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Status of Census Bureau Plans and Preparations for the 1990 Census

Statement of
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Before the
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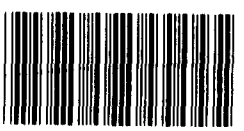
Committee on Post Office and Civil Service
House of Representatives

and

Subcommittee on Federal Services, Post Office
and Civil Service
Committee on Governmental Affairs
United States Senate



Messrs. Chairmen and Subcommittee Members:

I am pleased to appear today to participate in this joint hearing on the status of preparations for the 1990 census. This year is a critical one as emphasis begins to shift from planning to implementing the decennial census. The Bureau will be confronted with many important decisions and critical timeframes. The 1988 Dress Rehearsal, which began in January 1987, is the Bureau's final opportunity to test its 1990 procedures and equipment in a census-like environment. The first address list field operation for the 1990 census is scheduled to begin in March 1988--just 1 year from now.

The 1990 census will be a tremendously complex undertaking, perhaps more so than any prior census. Plans for increased automation and the introduction of new census procedures aimed at processing data faster and more accurately will present significant challenges. The Bureau also anticipates increased workloads, continued decline in public cooperation, and a reduced number of qualified temporary workers available to work on the census. The Bureau's plans for the 1990 census include having almost four times the number of 1980 processing offices, adding about 50 district offices, and increasing automation equipment.

These changes will severely test the Bureau's management capabilities, require longer lead times, and heighten the need for greater management control to ensure an effective and

efficient census. We appreciate the efforts the Bureau has made in testing new procedures and incorporating improvements, such as earlier starting dates, into its plans for the 1990 census. However, we do have some concerns that it will not be conducted in as effective and cost efficient manner as possible.

We see warning signs that delays in the execution of important preparatory activities could have repercussions on 1990 census operations. Delays plagued operations for the 1980 census; and, as in 1980, initial delays could require additional resources, necessitate deleting certain activities, and limit the Bureau's options for making operational adjustments.

We are also concerned that the Bureau's cost estimates continue to escalate. The current estimate of $2.6 billion is almost 45 percent higher than the figure given at this time last year. We expressed similar concerns with the Bureau's cost estimates for the 1980 decennial. During that census, the Bureau ran short of funds, causing disruptions in some census operations and requiring an additional $50 million.

At this time, I would like to briefly discuss some preliminary observations from our ongoing work.

DELAYS MAY HINDER CENSUS OPERATIONS

A number of activities are underway to prepare the offices, acquire the automated equipment and produce the supporting materials required for the initial decennial operations. Delays in these preparatory activities could cause delays in beginning the 1990 census and complicate subsequent operations.

The 1980 census ran into problems right from the start with the first address list field operation. The address list is the cornerstone of the census because it is used to control the mailing and return of census questionnaires. During the prelist operation, temporary census employees canvass rural and suburban areas to compile an address list. The 1980 operation was marred by schedule delays and poor map quality, which contributed to subsequent difficulties in the filed operations and required a number of shortcuts to complete the operation. For example, most maps were sent to the field without being reviewed for accuracy. As a result, less time was available for keying the prelist data, so not all data was keyed; this reduced the quality of the address lists and the cost efficiency of the operation.

To alleviate some of these problems for 1990, the Bureau plans to begin prelisting almost a year earlier than in 1980. The Bureau also plans to automate some census procedures, such as map production and the geographic support system.

We support the Bureau's plans to begin 1990 operations sooner and to increase automation for 1990. However, the earlier start-up dates will require earlier acquisition of the 1990 field offices, equipment, and staff. Also, sufficient lead time is needed for some of the supporting preparations, including developing and testing essential computer programs and producing maps needed for the address list operations. In the following sections, I will discuss how the current delays in map production, procurement of computer equipment, and office leasing could jeopardize the timely opening of 1990 offices and the conduct of census operations.

Delayed maps may jeopardize prelist operations

Maps are an essential supporting tool in the collection and interpretation of census data. They are used to follow up on unreturned questionnaires, distribute and collect questionnaires where personal interviews are conducted, and relate census counts to the proper geographic area. In 1980, the Bureau manually completed over 32,000 mapsheets, which were then divided into more than 300,000 individual assignment maps.

The Bureau's 1980 prelist operations suffered from two major problems--timeliness and map quality. The maps were about 4 months late, and were sometimes illegible, outdated, had indistinguishable features, or were of insufficient size for

census activities. Because of these problems, 1) the field staff did not always use the maps, 2) some information was miscoded, and 3) 37,000 changes were made to update the maps so that 1980 census results could be published based upon political boundaries in effect on January 1, 1980.

The Bureau has taken steps to address these problems by automating map production and geographic data files. This automation is intended to improve map quality and help reduce inconsistencies in the file. The development of the Bureau's automated geographic support system should be an important contribution to the 1990 census.

While improvements have been made, the Bureau is experiencing project delays and is anticipating cost increases in completing the system. It is behind schedule for a number of reasons, such as start-up delays associated with procurement problems, and delays in computer software development and data file building due to underestimation of the project's scope and complexity. Since the process of building geographic data files is sequential, delays in this task can affect the remaining schedule. Bureau officials report that additional steps have been taken to help resolve these problems, including hiring additional staff and procuring additional computer equipment.

Software testing may be limited by procurement delays

The availability of minicomputers is needed to complete the Bureau's development and testing of software programs for automated census operations. This equipment will be used to maintain the address and data files, and perform processing functions such as edit review to ensure completeness and consistency in the questionnaire data. The anticipated contract award date for the minicomputers has slipped 6 months--from December 1986 to May 1987. The equipment is not available for at least part of the Dress Rehearsal activities. The Dress Rehearsal is taking place in St. Louis, Missouri, and selected counties in Missouri and Washington.

The absence of the minicomputers, and inability to test the related software, could diminish the Dress Rehearsal's value. Also, if the procurement process is delayed further, the equipment and software may not be tested under census-like conditions prior to actual operations. The risk and consequent problems of not adequately testing software programs were demonstrated in the Bureau's 1986 test census in Los Angeles, California and Meridian, Mississippi.

During that test, numerous technical problems, such as computer down time, backlogs, and last minute operational modifications, occurred due to software problems. For example,

in Mississippi the correction keying software required 15 minutes to an hour to search and locate questionnaire data in the computer files, thus creating a backlog and idle keyers. Programmers from headquarters were not able to solve the problem, and keyers had to rekey all questionnaire data rather than keying only corrections. Although most of the software problems were manageable in a limited test census, the Bureau will not have sufficient experienced staff to resolve such problems if they occurred nationwide in the decennial census.

Early office openings may be jeopardized due to leasing delays

In 1980 the Bureau established three processing offices and 409 temporary district offices. In 1990, the Bureau plans to establish 11 to 12 processing offices and about 450 district offices. The first of the processing offices is scheduled to open in November 1987, for the Dress Rehearsal. Three more processing offices are expected to open in January 1988, in preparation for the decennial prelist activities. Preliminary market surveys are in process in several cities to identify potential processing office sites. These surveys will be followed by bid proposals for leasing contracts.

However, with less than 10 months remaining before the first processing office is to open, the site for this office has not been selected. Because Bureau officials estimate that 9 to 22

months are needed to lease and renovate office space, the Bureau may have difficulty in meeting its scheduled opening dates for the first four processing offices. Delays in acquiring office space will also delay the installation and testing of automation equipment and other preparations required before census operations can begin.

WHAT WILL THE 1990 CENSUS REALLY COST?

Preliminary indications suggest that the 1990 census will be more expensive than anticipated and not as cost efficient as it could be. The Bureau's cost estimates increased from $1.8 billion in 1986 to a recent estimate of $2.6 billion. The Bureau also recently dropped a major 1990 goal to contain costs to the inflation-adjusted 1980 per housing unit cost of $12. While we have not had the opportunity to review in detail the recently released supporting details for the $2.6 billion estimate, we are concerned that the cost estimates may continue to increase as 1990 decisions are finalized.

We have already seen specific examples of significant cost increases in one of the supporting decennial operations. The estimated cost of the automated geographic support system has risen from $194 million in 1982 to a maximum estimate of $371 million in 1986 if a full range of features is included. The Bureau attributes the increase to underestimating resources needed and to additional system features. Such a large projected

cost increase for just one facet of the 1990 census raises the question of what the overall cost will be.

Decennial costs, adjusted for inflation, have increased dramatically since the 1970 census. From 1960 to 1970, the per capita costs rose 18 percent, while from 1970 to 1980 these costs rose over 100 percent. On a per household basis, the census costs for 1980 were twice 1970 census costs. In 1980 dollars, the 1970 census would have cost about $471 million, while the 1980 census cost almost $1.1 billion.

Such increases resulted in funding shortages during 1980, which lead to disruptions in coding operations, delays in producing sample data, and reductions in data quality. Prior to the 1980 census, we identified problems with the Bureau's cost estimates. We reported that decennial budgeting was based on inadequate data, and inaccurate project costs. At the March 1977 appropriations hearings, the Bureau estimated 1980 census costs of $565 million--which turned out to be only about half of the actual costs.

We are also concerned that current 1990 plans place continued reliance upon labor-intensive procedures despite plans to spend large sums for automation equipment. We have reservations that the Bureau's plans will not maximize the use of automated technologies. For example, the Bureau is considering

using labor-intensive check-in and edit procedures for approximately 80 percent of the questionnaires, while only 20 percent will be checked in by high-speed laser sorters and edited by automated edit software. Also, the Bureau estimates that overall staffing requirements will not be reduced from 1980 levels. In 1980, about 460,000 persons were employed in the district offices during the course of the census and about 270,000 employees at peak operating times.

COVERAGE ADJUSTMENT DECISION WILL AFFECT 1990 OPERATIONS AND COSTS

Costs in 1990 will also hinge on some as yet undecided issues, one of which is whether the Bureau will adjust the 1990 population counts. The Bureau is scheduled to decide, in May 1987, the feasibility of adjusting population counts to improve the census accuracy. The issue of whether census counts should be adjusted was the subject of a number of legal suits filed against the Bureau following the 1980 census; some of these court decisions are pending. The adjustment decision holds important repercussions for office keying workloads, equipment and staffing requirements, data capture timeframes, and census costs.

A Post Enumeration Survey is at the heart of the Bureau's plans for adjusting the census count. A Post Enumeration Survey is an independent sample census whose results are matched to census results for coverage evaluation and adjustment purposes.

If the Bureau proceeds with the survey as currently planned, the processing offices would key about 16 million additional names. This keying workload would require an estimated 1,229 data keyers, for 5 months time, at a cost of more than $8 million.

Additional resources would also be required because the timetable for filming and computerizing the questionnaire data would have to be shortened to 10 weeks, compared to the 20 weeks used for this phase in the 1980 census. The time saved would be needed to process and match Post Enumeration Survey results with census data.

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In closing, let me summarize by saying that some progress has been made in attempting to resolve certain problems that occurred in 1980 but several important decisions have not yet been made. There also are many unknowns associated with new dimensions of the Bureau's plans for 1990, and we need to keep a steadfast eye on the cost issue and the progress the Bureau is making in meeting critical milestones. In this regard, these hearings are an important forum for discussing the potential problems the Bureau faces in completing the census in a timely and cost efficient manner. This concludes my statement, and I would be happy to respond to any questions.