Appendix B: Technical Notes

I. Overview of TFS

The Teacher Follow-up Survey (TFS) is sponsored by the National Center for Education Statistics (NCES) of the U.S. Department of Education's Institute of Education Sciences (IES) and is conducted by the U.S. Census Bureau.

The TFS is a follow-up survey of selected elementary and secondary school teachers who have participated in the Schools and Staffing Survey (SASS)[1] and is conducted in the school year following the SASS data collection. The sample for TFS was selected from those teachers who participated in the SASS; it consisted of all who left teaching within the year after SASS and a subsample of those who continued teaching.

The major objectives of TFS are to:

- Provide estimates of teacher attrition rates;
- Examine the characteristics of those who stay in the teaching profession and those who leave, including retirees;
- Obtain data on occupations or other activities for those who leave teaching and career information for those who are still teaching;
- Update information on education, other training, and career plans; and
- Collect data on attitudes about the teaching profession and job satisfaction.

The Teacher Follow-up Survey was conducted in the 1988–89, 1991–92, 1994–95, and 2000–01 school years (after the 1987–88, 1990–91, 1993–94, and 1999–2000 administrations of SASS, respectively). NCES currently plans to conduct the next survey in the 2004–05 school year; it will collect data from a subsample of teachers who participated in the 2003–04 SASS.

Congress, state education departments, federal agencies, private school associations, teacher associations, and educational organizations have used data from the 1987–88, 1990–91, and 1993–94 SASS, and 1988–89, 1991–92, and 1994–95 TFS surveys.

II. Survey Content: 2000–01

A. Content Changes

Prior to the 2000–01 TFS administration, pre-tests were undertaken (for further explanation of the pre-tests, see section V). As a result of these pre-tests, the following additions and deletions were made to the TFS questionnaires between the 1994–95 and 2000–01 administrations.

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[1] For a complete description of the 1999–2000 Schools and Staffing Survey, see 1999–2000 Schools and Staffing Survey: Data File User's Manual (Tourkin et al. forthcoming).

1. Additions and Enhancements

   a. Questionnaire for Former Teachers (TFS-2)

      - Effectiveness of instructional leadership

      - Reasons for retirement

      - Impression of last year's school

      - Factors that may influence return to teaching

      - Increased use of rating scales to measure reasons for leaving and job satisfaction

      - Race/ethnicity categories were revised to allow for multi-race reporting

   b. Questionnaire for Current Teachers (TFS-3)

      - Computers and technology in the classroom

      - Scheduling and planning activities

      - Increased use of rating scales to measure reasons for moving and job satisfaction

      - Race/ethnicity categories were revised to allow for multi-race reporting

2. Deletions

   a. Questionnaire for Former Teachers (TFS-2)

      - Effective steps to encourage teacher retention

   b. Questionnaire for Current Teachers (TFS-3)

      - Teaching methods

      - Effective steps to encourage teaching retention

B. Final Content of 2000–01 TFS

The following is a brief description of the components of the 2000–01 TFS.

- The Teacher Status Form for Public and Private Schools (TFS-1) is an administrative form sent to principals in order to determine whether teachers who participated in the 1999–2000 SASS remained in the school, moved to another school, or left the teaching profession. This information is used to help locate and administer the appropriate questionnaire to TFS participants.

- The Questionnaire for Former Teachers (TFS-2) obtained information such as employment status, reasons for leaving the teaching profession, future employment and educational plans, impressions of last year's school, of teaching in general, and of the current occupation relative to teaching.

- The Questionnaire for Current Teachers (TFS-3) obtained information such as teaching assignments and certification, conditions and experiences of teaching in current school, scheduling and planning, computers and technology in the classroom, changes from last school year to this school year, and future education plans.

Copies of the 2000–01 TFS questionnaires may be obtained on the Internet at *http://nces.ed.gov/surveys/sass/questionnaire.asp* or by e-mail to *SASSdata@ed.gov*.

C. Sampling Changes

Due to processing delays in SASS, the final interview status for teachers was not available when the sample was selected for TFS. As a result, teachers were sampled based on their preliminary interview status in SASS. Of the 8,353 teachers selected for TFS, 643 ended up being nonrespondents for SASS based on the final interview status, making them ineligible for TFS. This represents a considerably higher proportion of the TFS sample

that was lost in 1994–95 and in other past rounds of TFS, and can be attributed to the processing delays in SASS. These 643 cases were teachers whose questionnaire responses were insufficient to be considered a final interview. This process occurs in all SASS data collections, in which what appear to be responses initially, end up as non-interviews after the criteria for a final interview are applied (usually, at least a small percentage of items must be filled in, plus a few critical items). In 1999–2000, delays to the processing of SASS meant that the final interview had not been run when the TFS sample had to be selected. Nonresponse bias analyses were performed on the 1993–94 and 1999–2000 SASS, but not specifically on the group that changed from interview to non-interview status during processing. Although these cases represent only 7.7 percent of the TFS sample, it is impossible to know if these cases have any impact on the attrition rates shown in this report without a specific analysis of the characteristics of these excluded teachers from SASS against the eligible teachers in TFS.

III. Target Populations, Sampling Frames, and Comparisons of Estimates

A. Target Populations and Key Terms

The target population for the 2000–01 TFS was the universe of elementary and secondary school teachers in the United States during the 1999–2000 school year. This population was divided into two components—those who left teaching after the 1999–2000 school year ("leavers") and those who continued teaching ("stayers" and "movers").

The following terms are used in this publication and are defined as they apply to TFS:

- *Teacher.* For the purposes of the Teacher Follow-up Survey, a teacher is any full-time or part-time school staff member who teaches one or more regularly scheduled classes in any of grades K–12 (or comparable ungraded levels). Pre-kindergarten teachers are included if they also teach kindergarten. In addition to regular full-time teachers, the following types of teachers are also included: (1) itinerant teachers, (2) long-term substitutes who fill the role of a regular teacher for at least three months, (3) administrators, counselors, librarians, or other professional or support staff who teach any regularly scheduled classes, and (4) other part-time teachers.

- *Leavers.* Teachers who left the teaching profession or teachers who were no longer teaching in any of grades K–12 after the 1999–2000 school year (includes teachers whose status changed to short-term substitute, student teacher, or teacher aide).

- *Movers.* Teachers who were still teaching any of grades K–12 in 2000–01, but had moved to a different school after the 1999–2000 school year.

- *Stayers.* Teachers who were still teaching any of grades K–12 and in the same school in 2000–01 as in 1999–2000.

- *Out-of-Scope TFS teachers.* Teachers who left the United States or died.

The following definitions were used in the 2000–01 Schools and Staffing Survey; they describe variables included on each TFS respondent's record to identify the school where he/she taught during the 1999–2000 school year. Many are also used in this publication.

- *Census region.* The four Census regions are:

  Northeast—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania

  Midwest—Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas

> **South**—Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas
>
> **West**—Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii

- *Common Core of Data.* The Common Core of Data is a group of surveys that acquire and maintain public elementary and secondary education data from the 50 states, the District of Columbia, and the outlying areas through the state-level (or equivalent) education agencies. Information about staff and students in public schools is collected annually at the school, LEA (Local Education Agency or School District), and state levels. Information about revenues and expenditures is also collected at the state level.

- *Local education agency (LEA).* LEAs, or public school districts, are government agencies that employ elementary or secondary teachers and are administratively responsible for providing public elementary/secondary instruction and educational support services. Included are education agencies that do not operate schools but employ teachers, e.g., regional cooperatives that employ special education teachers who teach in schools in more than one school district.

- *School, alternative.* Alternative schools serve students whose needs cannot be met in a regular, special education, or vocational school. They provide nontraditional education and may serve as an adjunct to a regular school. They fall outside the categories of regular, special education, and vocational education, although they may provide similar services or curriculum. Some examples of alternative schools are those for potential dropouts, residential treatment centers for substance abuse (if they provide elementary or secondary education), and schools for chronic truants.

- *School, BIA.* A BIA school is a school funded by the Bureau of Indian Affairs (BIA) of the U.S. Department of the Interior. Any school included in the *1997–98 Office of Indian Education Programs: Education Directory* is a BIA-funded school. This directory was the population frame for the Indian School component of the 1999–2000 SASS. Schools listed in the BIA directory receive federal funds but may be operated by a local school district, a local tribe, or as a public charter school.

- *School, Charter or Public Charter.* A charter school is a public school that, in accordance with an enabling state statute, has been granted a charter exempting it from selected state or local rules and regulations. A charter school may be a newly created school or it may previously have been a public or private school. It includes schools open for instruction as a public charter school as of the 1998–99 school year and operating in the 1999–2000 school year.

- *School, combined.* A combined school has one or more of grades K–6 and one or more of grades 9–12; for example, schools with grades K–12, 6–12, 6–9, or 1–12 are classified as combined schools. Schools in which all students are ungraded (i.e., not classified by standard grade levels) are also classified as combined.

- *School, elementary.* A school is elementary if it has one or more of grades 1–6 and does not have any grade higher than grade 8; for example, schools with grades K–6, 1–3, or 6–8 are classified as elementary schools.

- *School, private.* A private school is defined as a school not in the public system that provides instruction for any of grades 1–12 (or comparable ungraded levels). The instruction is typically given in a building that is not used primarily as a private home. Individual cases where instruction was primarily given in the home were manually checked to verify that the school was not a home school.

- *School, public.* A public school is an institution that provides educational services for at least one of grades 1 through 12 (or comparable ungraded levels), has one or more teachers, is located in one or more buildings, and is supported primarily by public funds. State schools (e.g., schools for the deaf or the blind),

schools in juvenile detention centers, and schools located on military bases in the U.S. and operated by the Department of Defense are included.

- *School, secondary.* A school is secondary if it has one or more of grades 7–12 and does not have any grades lower than grade 7; for example, schools with grades 9–12, 7–8, 10–12, or 7–9 are classified as secondary schools.

- *School, special education.* Special education schools provide educational services to students with special physical or mental needs, i.e., students with mental disabilities (such as mental retardation or autism), physical disabilities (such as hearing-impairment), or learning disabilities (such as dyslexia).

- *School, vocational.* Vocational schools primarily serve students who are being trained for semi-skilled or technical occupations.

- *Typology, private school.* Categories (three major ones with three sub-categories each) into which private schools are divided based on religious orientation, association membership, and program emphasis: 1) Catholic—parochial, diocesan, private; 2) Other religious—affiliated with a Conservative Christian school association (e.g., Accelerated Christian Education, American Association of Christian Schools, Association of Christian Schools International, Oral Roberts University Educational Fellowship), affiliated with a national denomination, unaffiliated; 3) Non-sectarian—regular, special program emphasis, special education.

- *Ungraded students.* Ungraded students are those who are not assigned to a particular grade level (kindergarten, first grade, second grade, etc.); for example, special education centers and alternative schools often classify their students as ungraded. Students in Montessori schools are also considered ungraded if the school assigns them to "primary" and "intermediate" levels instead of specific grades.

B. SASS Sampling Frames

More detailed information on the sample design for SASS can be found in the *1999–2000 Schools and Staffing Survey: Data File User's Manual*.

1. Public Schools

The SASS was designed to support estimates at the national, regional, and state levels for public school districts, schools, principals, teachers, and school library media centers. The public school sampling frame was based on the 1997–98 school year Common Core of Data (CCD), a file of information collected annually by NCES from all state education agencies and believed to be the most complete public school listing available at the time of sample selection. Public schools not in existence in school year 1997–98 or not opening as a result of a merger with an existing school were not included in the SASS sampling universe. The frame contains regular public schools and special purpose schools such as special education, vocational, and alternative schools. The frame was enhanced with a list of schools operated by the Department of Defense. After the deletion of duplicate schools, schools outside of the United States, and schools that only teach prekindergarten, kindergarten, or postsecondary students, 88,266 schools remained on the public school frame.

2. Private Schools

The SASS was designed to provide detailed private school estimates at the affiliation level. The sampling frame for private schools was derived from affiliation lists, because state coverage of private schools is uneven. The sampling frame for private schools was the 1997–98 Private School Survey (PSS), updated with more current information from 1998–99 private school affiliation lists (Broughman and Colaciello 1999). A list frame consisting of 28,164 schools was the primary private school frame. An area frame was used to identify schools not included on the list frame and thereby compensate for the undercoverage of the list frame. The area frame was taken from the 1997–98 PSS because there was no opportunity to

update it prior to SASS data collection. See Cole et al. (forthcoming) for more detail. The area frame consisted of 140 schools drawn from a sample of 3,142 counties throughout the nation, representing an estimated 1,760 schools not found on affiliation lists.

The affiliation group for a school was determined in a hierarchical order; that is, if more than one definition applied, the school was classified into the first group that applied:

1) Military—membership in the Association of American Military Colleges and Schools;

2) Catholic—affiliation as Catholic or membership in the National Catholic Education Association or the Jesuit Secondary Education Association;

3) Friends—affiliation as Friends or membership in the Friends Council on Education;

4) Episcopal—affiliation as Episcopal or membership in the National Association of Episcopal Schools;

5) Hebrew Day—membership in the National Society for Hebrew Day Schools;

6) Solomon Schechter—membership in the Schechter Day Schools;

7) Other Jewish—any other Jewish affiliation;

8) Missouri Synod—membership in the Lutheran Church, Missouri Synod;

9) Wisconsin Synod—affiliation as Evangelical Lutheran, Wisconsin Synod or membership in the Evangelical Lutheran Church, Wisconsin Synod;

10) Evangelical Lutheran—affiliation as Evangelical Lutheran Church in America or membership in the Association of Evangelical Lutheran Churches;

11) Other Lutheran—any other Lutheran affiliation;

12) Seventh-Day Adventist—affiliation as Seventh-Day Adventist or membership in the General Conference of Seventh-Day Adventists;

13) Christian Schools International—membership in Christian Schools International;

14) American Association of Christian Schools—membership in the American Association of Christian Schools;

15) Association of Christian Schools International—membership in the Association of Christian Schools International;

16) National Association of Private Schools for Exceptional Children—membership in the National Association of Private Schools for Exceptional Children;

17) Montessori—membership in the American Montessori Society or other Montessori associations;

18) National Association of Independent Schools—membership in the National Association of Independent Schools;

19) National Independent Private School Association—membership in the National Independent Private School Association;

20) Other—no affiliation with or membership in any of the groups listed above.

3. Public Charter Schools

The universe of 1,122 public charter schools was identified from a list provided by the Office of Educational Research and Improvement (OERI) as described in *The State of Charter Schools 2000* (2000). The OERI list was used since not all of the public charter schools were listed on the Common Core of Data (CCD). The OERI list included public charter schools open during the 1998–99 school year; there were 1,122 schools on the public charter school frame. To be included in the 1999–2000 SASS population of

public charter schools, public charter schools were required to still be open as a public charter school during the 1999–2000 school year. One hundred and twelve schools on the sampling frame failed to meet these criteria, resulting in 1,010 in-scope public charter schools.

An independent verification of charter school information was provided by the *National Charter School Directory 2000, Sixth Edition* (Dale 2000). Census personnel used this resource to verify the eligibility status of specific public charter schools.

4. Bureau of Indian Affairs-Funded Schools

The universe of BIA schools was identified from the 1997–98 list of schools provided by the Bureau of Indian Affairs. For the 1997–98 school year, there were 197 schools in the Department of Interior's Bureau of Indian Affairs, Office of Indian Education Programs (OIEP) "Education Directory" (Bureau of Indian Affairs 1998). Collecting and analyzing data from BIA schools is complicated because some BIA-funded schools are operated as public schools or public charter schools. Of the original 197 schools listed in the OIEP "Education Directory" for 1997–98, 124 were considered BIA schools; 65 were considered to be public schools; and 8 were considered to be public charter schools.

Starting from the 197 schools in the OIEP Directory, only 169 of the listed entities are considered to be schools meeting the eligibility requirements of SASS: the facility must provide educational services for any of grades 1 through 12. Some of the OIEP listings were for dormitories or schools that provided only preschool or adult educational services and thus are ineligible for the SASS. Out of these 169 schools, 152 were school respondents.

IV. Sample Selection Procedures and Sample Sizes

A. SASS Sample Selection Procedures

Selecting the teacher sample in public, private, and public charter schools involved the following steps:

a. The selected schools were asked to provide teacher lists using the SASS Teacher Listing Form; and

b. From the lists, 56,860 public school teachers (including BIA teachers), 10,760 private school teachers, and 4,438 public charter school teachers were selected.

The public, private, and public charter teacher sample selections are described together because identical methodologies were used. The only difference was in the average number of teachers selected within a school.

1. Teacher Frame

Each selected school was asked to provide a list of their teachers with selected information for each teacher. Of sampled schools, 7 percent of public schools, 14 percent of private schools, 9 percent of public charter schools, and 2 percent of Bureau of Indian Affairs (BIA) schools did not provide teacher listing forms. A factor in the teacher weighting system was used to adjust for these nonparticipant schools.

The sample schools were asked to provide the following information for each teacher listed:

- Whether the teacher was new or experienced, where "new" was defined as less than three years of total teaching completed and "experienced" was defined as three or more completed years of teaching;

- Race/ethnicity;

- Whether the teacher taught classes designed for students with limited-English proficiency; and

- Subject matter taught (general elementary, special education, math, science, English, social studies, vocational education, and all other teachers).

The above information for each teacher in a selected SASS school comprised the school teacher frame.

Within each selected school, teachers were stratified into one of five teacher types in the following hierarchical order:

1) Asian or Pacific Islander

2) American Indian or Alaska Native

3) Teachers of students with limited-English proficiency

4) New

5) Experienced

2. Within-School Teacher Allocation

First, the total number of sample teachers to be selected for each school without regard to strata was calculated assuming no teacher oversampling for new teachers. Then, to allocate across the strata, public school teachers were allocated to the new and experienced categories proportional to their numbers in the school. However, for private teachers, it was decided to oversample new teachers to ensure that there would be a sufficient sample of new teachers in the Teacher Follow-up Survey (TFS). (This was also done in the 1990–91 and 1993–94 SASS.)

Asian or Pacific Islander, American Indian or Alaska Native, and teachers of students with limited-English proficiency were oversampled at a rate to ensure a set number of each group was selected. To make sure a school was not overburdened, the maximum number of teachers sampled per school was set at 20. When the number of sampled teachers exceeded 20 in a school, the Asian or Pacific Islander, American Indian or Alaska Native and teachers of students with limited-English proficiency were proportionally reduced to meet the maximum requirement.

Within each teacher stratum, teachers were sorted by their subject matter taught (as reported by the principal on the SASS Teacher Listing Form). This method was used to assure a good distribution of teachers by subject matter taught.

Within each school and teacher stratum, teachers were selected systematically with equal probability.

A total of 72,058 teachers were selected (66,579 new and experienced, 1,666 Asian or Pacific Islander, 1,599 American Indian or Alaska Native and 2,214 limited-English proficiency class teachers). Table B1 shows the number of selected teachers in the SASS sample by teacher type and sector.

Table B1. Number of selected teachers in the SASS sample, by teacher type: 1999–2000

Teacher type	Public[1]	Private	Public Charter	Total
Asian/Pacific Islander	1,216	346	104	1,666
American Indian/Alaska Native	1,420	81	98	1,599
Teachers of students with LEP	2,040	61	113	2,214
New	7,012	2,426	1,325	10,763
Experienced	45,172	7,846	2,798	55,816
Total	56,860	10,760	4,438	72,058

[1] Public totals include Bureau of Indian Affairs-funded (BIA) school teachers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 Schools and Staffing Survey.

For more information on SASS, see the technical report *1999–2000 Schools and Staffing Survey: Sample Design and Estimation* (Cole et al. forthcoming).

B. TFS Sample Selection Procedures

The Teacher Follow-up Survey (TFS) is a survey of approximately 8,400 teachers who were interviewed in the 1999–2000 SASS Teacher Survey. As described earlier, the purpose of the 2000–01 TFS was to measure teacher attrition rates a year after the 1999–2000 SASS data collection. In SASS, schools were selected first. Next, teachers were selected within each sampled school. The TFS teachers were selected from the SASS teacher sample. The TFS sample is a stratified sample that was allocated in order to allow comparisons of stayers, movers, and leavers within sector (public/private/public charter), experience groups, and level. Therefore, for the TFS, the responding 1999–2000 SASS teachers were stratified by four variables (sector, teacher status, experience, teaching level) in the order shown below:

1. Sector (Public/Private School Indicator):

   Public—teachers who taught in a public school system or BIA school in the 1999–2000 school year;

   Public Charter—teachers who taught in a public charter school in the 1999–2000 school year;

   Private—teachers who taught in a private school in the 1999–2000 school year;

2. Teacher status:

   Leavers—teachers in the 1999–2000 school year who left the teaching profession prior to the 2000–01 school year;

   Stayers—teachers in the 1999–2000 school year who were still teaching in the same school in 2000–01 as they were in the previous school year;

   Movers—teachers in the 1999–2000 school year who were still teaching in 2000–01, but were in a different school in the 2000–01 school year;

   Don't know—teachers whose status was unknown (or was not reported) in 2000–01 by staff at their 1999–2000 school.

3. Experience (New/Experienced Teacher Indicator):

   New—teachers who had completed less than three years of teaching during the 1999–2000 school year;

   Experienced—teachers who had three or more years of teaching experience during the 1999–2000 school year;

4. Teaching level:

   Elementary—teachers who taught elementary students in the 1999–2000 school year regardless of the level of the school (elementary, secondary, combined) in which they taught;

   Secondary—teachers who taught secondary students in the 1999–2000 school year regardless of the level of the school (elementary, secondary, combined) in which they taught.

The sample for TFS was allocated from those teachers who participated in the SASS; it consisted of all who left teaching within the year after SASS and a subsample of those who continued teaching. All teachers with less than 3 years of teaching experience and who moved to a different school were included, while for teachers who were experienced and who moved to another school, the proportion sampled ranged from 23 percent for public teachers to 77 percent for public charter teachers, and 100 percent of private teachers. Teachers who stayed in the same school were sampled at lower rates, ranging from 4 percent for public teachers to 15 percent for private teachers and 27 percent for public charter teachers. The final TFS sample allocation, which is summarized in table B2 on the following page, was selected to ensure that a sufficient number of teachers from each of the respective sectors were included in the sample to provide nationally representative estimates.

Table B2. TFS sample allocation: 2000–01

	Total	New	Experienced
Public[1]	5,077	1,611	3,466
Leavers			
Total	2,095	242	1,853
Elementary	684	73	611
Secondary	1,411	169	1,242
Nonleavers	2,982	1,369	1,613
Elementary			
Total	1,529	618	911
Movers	644	301	343
Stayers[2]	885	317	568
Secondary			
Total	1,453	751	702
Movers	701	485	216
Stayers[2]	752	266	486
Public Charter	1,180	408	772
Leavers			
Total	199	70	129
Elementary	90	28	62
Secondary	109	42	67
Nonleavers	981	338	643
Elementary			
Total	498	182	316
Movers	162	79	83
Stayers[2]	336	103	233
Secondary			
Total	483	156	327
Movers	145	57	88
Stayers[2]	338	99	239
Private	2,098	844	1,254
Leavers			
Total	545	194	351
Elementary	265	93	172
Secondary	280	101	179
Nonleavers	1,553	650	903
Elementary			
Total	826	360	466
Movers	298	122	176
Stayers[2]	528	238	290
Secondary			
Total	727	290	437
Movers	253	90	163
Stayers[2]	474	200	274

[1] Public totals include Bureau of Indian Affairs-funded (BIA) school teachers.

[2] "Don't know" strata cases are included in the 'stayer' categories of this table.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–01 Teacher Follow-up Survey.

"Don't know" strata cases are included in the "stayers" categories of table B2. Because the actual status of these cases was unknown, they were sampled at the lower stayer sampling rate to ensure a representative sample was drawn, but were then mailed the Questionnaire for Former Teachers. Approximately 20 percent of these sampled cases were determined to be stayers and 80 percent were leavers.

Sorting. Within each public TFS stratum, teachers that were classified by the preliminary interview status recode (ISR) as an interview in the 1999–2000 SASS Teacher Survey were sorted by teacher subject, Census region, urbanicity, school enrollment and SASS teacher control number.

Sample Selection. After the teachers were sorted, teachers were selected within each stratum using a probability proportional to size procedure. The measure of size was the 1999–2000 SASS preliminary teacher weight,

which is the product of the Basic Weight, School Sampling Adjustment Factor, School Noninterview Adjustment Factor, preliminary version of the SASS final teacher weight, and the First-Stage Ratio Adjustment Factor after the SASS preliminary interview status had been assigned. Due to processing delays in SASS, the final SASS weight based on the final interview status was not available.

As stated earlier, since the selection was based on the preliminary interview status in SASS, 643 of the 8,353 teachers selected for TFS ended up being nonrespondents for SASS based on the final interview status, making them ineligible for TFS. See Table B3 for a detailed breakdown of TFS completion status by SASS final interview status.

Table B3: TFS final interview status, by 1999–2000 SASS final interview status: 2000–01

TFS final interview status	SASS final interview status		
	Interview	Noninterview	Out-of-Scope
Interview	6,758	307	130
Noninterview	929	167	32
Out-of-Scope	23	5	2

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 Schools and Staffing Survey and 2000–01 Teacher Follow-up Survey.

V. Pre-Testing Activities

A. Cognitive Interviews

During December 1999 and January 2000 Census staff conducted cognitive interviews in order to refine the questionnaires proposed for the 2000–01 TFS. All interviews were conducted by trained interviewers and tape recorded (with respondent permission). The sample was drawn from teachers in the Washington, DC and New York City metro areas. Respondents were offered a $30 incentive for their participation.

Summary of recommendations from cognitive interviews:

- Include middle points and not applicable (NA) categories with scales
- Maintain format consistency in numbering, lettering, and fonts
- Delete redundant items
- Reword several questions for greater clarity

For a more detailed summary of the findings and recommendations presented to NCES please refer to Pugh and Zukerberg (2000).

B. Expert Review

During February 2000, an expert review of the current and former teacher questionnaires was undertaken that focused on content and format.

Recommendations from the expert review included:

- Trim "unnecessary" list items
- Use bipolar point scales where both extremes are possible
- Change scale labels
- Reword and reorder several questions for better clarity

For more information, see *TFS 2000–01 Questionnaire Review* (Nelson 2002).

VI. Data Collection Procedures

A. Time Frame of the Survey

The Census Bureau collected the 2000–01 Teacher Follow-up Survey data during the 2000–01 school year. Table B4 summarizes the specific data collection activities and the time frame in which each occurred.

Table B4. TFS data collection schedule: 2000–01

Activity	Date of Activity
Advance letters mailed to LEAs and state administrators	August 2000
Teacher status forms (TFS-1) and letters mailed to sample schools	September 2000
Reminder postcards mailed to sample schools	September 2000
Telephone follow-up of teacher status forms not returned by schools	September–October 2000
Initial mailing of current and former teacher questionnaires (TFS-2 and TFS-3)	January 2001
Second mailing of current and former teacher questionnaires (TFS-2 and TFS-3)	February 2001
Telephone and personal visit follow-up of mail questionnaire nonrespondents (TFS-2 and TFS-3)	March–May 2001

SOURCE: U.S. Department of Education, National Center for Education Statistics.

B. Data Collection Procedures for TFS

In September 2000, the Census Bureau mailed teacher status forms (TFS-1) to sample schools that had provided lists of teachers for the 1999–2000 SASS. Teacher status was needed to select the sample for TFS. The schools were asked to complete the form by indicating whether each teacher listed was still teaching (stayer or mover) or had left the teaching profession (leaver). One week after the TFS-1 mailout, reminder postcards were mailed to the sample schools. In September and early October, Census interviewers telephoned schools that had not returned the TFS-1 to obtain the requested information.

The Census Bureau regional offices (ROs) were assigned nonresponse cases with no known telephone number for the TFS-1 Teacher Status Form. The ROs were also assigned former teacher (TFS-2) cases (leavers) for which Census did not have a home address and cases of current teachers (stayers or movers) (TFS-3) who were not teaching in the same school as the year before and for whom Census did not have a home address. These cases were sent directly to the ROs in early January 2001, so the ROs could attempt to locate these cases and administer the appropriate TFS questionnaire.

In January 2001, the TFS questionnaires were mailed to selected teachers and former teachers. Reminder postcards were mailed one week after the questionnaires. The Questionnaire for Former Teachers (TFS-2) was sent to sample persons reported by school administrators as having left the teaching profession. The Questionnaire for Current Teachers (TFS-3) was sent to sample persons who were reported as still teaching at the elementary or secondary level. When home addresses were provided, the questionnaires were mailed to the home with an enclosed introductory letter that explained the purpose of the survey as well as a statement of authority and assurance of confidentiality.

In February, the Census Bureau mailed a second questionnaire to each sample person who had not returned the first questionnaire. Also, for those who returned the first form and indicated that it did not apply to them (their status was incorrectly reported by their 1999–2000 school), the appropriate questionnaire was mailed to them. For example, if a sampled person who was teaching in another school received the questionnaire for former teachers (TFS-2), he/she was instructed to return the questionnaire; the Census Bureau sent the correct questionnaire (TFS-3 for current teachers) to the respondent during the second mailout.

In late March 2001, Census field staff began calling sampled persons who had not returned a mail questionnaire. If the interviewers were unable to contact a sampled teacher through a contact person (two contact persons had been listed by the sample teacher on the SASS form as knowing how or where to get in touch with him or her) or through directory assistance, they called the sampled person's 1999–2000 school to obtain information about the person's current address or employer. All nonresponse follow-up was completed in May 2001.

VII. TFS Reinterview Program

The purpose of the reinterview for the TFS was to find ways to improve the survey questions by reinterviewing teachers in the TFS sample, using a shortened version of the survey they received.

The Census Bureau's National Processing Center (NPC) mailed TFS reinterview questionnaires to the selected sample of former and current teachers. If after two mailouts, NPC had not received a completed questionnaire, then the case was passed along to the appropriate Regional Office (RO) for telephone follow-up.

The 2000–01 TFS reinterview included both former teachers and current teachers. The reinterview replicated the original interview's mode. If the original interview was completed by mail, the reinterview was completed by mail. If the original interview was completed by telephone, the reinterview was completed by telephone.

Once a week NPC received a list of completed original mail questionnaires. Within a week of receiving the list, NPC mailed out the reinterview questionnaires. The telephone reinterviews were done on a flow basis, using paper and pencil (PAPI) reinterview questionnaires. As field representatives (FRs) completed and mailed original telephone interviews to the ROs, the ROs prepared the reinterview questionnaires and mailed them to the senior field representatives (SFRs) to conduct the reinterviews.

Two reinterview samples were selected for the survey; the sample of current and former teachers was evenly divided between 3,920 cases. The goal of the reinterview was to get approximately 1,000 complete reinterviews for each sample group (former and current teachers). The oversampling was done to account for the potential nonresponse that was based on the 1994–95 TFS. The actual number of reinterviews that were completed was 1,065 cases for current teachers and 1,222 cases for former teachers.

Two reinterview questionnaires were used—the TFS-2(R) for former teachers and the TFS-3(R) for current teachers. Each questionnaire contained a subset of questions from its original questionnaire. After each reinterview, data from the reinterview were compared to the original answers and a reconciliation of the original response was conducted with the respondent. The reconciliation consisted of the following:

    a. determining the correct answer;

    b. determining if there is a difference;

    c. probing with questions to find out the reason for the difference; and

    d. recording and keeping track of the different reasons for the differences.

The TFS reinterviewing took place during the time period of February 2001 through May 2001.

VIII. Use of Improved Technology

A. Questionnaire Printing

The 2000–01 TFS was the first administration of TFS to use customized printing of questionnaires. DocuPrint equipment allows for printing data specific to any respondent on any page. For TFS, DocuPrint was used to print respondent's identification information on the questionnaires and personalize letters to respondents.

B. Imaging of Questionnaires

In previous administrations of TFS, Census Bureau staff keyed completed questionnaires. The 2000–01 TFS used imaging technology, and questionnaires were designed to meet the DocuPrint and imaging data capture design requirements for the Workflow Imaging Processing System (WIPS). All returned completed interviews were image data captured.

The WIPS does not have an integrated system to measure data quality. Staff developed an independent quality assurance (QA) module to evaluate and ensure the quality of the TFS imaged data—an after-the-fact estimation of the process average. If the batch failed the error tolerance, the entire batch was reprocessed and verified again. If the errors from the sample questionnaire were within acceptable tolerance, the batch was accepted and routed for output. Table B5 provides a summary of the 2000–01 TFS quality assurance procedures and outcomes.

Table B5. TFS Image Data Capture Quality Assurance Summary: 2000–01

Questionnaires Imaged	Former Teacher Questionnaire	Former Teacher Questionnaire (Reinterview)	Current Teacher Questionnaire	Current Teacher Questionnaire (Reinterview)
Total batches	267	65	559	62
Accepted	257	65	493	54
Rejected	10	0	66	8
Reject Rate	3.75%	0.00%	11.81%	12.90%
CFI Field Counts	25,276	5,394	65,463	4,637
CFI Errors	120	10	821	79
CFI Error Rate	0.47%	0.19%	1.25%	1.70%
KFI Field Counts	25,256	5,374	64,965	4,693
KFI Errors	78	7	176	17
KFI Error Rate	0.31%	0.12%	0.27%	0.36%

Note: "CFI" is the automated image data extraction and unrecognized fields keyed by a data operator. "KFI" is the verification process when a data operator re-keyed data from the sample questionnaire for comparison to the WIPS data.

SOURCE: U.S. Department of Education, National Center for Education Statistics.

C. Survey Design and Documentation System

One of the goals of the 1999–2000 SASS and 2000–01 TFS was to automate design, processing, and documentation activities more fully. Developing Surveys (DevSurv) software, developed by staff in the Special Surveys Division of Statistics Canada, was used to perform many functions and activities. Specifically, the Census Bureau used DevSurv to produce Computer Assisted Telephone Interview (CATI) specifications for SASS, spreadsheets for testing scenarios, database structures or record layouts for the survey data files, codebooks, as well as code to read the microdata files. The DevSurv software used information stored in a Paradox database. The information entered included such things as question text, response categories, specifications for edits, and specifications for derived variables. More information about the DevSurv software can be found in the *1999–2000 Schools and Staffing Survey: Data File User's Manual* (Tourkin et al. forthcoming).

IX. Response Rates

A. Survey Response Rates

Table B6 summarizes the weighted and unweighted response rates for interviews in the Teacher Follow-up Survey (shown in percentages). Interviews include teachers who met the criteria for inclusion in the TFS and who sufficiently completed questionnaires. Noninterviews refer to respondents who met the TFS criteria and were included in the sample, but who did not respond to the questionnaire or did not complete items necessary to be considered complete. Out-of-scope cases were deemed ineligible to participate in the TFS and were not included in the TFS sample. Reasons for an out-of-scope designation include respondents who moved out of the United States following the base year or who were deceased.

The unweighted response rates were calculated by dividing the number of interview cases by the total number of eligible cases. The weighted response rates were derived by dividing the number of interview cases weighted by the base weight by the total number of eligible cases weighted by the base weight. The base weight for each sample case is the inverse of the probability of selection.

Table B6. TFS survey response rates, by sector and teaching status, unweighted and weighted: 2000–01

Sampled Teachers	Unweighted	Weighted
Total	87.9	89.8
Current teachers	87.6	89.9
Former teachers	88.5	88.7
Public	89.1	90.1
Current teachers	87.9	90.1
Former teachers	90.9	90.5
Private	85.8	87.7
Current teachers	86.1	88.5
Former teachers	84.8	82.2
Public Charter	86.6	87.0
Current teachers	88.9	89.7
Former teachers	79.5	73.4
BIA	90.3	94.5
Current teachers	92.3	96.9
Former teachers	88.9	93.8

NOTE: Weighted using inverse of the probability of selection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–01 Teacher Follow-up Survey

Table B7. Survey response rates for the 1999–2000 SASS Teacher Listing Form, 1999–2000 SASS Teacher Questionnaire, and 2000–01 Teacher Follow-up Survey, weighted

Sampled Teachers	SASS Teacher Listing Form response rate[1]	SASS Teacher Questionnaire response rate[2]	Teacher Follow-up Survey response rate[3]	
			Current Teachers	Former Teachers
Total	91.2	82.4	89.9	88.7
Public	92.2	83.2	90.1	90.5
Private	87.0	77.4	88.5	82.2
Public Charter	91.3	78.6	89.7	73.4
BIA	97.5	87.4	96.9	93.8

[1] Percent of schools providing teacher listing forms for the 1999–2000 SASS sample, weighted

[2] Percent of eligible sample teachers responding to the 1999–2000 SASS Teacher Questionnaire, weighted

[3] Percent of eligible sample teachers responding to the 2000–01 Teacher Follow-up Survey, weighted

NOTE: Weighted using inverse of the probability of selection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 Schools and Staffing Survey and 2000–01 Teacher Follow-up Survey.

The lower response rate for public current teachers (see tables B6, B7) is explained by the fact that both movers and stayers completed the current teacher questionnaire. The response rate for public movers (83.0 percent) was much lower than the response rate for public stayers (91.2 percent), which reduced the overall average for this questionnaire to 90.1 percent.

A cumulative overall response rate is the product of the survey response rates shown in table B7: (SASS Teacher Listing Form response rate) (SASS Teacher Questionnaire response rate) (TFS response rate). The cumulative overall response rates by sector and teacher status for the 2000–01 TFS are:

Total current teachers: $(.912) (.824) (.899) (100) = 67.6$

Total former teachers: $(.912) (.824) (.887) (100) = 66.7$

Public current teachers: $(.922) (.832) (.901) (100) = 69.1$

Public former teachers:	$(.922) (.832) (.905) (100) = 69.4$
Private current teachers:	$(.870) (.774) (.885) (100) = 59.6$
Private former teachers:	$(.870) (.774) (.822) (100) = 55.4$
Public Charter current teachers:	$(.913) (.786) (.897) (100) = 64.4$
Public Charter former teachers:	$(.913) (.786) (.734) (100) = 52.7$
BIA current teachers:	$(.975) (.874) (.969) (100) = 82.6$
BIA former teachers:	$(.975) (.874) (.938) (100) = 79.9$

B. Item Response Rates

Table B8 is a brief summary of the unweighted item response rates for the 2000–01 TFS questionnaires. A response rate for an item is defined as the number of records with valid responses to that item divided by the number of eligible respondents for the item.

Table B8. Summary of TFS item response rates, unweighted: 2000–01

	Former Teachers	Current Teachers
Range of item response rates	29.8–100	11.5–100
Percentage of items with a response rate of 90 percent or more	91.20	96.60
Percentage of items with a response rate less than 80 percent	0.73	0.48
Items with a response rate less than 80 percent	30f	23f(11)

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–01 Teacher Follow-up Survey.

X. Imputation Procedures

For questionnaire items that should have been answered but were not, values were imputed by using data from (1) other items on the questionnaire, (2) the 1999–2000 SASS teacher survey record for the same respondent, and (3) data from the record for a respondent with similar characteristics (commonly known as the 'hotdeck' method for imputing for item nonresponse).

For some incomplete items, the entry from another part of the questionnaire, the SASS teacher survey record, or the data record for a similar case was directly imputed to complete the item; for others, the entry was used as part of an adjustment factor with other data on the incomplete record.

Computer processing carried out the procedures listed above. However, for a few items there were cases where entries were clerically imputed. The data record, SASS teacher file record, and in some cases the questionnaire were reviewed and an entry consistent with the information from those sources was imputed. This procedure was used when (1) there was no suitable record to use as a donor, (2) the computer method produced an entry that was outside the acceptable range for the item, or (3) there were very few cases where an item was unanswered (usually less than ten).

Values were imputed to items with missing data within records classified as interviews (Interview Status Recode (ISR)=1). Noninterview adjustment factors were used during the weighting process to compensate for data missing because the sample person was a noninterview (ISR=2).

Entries imputed to TFS records are identified by flags that denote the stage or type of imputation: 1 = original value was ratio adjusted; 2 = value was imputed by using data from other variables in the same record; 4 = value was imputed by using data from the sample file or SASS; 7 = value was imputed by using data from the record for a similar case (donor); 8 = value was imputed by hand (clerical); 0 = not imputed.

The variable names for these flags are F_*variable name*, where *variable name* is the variable name for the data entry, e.g., F_F0059 is the imputation flag for variable F0059 (item 6 of the former teacher questionnaire).

For more information on survey imputation, see Little and Rubin (1987), Kalton and Kasprzyk (1986), Kalton (1983), Madow, Olkin, and Rubin (1983), and Kalton and Kasprzyk (1982).

XI. Weighting

A. SASS Teacher Weights

The final weight for public, BIA, public charter, and private school teachers is the product of:

(Base Weight) and (School Sampling Adjustment Factor) and (Teacher Sampling Adjustment Factor) and (School Noninterview Adjustment Factor) and (Teacher-within-school Noninterview Adjustment Factor) and (Frame Ratio Adjustment Factor) and (Teacher Adjustment Factor)

where:

- **Base Weight** is the inverse of the probability of selection of the teacher.

- **School Sampling Adjustment Factor** is an adjustment that accounts for unusual circumstances that affect the school's probability of selection, such as a merger, split, or duplication.

- **Teacher Sampling Adjustment Factor** is an adjustment that accounts for the experienced teachers from non-BIA/non-public charter schools that were subsampled out during mail nonresponse follow-up. Subsampling was necessary because the nonresponse follow-up workload was considerably higher than expected, overwhelming available interviewing resources. If a teacher that was subsampled out for follow-up returned a questionnaire by mail, the teacher record was processed with all the other interviewed teachers.

- **School Noninterview Adjustment Factor** is an adjustment that accounts for schools that did not have teachers selected because Teacher Listing Forms were not provided by the school. It is the weighted (the product of the school base weight and the school sampling adjustment factor) ratio of total eligible in-scope schools to the total in-scope schools providing teacher lists, computed within cells.

- **Teacher-within-school Noninterview Adjustment Factor** is an adjustment that accounts for sampled teachers that did not respond to the survey. It is the weighted (product of all previously defined components) ratio of the total eligible teachers to the total eligible responding teachers computed within cells.

- **Frame Ratio Adjustment Factor** is a factor that adjusts the sample estimates to known frame totals of number of teachers. For the set of noncertainty schools, the factor is the ratio of the frame estimate of the total number of teachers to the weighted (product of all previously defined components) sample estimate of the total number of teachers. These factors are computed within cells. The sample estimate uses the frame count of the number of teachers in the school. For public schools, the 1997–1998 CCD was used as the frame and the teacher counts were in terms of FTEs. For private schools, the 1997–98 PSS was used as the frame and teacher counts were in terms of headcounts. Teachers from certainty schools were assigned a factor of 1.0.

- **Teacher Adjustment Factor** is a factor that adjusts the inconsistency between the estimated number of teachers from the SASS school data files and the SASS teacher sample files. It is the ratio of the weighted number of teachers from the school data file for a cell to the weighted number of teachers on the teacher data file for a cell. The weight is the product of all previously defined components. This factor ensures that teacher estimates from the teacher file will agree with the corresponding teacher aggregates from the school file (after imputation) since the teacher file counts are being adjusted to agree with the school counts.

Note: Due to timing constraints, TFS sampling used a preliminary version of the SASS final teacher weight (based on the preliminary SASS interview status recode (ISR)), which consisted of the SASS base weight, sampling adjustment factor, school noninterview, teacher noninterview and first stage factor, but not the teacher adjustment factor.

B. TFS Teacher Weights

The final TFS sample weight equals:

TFS base weight x SASS weighting adjustment factor x TFS noninterview adjustment x TFS ratio adjustment, where:

- **TFS Base Weight** is the inverse of the probability of selecting a teacher for TFS. This weight is the product of the preliminary teacher weight from SASS (described in previous section) and the TFS subsampling adjustment factor. The TFS subsampling adjustment factor is an adjustment that accounts for the subsampling of current teachers from SASS sample teachers.

- **SASS Weighting Adjustment Factor** is used to adjust for the fact that preliminary SASS weights were used in computing the TFS base weight. The weighting adjustment factor adjusts for any changes that may have occurred between the preliminary and final SASS weighting calculations.

- **TFS Noninterview Adjustment** is the factor used to adjust for teachers who participated in SASS but did not participate in the 2000–01 TFS.

- **TFS Ratio Adjustment** is the factor used to adjust the TFS sample totals to known SASS sample totals. This adjustment ensures that the weighted number of TFS teachers (interviews, noninterviews, and out-of-scopes) will equal the weighted number of SASS teachers from 1999–2000.

XII. Reliability

TFS estimates are based on samples. The sample estimates may differ somewhat from the values obtained from administering a complete census using the same questionnaire, instructions, and procedures. The difference occurs because a sample survey estimate is subject to two types of errors: nonsampling and sampling. Estimates of the magnitude of the TFS sampling error can be derived or calculated, but not of nonsampling error. This section describes TFS nonsampling error sources, followed by a discussion of sampling error, its estimation, and its use in data analysis (Jabine 1994; Kalton et al. 2000).

A. Nonsampling Variability

Nonsampling errors are attributed to many sources, including:

- Inability to obtain information about all cases in the sample (Monaco et al. 1998; Scheuren et al. 1996)
- Definitional difficulties
- Differences in the interpretation of questions
- Inability or unwillingness on the part of the respondents to provide correct information
- Inability to recall information
- Poorly worded or vague questions (Salvucci et al. 1997)
- Errors made in collection (e.g., recording or coding the data)
- Errors made in processing the data
- Errors made in estimating values for missing data
- Undercoverage (Hammon 2001; Lee, Burke, and Rust 2001)

Quality control and edit procedures were used to reduce errors made by respondents, coders, and interviewers. More detailed discussion of the existence and control of nonsampling errors in the SASS and TFS can be found in the *Quality Profile for SASS Rounds 1–3: 1987–95* (Kalton et al. 2000).

B. Sampling Variability

Standard errors indicate the magnitude of the sampling error. They also partially measure the effect of some non-sampling errors in response and enumeration, but do not measure any systematic biases in the data. The standard errors mostly measure the variations that occurred by chance because a sample was surveyed rather than the entire population.

The sample estimate and its standard error enable one to construct confidence intervals, or ranges that would include the average result of all possible samples with a known probability. For example, if all possible samples were selected and surveyed under essentially the same conditions and with the same sample design, and if estimates and their standard errors were calculated from each sample, then—

- Approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the average result of all possible samples.

- Approximately 95 percent of the intervals from 1.960 standard errors below the estimate to 1.960 standard errors above the estimate would include the average result of all possible samples.

The average estimate derived from all possible samples is or is not contained in any particular computed interval. However, for a particular sample, one can say with the specified confidence that the confidence interval includes the average estimate derived from all possible samples.

Standard errors were estimated using a bootstrap variance procedure which incorporates the design features of the complex survey sample design (Kaufman 2000). Information about variance estimation software for complex sample surveys can be obtained from *http://www.fas.harvard.edu/~stats/survey-soft/survey-soft.html*.

XIII. Statistical Tests

The tests of significance used in this analysis are based on Student's t statistics. As the number of comparisons that are conducted at the same significance level increases, it becomes more likely that at least one of the estimated differences will be significant merely by chance, that is, will be erroneously identified as different from zero. Even when there is no statistical difference between the means or percentages being compared, there is a 5 percent chance of getting a significant t value of 1.96 from sampling error alone. All the differences cited in this report are significant at the 0.05 level of significance.

XIV. Data Files

There are currently two types of data files produced for the 2000–01 TFS: restricted-use response rate files, which contain all cases in the original sample, and the restricted-use analysis files, which contain only those cases for which interviews were obtained. The restricted-use analysis files are fully imputed and weighted. The files used to generate the estimates in this report were the following:

ID	Questionnaire	Restricted-use response rate data files	Restricted-use analysis data files
TFS-2	Questionnaire for former teachers	9/27/2002	5/29/2003
TFS-3	Questionnaire for current teachers	9/27/2002	5/29/2003

Public-use files are not available at the time of this report, but will be released shortly. These files will be released following disclosure risk analysis and review.

XV. Cautions Concerning Change Estimates

Care must be taken in estimating change over time in a TFS data element, because some of the measured change may not be attributable to a change in the educational system. Some of the change may be due to changes in the sampling frame, to questionnaire item wording, or other changes.

The primary reasons for change include the following:

- Questionnaires were substantially revised. Questions were reworded based on the results of cognitive testing. The order of questions on the questionnaires was also changed.

- The sampling frame has changed somewhat over time. For example, the introduction of public charter schools into the educational system has affected estimates of noncharter public schools as well as public schools overall.

- Definitions and concepts have changed over time.

One major change to note is a change in the "community type" variable used in this report. The Common Core of Data (CCD) changed the Census Bureau's geographic coding of public schools in metropolitan and nonmetropolitan areas as of school year 1998–99. The definitional change was to redefine "rural" into two codes: code 7 remains as "rural outside a metropolitan area," while the new code 8 is for "rural within a metropolitan area." This recognizes the areas that are rural, even though the entire surrounding places may be defined as part of a metropolitan area. At the same time, there has been more reporting and assignment of locale codes for public schools using a more precise system of physical addresses (although some public schools still are using mailing addresses). The physical address allows for a more precise coding than at the ZIP code level of the mailing address of a public school. The change in the method of assigning locale codes has resulted in some cases shifting from one locale code prior to the 1998–99 school year to another as of 1998–99 and subsequent years. The 3-level urbanicity variable now includes the code 8 rural areas in the "urban fringe/large town" category, rather than as part of the "rural/small town" category. This definitional and operational change may result in some comparisons of schools by community type or locale over time that do not reflect actual change, but merely a shift in the distribution of schools by community type due to the difference in definition of rural areas or method of community type assignment.

XVI. Technical Notes References

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