method resulted in either an inconclusive or lower tiering status determination.[21]

In the following discussion, the results of the primary independent verification of Tier I status using the School Boundary Area method are presented first, including the impact of the verified FDCHs on the estimates of the costs of misclassification. The report then presents the results of the secondary verification using the Census Block Group method and incorporates these findings in the final analysis.

Exhibit 4.5 presents an overview of the initial procedural misclassifications for each of the four tiering determination methods. Of the total 693 Tier I FDCHs with a procedural misclassification, 583 were the result of poor documentation in the School Boundary method.

Of these cases, 14 lacked documentation clearly linking a specific elementary school to the FDCH's address, while the supporting documents in the files for 536 cases were too weak to definitively link that school to the FDCH. Thirty-three cases had no supporting documentation at all. The high number of cases with procedural errors related to the School Boundary method is similar to the number of cases with this error in the previous studies (641 FDCHs with unsupported tiering status in 2005, of which 488 were the result of poor school boundary documentation; 632 FDCHs with unsupported tiering status in 2006; of which 489 were the result of poor documentation).[22] The next largest number of procedural misclassifications (91)

[21]It should be noted that the School Boundary Area method was attempted first in the independent verification procedures for all tiering methods, except for when the original tiering status was determined using the Census Block Group method. In this instance, the original method was first attempted independently and then the School Boundary Area method was attempted. This ordering is outlined in the algorithms presented in Chapter 3.

[22]*Child and Adult Care Food Program (CACFP): Assessment of Sponsor Tiering Determinations, 2005 and 2006 Final Reports.* Even though the 2007 Assessment included 134 more extra homes, and despite having a larger number of overall procedural errors, the overall school error rate was very similar to the past 2 years' findings.

occurred with documentation used to support provider income as the basis for the tiering determination.[23]

Exhibit 4.5: Procedural Misclassification and Documentation Failure—Identifying Cases for Verification Follow-up

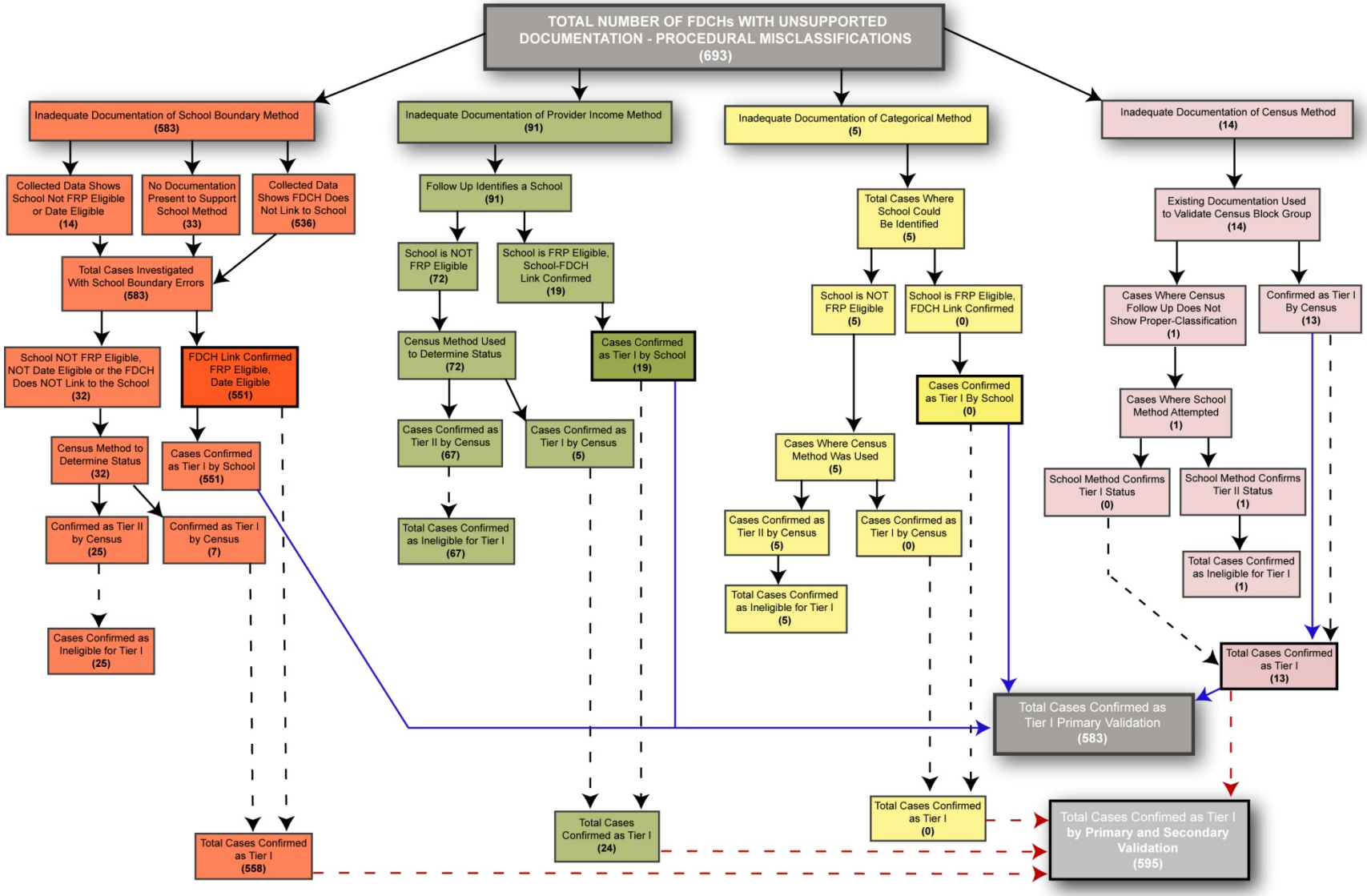
Documentation of Tier I Status Failure	Unweighted Count of Sampled Tier I FDCHs
Collected Data Shows FDCH Does Not Link to the School	536
No Documentation Supporting School Method	33
A Specific, Qualified School Could Not Be Identified from Documentation	14
School Boundary Errors Total	**583**
Other Income Errors	48
Ledger Sheet Errors	21
Provider Income Documentation	20
No Documentation	2
Income Errors Total	**91**
Categorical Eligibility Errors	5
Categorical Eligibility Errors Total	**5**
No Documentation of Census Method Outcome	14
Census Block Group Method Errors Total	**14**
Follow-up Conducted to Verify Procedural Misclassifications	693
Total Tier I Procedural Misclassifications (Unweighted)	**693**

PROCEDURES USED TO VERIFY THE ELIGIBILITY OF FDCHS WITH PROCEDURAL MISCLASSIFICATIONS

As described in Chapter 3, each tiering method had a distinct algorithm for determining tiering status. The procedures used for the validation data collection are described in detail for each tiering method used in the following discussion. Exhibit 4.6 presents a flowchart depicting the procedures used for validating the errors associated with each tiering determination method. It presents the results of the primary validation of procedural errors (using the School Boundary Area method) to independently determine the tiering status of the FDCH. The flowchart then presents findings where the Tier I status could not be supported by the School Boundary Area method and where the Census Block Group method was attempted.

[23]For sponsors attempting multiple methods of tiering determination and failing at each attempt, the case was classified as an error based on a hierarchy of determination methods using free or reduced-price eligibility as a guideline for prioritizing the listing (School Boundary, Census, Categorical, and then Income) and then assigned the error code according to whatever means was the first to be attempted in this listing. For example, if a sponsor tried to qualify based on the School and Census methods, and failed at each, the error is classified as an error in the School Boundary method. If a sponsor used the Census and Income methods and failed at both, the error was classified as a Census error.

Exhibit 4.6: Total Number of FDCHs with Unsupported Documentation—Procedural Misclassifications and Cases Confirmed as Tier I through the Primary and Secondary Validation Procedures



Primary Validation of Procedural Misclassifications in the Original Tiering Method: Using the School Boundary Method to Verify Tier I Status

Primary Validation of Procedural Misclassifications: School Boundary

The analysis identified 583 cases where the School Boundary method was used and documentation was inconclusive in determining the tiering status of the FDCH. Of these, 536 FDCHs did not have documentation supporting the FDCH-school link, 33 had no documentation supporting either the FDCH link or school eligibility criteria, and 14 FDCHs lacked supporting documentation that the school met the free or reduced-price guidelines.

The primary validation of these procedural misclassifications began by examining the 536 cases where the files lacked documentation clearly linking a specific elementary school to the FDCH's address, or the supporting documents in the files were too weak to definitively link that school to the FDCH. The first step in this process was to verify that the FDCH address did link to a qualifying elementary school for these cases. Where the documentation was weak, MapQuest was used to identify a possible elementary school that served the FDCH. The Web site of the National Center of Education Statistics (http://nces.ed.gov/globallocator/) was used to identify telephone numbers for these schools, and they were contacted by phone to verify that the FDCH address was within the school catchment area for the elementary school. For the 536 cases with this error, the verification procedures confirmed that the school attendance area included the specific FDCH in question.

Once the FDCH-school link was confirmed, the validation activities continued by referring to the State lists of qualifying elementary schools to ensure that the school in question did indeed meet the criteria of having at least 50 percent of its students eligible for free or reduced-price meals. All but 22 of the FDCHs examined at this stage were found to meet this criterion.

A separate examination of the 14 FDCHs where the documentation indicated that the school was ineligible was then conducted. These cases required investigation of the State school lists to confirm the elementary school eligibility as well. Of these 14 cases, 13 FDCHs were confirmed as being linked to the school attendance area and linked to an eligible school.

A separate investigation was conducted for the 33 cases with no documentation. MapQuest was used to identify a school; the school was contacted to verify the link. The next step was to check the State lists of eligible schools. The outcome of this research was that 24 of the 33 FDCHs were linked to a school that was eligible. At this stage of the validation process, 551 FDCHs were confirmed as being Tier I, while additional attempts using the School Boundary method were unsuccessful for the remaining 32 FDCHs. Notably, the validation procedures reduced the School Boundary method misclassification rate from 28.7 to 1.2 percent (see Exhibit 4.7).

Primary Validation of Procedural Misclassifications: Provider Income

There a considerable number of FDCHs (91) where the documentation did not support Tier I status based on provider income. The validation data collection began with attempts to validate

the Tier I status of these FDCHs using the School Boundary method. A review of the existing files was conducted to determine if an elementary school could be identified for the FDCH. Research was conducted using MapQuest to identify a possible elementary school for a majority of the FDCHs. After the elementary school and the telephone number were identified, verification telephone calls to schools were made to confirm that the elementary school attendance area did include the FDCH. When the school representative indicated that the FDCH was not in their service area, the representative was asked for a likely suggestion, and that alternate school was contacted.

Once the FDCH-school link was confirmed, the State lists were also consulted to confirm school eligibility. Of the 91 FDCHs with procedural misclassifications for provider income, 19 were confirmed as having both the FDCH-school link and an eligible school. The remaining 72 FDCHs were linked to elementary schools that were not eligible, based on State lists. The primary validation procedures had a more limited effect on the misclassification rate in this instance, as the provider income misclassification rate changed from 29.2 to 22.9 percent (see Exhibit 4.7).

Primary Validation of Procedural Misclassifications: Categorical Eligibility

The validation of the 5 FDCHs where documentation did not support Tier I status based on categorical eligibility began with an examination of FDCH files for information to conduct an independent School Boundary determination. MapQuest was used to identify an elementary school located near the FDCH address, and the National Center for Educational Statistics Web site was used to identify contact numbers for these schools. The telephone verification procedure identified all 5 FDCHs as having the necessary FDCH-school link. When the State eligibility lists were checked against these 5 FDCHs, none of them were affiliated with schools that were eligible based on the free and reduced-price meal criterion. At this stage in the validation follow-up, none of the 5 FDCHs were confirmed in their Tier I status using the School Boundary method. Thus, validation procedures remained the same for the categorical method misclassification rate at 21.5 percent (see Exhibit 4.7).

Primary Validation of Procedural Misclassifications: Census Method

The validation of the 14 FDCHs where documentation did not support Tier I status began with an examination of the FDCH files for information on conducting an independent Census Block Group method determination. FDCH address information was present in the files of all 14 cases, and this information was used with the FairData Web-based tool. Through this method, 13 of the 14 FDCHs were confirmed to be Tier I eligible. In this case, the validation procedures reduced the Census method misclassification rate from 16.9 to 1.5 percent (see Exhibit 4.7).

Exhibit 4.7: Primary Verified Misclassification Rates, by Tiering Method

Documentation Type	Percentage of Documentation	Procedural Misclassification Rate	Primary Verified Misclassification Rate	Verified Weighted National Estimates of Tier I FDCHs
School	73.2%	28.7%	1.2%	899
Income	12.1%	29.2%	22.9%	2,881
Census	5.3%	16.9%	1.5%	81
Categorical	0.8%	21.5%	21.5%	186
Multiple Types of Documentation	8%	28.1%	7.79%	646

The result of these data validation procedures was that out of the 693 FDCHs with procedural misclassifications, 583 FDCHs retained their Tier I status based on the outcomes of the primary validation efforts (see Exhibit 4.6).

Results after Incorporating the Primary Independent Verification of Procedural Misclassifications

The primary independent verification procedures resulted in confirmed Tier I status for 583 of the 693 surveyed FDCHs with procedural misclassifications. Using these findings, the national estimate of the misclassification rate was determined to be 4.63 percent for Tier I FDCHs (see Exhibit 4.8), compared with the 28.5 percent of FDCHs (procedurally weighted) for which documentation in sponsor files was missing or inadequate in the first round. The Tier II misclassification rate was not subject to further investigation and remained at 0.66 percent. The overall misclassification rate fell to 3.58 percent from 21.1 percent by incorporating the results of the primary verification procedures. Also included in Exhibit 4.8 are estimates for the upper and lower bounds of these estimates. Exhibit 4.9 presents the unweighted counts of both procedural and verified errors.

Exhibit 4.8: Primary Verified Misclassification Rates, by Tiering Status

Type of FDCH	Primary Verified Misclassification Rate	Lower Limit*	Upper Limit*	Weighted National Estimates of FDCHs***
Tier I	4.63%	3.79%	5.46%	104,167
Tier II	0.66%	0.46%	0.86%	37,541
All Tier I or Tier II FDCHs	**3.58%**	**2.93%**	**4.22%**	**141,708**

*90 percent confidence level. ***Total FDCHs estimated from sample. Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 3,284 FDCHs and follow-up verification (weighted estimates).

Exhibit 4.9: Comparison of Procedural to Primary Verified Errors for Sampled FDCHs

Type of FDCH	Procedural Error		Primary Verified Error	
	Yes	No	Yes	No
Tier I	693	1,724	110	2,307
Tier II	7	860	7	860
All Sampled Tier I or Tier II FDCHs	**700**	**2,584**	**117**	**3,167**

Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 3,284 FDCHs including follow-up for 583 Tier I FDCHs with procedural misclassifications based upon local elementary school.

Exhibit 4.10 presents the causes of the primary verified errors for the 110 Tier I FDCHs for which the validation data collecting activities confirmed that the Tier I status was unsupported.

Exhibit 4.10: Causes of Primary Verified Misclassification for Tier I FDCHs

Causes of Misclassification	Percentage	Weighted National Estimates of Misclassified Tier I FDCHs
Missing Element on Income Eligibility Application	28.8%	1,386
Excess Income	14.6%	704
Unacceptable Ledger Sheet	14.3%	688
Multiple Forms of Documentation**	13.4%	646
Inappropriate or Missing Map	8.3%	400
No Date on Map	5.9%	285
Categorical	3.9%	186
No Documentation	2.7%	128
Expired Date on Map	2.6%	127
No Documentation for Income Source	2.1%	102
Census	1.7%	81
School Not Eligible*	0.9%	169
No Date or Initial on Memo	0.9%	44
Total	**100.0%**	**4,819**

*All FDCHs without any documentation are assumed to have been Tier I on the basis of area eligibility by elementary school. **Some FDCHs had documents in their files that supported different approaches for Tier I eligibility. Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 2,417 Tier I FDCHs and follow-up verification (weighted estimates are provided). Total percentages may not add exactly up to 100 percent, due to rounding.

Of the 91 sponsors in the sample, 47 did not have a single Tier I misclassification after the primary validation procedures were completed. Another 29 sponsors had a misclassification rate of less than 10 percent, including 17 sponsors with a misclassification rate of 5 percent or less. Of the remaining 16 sponsors, 1 had a misclassification rate of over 30 percent (see Appendix Table A.4). At the State level, 2 States had misclassification rates over 10 percent. At the other extreme, one State had no misclassifications (see Exhibit 4.11).

Exhibit 4.11: Primary Verified Tier I Misclassification Rate, by State

State	Verified Tier I Misclassification Rate
5	23.8%
1	11.0%
3	6.0%
6	5.3%
7	5.2%
8	4.0%
11	3.8%
12	3.2%
10	3.1%
14	2.9%
4	2.6%
9	2.4%
13	1.9%
2	0.0%
National Estimate	**4.63%**

Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 2,417 Tier I FDCHs and verification follow-up. Percentages by State are for descriptive purposes only because State-level samples are too small to produce robust State-level estimates.

Costs of Misclassifications after the Primary Validation of Procedural Errors

Using the procedures discussed in Chapter 2, the annual estimate of improper payments[24] associated with misclassified FDCHs for this Assessment was calculated incorporating the findings from the primary validation efforts. The 2007 annual estimate of improper payments[25] associated with misclassified FDCHs is $12.3 million, with a 90 percent confidence range of between $9.9 and $14.8 million (see Exhibit 4.12), which includes the findings from the primary independent tiering verification process. Exhibit 4.13 presents a comparison of estimated costs of improper payments for all FDCHs in 2005, 2006, and 2007 after the primary validation procedures. As the chart depicts, the overall estimated costs of misclassifications increased in 2007 by about $0.9 million dollars.

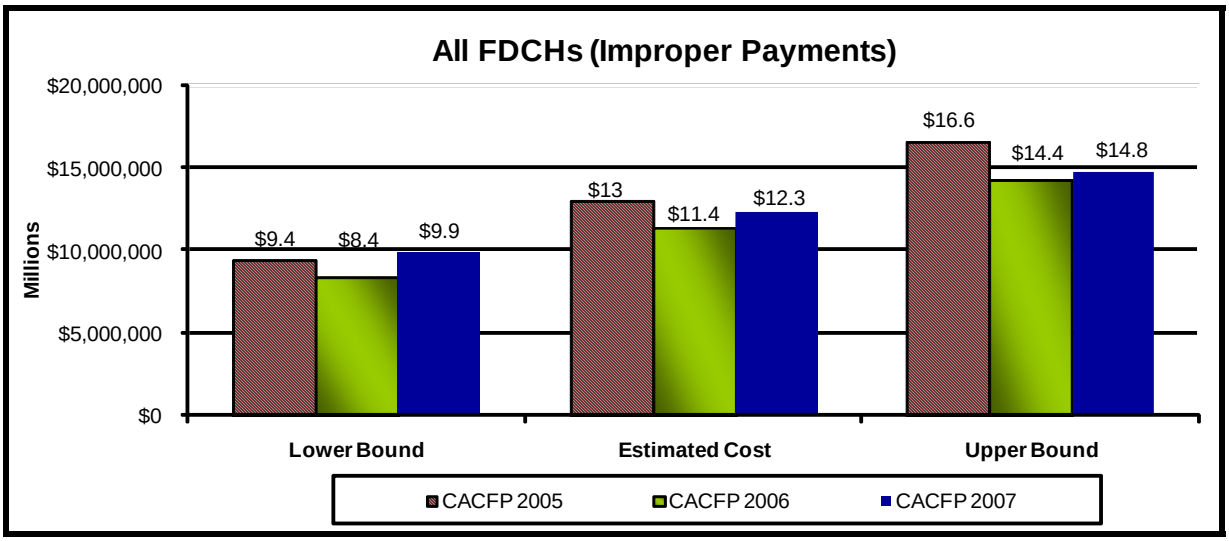
[24]That is, the sum of the overpayments to Tier I homes and the absolute value of the underpayments to Tier II homes.
[25]That is, the sum of the overpayments to Tier I homes and the absolute value of the underpayments to Tier II homes.

Exhibit 4.12: Costs of Misclassifications after Primary Verification Procedures

Type of FDCH	Estimated Cost	Cost as % of Total Reimburse-ments	Lower Bound Estimate*	Lower Bound as % of Total	Upper Bound Estimate*	Upper Bound as % of Total	Weighted National Estimates of FDCHs ***
Tier I FDCHs (Overpayment)	$12,189,838	2.03%	$9,782,934	1.63%	$14,596,742	2.44%	104,176
Tier II FDCHs (Underpayment	$123,804	0.12%	$41,918	0.04%	$205,689	0.20%	37,541
All FDCHs (Improper Payments)	**$12,313,642**	**1.76%**	**$9,867,052**	**1.41%**	**$14,760,231**	**2.11%**	**141,708**

*90 percent confidence level. *** Based on the sample. Source: 2007 CACFP Tiering Assessment. National estimates based on sponsor files for 3,284 FDCHs and verification follow-up. Weighted figures are presented.

Exhibit 4.13: Comparison of Estimated Costs of Improper Payments for All FDCHs, 2005, 2006, and 2007, after Primary Verification of Procedural Errors* **



*2005, 2006, and 2007 CACFP Tiering Assessment. Chart depicts rounded data. **90 percent confidence level.

The greater part of these overpayments are due to misclassified Tier I FDCHs, estimated to be $12.2 million, with a confidence range between $9.8 and $14.6 million based on the verification of errors using the School Boundary method. Overpayments to Tier I FDCHs represent 2 percent of the estimated costs for meal reimbursements for Tier I FDCHs ($599,112,490). This ratio is less than the misclassification rate of Tier I FDCHs (4.63%) because only part of the cost of the meal—the difference between Tier I and Tier II reimbursement rates—translates into an overpayment. More specifically, meals at misclassified Tier I FDCHs would be reimbursed at approximately half the rate of Tier I reimbursed meals (especially when accounting for the fact that about 17 to 18 percent of Tier II FDCH meals are reimbursed at the higher Tier I rate).

For Tier II FDCHs, the amount of underpayments was estimated to be $123,804, which represents less than 1 percent of the total funding for meals for Tier II FDCHs (an estimated $100,624,312). Combining the absolute value of the estimated cost of Tier I and Tier II misclassifications leads to a total amount of under- and over-spending of $12,313,642, which represents approximately 1.76 percent of total spending for all Tier I and Tier II FDCHs.

Exhibit 4.14 shows the number of meals provided to FDCHs by their listed tiering level and the number of meals reimbursed at the wrong rate after the primary verification of errors. For Tier I FDCHs, 19.6 million of the 500.9 million meals reimbursed were reimbursed at the wrong rate. For Tier II FDCHs, 196,164 out of 123.1 million meals served were reimbursed at the wrong rate.

Exhibit 4.14: Annual Number of Meals Served and Number of Meals Reimbursed at Incorrect Rate, by FDCH Tier Type, after Primary Verification Procedures

FDCHs, by Tier	Breakfasts	Lunches and Suppers	Snacks	Total Meals and Snacks
Tier I FDCHs				
Total	114,284,238	197,355,963	189,261,270	500,901,471
Reimbursed at Wrong Rate*	4,786,724	7,541,609	7,267,910	19,596,243
Tier II FDCHs				
Total	33,547,743	43,209,292	46,361,062	123,118,097
Reimbursed at Wrong Rate	64,659	65,524	66,431	196,614

Source: *2007 CACFP Tiering Assessment*. Figures based upon seasonally adjusted monthly averages within States. *The calculation of meals at Tier I FDCHs reimbursed at the wrong rate takes into account the fact that, with a change in tiering status, not all meals would be reimbursed at Tier II rates. The adjustment is made by deducting State proportions of Tier I meals served in Tier II FDCHs. For Tier II FDCHs, only meals reimbursed at Tier II rates are subject to error. Eighteen of the Tier I FDCHs in the sample that were incorrectly classified claimed some Tier II meals. These Tier II meals were not included in the estimate of meals reimbursed at the wrong rate, but are included in the total meals for Tier I FDCHs.

Secondary Validation of Remaining Procedural Misclassifications in the Original Tiering Method: Using the Census Block Group Method to Verify Tier I Status

Overall, 110 of the 693 FDCHs remained erroneous after the primary validation phase had concluded. As outlined in Chapter 3, the next phase of the verification of procedural errors called for the use of the Census Block Group method to be applied to any remaining FDCHs where the original tiering status could not be verified. This discussion presents the results of the Census Block Group independent verification of Tier I status for those errors that were not resolved using the School Boundary method.

Secondary Validation of Procedural Misclassifications: School Boundary

The primary validation follow-up had resulted in 551 of the 583 cases with procedural errors being confirmed as valid Tier I FDCHs, leaving 32 FDCHs that could not be verified using this method. The Census Block Group method was used to try to validate the tiering status of these 32 remaining procedural misclassifications. The Census Block Group method investigation used the Census FairData CACFP mapper tool (http://www.fairdata2000.com/CACFP/) to identify whether the FDCH had an address in a Census track where at least 50 percent or more of the

children under age 13 lived in households at or below 185 percent of the poverty level. The FDCH address for each of these 32 cases was entered into the tool. A Census block map, indicating percentages of the students under age 13 living in households at or below the poverty level, was then generated. This procedure was followed for each of the 32 FDCHs, resulting in an additional 7 FDCHs confirmed as Tier I using the Census method. The remaining 25 procedural misclassifications could not be validated as Tier I by the Census method either; these cases retained their misclassification designation. The secondary validation procedures reduced the School Boundary misclassification rate further, from 1.2 percent after the primary validation efforts to 0.9 percent (see Exhibit 4.15).

Secondary Validation of Procedural Misclassifications: Provider Income

Of the 91 procedural errors with the provider income method, 72 cases were not able to be independently confirmed as Tier I using the School Boundary method. The Census method was then used to attempt to validate the tiering status of these 72 remaining cases. Once again, the FairData tool was used, and only 5 FDCHs were confirmed as having Tier I status using this method. The remaining 67 FDCHs remained misclassified. The secondary validation procedures had a more limited effect on the misclassification rate in this instance, as the provider income misclassification rate changed from 22.9 to 21.6 percent (see Exhibit 4.15).

Secondary Validation of Procedural Misclassifications: Categorical Eligibility

The validation of the 5 FDCHs for which documentation did not support Tier I status confirmed none of the 5 cases as Tier I through the School Boundary method; thus all 5 cases required follow-up using the Census Block Group method. When the Census method was attempted, none of these 5 FDCHs could be confirmed as having Tier I status and thus remained misclassified. The secondary validation procedures did not have any effect on the categorical method misclassification rate, as it remained at 21.5 percent (see Exhibit 4.15).

Secondary Validation of Procedural Misclassifications: Census Method

As stated earlier, the validation protocol required that, in cases where it was possible, the original tiering determination method should be independently attempted to resolve the procedural error. This meant that in the case of FDCHs that were determined to be Tier I using the Census approach, the primary verification method was an independent attempt at the Census method. Thirteen of the 14 procedural errors associated with this method were confirmed as Tier I under the primary verification process, leaving 1 remaining case as a procedural error. The School Boundary method was attempted for this remaining FDCH. As the files contained no information identifying a local elementary school, MapQuest was used to identify possible elementary schools that served the FDCH. Once schools were identified, the National Center for Educational Statistics Web site was used to identify contact numbers, and follow-up verification telephone calls were made to determine whether this FDCH was indeed served by elementary schools in which at least 50 percent of the students are eligible for free or reduced-price meals. For this FDCH, the FDCH-school link was confirmed, but the elementary school was not on the State list of eligible schools. Thus, this FDCH remained misclassified. The

secondary validation procedures did not alter the Census method misclassification rate, as it remained at 1.5 percent (see Exhibit 4.15).

Exhibit 4.15: Misclassification Rates, by Tiering Method, Secondary Verification Procedures

Documentation Type	Percentage of Document-ation	Procedural Misclassific-ation Rate	Primary Verification Misclassific-ation Rate	Secondary Verification Misclassific-ation Rate	Verified Weighted National Estimates of Tier I FDCHs
School	73.2%	28.7%	1.2%	0.9%	689
Income	12.1%	29.2%	22.9%	21.6%	2,711
Census	5.3%	16.9%	1.5%	1.5%	81
Categorical	0.8%	21.5%	21.5%	21.5%	186
Multiple Types of Documentation	8%	28.1%	7.8%	6.3%	519

RESULTS AFTER INCORPORATING THE SECONDARY INDEPENDENT VERIFICATION OF PROCEDURAL MISCLASSIFICATIONS

The secondary independent verification procedures resulted in confirmed Tier I status for an additional 12 cases, for a total of 595 FDCHs confirmed as Tier I through the verification procedures of the 693 surveyed FDCHs with procedural misclassifications. Overall, 98 of the cases with procedural errors remained erroneous. Using these findings, the national estimate of the misclassification rate was then determined to be 4.09 percent for Tier I FDCHs (see Exhibit 4.16). Once again, the Tier II misclassification rate was not subject to further investigation and remained at 0.66 percent. Using the findings from the secondary verification procedures, the overall misclassification rate fell to 3.18 percent from 3.58 percent. Exhibit 4.17 presents the unweighted counts of both procedural and verified errors, for both the primary and secondary validation procedures.

Exhibit 4.16: Secondary Verified Misclassification Rates, by Tiering Status

Type of FDCH	Verified Misclassification Rate	Lower Limit*	Upper Limit*	Weighted National Estimates of FDCHs***
Tier I	4.09%	3.19%	5.00%	104,167
Tier II	0.66%	0.46%	0.86%	37,541
All Tier I or Tier II	**3.18%**	**2.50%**	**3.87%**	**141,708**

*90 percent confidence level. ***Total FDCHs estimated from sample.
Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 3,284 FDCHs and follow-up verification (weighted estimates).

Exhibit 4.17: Comparison of Procedural to Verified Errors for Sampled FDCHs, Primary and Secondary Validation Procedures (Unweighted)

Type of FDCH	Procedural Error		Primary Verified Error		Secondary Verified Error	
	Yes	No	Yes	No	Yes	No
Tier I	693	1,724	110	2,307	98	2,319
Tier II	7	860	7	860	7	860
All Sampled Tier I or Tier II FDCHs	**700**	**2,584**	**117**	**3,167**	**105**	**3,179**

Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 3284 FDCHs including follow-up for 583 Tier I FDCHs with procedural misclassifications based upon local elementary school.

Overall, the secondary validation process resulted in a reduction of the misclassification rate for 10 sponsors. Of the 91 sponsors in the sample, an additional 5 sponsors, for a total of 51, were found to not have any misclassification errors after the secondary validation procedures were completed. The secondary validation process increases to 14 the number of sponsors in the sample with a misclassification rate of less than 5 percent. Only 1 of the 91 sponsors had a misclassification rate over 30 percent after the secondary validation process (see Appendix Table A.4). At the State level, the secondary validation procedures resulted in modest decreases in the misclassification rate within States, and reduced the national misclassification rate from 4.63 to 4.09 percent (see Exhibit 4.18).

Exhibit 4.18: Verified Tier I Misclassification Rate, by State

State	Primary Verification Tier I Misclassification Rate	Secondary Verification Tier I Misclassification Rate
5	23.8%	22.8%
1	11.0%	10.3%
3	6.0%	5.4%
6	5.3%	5.3%
7	5.2%	4.6%
8	4.0%	4.0%
11	3.8%	3.2%
12	3.2%	1.3%
10	3.1%	3.1%
14	2.9%	2.2%
4	2.6%	1.9%
9	2.4%	2.4%
13	1.9%	1.4%
2	0.0%	0.0%
National Estimate	**4.63%**	**4.09%**

Source: *2007 CACFP Tiering Assessment*. Based on sponsor files for 2,417 Tier I FDCHs and verification follow-up. Percentages by State are for descriptive purposes only because State-level samples are too small to produce robust State-level estimates.

COSTS OF MISCLASSIFICATIONS AFTER THE SECONDARY VERIFICATION OF PROCEDURAL ERRORS

The next step in the analysis was to include the findings from the secondary validation procedures into those calculations developed for determining the annual estimate of improper payments. Using this data, the annual estimate of improper payments[26] associated with all misclassified FDCHs for this assessment is estimated to be approximately $10.9 million, with a 90 percent confidence range of between $8.1 and $13.6 million (see Exhibit 4.19), which includes the findings from both the primary and secondary independent tiering validation processes.

Exhibit 4.19: Costs of Misclassifications after Secondary Verification of Procedural Errors

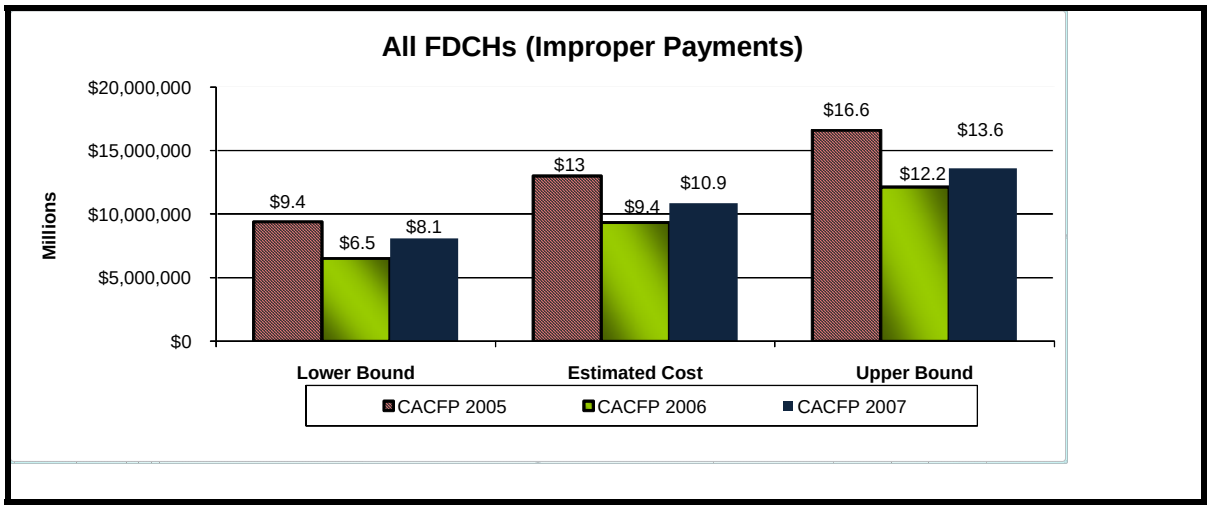
Type of FDCH	Estimated Cost	Cost as % of Total Reimbursements	Lower Bound Estimate*	Lower Bound as % of Total	Upper Bound Estimate*	Upper Bound as % of Total	Weighted National Estimates of FDCHs ***
Tier I FDCHs (Overpayment)	$10,750,282	1.79%	$8,037,505	1.34%	$13,463,059	2.25%	104,167
Tier II FDCHs (Underpayment)	$123,804	0.12%	$41,918	0.04%	$205,689	0.20%	37,541
All FDCHs (Improper Payments)	**$10,874,086**	**1.55%**	**$8,115,612**	**1.16%**	**$13,632,559**	**1.95%**	**141,708**

*90 percent confidence level. *** Based on the sample. Source: *2007 CACFP Tiering Assessment*. National estimates based on sponsor files for 3,284 FDCHs and verification follow-up. Weighted figures are presented.

Using these data, the overall point estimate for improper payments due to tiering misclassifications in 2007 is approximately $1.5 million dollars higher than the estimate for 2006 (see Exhibit 4.20).

[26]That is, the sum of the overpayments to Tier I homes and the absolute value of the underpayments to Tier II homes.

Exhibit 4.20: Comparison of Estimated Costs of Improper Payments for All FDCHs, 2005, 2006, and 2007* **



*2005, 2006, and *2007 CACFP Tiering Assessment*. Chart depicts rounded data. **90 percent confidence level.

When examining the findings, the majority of improper payments are the result of overpayments to misclassified Tier I FDCHs, estimated to be $10.8 million, with a confidence range between approximately $8.0 and $13.5 million. Using the findings from both the primary and secondary verification of procedural errors, overpayments to Tier I FDCHs represent 1.79 percent of the estimated costs for meal reimbursements for Tier I FDCHs ($599,112,490). Once again, this ratio is less than the misclassification rate of Tier I FDCHs (4.09%) because only part of the cost of the meal—the difference between Tier I and Tier II reimbursement rates—translates into an overpayment.

For Tier II FDCHs, the amount of estimated underpayments remained unchanged after the secondary verification efforts of cases where the provider requested recertification to determine whether their home qualifies as Tier I. This amount, $123,804, represents 0.12 percent of the total funding for meals for Tier II FDCHs (an estimated $100,624,312). Combining the absolute value of the estimated cost of Tier I and Tier II misclassifications leads to a total amount of under- and over-spending of $10,874,086, which represents 1.55 percent of total spending for all Tier I and Tier II FDCHs.

Exhibit 4.21 incorporates the findings from the secondary validation process, showing the number of meals provided to FDCHs by their listed tiering level and the number of meals reimbursed at the wrong rate. For Tier I FDCHs, 17.3 million of the 500.9 million meals reimbursed were reimbursed at the wrong rate, and for Tier II FDCHs, 196,614 out of 123.1 million meals served were reimbursed at the wrong rate.

Exhibit 4.21: Annual Number of Meals Served and Number of Meals Reimbursed at Incorrect Rate, by FDCH Tier Type

FDCHs, by Tier	Breakfasts	Lunches and Suppers	Snacks	Total Meals and Snacks
Tier I FDCHs				
Total	**114,284,238**	**197,355,963**	**189,261,270**	**500,901,471**
Reimbursed at Wrong Rate*—Primary Verification	4,786,724	7,541,609	7,267,910	19,596,243
Reimbursed at Wrong Rate*—Secondary Verification	4,167,115	6,720,303	6,418,902	17,306,320
Tier II FDCHs				
Total	**33,547,743**	**43,209,292**	**46,361,062**	**123,118,097**
Reimbursed at Wrong Rate	64,659	65,524	66,431	196,614

Source: *2007 CACFP Tiering Assessment*. Figures based upon seasonally adjusted monthly averages within States.
*The calculation of meals at Tier I FDCHs reimbursed at the wrong rate takes into account the fact that, with a change in tiering status, not all meals would be reimbursed at Tier II rates. The adjustment is made by deducting State proportions of Tier I meals served in Tier II FDCHs. For Tier II FDCHs, only meals reimbursed at Tier II rates are subject to error. Eighteen of the Tier I FDCHs in the sample that were incorrectly classified claimed some Tier II meals. These Tier II meals were not included in the estimate of meals reimbursed at the wrong rate, but are included in the total meals for Tier I FDCHs.

Chapter 5.
Conclusion

CHAPTER 5. CONCLUSION

The national estimate from this assessment found that 80 percent of the meals and snacks, and 90 percent of expenditures, were for Tier I reimbursed meals (see Exhibit 4.2) during the assessment period. Procedural errors in tiering determinations, if left unchecked, have the potential to result in improper payment dollars. The initial review of the information collected from sponsor files for 3,284 FDCHs yielded weighted procedural misclassification rates of 28.5 percent and 0.66 percent for Tier I and Tier II FDCHs, respectively, resulting in an overall misclassification rate of 21.1percent. Independent verification of the tiering status of 693 Tier I FDCHs with a procedural misclassification revealed that the misclassification rate was 3.18 percent overall after the verification efforts.

After incorporation of the secondary validation findings, the annual estimate of improper payments[27] associated with misclassified FDCHs for this assessment is estimated at approximately $10.9 million, with a 90 percent confidence range of between $8.1 and $13.6 million (see Exhibit 4.20). The overall cost of misclassifications as a percent of total reimbursements for Tier I and Tier II FDCHs was 1.55 percent. The majority of improper payments are the result of overpayments to misclassified Tier I FDCHs, estimated at $10.8 million, with a confidence range between approximately $8.0 and $13.5 million. Using the findings from both the primary and secondary verification of procedural errors, overpayments represent 1.79 percent of the estimated costs for meal reimbursements for Tier I FDCHs and 0.12 percent of the estimated costs for Tier II FDCHs' meal reimbursements.

The assessment findings indicate that the most common way in which FDCHs were qualified by their sponsors for Tier I status was through area eligibility using the local elementary school (73.2%), followed by income of the provider (12.1%), area eligibility using Census (5.3%), and income eligibility by categorical documents (0.8%). Records for about 8 percent of sampled FDCHs included at least partial documentation for two or three different approaches.

The largest proportion of procedural errors still related to attempts at qualifying an FDCH using the School Boundary Area method, a finding similar to the outcomes of previous assessments. A majority of the 693 procedural errors in the 2007 Assessment (583) were related to issues in documenting the FDCH-school link. Errors in adequate documentation of maps connecting the address of an FDCH to a specific elementary school, outdated maps, and maps missing dates and official initials were identified in the initial analysis (see Exhibit 4.4). Based on the analysis, some sponsors do not maintain proper documentation to link a FDCH correctly to a qualifying elementary school, even though the validation efforts often result in a confirmation of the Tier I status.

The two-stage validation approach, (which consisted of primary verification using the School Boundary Area method to document independently the Tier I status of FDCHs with procedural errors, and secondary verification using the Census Block Group method), resulted in the ability

[27]That is, the sum of the overpayments to Tier I homes and the absolute value of the underpayments to Tier II homes.

to support the Tier I status for a large number of classifications actions with procedural errors. The two-stage validation approach had a limited impact on some types of procedural errors (errors with documentation that relied on the categorical or provider income tiering determination method), but did result in a sizeable reduction of procedural errors in the School Boundary Area method, thus reducing the procedural error in this tiering method from 28.7 percent to 0.9 percent (Exhibit 4.15). The two-stage approach also resulted in 52 of the 91 sponsors (57%) in the sample having no Tier I misclassifications after the validation process.

Appendix A.
Tables

APPENDIX A. TABLES

Table A.1: Sample of States

State	FDCHs	Sampled
AK	456	0
AL	1,227	0
AR	836	0
AZ	3,459	0
CA	18,598	2
CO	1,935	0
CT	946	0
DE	852	0
FL	2,409	1
GA	3,411	0
HI	309	0
IA	2,289	0
ID	367	0
IL	7,797	1
IN	1,947	1
KS	4,139	1
KY	687	0
LA	5,735	0
MA	5,009	1
MD	3,586	1
ME	1,272	0
MI	6,210	1
MN	9,682	1
MO	1,623	1
MS	525	0
MT	834	0
NC	3,328	0
ND	1,392	0
NE	2,756	0
NH+VT	726	0
NJ	637	0
NM	5,278	1
NV	229	0
NY	8,222	1
OH	3,691	0
OK	2,732	0
OR	2,550	0
PA	2,093	0
RI	437	0
SC	833	0
SD	680	0
TN	1,530	0
TX	6,808	1
UT	1,780	0
VA+DC	2,661	0
WA	3,258	1
WI	3,449	0
WV	1,541	0
WY	448	0

Table A.2: Monthly Adjustments for Seasonality

Month	Breakfasts	Snacks	Lunch/Dinners
January	1.03	1.03	1.03
February	0.95	0.94	0.95
March	1.07	1.07	1.07
April	1.02	1.01	1.02
May	1.11	1.09	1.11
June	0.00	1.00	0.99
July	0.93	0.96	0.93
August	1.06	1.06	1.06
September	0.92	0.91	0.92
October	1.06	1.05	1.06
November	0.98	0.97	0.98
December	0.89	0.90	0.89

Table A.3: Maximum Months of Available Meal Counts

Number of Months	Number of Sponsors	Percentage
9	1	1.1
12	90	98.9

Table A.4: Sponsor Tier I Classifications and Misclassification Rates

Sponsor	Sampled FDCHs[28]	Share of FDCHs Sponsor Classified as Tier I	Tier I Misclassification Rates		
			Procedural Misclassification Rate	Primary Verified Misclassification Rate	Secondary Verified Misclassification Rate
301	36	58.33%	47.6%	0.0%	0.0%
302	31	83.87%	34.6%	3.8%	0.0%
303	62	74.19%	78.3%	2.2%	2.2%
304	31	70.97%	50.0%	4.5%	4.5%
306	36	55.56%	20.0%	5.0%	5.0%
307	31	80.65%	24.0%	0.0%	0.0%
308	36	72.22%	76.9%	15.4%	11.5%
309	31	93.55%	100.0%	0.0%	0.0%
310	36	77.78%	32.1%	0.0%	0.0%
311	31	51.61%	25.0%	6.3%	6.3%
312	36	86.11%	19.4%	0.0%	0.0%
313	31	80.65%	32.0%	0.0%	0.0%
314	31	80.65%	20.0%	0.0%	0.0%
315	8	100.00%	100.0%	0.0%	0.0%
316	62	87.10%	27.8%	7.4%	7.4%
317	31	90.32%	85.7%	7.1%	7.1%
318	31	54.84%	11.8%	11.8%	5.9%
319	5	40.00%	0.0%	0.0%	0.0%
320	31	83.87%	3.8%	3.8%	3.8%
321	31	100.00%	16.1%	0.0%	0.0%
322	65	61.54%	12.5%	2.5%	2.5%
323	31	83.87%	65.4%	11.5%	7.7%
324	31	74.19%	30.4%	17.4%	17.4%
325	31	67.74%	9.5%	9.5%	9.5%
326	31	87.10%	22.2%	0.0%	0.0%
327	31	74.19%	8.7%	4.3%	4.3%
328	30	80.00%	25.0%	4.2%	0.0%
329	31	61.29%	5.3%	0.0%	0.0%
330	31	61.29%	5.3%	0.0%	0.0%
331	31	41.94%	23.1%	7.7%	7.7%
332	35	80.00%	7.1%	3.6%	3.6%
333	34	82.35%	3.6%	0.0%	0.0%
334	31	67.74%	9.5%	9.5%	9.5%
335	31	25.81%	12.5%	0.0%	0.0%
336	34	94.12%	90.6%	3.1%	3.1%
337	34	70.59%	25.0%	8.3%	8.3%
338	31	74.19%	8.7%	0.0%	0.0%
339	31	74.19%	13.0%	0.0%	0.0%
340	31	90.32%	53.6%	0.0%	0.0%
341	62	100.00%	3.2%	0.0%	0.0%
342	31	19.35%	0.0%	0.0%	0.0%
343	31	74.19%	13.0%	0.0%	0.0%

[28]On average, each FDCH was sampled in increments of 30, with at least 1 replacement included for each multiple of 30 required. The variation reflected in the number of sampled FDCHs is due to the need to abstract extra cases to offset variance caused by the loss of a sponsor and its accompanying sample.

Sponsor	Sampled FDCHs[28]	Share of FDCHs Sponsor Classified as Tier I	Tier I Misclassification Rates		
			Procedural Misclassification Rate	Primary Verified Misclassification Rate	Secondary Verified Misclassification Rate
344	95	62.11%	30.5%	10.2%	10.2%
345	31	32.26%	30.0%	10.0%	10.0%
346	12	66.67%	0.0%	0.0%	0.0%
347	18	66.67%	0.0%	0.0%	0.0%
348	31	80.65%	4.0%	0.0%	0.0%
349	59	49.15%	6.9%	0.0%	0.0%
350	62	66.13%	22.0%	4.9%	4.9%
351	92	56.52%	30.8%	7.7%	7.7%
352	33	60.61%	15.0%	15.0%	15.0%
353	61	70.49%	34.9%	18.6%	16.3%
354	31	67.74%	81.0%	0.0%	0.0%
355	31	38.71%	50.0%	25.0%	25.0%
356	31	64.52%	35.0%	25.0%	20.0%
357	31	41.94%	0.0%	0.0%	0.0%
358	124	45.16%	37.5%	28.6%	28.6%
359	34	79.41%	22.2%	0.0%	0.0%
360	93	79.57%	33.8%	2.7%	2.7%
361	31	64.52%	45.0%	10.0%	10.0%
362	31	83.87%	19.2%	0.0%	0.0%
363	7	57.14%	75.0%	75.0%	75.0%
364	24	75.00%	88.9%	11.1%	11.1%
365	31	100.00%	6.5%	0.0%	0.0%
366	31	96.77%	6.7%	0.0%	0.0%
367	34	94.12%	3.1%	0.0%	0.0%
368	31	100.00%	12.9%	0.0%	0.0%
369	31	100.00%	100.0%	0.0%	0.0%
370	31	100.00%	0.0%	0.0%	0.0%
371	34	100.00%	0.0%	0.0%	0.0%
372	31	70.97%	9.1%	4.5%	4.5%
373	31	100.00%	45.2%	0.0%	0.0%
374	31	100.00%	12.9%	0.0%	0.0%
375	31	54.84%	35.3%	17.6%	11.8%
376	31	74.19%	21.7%	13.0%	13.0%
377	31	100.00%	12.9%	0.0%	0.0%
378	31	100.00%	29.0%	0.0%	0.0%
379	31	87.10%	3.7%	3.7%	3.7%
380	31	100.00%	87.1%	0.0%	0.0%
381	34	100.00%	47.1%	2.9%	0.0%
382	31	96.77%	13.3%	0.0%	0.0%
383	62	85.48%	26.4%	1.9%	1.9%
384	34	94.12%	6.3%	3.1%	3.1%
385	31	87.10%	11.1%	0.0%	0.0%
386	31	93.55%	27.6%	0.0%	0.0%
387	31	87.10%	37.0%	7.4%	0.0%
388	31	70.97%	27.3%	0.0%	0.0%
389	31	51.61%	12.5%	6.3%	6.3%
390	31	48.39%	13.3%	6.7%	6.7%

Sponsor	Sampled FDCHs[28]	Share of FDCHs Sponsor Classified as Tier I	Tier I Misclassification Rates		
			Procedural Misclassification Rate	Primary Verified Misclassification Rate	Secondary Verified Misclassification Rate
391	30	60.00%	22.2%	5.6%	0.0%
393	26	50.00%	0.0%	0.0%	0.0%
301	36	58.33%	47.6%	0.0%	0.0%
Unweighted Total	**3,284**	**74.5%**	**28.5%**	**4.63%**	**4.09%**

Appendix B.
Assumptions in Sample Selection and Weighting Procedures

APPENDIX B. ASSUMPTIONS IN SAMPLE SELECTION AND WEIGHTING PROCEDURES

Sampling Design

The sampling approach was designed to allow for the production of national point estimates of the number of misclassified FDCHs and a cost range, in terms of misallocated reimbursements, to be associated with these erroneous tiering designations. The assessment required 90 percent confidence in these estimates, ±2.5 percentage points. The Office of Research and Analysis (ORA) requested that we develop a sampling strategy that assumes an error rate no greater than 25 percent in the assignment of tiering levels by sponsor, and that was based on a population of 160,000 FDCHs at the time the initial design was derived. To obtain a sample of the required power and precision for year 1 (2005 wave), it was determined that the process would require the selection of 30 FDCHs for each of the 7 sponsors within 15 States, for a total of 3,150 FDCHs. The standard errors obtained from such a sample were examined at the end of the assessment and were found acceptable for its objectives. Even though some additional variables were examined, the sampling design for 2006 was identical to that of the 2005 Assessment. For the rationale for the sampling design, see the year 1 sampling plan (*CACFP Tiering Assessment — 2005*).

Again as in the 2005 wave of the Assessment, FDCHs are clustered within sponsors, which in turn, are nested within individual States. To derive the equivalent of a random sample at an acceptable cost, we first selected the States.[29] Then, within the selected States sponsors were selected. States were selected on the basis of probabilities proportionate to size (PPS), and the same was done for sponsors within selected States once contact information from the State agencies was provided. Once sponsors were selected, we obtained a list of homes from each sponsor, and we selected FDCHs for assessment and abstraction of files randomly. For (i) States and (ii) sponsors, the size measure was the number of FDCHs relative to (i) the number of FDCHs participating in the United States and (ii) the number of FDCHs participating in the sponsors' States.

Selecting States

Because many other processes depended on an expedited selection of States, Macro selected States based upon the most current data available from FNS at the beginning of the assessment in September 2007. As outlined above, the assumption of an error rate no greater than 25 percent in the assignment of tiering levels inferred an optimal sampling design that called for 30 FDCHs to be sampled from each of the 7 sponsors in each of 15 States, for a total of 3,150 FDCHs. Because of a sponsor who was not replaced in the assessment, extra cases were retained, so the final sample was 3,284. To minimize the design effect through weighting, the

[29]Territories such as Guam, Puerto Rico and the Virgin Islands were excluded; although the District of Columbia was included.

design also needed to assign each home approximately the same probability of selection as every other home. This was done with the PPS sampling procedure described earlier, whereby our size measure was the number of FDCHs in each State. PPS sampling may be done with replacement (where a sampled State always has a chance of being selected again), without replacement (where a State can only be sampled once) or with minimal replacement (where only States with sizes that exceed the sum of the sizes divided by the number to be sampled can be sampled more than once). Sampling with minimal replacement guarantees approximately the same probability of selection to every home while retaining a diversity of States. To implement this approach, we allowed for the possibility that States containing more than 1/15 of the total number of FDCHs might be sampled more than once. The calculation of the expectations of selection indicated that California was the only State that could be selected more than once in the assessment.

Our process for drawing the sample of States began after receiving the list indicating the number of FDCHs in each State from FNS. Each State needed to have at least 210 FDCHs participating in the CACFP (7 sponsors x 30 FDCHs). If a State had fewer than 210 FDCHs, its sponsors and FDCHs were combined with those of a neighboring State. This was done twice, once combining New Hampshire and Vermont, and again combining the District of Columbia and Virginia. For each State—combined or singularly—the proportion of all the FDCHs found in that State were multiplied by the number of States to be sampled (15) to provide the expected selection for the State. If this expectation was less than 1, the expectation represented the probability that the State would be selected once. If it was greater than 1, the integer represented the number of times the State was to be selected with certainty, and the modulus (the fractional part less than 1) became the probability that the State would be selected an additional time. The sum of all expectations equaled 15.

Once expectations were calculated, States were sorted by FNS region. Subsequently, and within regions, they were resorted ("shuffled") randomly. This procedure guaranteed proportional representation by region. With this approach, the number of States selected within each region was set within 1,[30] and each region was guaranteed to be represented by a minimum of one State. This last guarantee was not merely an artifact of the methodology, but was based on the fact that no region had less than 1/15 of the FDCHs in the Nation.

Exhibit B.1, using the latest FNS data, indicates the expected number of States that were to be selected for each region.

[30]Before the sample was drawn, the allocation of States per region could be determined within 1. For example, if the expectation for a particular region (the sum of the expectations for the States within the region) was 1.7, then we knew that at least one State in the region would be selected, and possibly two. Conversely, if the regional expectation was 0.7, then we could be sure that one State might be selected; but then again, it would be possible that zero State within the sample might be selected. Because the expectation for each region was never less than 1, we could be certain—before selection—that at least one State in every region would be drawn.

Exhibit B.1: The Expectation of the Number of FDCHs Selected per Region

Region	FDCHs	Expectation
1	16,610	1.74
2	11,369	1.19
3	13,950	1.46
4	32,775	3.43
5	21,389	2.24
6	17,874	1.87
7	29,225	3.06
Total	**143,192**	**15.00**

The exhibit shows that, in Regions 1, 2, 3, and 6, at least one State should be selected, with some chance of two States being selected in a region. We knew with certainty that at least two States and, perhaps, three would represent Region 4. Similarly, Regions 4 and 7 would be represented by a minimum of three States. Note that the regional expectations sum to 15, the number of States required by the sampling plan.

The next step in the process was to generate a random number between 0 and 1 and add it to the expectation of the first State in the ordering to form that State's cumulative expectation. For each subsequent State, the expectation for that particular State was added to the cumulative expectation of the previous State to form its cumulative expectation. The expectation for each State was equal to the number of FDCHs in the State, divided by the total number of FDCHs in the country, times the required number of States (15). Thus, in Exhibit A2.2, the expectation for Rhode Island was $(437/143{,}192) \times 15 = 0.457$. Similarly, the expectation for New York was $(8{,}222/143{,}192) \times 15 = 0.8612$.

The number of times a State was sampled can be represented by the equation:

(8) sj = Int(cj) - Int(cj-1)

where *c0* is the random number used to begin the process, *cj* is the cumulative expectation for Statej, *cj-1* is the cumulative expectation for Statej-1, and *Int(cj)* resolves to the largest integer less than or equal to *cj*. In Exhibit A.2, the expression of equation (8) becomes 1 for New York, where sj = Int(1.7400) - Int(0.8612) = 1 – 0 = 1. New York, therefore, is selected once.[31] As shown in Exhibit B.2, California was sampled twice, and 13 States were sampled once. None of the two-State combinations this year was entered in the sample. As expected, all regions were represented.

[31]For instance, 7 sponsors and 30 FDCHs per sponsor were selected from New York.

Exhibit B.2: State Sampling Procedure and the Resulting Sample of States

PSU*	State	FDCHs	Region	Expectation	Cumulative	Sampled
1	RI	437	1	0.0457	0.0457	0
2	NY	8,222	1	0.8612	0.9070	1
3	CT	946	1	0.0990	1.0060	0
4	MA	5,009	1	0.5247	1.5307	0
5	NH+VT	726	1	0.0761	1.6068	1
6	ME	1,272	1	0.1332	1.7400	0
7	DE	852	2	0.0893	1.8292	0
8	MD	3,586	2	0.3757	2.2049	0
9	VA+DC	2,661	2	0.2787	2.4836	0
10	WV	1,541	2	0.1614	2.6450	1
11	NJ	637	2	0.0667	2.7117	0
12	PA	2,093	2	0.2192	2.9309	0
13	SC	833	3	0.0872	3.0182	0
14	AL	1,227	3	0.1285	3.1466	0
15	KY	687	3	0.0720	3.2186	0
16	FL	2,409	3	0.2524	3.4710	0
17	NC	3,328	3	0.3486	3.8196	1
18	GA	3,411	3	0.3573	4.1769	0
19	MS	525	3	0.0550	4.2319	0
20	TN	1,530	3	0.1603	4.3922	0
21	MN	9,682	4	1.0142	5.4064	1
22	MI	6,210	4	0.6505	6.0569	1
23	WI	3,449	4	0.3613	6.4182	0
24	OH	3,691	4	0.3866	6.8048	1
25	IN	1,947	4	0.2040	7.0088	0
26	IL	7,797	4	0.8168	7.8256	1
27	TX	6,808	5	0.7132	8.5387	0
28	OK	2,732	5	0.2862	8.8249	1
29	AR	836	5	0.0875	8.9125	0
30	LA	5,735	5	0.6008	9.5133	0
31	NM	5,278	5	0.5529	10.0662	1
32	IA	2,289	6	0.2397	10.3059	0
33	ND	1,392	6	0.1458	10.4517	0
34	WY	448	6	0.0469	10.4986	0
35	SD	680	6	0.0712	10.5698	1
36	NE	2,756	6	0.2887	10.8585	0
37	UT	1,780	6	0.1865	11.0449	0
38	MO	1,623	6	0.1700	11.2150	0
39	MT	834	6	0.0874	11.3023	0
40	KS	4,139	6	0.4336	11.7359	1
41	CO	1,935	6	0.2026	11.9386	0
42	AZ	3,459	7	0.3623	12.3009	0
43	WA	3,258	7	0.3413	12.6422	1
44	CA	18,598	7	1.9482	14.5904	2
45	NV	229	7	0.0240	14.6144	0
46	ID	367	7	0.0384	14.6528	0
47	AK	456	7	0.0478	14.7005	0
48	OR	2,550	7	0.2671	14.9676	0
49	HI	309	7	0.0324	15.0000	0

Selecting Sponsors and FDCHs

Having selected the States, the next step was to select approximately seven sponsors from each State for each time the State was selected. Since we had no reason to select sponsors within States according to any criteria (e.g., location), the seven sponsors within States were chosen randomly. Further, the selection procedure for sponsors was identical to that used to select States, with sponsors known to have fewer than 30 FDCHs combined with other sponsors.

Once sponsors were selected, Macro contacted them to find out if they had multiple offices. They were asked for the number of FDCHs for which records could be found in each office. One office was selected with PPS for each time the sponsor was sampled. This was designed to reduce the time the data collector had to spend at the sponsor's various offices.

The sampling design was developed in such a way that if a fixed number of FDCHs (in this case, 30) were selected from each sponsor, the sample will be approximately self-weighing; every FDCH participating in the CACFP nationally will have the same probability of selection, hence an equal weight. We describe it as only approximately self-weighing because, at every step, size measures were obtained from different sources.

Also at the time of initial contact, sponsors were asked whether they could provide a list of all active FDCHs under their sponsorship (by e-mail or by fax).[32] For this year's assessment, the target month was September 2007. We drew the sample based on that month, asking sponsors to supply us with a list of all active FDCHs for September 2007. The 12-month retrospective data window for the current assessment was from October 2006 to September 2007.

In drawing the sample of FDCHs, we obtained a list of FDCHs from each sponsor. If the sponsor gave us a list of FDCHs active in the designated month (September 2007), we selected the sample with equal probability prior to the data collection activities and gave the data collector a list specifying the exact name of each FDCH to be selected. If we were unable to obtain such a list, we provided an ordered list to the data collector, who was instructed to select the first 31 FDCHs in the sponsor's files that were active in the designated month and to report the number of FDCHs not active that month. While the original intent was to select 30 FDCHs, in some cases fewer FDCHs were abstracted, since a sufficient number of FDCHs was not actually available. Our procedure called for the abstraction of one extra FDCH, when feasible, at each site. Because one sponsor declined to be part of the assessment and was unable to be replaced, extra FDCHs were selected in other sponsors within the State, as well as in other sponsors in other States. All extra cases were included in the sample to decrease the variance associated with dropping a sponsor. These data were examined and processed. After the data

[32]In the base year (2005 Assessment), we had hoped to be able to come up with a list of FDCHs that were active at any point during that Assessment's data window, June 2004 through May 2005. This turned out to be impossible to obtain; in fact, many sponsors could not provide us with the names of the FDCHs that had been active in any of the last 3 months. Consequently, to be consistent across the country, we drew our sample based on the FDCHs that were active (i.e., received some reimbursements) during May 2005. We likewise based our sample on FDCHs reported to be active that month. This methodology was repeated for the 2006 and 2007 assessments.

were processed, a sufficient number of FDCHs were added to the analytic file, as needed across projects, to bring the total sample to the intended total.

Weighting Procedures

The sampling design was developed to be approximately self-weighing; therefore every FDCH participating in the CACFP nationally will have the same probability of selection, hence an equal weight. However, in choosing States and sponsors, we relied on home counts from FNS initially, then from the States. Because of the different sources, the home count varied. In selecting States, we used national summary data provided by FNS. For example, let's say that State A was selected and then contacted to provide a list of sponsors and the number of FDCHs per sponsor. The FNS data may have reported 4,000 FDCHs for State A, while the State data listed 3,500 FDCHs. Similarly, the State data may have said that Sponsor B had 300 FDCHs, but when we contacted this sponsor, their list showed 350 active FDCHs.

The discrepancy in these numbers means that the assumptions under which we chose the sample were incorrect. Since State A was chosen on the basis of having 4,000 FDCHs, when it had only 3,500 FDCHs, the chance of an FDCH being selected from State A was higher than it should have been (4,000 is greater than 3,500). To offset this bias, we had to "weight" the observations in each State on the basis of the difference between the number of FDCHs that we thought was in the State and the number of FDCHs that were actually in the State.

The same logic applied to the choice of sponsors. In the example, we chose Sponsor B on the basis of having 300 active FDCHs, when it actually had 350 FDCHs. We had to make a second adjustment in computing the weight of each FDCH from this sponsor to account for the difference. We followed similar procedures in last year's assessment.

Finally, there is the issue of FDCHs that were selected for each sponsor. In a handful of cases, we found that an FDCH was not active in September 2007, when we collected meal counts at the sponsors' location. As noted, we drew a replacement FDCH, but this factor also affected the randomness of the selection process. If 3 of the 30 FDCHs selected from Sponsor B were found to be out of scope, we assumed that 10 percent of Sponsor B's entire list of FDCHs would also be out of scope. So the effective number of FDCHs from Sponsor B would not be 350 FDCHs, but 315 FDCHs.

In selecting weights, we use the probability of selection; but this is a somewhat ambiguous term. We can use the unconditional probability of selection, which means that we use the probability of selection of a unit as calculated before the sampling procedure even begins. Or we can use the probability of selection at each stage, conditional on the results of the sampling at the previous stage. The original intent was to use the unconditional probabilities. However, preliminary reports indicate that the intraclass correlation (i.e., the degree to which errors cluster in States and sponsors) would be higher than anticipated; recent findings (Saavedra 2005) indicate that the conditional probability of selection is more effective under those circumstances. But it is not the case that every home has the same probability of selection at

every stage. Hence, even with exact counts, using weights would be more effective than using unweighted estimates.

The specific procedures we used in obtaining the weight of an FDCH—correctly or incorrectly classified—are described in equations 9–14. By example, we describe the probability of selection of an FDCH from a State that contains less than 1/15 of all FDCHs nationally and from a sponsor that administrates less than 1/7 of all FDCHs within the State. The probability of selection for the home will be equal to the probability that the State is selected, multiplied by the probability that the home's sponsor is selected (given that the State was selected *m* times), multiplied by the probability that the FDCH is selected (given that the FDCH sponsor was selected *k* times). If data acquired from all sources were completely accurate and 30 FDCHs were selected from each sponsor, we would have—

(9) $\Pr[\text{State is selected}] = 15 * \left(\frac{N(FDCH\ in\ State)}{N(FDCH\ in\ Nation)}\right)$ for the probability of State selection;

(10) $\Pr[\text{Sponsor selected} \mid \text{State selected}] = 7 * \left(\frac{N(FDCH\ in\ Sponsor)}{N(FDCH\ in\ State)}\right)$ for the probability that the sponsor is selected given that the State is selected; and

(11) $\Pr[\text{FDCH selected} \mid \text{sponsor selected}] = \left(\frac{30}{N(FDCH\ in\ Sponsor)}\right)$ for the probability that the FDCH is selected, given that the sponsor is selected, where *Pr* signifies the "probability that", *N(FDCHs in Nation)* denotes the total number of FDCHs in the Nation, and *N(FDCHs in State)* denotes the total number of FDCHs in the selected State, and so forth.

Multiplying these three probabilities while recalling that we have already determined that we will select 30 FDCHs within each of the 7 sponsors within each of the 15 States, we get …

(12) $\Pr[\text{FDCH is selected}] = \frac{3{,}284}{N(FDCH\ in\ Nation)} = \frac{3{,}284}{143{,}192} = 0.02$

However, there are two sources of information for *N(FDCHs in State)* and two for *N(FDCHs in Sponsor*; these sources did not reconcile perfectly. FNS and the sampled States each provided a count of FDCHs in the State. Data from FNS describing *N(FDCHs in State)* were used to select the State, while the State provided a count that was used to select sponsors. Likewise, both the State and the selected sponsors provided a count of *N(FDCHs in sponsor)*. Therefore, the probability of selection of a home is …

(13) Pr[FDCH is selected] =

$$\frac{15 * N(FDCH\ in\ State \Leftarrow FNS)}{N(FDCH\ in\ Nation \Leftarrow FNS)} * \frac{7 * N(FDCH\ in\ sponsor \Leftarrow State)}{N(FDCH\ in\ State \Leftarrow State)} * \frac{30}{N(FDCH\ in\ sponsor \Leftarrow sponsor)}$$

which can be rewritten as…

(14)

$$3{,}150 * (\frac{N(FDCH\ in\ State \Leftarrow FNS)}{N(FDCH\ in\ State \Leftarrow State)})(\frac{N(FDCH\ in\ Sponsor \Leftarrow State)}{N(FDCH\ in\ Sponsor \Leftarrow Sponsor)}) \Big/ N(FDCH\ in\ Nation)$$

Where $\Leftarrow$ means "according to." Weights differ to the extent that State and sponsor data do not reconcile. The inverse of the probability of selection serves as the initial weight, whereby the probability of selection is calculated by the equation above.

The above equations were calculated based on the assumption of the probabilities of States being selected and of sponsors being selected within States. It should be added that in instances where a State could be selected more than once, we were really dealing with an "expectation" and not a true probability. For example, an expectation of 1.8 means that the State had a 20 percent probability of being selected only once, and an 80 percent probability of being selected twice. However, the weighting scheme presented here used the actual number of times a State was selected and the actual number of sponsors sampled from that State. Likewise, it used the actual number of times a project is selected and the actual number of FDCHs selected from that sponsor. Thus if a State was selected twice (as was California), the probability of selection of the State was 1, and the probability of selection of the sponsor was based on sampling 14 sponsors from the State. An analogous calculation takes place if a sponsor was selected more than once. Equations 9–11 then become:

(9)′ Pr[State is selected] = $\min(1, 15 * (\frac{N(FDCH\ in\ State)}{N(FDCH\ in\ Nation)}))$ for the probability of State selection;

(10)′ Pr[Sponsor selected | State selected m times] = $\min(1, m * 7 * (\frac{N(FDCH\ in\ Sponsor)}{N(FDCH\ in\ State)}))$ for the probability that the sponsor is selected, given that the State is selected m times; and

(11) Pr[FDCH selected | sponsor selected k times] = $\min(1.(k * (\frac{30}{N(FDCH\ in\ Sponsor)}))$ for the probability that the FDCH is selected given that the sponsor is selected k times.

However, as was explained, 30 FDCHs were not selected in every case; so the correct probability needed to be multiplied by n/30k, where *n* is the number of FDCHs actually sampled from the sponsor.

The equations for overall weights proceed analogously.

The sampling probabilities for the States were based on the national number of FDCHs based on FNS's data for the first 6 months of the fiscal year at the time the sample was drawn. Original weights used these probabilities, along with data provided by the States and sponsors. In previous years, weights were adjusted to add to the average number of FDCHs over the 12 months of the fiscal year. This year the weights were adjusted separately for each tier. This adjustment ensures that the weighted percentages and the numbers will correspond to the totals by tier that are reported in FNS documents.

Weights were adjusted by multiplying the original weight by the ratio of the FNS average number of Tier I FDCHs for the fiscal year (excluding States and territories not included in the sample, such as Alaska, Hawaii, Guam, and Puerto Rico) to Macro's estimate for Tier I FDCHs. The formulas for Tier I and Tier II FDCHs, respectively, are as follows:

For Tier I FDCHs
Weight = Original_Weight * (FNS Tier I FDCHs in Nation)/(Sum of Macro original weights for Tier I FDCHs)

For Tier II FDCHs
Weight = Original_Weight * (FNS Tier II FDCHs in Nation)/(Sum of Macro original weights for Tier II FDCHs)

Variance Estimation

Confidence intervals for several estimates (proportions and total dollars) were produced for the entire population of FDCHs and for the domains of FDCHs classified by the sponsor as Tier I and Tier II. The SAS procedure SURVEYMEANS was used to obtain the confidence intervals.

The SURVEYMEANS procedure used the Taylor expansion method to estimate sampling errors of estimators based on complex sample designs. This method obtains a linear approximation for the estimator and then used the variance estimate for this approximation to estimate the variance of the estimate itself. When there are primary sampling units (PSUs) or clusters in the sample design, the procedures estimate the variance from the variation among the PSUs. If the design is stratified, the procedures pool stratum variance estimates to compute the overall variance estimate.

For a multistage sample design, the variance estimation method depends only on the first stage of the sample design. Thus, the required input includes only first-stage cluster or PSU and first-stage stratum identification. One does not need to input design information about any additional stages of sampling. This variance estimation method assumes that the first-stage

sampling fraction is small or that the first-stage sample is drawn with replacement, as it often is in practice. However, the design can apply a finite population correction and allows for the input of the sampling rate in each stratum. If the sampling rate varies (unequal probability sampling), as it does in this assessment, one can create strata that approximate a uniform sampling rate.

The PSUs (or clusters) in the assessment were the States. However, one State (California) was a certainty, and one (Minnesota) was a near certainty. In those States, each sponsor became a PSU for variance estimation purposes. In Minnesota, one of the sponsors was sampled four times, because it was large. This large sponsor was divided into four PSUs, and two of the smaller ones were combined.

The clusters were then combined into 'strata, by similar size and geographic proximity. In this year's assessment, there were 32 clusters and 14 strata. The average probability of selection of the two clusters in a stratum was entered as the sampling rate of the stratum. This pairing of clusters is common in many variance estimation procedures, particularly when one needs to use a finite population correction.

One kind of estimate developed for the assessment is the proportion of errors, obtained for the total population and the Tier I and Tier II domains separately. The estimates (for each tier and for a total of all tiers) were obtained by adding the weights of the FDCHs incorrectly classified and by dividing the result by the sum of the weights.

The second estimate produced was an estimate of total dollar errors. In this case, the average was first obtained and multiplied by the reported total number of FDCHs obtained from the National Data Bank for FY 2006. In this way, the variance of the estimates of the total number of FDCHs in the program did not have to be included in the variance.

The variance estimates had their own error of estimate. As a result, when calculating the confidence intervals, one needed to take into account the variance of the variance estimates. To do this, one had to first obtain the degrees of freedom (the number of clusters minus the number of strata) and multiply the standard error by the *t* value for the 90 percent confidence interval for the degrees of freedom in question.

Appendix C.
Tiering Determination Instrument

STUDY ID: ST_____ SPON#_____ FDCH#_____

TO BE COMPLETED BY HEADQUARTERS STAFF ONLY

Eligibility **S** = School **C** = Census **I** = Income

Basis: **CAT** = Categorical **M** = Multiple types

FDCH NAME:_____

PART II A—FDCH MONTHLY MEAL REIMBURSEMENT (MEAL COUNT) REQUESTED FROM THE STATE

Complete the table below for the FDCH name above. Obtain all twelve months (October2006-September 2007) if accessible at data collection site. If not all twelve months are available, collect data for as many months as you can. ***DATA FOR SEPTEMBER 2007 IS REQUIRED.***

If, after your initial conversation with the sponsor contact, you find that this sponsor uses blended rates for this FDCH, indicate the conversion factor for this FDCH by using one of the methods below:

1) Percent of children eligible for high reimbursement rate: % of children:_____, OR

2) Specific rates for each type of meal: Breakfast rate:_____ Lunch/Supper rate: _____ snack rate: _____ , OR

3) Number of breakfasts in one month and total reimbursements for these breakfasts: # of breakfasts: _____ total reimbursement: _____

Number of:	September 2007						August 2007						July 2007					
	Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended	
	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**
Breakfasts																		
Snacks																		
Lunch/Supper																		

Number of:	June 2007						May 2007						April 2007					
	Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended	
	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**
Breakfasts																		
Snacks																		
Lunch/Supper																		

Number of:	March 2007						February 2007						January 2007					
	Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended	
	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**
Breakfasts																		
Snacks																		
Lunch/Supper																		

Number of:	December 2006						November 2006						October 2006					
	Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended	
	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**	adding	**total**
Breakfasts																		
Snacks																		
Lunch/Supper																		

STUDY ID: ST_____ SPON#_____ FDCH#_____

PART II B—FDCH BASIC INFORMATION

COMPLETE ONE FORM FOR EACH FDCH

***INSTRUCTIONS**: In most instances you will collect data in Parts III–VI of this form for FDCH that have a Tier I classification. For a Tier II FDCH ,if there is documentation in the file that work was done to gain Tier I status (e.g., copies of income tax forms), complete parts III-VI of this form as you would for a Tier I FDCH.*

FDCH Name: _____		Sponsor Assigned FDCH ID *this may be a name or a number, or not be available)* optional:	Term used: ID #:
FDCH Address: _____			

Tiering Status:	**TIER I**☐ **TIER II**☐	For Tier I: Date of most recent tiering determination:	_____ / _____ / _____ mm dd yyyy
		For Tier II: Date of most recent tiering determination:	_____ / _____ / _____ mm dd yyyy
If Tier II, is there evidence that the FDCH requested a new tiering determination in the last three years? *(circle one)*	**YES** ☐ **NO**☐ **N/A**☐	**If YES**, date of the request for new tiering determination:	_____ / _____ / _____ mm dd yyyy
Photocopy the most recent tiering determination including the date. If Tier II and there is evidence that FDCH requested a new tiering determination within the last three years, photocopy the request.		**Photocopies made (CHECK HERE):** ☐	

*If FDCH Is Being Dropped (**after acquiring permission from headquarters**), Complete The Section Below*

Reason for dropping FDCH*:___	Who approved dropping FDCH?	FDCH being replaced by *(Study ID # and name of replacement):*	

*CODES FOR DROPPING FDCH: 1) No meal reimbursement during Study time 2) Other (specify) _____

STUDY ID: ST_____ SPON#_____ FDCH#_____

TIERING DETERMINATION

PART III—TIERING DETERMINATION BY AREA ELIGIBILITY—SCHOOL BOUNDARY AREA

***INSTRUCTION**: If there is evidence that School Boundary information was collected to make the most recent tiering determination, complete the table below. If no such evidence is found, check "**NONE**" at the bottom of the table.*

A. 1. Full Name of School mandatory :_____

A. 2 Address of School (STREET/CITY) mandatory: _____

If information is available in the file, circle all grades included in the school named above:

Pre –K	K	1	2	3	4	5	6	7	8	9	10	11	12

A. TYPE OF DOCUMENTATION	B. Present at Sponsor Site? Y/N	C. Dated? Y/N	D. If Dated, Enter Date mm/dd/yyyy MONTH	DATE	YEAR	E. Initial or Signed? Y/N	F. Photocopy Needed?	G. Information not Available for Photocopy *(Specify Reason)*	H. Photocopy Made? Y/N
DOCUMENTATION OF SCHOOL STATUS									
State or county list of schools indicating all schools that meet the low income eligibility standard*							YES		
State or county list showing that the FDCH's elementary school *(listed in A.1 above)* meets the low-income eligibility standard*							YES		
Letter from school official to sponsor indicating school has 50% of children eligible for free/reduced meals							YES		
Other (specify): _____							YES		
IF NONE YOU MUST CHECK HERE:☐									
DOCUMENTATION THAT FDCH IS IN SCHOOL BOUNDARY AREA									
Current (dated) official School Boundary map showing FDCH's location w/in school boundaries							YES		
Signed/dated letter from school official verifying FDCH's location w/in school boundaries							YES		
Documentation of communication with a school official regarding the FDCH's address							YES		
Other (specify): _____							YES		
If NONE YOU MUST CHECK HERE: ☐									

*The low income eligibility standard is at least 50% of children eligible for free or reduced-priced meals. This can be either a list of all schools showing the share of income eligible children per school OR a list of the names of the schools that meet or surpass the 50% standard. Photocopy the page that displays the relevant elementary school.

**The source of these pages must be from a public agency such as the state Board of Education, local area School District or county busing coordinator.

*** If a range is given, write down the most recent year. For instance, for 2006-2007, the year you record is 2007.

STUDY ID: ST_____ SPON#_____ FDCH#_____

TIERING DETERMINATION (CONTINUED)

PART IV—TIERING DETERMINATION BY AREA ELIGIBILITY—CENSUS BLOCK GROUP

INSTRUCTION: *If there is evidence that Census Block Group information was collected to make the most recent tiering determination, complete the table below. If no such evidence is found, check "**NONE**. Complete the other question at the bottom of the second section of the table for cases where Census Block Group was used.*

	TYPE OF DOCUMENTATION	Present at Site? (Y/N)	Photocopy Needed?	Photocopy Made? Y/N
DOCUMENTATION SHOWING LOCATION OF THE HOME IN A 2000 CENSUS BLOCK GROUP				
	2000 block group boundary map from either Census or geo-mapping computer software program		YES	
	Document showing that this address is in the specified specific Census Block Group		YES	
	Other (specify):		YES	
	If NONE YOU MUST CHECK HERE ☐			
DOCUMENTATION SHOWING THAT THE BLOCK GROUP MEETS INCOME ELIGIBILITY STANDARD*				
	A page from a document showing the Census Block Group is income-eligible*		YES	
	A map of the Census Block Group indicating (possibly through color coding) the Census Block Group is income-eligible*		YES	
	Other (specify)		YES	
	If NONE YOU MUST CHECK HERE ☐			
OTHER QUESTION				
	Is there any documentation that the sponsor rejected using the School Boundary option because the school was in a rural area, had bused in students or was a magnet school? (check one) YES ☐ NO ☐			

*At least 50% of children are eligible for free and reduced-price meals.

STUDY ID: ST_____ SPON#_____ FDCH#_____

TIERING DETERMINATION (CONTINUED)

PART V—TIERING DETERMINATION BY ELIGIBILITY OF PROVIDER—CATEGORICAL

INSTRUCTION: *If there is evidence that information was collected about the provider's participation in any of the programs listed below to make the most recent tiering determination, complete the table below. If no such evidence is found, check "**NONE**" at the bottom of the table.*

TYPE OF DOCUMENTATION	Present at Site? (Y/N)	Dated? (Y/N)	Starting Date			Expiration Date			Initialed or Signed? (Y/N)	Case Number? Y/N	Photocopy Needed?	Photocopy Made? (Y/N)
			Month	Date	Year	Month	Date	Year				
FOOD STAMPS												
Certification/Letter/Print out from Food Stamp office											YES	
Authorization to participate card											YES	
Memo or record of phone call from agency official confirming eligibility											YES	
TANF/STATE WELFARE												
Certification/Letter/Print out from TANF office											YES	
Memo or record of phone call from agency official confirming eligibility											YES	
FOOD DISTRIBUTION PROGRAMS ON INDIAN RESERVATIONS (FDPIR)												
Document that confirms participation in this program											YES	
OTHER												
Document that confirms participation in other government welfare program (specify)												
IF NONE YOU MUST CHECK HERE: ☐												

STUDY ID: ST_____ SPON#_____ FDCH#_____

TIERING DETERMINATION (CONTINUED)

PART VI A—TIERING DETERMINATION BY ELIGIBILITY OF PROVIDER—INCOME, INFORMATION USED BY SPONSOR TO MAKE LATEST TIERING DETERMINATION

INSTRUCTION: If there is evidence that information on provider income was collected to make the most recent tiering determination, complete the table below. If no evidence is found for an item, check the appropriate box at the bottom of each section.

This information may be found on form that displays latest tiering determination, application, worksheet or other sponsor-kept record.

TYPE OF INFORMATION	Amount/ Number on Form	Frequency ****	Y/N	If YES, Record Date (mm/dd/yyyy)			Photocopy Needed?	Photocopy Made? (Y/N)
				Month	Date	Year		
INCOME AMOUNT USED IN TIERING DETERMINATION								
Total household income on tiering determination form or worksheet	$						YES, if not already made	
If *no indication on tiering determination form, worksheet or other sponsor kept record* of what amount of household income was used in tiering determination, CHECK HERE: ☐								
HOUSEHOLD SIZE USED IN TIERING DETERMINATION								
Number of *household members* on tiering determination form or worksheet	#						YES if not already made	
If *no indication on tiering determination form, worksheet or other sponsor kept record* of what number of household members was used in tiering determination, CHECK HERE: ☐								
KEY QUESTIONS (YOU MUST RECORD A RESPONSE)								
Is the SSN of the adult who signed the form included on the form?								
Is the form signed by an adult household member?							YES if not already made	

**** **Frequency of Income on Documentation**—**A**=Annual **M**=Monthly **TW**=Every Two Weeks **TM**=Twice a Month **W**=Weekly **D**=Daily **O**=Any Other Frequency (specify in table)

STUDY ID: ST_____ SPON#_____ FDCH#_____

FOR HEADQUARTERS OFFICE USE ONLY: **H. HOUSEHOLD SIZE:** _____ **H1. No. of Adults # ____** **H2. No. of Children # ____** **H3. Total # ____**

TIERING DETERMINATION (CONTINUED)

PART VI B—TIERING DETERMINATION BY ELIGIBILITY OF PROVIDER—INCOME DOCUMENTATION FOUND IN FILE

COMPLETE ONE FORM FOR EACH HOUSEHOLD MEMBER WITH INCOME *INSTRUCTION: Complete one form for each household member who has an income. (Exception: If a tax form is used to verify income and a joint return was filed, put the joint income on this form, write the names of the persons filing jointly, and insert the relationship to provider.) If the household member listed under "Member Name" has more than one source of income, and it is not included on a tax form that has already been listed as documentation, fill out an additional row for the documentation found for each source of income not already listed on the tax form.*

TYPE OF DOCUMENTATION	Relationship to Provider*	Income Code**	Documentation in File? (Y/N)	Type of Documentation in File***	Date of Documentation (mm/dd/yyyy)			Amt of Income on doc.+	Net or Gross? (N/G)	Frequency of Amount ****	Photocopy Needed?	Photocopy Made? (Y/N)
					Month	Date	Year					
MEMBER NAME												
											YES	
DOCUMENTATION OF OTHER INCOME FOR THE PERSON LISTED UNDER "MEMBER NAME" ABOVE												
											YES	
											YES	
If NONE, YOU MUST CHECK HERE: ☐												
IF TAX FORM FILED JOINTLY, INSERT NAME OF JOINT FILER ON TAX FORM AND RELATIONSHIP TO PROVIDER												

* **Relationship to Care Provider**—**CP**=Care Provider **SP**=Spouse of CP **CH**=Child of Care Provider **P**=Parent of Care Provider **O**=Other (specify relationship in table)

** **Income Codes**—**E**=Earned, Wages, Self-Owned Business **WUC**=Welfare, Unemployment, Child Support, Alimony **PS**=Pensions, Retirement, Social Security **O**=Any Other Earned Income (specify in table)

*** **Type of documentation in file**—**T**=Federal Tax Form **CT**=Schedule C of Federal Tax Form **S**=State Tax Form **PS**=Pay Stubs **PO**=Print Out from Official Agency **LE**=Letter from Employer **BL**=Benefit Letter **SF**=Statements from DC Families about Payment to Provider **D**=Statement from Provider (self-declaration) O=Other (specify in table)

**** **Frequency of Income on Documentation**—**A**=Annual **M**=Monthly **TW**=Every Two Weeks **TM**=Twice a Month **W**=Weekly **D**=Daily **O**=Any Other Frequency (specify in table)

\+ If abstracting data from the tax form, use the amount on line 22 from Form 1040; line 4 from Form 1040 EZ or line 15 from Form 1040A in the **Amount of Income** column. If abstracting data from Form 1040 Schedule C to document self-employment income, use line 31; or if Schedule C-EZ is used, use line 3 instead.

STUDY ID: ST_____ SPON#_____ FDCH#_____

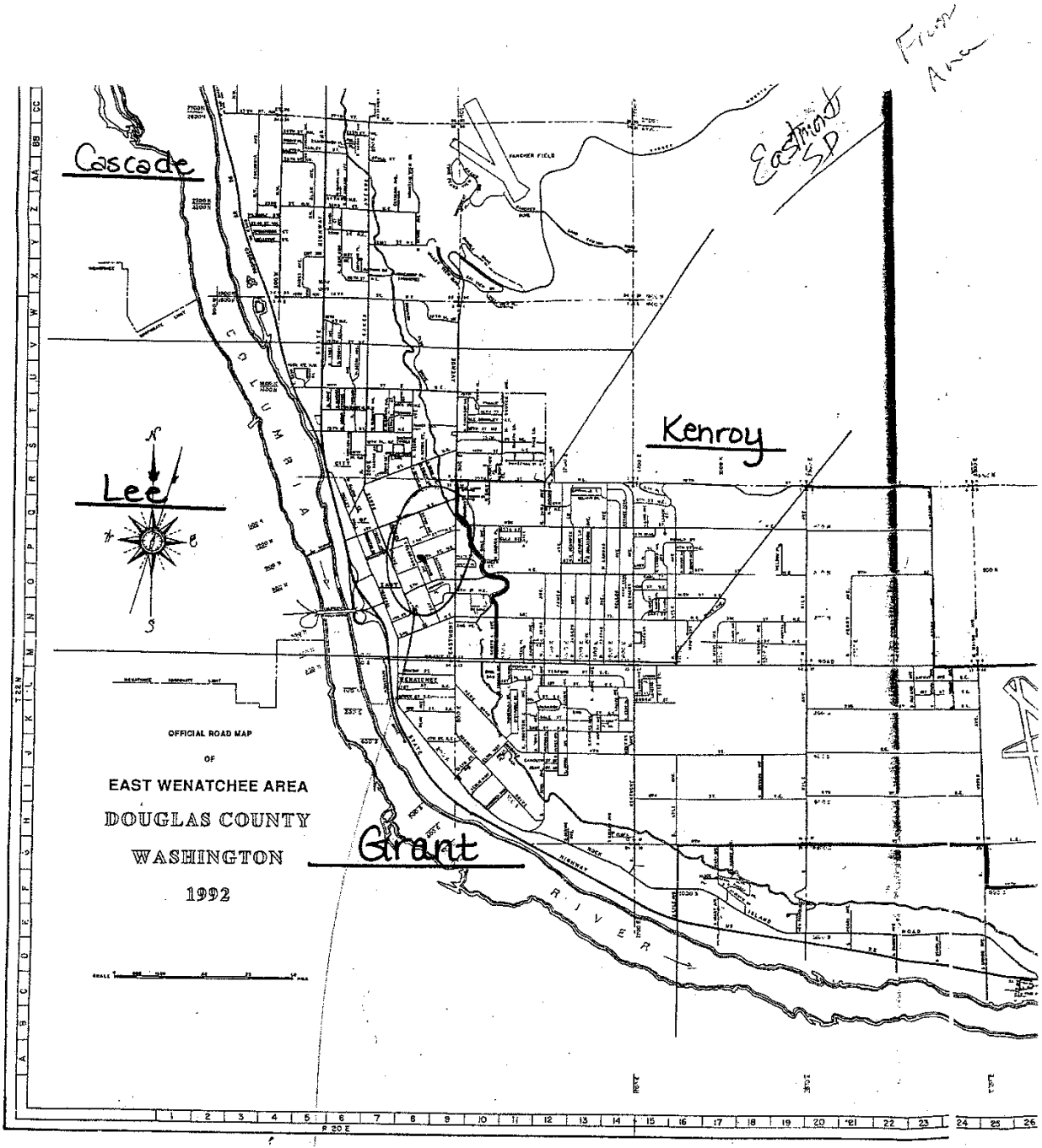
NOTES ABOUT MEAL COUNTS:

NOTES ABOUT TIERING DETERMINATION DOCUMENTS:

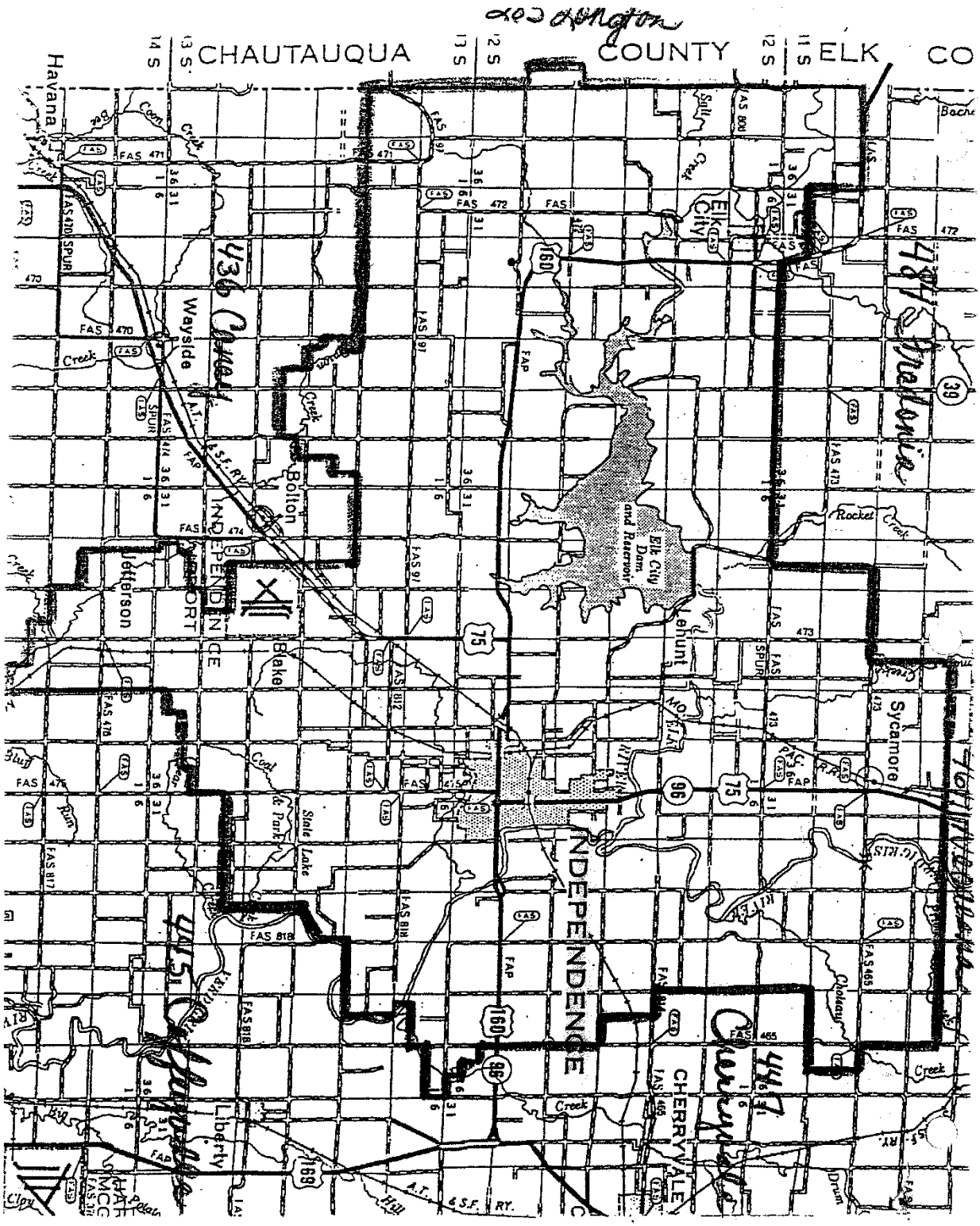
OTHER NOTES:

Appendix D.
Examples of Poor Documentation of Tier I Status

Example D.1: Date on School Map in the FDCH File Prior to 2003



Example D.2: No Date on School Map Provided in FDCH File



Example D.3: School Linking to FDCH Is FRP Ineligible

CALIFORNIA DEPARTMENT OF

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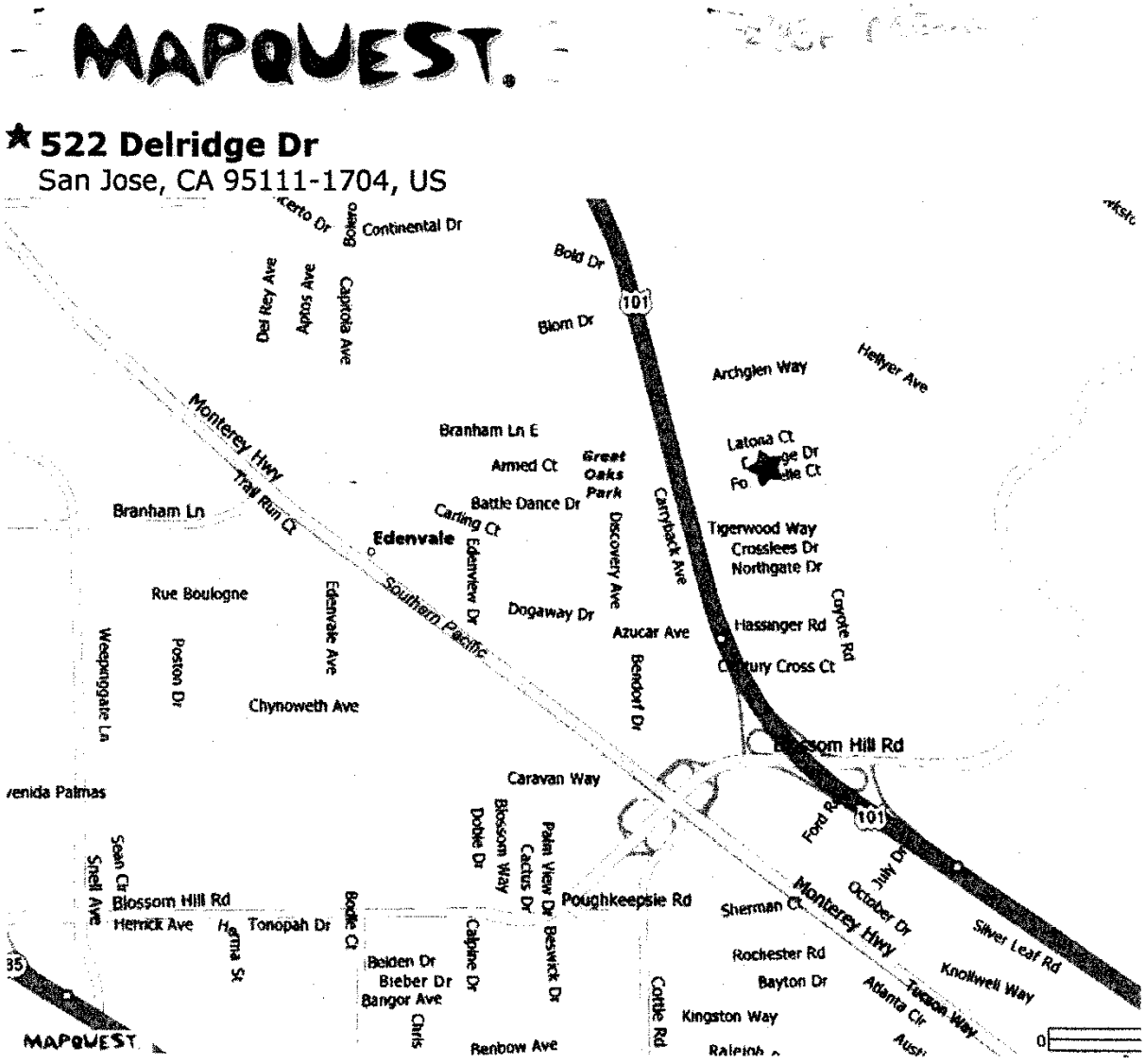
Friday, May 12, 2006

2005/2006 ELEMENTARY SCHOOL FREE/REDUCED MEALS — ALL SCHOOLS REPORTED

CO.	DIST.	CDS CODE SCHOOL	PUBLIC ENROLLMENT	FREE NO.	FREE PERCENT	REDUCED NO.	REDUCED PERCENT	FREE/REDUCED ELIGIBLE	FREE/REDUCED PERCENT
		Glider Elementary	647	139	21.48%	58	8.96%	197	30.45%
		Hayes Elementary	580	150	25.86%	51	8.79%	201	34.66%
		Julia Baldwin Elementary	526	169	32.13%	34	6.46%	203	38.59%
		Oak Ridge Elementary	557	123	22.08%	58	10.41%	181	32.50%
		Parkview Elementary	700	156	22.29%	87	12.43%	243	34.71%
		Rita Ledesma Elementary	477	144	30.19%	30	6.29%	174	36.48%
		Sakamoto Elementary	611	66	10.80%	22	3.60%	88	14.40%
		Samuel Stipe Elementary	473	354	74.84%	52	10.99%	406	85.84%
		Santa Teresa Elementary	670	166	24.78%	55	8.21%	221	32.99%
	Dist. Total	16	9,098	3,277		940		4,217	
	Orchard Elementary								
		Orchard Elementary	771	233	30.22%	79	10.25%	312	40.47%
	Dist. Total	1	771	233		79		312	
	Palo Alto Unified								
		Addison Elementary	407	20	4.91%	4	0.98%	24	5.90%
		Barron Park Elementary	291	65	22.34%	14	4.81%	79	27.15%
		Duveneck Elementary	460	18	3.91%	7	1.52%	25	5.43%
		El Carmelo Elementary	360	20	5.56%	15	4.17%	35	9.72%
		Escondido Elementary	478	27	5.65%	16	3.35%	43	9.00%
		Fairmeadow Elementary	379	16	4.22%	11	2.90%	27	7.12%
		Greendell Elementary	87		0.00%		0.00%		0.00%
		Herbert Hoover Elementary	369	16	4.34%	3	0.81%	19	5.15%
		Juana Briones Elementary	287	31	10.80%	7	2.44%	38	13.24%
		Lucille M. Nixon Elementary	412	15	3.64%	4	0.97%	19	4.61%
		Ohlone Elementary	418	9	2.15%	7	1.67%	16	3.83%
		Peckard Children's Hospital/Stanford	40		0.00%		0.00%		0.00%
		Palo Verde Elementary	363	21	5.79%	9	2.48%	30	8.26%
		Walter Hays Elementary	489	20	4.09%	5	1.02%	25	5.11%
	Dist. Total	14	4,840	278		102		380	
	San Jose Unified								
		Allen At Steinbeck	791	227	28.70%	62	7.84%	289	36.54%

Example D.4: Unofficial School Map in FDCH File, with No Signed Supporting Documentation



Example D.5: Self-Declared Ledger Sheet

Provider Name _____ Provider Number: _____

Monthly Net Child Care Profit/Loss Statement

This statement may be used to document your current net day care income if your tax forms (1040 and Schedule C) from the previous year do not accurately represent your day care's current net income situation. Self-Employed means business expenses subtracted from gross receipts. Expenses include cost of goods (including groceries) purchased, supplies, heat, child care insurance, etc. Gross receipts (income) include fees from parents and income from the CACFP for meals served to day care children. A net loss is reported as zero income (0).

Income (from previous month)

Parent Fees (include payments made by county)	$ 860.00 x4 = 3440
Child and Adult Care Food Program Payments	$ 764.00
Miscellaneous Income (field trip fees, etc.)	$ _____
Total Income	$ 4204.00

General Expenses (from previous month

Food	$ 800.00
Supplies (paper towels, soap, art & craft supplies, etc.)	$ 300.00
Toys (for business use)	$ 200.00
Child Care Insurance (divide annual premium by 12 months)	$ 100.00
Car Mileage (for business use)	$ 26.00
Outside Labor (payments to helpers)	$ —
Educational Classes (for business use)	$ 300.00
Advertising Costs	$ 100.00
Miscellaneous Office Expenses (bank fees, record keeping supplies, etc.)	$ 100.00
Legal/Tax Preparation Expenses/Bookkeeping Help	$ 100.00

Car Ins $175.00
Car payment $422.00
Car payment 440.00
2184
Phone + internet 60.00
Cell phone 89.00
2nd mort. Loan 213.11
Credit Loan 270.00
Taxes 250.00
Medical 312.00

Expenses for Business Use (BU) of Your Home (monthly)
(See reverse side of page to compute business use percentage (BU%)

	$ Monthly	x	BU %	=	$ Expense
Interest on Mortgage (if buying)	$ 2,000.00	x	25%	=	$ 500.00
Rent (if renting)	$ —	x	____	=	$ ____
Electric	$ 180.00	x	25%	=	$ 45.00
Gas/Oil	$ 105.00	x	25%	=	$ 26.25
Water/Sewer	$ 100.00	x	25%	=	$ 25.00
Garbage	$ 40.00	x	25%	=	$ 10.00
Home Repairs	$ 150.00	x	25%	=	$ 37.50
Property Taxes	$ 105.00	x	25%	=	$ 26.25
Homeowner's Insurance	$ —	x	____	=	$ ____
Depreciation on Home	$ —	x	____	=	$ ____
Depreciation on Equip/Furnishings	$ —	x	____	=	$ ____
Other	$ 300.00	x	____	=	$ 75.00

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Total Expenses (General Expenses plus Business Use Expenses) $ _____

Monthly Net Income (Total Income minus Total Expenses) $ 0

Example D.6: Self-Reported Ledger Sheet

2,078.40 +
84.65 +
002
2,163.05 *

Rent 925.00 +
Rent Ins 30.42 +
Yahoo 11.95 +
Insc 84.65 +
Supplies 635.62 +
Utilities 97.87 +
006
1,785.51 *

1,785.51 +
84.65 -
002
1,700.86 *

1,700.86 +
84.65 +
3,123.77 + 002
377.54 +
1,785.51 *
002
3,501.31 *

2,163.05 +
1,785.51 -
002
377.54 *