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**Testimony**

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**2010 CENSUS**

**Costs and Risks Must be  
Closely Monitored and  
Evaluated with Mitigation  
Plans in Place**

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Highlights of [GAO-06-822T](#), a testimony before the Subcommittee on Federal Financial Management, Government Information and International Security, Committee on Homeland Security and Governmental Affairs, U.S. Senate

## Why GAO Did This Study

The decennial census is a constitutionally mandated activity, with immutable deadlines. It produces data used to allocate about \$200 billion yearly in federal financial assistance, reapportion the seats of the House of Representatives, and provide a profile of the nation's people to help guide policy decisions. The U.S. Census Bureau (Bureau) estimates the 2010 Census will cost \$11.3 billion, making it the most expensive census in the nation's history, even after adjusting for inflation. Based primarily on GAO's issued reports, this testimony addresses the extent to which the Bureau has (1) developed detailed and timely cost data for effective oversight and cost control, (2) reduced nonresponse mail follow up costs, and (3) produced risk mitigation plans to address identified challenges.

## What GAO Recommends

The Bureau is taking action on several of GAO's recommendations to reduce nonresponse time and mitigate contract-related risks. A January 2004 report contained recommendations to the Bureau for improving the transparency of the 2010 Census' life-cycle costs. While the Bureau did not agree with this recommendation, the Bureau stated that in response it would develop a comprehensive project plan that would include milestones, itemized estimated costs, and measurable goals.

[www.gao.gov/cgi-bin/getrpt?GAO-06-822T](http://www.gao.gov/cgi-bin/getrpt?GAO-06-822T).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Brenda S. Farrell at (202) 512-6806 or [farrellb@gao.gov](mailto:farrellb@gao.gov).

## 2010 CENSUS

### Costs and Risks Must Be Closely Monitored and Evaluated, With Mitigation Plans in Place

#### What GAO Found

The Bureau's most recent life-cycle cost estimate for the 2010 Census does not reflect the most current information from testing and evaluation nor provide complete information on how changing assumptions may affect cost. As GAO reported in January 2004, the Bureau derived its initial cost estimate by considering the cost of the 2000 Census along with certain assumptions that drive costs, such as staffing needs, the nonresponse rate for mailing back the census questionnaire, census worker productivity and pay rates, and inflation; however, GAO's ongoing work has found that the most recent (September 2005) estimate does not incorporate current information on certain 2001 assumptions. For example, the 2004 Census Test suggests some assumptions about staffing and space associated with new technology have changed. Specifically, Bureau evaluations indicate that more staff at the local census office was needed to support the use of the new hand-held mobile computing device (MCD) and additional storage space was needed for the MCDs.

Since 2000, the Bureau has reengineered the decennial census and has begun new initiatives to reduce nonresponse follow up costs. Key to the Bureau's steps to reduce the costs of nonresponse follow up is successfully using the MCDs to eliminate millions of paper questionnaires and maps. Importantly, the Bureau must first resolve the MCD's technological challenges. During 2004 and 2006 tests, the MCDs had significant reliability problems. For example, in the 2004 test the MCDs experienced transmission problems, memory overloads, and difficulties with the mapping feature. Bureau officials have contracted the design and implementation for a new MCD that will not be ready until the 2008 Dress Rehearsal. If after the Dress Rehearsal the MCD is found not to be reliable, the Bureau could be faced with the remote but daunting possibility of having to revert to the costly paper-based Census used in 2000.

The Bureau does not have risk mitigation plans to address certain identified challenges to a cost-effective census. Most notably, the Bureau does not have a plan to assess additional resources that may be needed to update the address and map file for areas affected by hurricanes Katrina and Rita. Moreover, the Bureau has not yet assessed whether new procedures will be necessary nor whether local partners will be available to assist in updating address and map data. Updating address files to reflect the changes caused by the hurricanes will be formidable, in part because, according to Red Cross estimates, nearly 525,000 people were displaced in a 90,000 square mile area. Another risk to be mitigated stems from the need to closely monitor the performance of about \$1.9 billion in contracts. The Bureau has agreed to take steps to mitigate some of those risks. For example, the Bureau has said it will enhance the ability of key contract project offices to better manage contracts through such actions as developing mitigation plans with milestones for key activities and regularly briefing senior managers.

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Mr. Chairman, Mr. Carper, and Members of the Subcommittee:

Thank you for the opportunity to be here today to discuss the life-cycle costs of the 2010 Census as well as the actions that the U.S. Census Bureau (Bureau) is taking to contain those costs. The Bureau estimates the 2010 Census will cost \$11.3 billion, which would make it the most expensive census in our country's history, even after adjusting for inflation. Since the 2000 Census, we have monitored how the Bureau has incorporated lessons learned from the 2000 Census into its planning for the next decennial census, as well as its cost and design. My overall point today is that the decennial's cost and risks must be closely monitored and evaluated, with mitigation plans in place to help ensure that accurate results are delivered on time and within projected costs. Based primarily on our issued reports, this testimony addresses the extent to which the Bureau has (1) developed detailed and timely cost data for effective oversight and cost control, (2) reduced nonresponse mail follow-up costs, and (3) produced risk mitigation plans to address identified challenges, such as assessing the resources that may be needed to update address files and maps in areas affected by hurricanes Katrina and Rita. I will also present the preliminary results of ongoing work—on which we plan to issue a report later this month—on the Bureau's efforts to build a complete and accurate address list, the foundation of a successful census.

As you know, Mr. Chairman, the decennial census is a crucial, constitutionally mandated activity undertaken by the Bureau. The stakes for a successful census are very high. The data that the census produces are used to reapportion the seats of the U.S. House of Representatives; realign the boundaries of the legislative districts of each state; allocate about \$200 billion dollars each year in federal financial assistance; and provide a social, demographic, and economic profile of the nation's people to guide policy decisions at each level of government. Further, businesses use census data to target new services and products and to tailor existing ones to demographic changes.

Mr. Chairman, I would like to commend the subcommittee for calling today's hearing, as past experience has shown that strong and continuing congressional involvement—especially while there is still time to make cost-effective decisions and influence the direction of the decennial census—is essential to the decennial's ultimate success. Today's hearing is particularly timely because the Bureau is currently holding the 2006 Census Test in the central portion of Travis County, Texas, and at the Cheyenne River American Indian Reservation and Tribal Trust Lands in South Dakota, where the Bureau is evaluating key operations and

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equipment it plans to employ for the full enumeration in 2010. After this test, the Bureau will have only one more opportunity to assess its census-taking procedures—a “Dress Rehearsal” scheduled for 2008. Moreover, after the Dress Rehearsal, the Bureau will begin to transition from preparatory to operational activities, leaving little room for delays or design changes, which at that point could significantly increase the cost of 2010 Census.

Importantly, for decades we have been reviewing the national enumeration on behalf of Congress. Over the years, through a series of reports and testimonies, we have acquired broad institutional knowledge that gives us a historical view of the census. I want to highlight several broad themes that have emerged from our work.

First, completing the decennial census is a monumental undertaking, and the Bureau recognizes that streamlined and efficient operations are critical for the census’ cost-effectiveness. The Census’ sheer size and complexity make it a risky and fragile enterprise. The 2000 Census, for example, involved the hiring of more than 500,000 enumerators on a temporary basis, opening 511 local census offices nationwide and 24,000 questionnaire assistance centers, processing 1.5 billion sheets of paper, and in 10 weeks following up with 42 million nonrespondent households. The size of the census means that small problems can magnify quickly, and big problems could be overwhelming. For example, 60 seconds might seem like an inconsequential amount of time, but in 2000, if enumerators had spent just 1 minute more at each household during nonresponse follow-up, it could have added almost \$10 million to the cost of the census, assuming a pay rate of around \$13 per hour (wages ranged from \$8.25 to \$18.50 per hour for enumerators in 2000, depending on location).

Second, sound risk management is important to a successful census because many risks are interrelated, and a shortcoming in one operation could cause other operations to spiral downward. For example, a low mail response rate would drive up the follow-up workload, which in turn would increase staffing needs and costs. (Of course, the reverse is also true, where a success in one operation could have a number of positive downstream impacts.) Rigorous up-front planning and testing, and where needed, risk mitigation plans are the best ways to stave off these problems. In the 2000 Census, the Bureau successfully planned and mitigated risk in recruiting and hiring workers by using management information systems capable of tracking key operations with real-time measures. To recruit the vast army of people needed to fill the ranks of its workforce for the 2000 Census, the Bureau set a recruitment goal of 2.4

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million qualified applicants. Because the Bureau tracked the progress local census offices were making in meeting their individual goals, it was able to mitigate risk by quickly raising pay rates and taking other actions at those offices where recruitment was lagging. In the end, the Bureau exceeded its recruitment goal by 100,000 people.

Third, the census is conducted against a backdrop of immutable deadlines, and the census' elaborate chain of interrelated pre- and post-Census Day activities are predicated upon those dates. The Secretary of Commerce is legally required to (1) conduct the census on April 1 of the decennial year, (2) report the state population counts to the President for purposes of congressional apportionment by December 31 of the decennial year, and (3) send population tabulations to the states for purposes of redistricting no later than 1 year after the April 1 census date. To meet these legally mandated reporting requirements, census activities need to take place at specific times and in the proper sequence. Bureau officials have recently stated, and we agree, that the design and plans being implemented are too far down the road and time is too short to allow for significant adjustments. In fact, as Census Day approaches, the tolerance for any operational delays becomes increasingly small. Indeed, considerable risk and cost increases could accompany design changes that occur late in the decade. This requires the Bureau to have risk-based mitigation plans in place now to ensure that 2010 Census operations are ready and that few, if any, changes to the fundamental design happen after the 2008 Dress Rehearsal.

Based on the Bureau's desire to address the issues associated with the 2000 enumeration, in designing the 2010 Census the Bureau had four goals in mind: (1) increase the relevance and timeliness of data, (2) reduce operational risk, (3) increase coverage and accuracy, and (4) contain costs. To achieve these goals, three components—all new operations—are important to the Bureau's plans for 2010:

- enhancing procedures for its address list (the MAF—Master Address File) and the associated geographic information system (the TIGER®—Topologically Integrated Geographic Encoding and Referencing database<sup>1</sup>),

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<sup>1</sup> The TIGER database is a mapping system that identifies all visible geographic features, such as type and location of streets, housing units, rivers, and railroads. To link TIGER to the master address file (MAF), the Bureau assigns every housing unit in the MAF to a specific location in the TIGER, a process called "geocoding." TIGER is a registered trademark of the U.S. Census Bureau.

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- replacing the census long-form questionnaire with the American Community Survey (ACS)<sup>2</sup>, and
  - conducting a short-form only decennial census that is supported by early research and testing.

My remarks today are based primarily on reports that GAO issued from 2002 through May 2006 on the planning and development of the 2010 Census. These reports are listed in appendix I. We analyzed Bureau documents and data and interviewed key Bureau officials regarding the 2004 and 2006 Census Tests. In that regard, we visited the Texas and South Dakota test sites; Queens, New York; and several counties in rural south-central Georgia, where an earlier field test was held in 2004. During these visits we observed the address canvassing operation—where workers go door to door verifying addresses and updating maps as part of the Bureau’s effort to build a complete and accurate address list, and we observed the nonresponse follow-up operation—where enumerators collect information from those households that do not return their initial questionnaire. We conducted our work in accordance with generally accepted government auditing standards.

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## The Bureau’s \$11.3 Billion Cost Estimate for 2010 Census Lacks Timely and Complete Data

The Bureau’s \$11.3 billion life-cycle cost estimate for the 2010 Census lacks timely and complete supporting data. The supporting data of the estimate is not timely because it does not contain the most current information from testing and evaluation. Also, the supporting data of the estimate is not complete because it does not provide sufficient information on the how changing assumptions could affect cost.

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## Cost for Each Decennial Census Continues to Significantly Increase

In January 2004, we reported that the Bureau’s cost projections for the 2010 decennial census continue an escalating trend.<sup>3</sup> As noted above, the Bureau now estimates the 2010 Census will cost \$11.3 billion, making it the most expensive in history, even after adjusting for inflation. Although some cost growth can be expected, in part because the number of housing units—and hence the Bureau’s workload—has become larger, the cost growth has far exceeded the increase in the number of housing units. The

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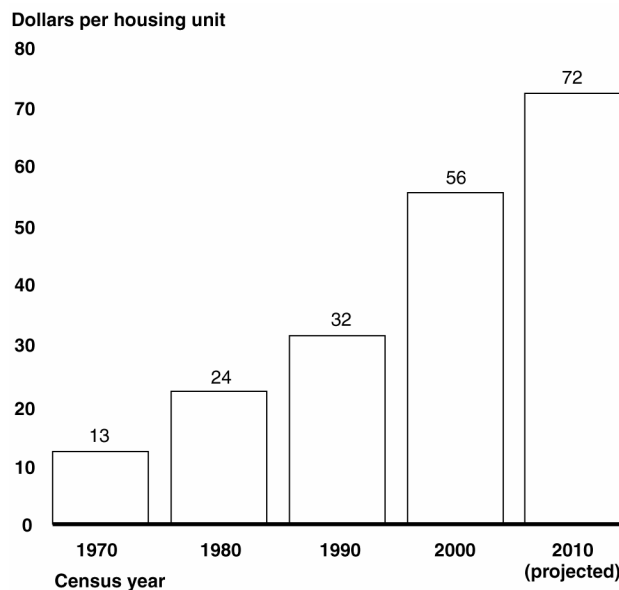
<sup>2</sup> ACS is intended to be a monthly survey of 250,000 households that, under the Bureau’s plans, will replace the long-form census questionnaire.

<sup>3</sup> GAO, *2010 Census: Cost and Design Issues Need to Be Addressed Soon*, [GAO-04-37](#) (Washington, D.C.: Jan. 15, 2004).

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Bureau estimates that the number of housing units for the 2010 Census will increase by 10 percent over 2000 Census levels. At the same time, as shown in figure 1, the average cost per housing unit for 2010 is expected to increase by approximately 29 percent from 2000 levels (from \$56 per housing unit to \$72 per housing unit in 2000 inflation-adjusted dollars).<sup>4</sup>

**Figure 1: Decennial Census Average Cost per Housing Unit (Fiscal Year 2000 Inflation-Adjusted Dollars)**



Source: GAO analysis of U.S. Census Bureau data.

The risk exists that the actual, final cost of the census could be considerably higher. Indeed, the Bureau's initial cost projections for previous censuses proved to be too low because of such factors as unforeseen operational problems or changes to the fundamental design. For example, the Bureau estimated that the 2000 Census would cost around \$4 billion if sampling was used, and a traditional census without sampling would cost around \$5 billion. However, the final price tag for the 2000 Census (without sampling) was over \$6.5 billion, a 30 percent increase in cost. Today's climate of large federal deficits and other fiscal challenges requires holding the decennial's costs as low as possible, while promoting an accurate, timely census.

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<sup>4</sup> These figures include the 10-year costs for ACS replacement for the census long form and the costs of MAF/TIGER.

**2010 Cost Estimate Lacks Timely and Complete Information**

Despite a history of cost increases, the Bureau’s most recent cost estimate is not based on timely and complete information. Table 1 shows the Bureau’s latest revised estimate that was released in September 2005. Based on this table, the bulk of the funds will be spent between fiscal years 2007 through 2013.

**Table 1: Bureau’s Revised September 2005 Estimate of Life-cycle Costs for the 2010 Decennial Census Program (in millions of dollars, nominal)**

Program component	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006 budget request	Subtotal FY01-06	FY 2007- FY 2013 (est.)	Total (est.)
American Community Survey	\$23.6	\$29.0	\$56.8	\$64.1	\$144.1	\$169.9	\$487.5	\$1,219.8	\$1,707.3
MAF/TIGER Enhancements Program	\$0	\$15.0	\$47.0	\$82.4	\$81.2	\$79.8	\$305.4	\$228.9	\$534.3
Short Form 2010 Census	\$0	\$21.0	\$41.6	\$106.0	\$163.0	\$214.5	\$546.1	\$8,466.8	\$9,012.9
<b>Total</b>	<b>\$23.6</b>	<b>\$65.0</b>	<b>\$145.4</b>	<b>\$252.5</b>	<b>\$388.3</b>	<b>\$464.3</b>	<b>1,339.0</b>	<b>\$9,915.5</b>	<b>\$11,254.6</b>

Source: U.S. Census Bureau.

Note: These figures have not been audited by GAO.

As we stated in our January 2004 report<sup>5</sup>, in June 2001, the Bureau derived its 2010 cost estimate by using the actual cost of the 2000 Census combined with assumptions about cost drivers, such as (1) staffing needs, (2) enumerator productivity, (3) pay rates for census workers, (4) the nonresponse rate for mailing back the questionnaires<sup>6</sup>, and (5) inflation. However, the most recent life-cycle cost estimate<sup>7</sup> does not incorporate current information about those 2001 assumptions. One key assumption, that has not been updated pertains to the use of a new technology—specifically, new hand-held, GPS-enabled mobile computing devices (MCDs)—that would be important to the success of the 2010 census by automating and streamlining address canvassing, nonresponse follow-up,

<sup>5</sup>GAO-04-37.

<sup>6</sup>Lower mail-back response rates increase costs by necessitating costly follow-up visits by enumerators to nonresponding households and/or the mailing of a follow-up questionnaire.

<sup>7</sup>U.S. Census Bureau, *Census Bureau Estimated Life Cycle Costs for Reengineering the 2010 Decennial Census Program* (Washington, D.C.: Sept. 2005).



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coverage measurement, and payroll operations. The Bureau anticipated that the use of MCDs would facilitate reductions in administrative and support costs in the Bureau's field offices, including a 50 percent reduction in clerical and administrative local census office staff costs and a 50 percent reduction in space at each local census office. However, the Bureau's existing assumptions about the use and reliability of the MCD were not updated to reflect information from the 2004 test, which showed that assumptions about staffing and space associated with the new technology had changed since the June 2001 estimate. The Bureau's evaluations about those test results indicate that more help desk staff at the local census office were needed to support the use of the MCD, and additional storage space was needed for the devices. However, the Bureau did not use this information when revising its cost estimate in 2005 because, according to Bureau officials, they conduct field tests for operational purposes only—not to inform the cost estimates. In our view, revising cost estimates on the most recent information—including test results that are pertinent to cost assumptions—can assist the Bureau and external decision makers to oversee costs and make necessary resource allocations to help ensure a successful, cost-effective, census.

The Bureau's cost estimate lacked complete information, such as a sensitivity analysis regarding assumptions that could affect cost drivers. OMB Circular A-94 provides guidelines for cost-benefit analysis of federal programs and recommends that agencies develop a sensitivity analysis for major projects with significant uncertainty, like the decennial census. The circular provides a method for determining how sensitive outcomes are to changes in assumptions. In January 2004, we reported that the Bureau could provide more robust information on the likelihood that the values the Bureau assigned to key cost drivers could differ from those initially assumed and be timelier—previously the life-cycle cost estimate had been provided at 2-year intervals.<sup>8</sup> The Bureau's latest life-cycle cost document does not contain a sensitivity analysis on assumptions that impact cost; it did, however, indicate that the life-cycle cost would be updated annually.

Having transparent information about cost estimates is especially important because decennial costs are sensitive to many key assumptions. In fact, for the 2000 Census, the Bureau's supplemental funding request for \$1.7 billion in fiscal year 2000 primarily involved changes in assumptions related to increased workload, reduced employee productivity, and

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<sup>8</sup>GAO-04-37.

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increased advertising. Given the cost of the census in an era of serious national fiscal challenges, it would be beneficial for the Bureau and Congress to have sensitivity information about the likelihood—high, medium, or low—that certain assumptions would drive costs. By providing this information, the Bureau would better enable Congress to consider funding levels in this uncertain environment.

Our January 2004 report also highlighted the challenge that the Bureau would have in containing the cost of the 2010 Census. To increase the transparency of the census' life-cycle costs for Congress, we recommended that Office of Management and Budget (OMB) establish triggers that would signal when the annual 2010 Census costs and/or life-cycle 2010 Census costs exceeded some predetermined amount. We also recommended, among other things, that OMB ensure the Bureau analyzes the sensitivity of the cost figures to specific assumptions. However, OMB disagreed with our recommendation, because it said it already has internal procedures within its budget reviews to monitor 2010 Census costs. OMB shared our view that the costs and risks associated with the 2010 Census must be carefully monitored and evaluated throughout the decade. OMB also agreed that it is essential to understand the key cost drivers and said that it is working with the Bureau to ensure that the Bureau develops high-quality, transparent life-cycle cost estimates.

In addition, we recommended in our 2004 report that the Bureau develop a comprehensive project plan that would be updated as needed to (1) include milestones for completing key activities; (2) itemize the estimated cost of each component; (3) articulate a clear system of coordination among project components; and (4) translate key goals into measurable, operational terms to provide meaningful guidance for planning and measuring progress. Some, but not all, of this information is available in various documents, and to be useful, it would need to be pieced together. As a result, we recommended that the Bureau combine this information into a single, comprehensive document. The Bureau disagreed with our recommendation, although it said it would develop such a plan nonetheless and provide it to GAO, Congress, and other stakeholders. The Bureau has not yet issued such a document.

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## Bureau Has Taken Steps to Reduce Nonresponse Follow-up Costs, But Challenges with Technology Remain

Since 2000, the Bureau has reengineered the decennial census and has begun to implement new initiatives. These include (1) using a short-form-only census questionnaire; (2) automating field operations; and (3) using a targeted second mailing to households that fail to respond to the initial census questionnaire, instead of sending an enumerator to visit houses that have not responded. These initiatives could reduce the workload and cost of nonresponse follow-up. While these initiatives show promise, the Bureau will need to address technological challenges with the MCD that will be used to collect data for nonresponse follow-up.

The Bureau is finding it increasingly difficult to locate people and get them counted in the census. As in previous censuses, the major cost for the 2010 Census is what the Bureau calls “field data collection and support systems,” accounting for over half of the life-cycle costs of the decennial census.

First, the Bureau plans to contain the cost of nonresponse follow-up by increasing mail response through a short-form-only census. The overall mail response rate has been declining steadily since 1970. In the 1980 Census, the mail response rate was 75 percent, 3 percentage points lower than it was in the 1970 Census. In the 1990 census, the mail response rate dropped to 65 percent and, in 2000, appeared to be leveling off at about 64 percent. Contributing to this decline is the public’s unwillingness to complete the long form. Specifically, the response rates in 1990 and 2000 to the short form have been higher than the response rate to the long form. Bureau data suggest a 1 percent increase in the mail response rate would result from conducting a short-form-only census.

Secondly, by using the MCD, the Bureau plans to automate field data collection to contain the cost of nonresponse follow-up. The MCD allows the Bureau to automate operations and eliminate the need to print millions of paper questionnaires and maps used by census workers to conduct address canvassing and nonresponse follow-up, as well as managing field staff’s payroll. As stated above, the benefits of using the MCD have been tested in the 2004 and 2006 tests. For example, during the 2004 Census Test, the MCD allowed the Bureau to successfully remove over 7,000 late mail returns from enumerators’ assignments, reducing the total nonresponse follow-up workload by nearly 6 percent. The ability to remove late mail returns from the Bureau’s nonresponse follow-up workload reduces costs, because census workers no longer need to make expensive follow-up visits to households that return their questionnaire late, after the mail-back deadline. If the Bureau had possessed this capability during the 2000 Census, it could have eliminated the need to

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visit nearly 773,000 late-responding households and saved an estimated \$22 million (based on our estimate that a 1 percentage point increase in workload could add at least \$34 million in direct salary, benefits, and travel costs to the price tag of nonresponse follow-up<sup>9</sup>). Moreover, operations that traditionally had to be done in sequence, such as nonresponse follow-up and then verifying the housing unit status for addresses marked vacant, can now be performed simultaneously by using the MCD, which may shorten the time needed for local census offices to stay open.

However, the Bureau's ability to collect and transmit data using the MCD is not known and, at this point, constitutes a risk to the cost-effective implementation of the 2010 Census. During the 2004 test of nonresponse follow-up and the 2006 test of address canvassing, the MCDs experienced significant reliability problems.

During the 2004 Census Test, the MCDs experienced transmission problems, memory overloads, and difficulties with a mapping feature—all of which added inefficiencies to the nonresponse follow-up operation.<sup>10</sup> During the 2006 Census Test, for address canvassing, the device was slow to pull up and exit address registers, accept the data entered by the census workers, and link map locations to addresses for multiunit structures. Furthermore, the MCDs would sometimes lockup, requiring workers to reboot them.

Census workers also found it difficult to transmit an address and map location that were identified for deletion. Because the Bureau could not fix this problem, workers returned to the local census office so technicians could address the problem. The MCD's global positioning system (GPS) receiver, a satellite-based navigational system to help workers locate street addresses and collect coordinates for each structure in their assignment area, was also unreliable. Some workers had trouble receiving signals, and when a signal was available, the receiver was slow to find assignment areas and correct map locations, according to Bureau officials. The Bureau extended the operation 10 days and still was unable

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<sup>9</sup> GAO, *2000 Census: Contingency Planning Needed to Address Risks That Pose a Threat to a Successful Census*, [GAO/GGD-00-06](#) (Washington, D.C.: Dec. 14, 1999).

<sup>10</sup> GAO, *2010 Census: Basic Design Has Potential, but Remaining Challenges Need Prompt Resolution*, [GAO-05-9](#), (Washington, D.C.: January 12, 2005).

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to complete the job, leaving census blocks in Austin, Texas and on the Cheyenne River Reservation, South Dakota, unverified.

The Bureau has acknowledged that the MCD's performance is an issue but believes it will be addressed through a contract awarded on March 30, 2006, to develop a new MCD. However, the new MCD will not be tested until the 2008 Dress Rehearsal, and if problems do emerge, little time will be left to develop, test, and incorporate refinements. Given that, it will be important that the Bureau have a risk mitigation plan in place to help ensure the successful testing of the MCD at the Dress Rehearsal. In our May 2006 report, we highlighted the tight time frames to develop the MCD and recommended that systems being developed or provided by contractors for the 2010 Census—including the MCD—be fully functional and ready to be assessed as part of the 2008 Dress Rehearsal.<sup>11</sup> The Department of Commerce, the Census Bureau's parent agency, noted in its comments on our draft report that the Bureau provided competitors for the contract with information about the design, requirements, and specification for the 2006 test in the request for proposals. Commerce also noted that the Bureau would share preliminary results from the 2006 test with the firm that was awarded the contract, upon the availability of those results. The Bureau, however, did not specify when preliminary results would be available. However, if after the 2008 Dress Rehearsal the MCD is found not to be reliable, the Bureau could be faced with a remote but daunting possibility of having to revert to the costly, paper-based census used in 2000.

Finally, a targeted second mailing to households that fail to respond to the initial census questionnaire could reduce the workload and cost of nonresponse follow-up. According to Bureau studies, sending a second questionnaire could yield a gain in overall response of 7 to 10 percent from non-responding households. In reports, we have highlighted how a second mailing could boost the mail response rate by several percentage points, which in turn would result in considerable savings by reducing the number of costly personal visits enumerators would need to make to non-responding households. The Bureau has never before included this operation as part of a decennial census and over the decade has been testing its feasibility. The targeted second mailing is a part of the 2006

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<sup>11</sup> GAO, *2010 Census: Census Bureau Generally Follows Selected Leading Acquisition Planning Practices, but Continued Management Attention Is Needed to Help Ensure Success*, [GAO-06-277](#) (Washington, D.C.: May 18, 2006).

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test, the results of which will allow the Bureau to identify and resolve any operational issues; to demonstrate a more refined plan as part of the 2008 Dress Rehearsal; and, ultimately, to increase the likelihood that the second mailing will produce the desired cost savings and other benefits in 2010.

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## Bureau Lacks Risk Mitigation Plans for Certain Challenges

Recent work that we have conducted has identified several challenges that, if not properly managed, could increase the cost of the 2010 Census. As the Bureau moves from testing to demonstrating the design in the Dress Rehearsal, it will be important for the Bureau to have risk mitigation plans in place to reduce the severity of challenges to a cost-effective census. These challenges include (1) overseeing contractors responsible for conducting key census-taking operations, (2) successfully updating address and map files, and (3) assessing the resources that will be needed to update the address files and maps for areas affected by hurricanes Katrina and Rita.

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## Increased Reliance on Contractor Support for the 2010 Census Introduces Risk

The Bureau is relying extensively on contractors to supply mission-critical functions and technologies for the 2010 Census. The Bureau estimates that they will spend \$1.9 billion, or nearly 17 percent, of the Bureau's overall decennial costs to award seven major contracts for the 2010 Census. To date, the Bureau has awarded three of its seven major contracts. These three contracts support (1) MAF/TIGER modernization; (2) the development and operation of the Decennial Response and Integration System (DRIS)—a system planned to integrate paper, Internet, and telephone responses; and (3) the Field Data Collection Automation (FDCA) program—a system designed to provide field staff with the equipment and infrastructure needed to collect census data.

Contractors can help the Bureau address the challenges it faces as it plans for and implements the 2010 Census, especially as it becomes increasingly difficult for the Bureau to count the nation's population with its in-house staff and capabilities. The contractors that the Bureau relied on to perform major decennial activities during Census 2000 generally performed well.<sup>12</sup> However, increased reliance on contractors entails certain management challenges, including the oversight of contractors to ensure that they meet

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<sup>12</sup> For example, the data capture system exceeded its performance goals for accuracy, and the advertising campaign blanketed the country with more than 250 advertisements in 17 languages, which helped boost the response rate higher than the Bureau had expected.

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the Bureau's needs in an effective, economical, and timely manner. For example, according to the Department of Commerce Office of Inspector General, the Bureau did not have sufficient program management staff to efficiently acquire systems and manage complex, high-dollar contracts during Census 2000.<sup>13</sup> As a result, the cost of the Bureau's data capture system increased from \$49 million to \$238 million by the end of that decennial.

As we noted in our May 2006 report, the Bureau has not yet awarded four other major contracts for the 2010 Census, but has already pushed back the award dates of two of the remaining contracts because of changes in its acquisition approach. The Bureau's tight schedule for systems development and testing as well as the interdependence of decennial systems could affect its ability to develop fully functional and sufficiently mature systems that can be demonstrated in concert with other operations during the 2008 Dress Rehearsal. We previously reported that during the 1998 Dress Rehearsal for the 2000 Census, a number of new features were not test-ready; as a result, the Bureau said it could not fully evaluate them with any degree of assurance as to how they would affect the census.<sup>14</sup> These late design changes and untested systems resulted in additional costs to the census.

Closely monitoring major contracts continues to be important. In March 2006, we testified that while project offices responsible for the DRIS and FDCA contracts had carried out initial acquisition management activities, neither office had the full skill sets needed to effectively manage the acquisitions.<sup>15</sup> For DRIS, the Bureau's project office had established baseline requirements, but the Bureau had not validated the requirements and had not implemented a process for managing them. Also, the project office had identified the project's risks but had not written mitigation plans or established milestones for completing key risk mitigation activities. As for FDCA, the Bureau again had specified baseline requirements but had not validated them. While, the project office had

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<sup>13</sup> Department of Commerce Office of Inspector General, *Improving Our Measure of America: What Census 2000 Can Teach Us in Planning for 2010*, OIG-14431 (Washington, D.C.: Spring 2002).

<sup>14</sup> [GAO-05-9](#).

<sup>15</sup> GAO, *Census Bureau: Important Activities for Improving Management of Key 2010 Decennial Acquisitions Remain to be Done*, [GAO-06-444T](#), (Washington, D.C.: Mar. 1, 2006).

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begun to oversee the contractor's performance, it had not determined which performance measures it would use, and the office had not implemented a risk management process. Until these basic management activities are implemented, both systems could face increased risks of cost overruns, schedule delays and performance shortfalls. We have made recommendations addressing those issues, such as developing mitigation plans with milestones for key activities and regularly briefing senior managers. The Bureau has agreed to complete these activities as soon as possible.

As part of its effort to allow respondents to use the Internet during the decennial census, the Bureau proposed to develop the use of the Internet under the DRIS contract. However, in May 2006, Bureau officials informed us that the Internet response option was no longer a contract requirement and that they are uncertain whether Internet response would be an option for the 2010 Census. The removal of the Internet from the DRIS contract is an unexpected change, because just 3 months earlier in our March 2006 testimony,<sup>16</sup> we reported that the DRIS contract was expected to process Internet responses for the 2010 Census.

High-level Bureau officials explained that they made the decision to remove the Internet from the contract partly because of the potential risks associated with computer security attacks. In addition, according to a Bureau official, the Bureau's testing to date showed nothing to indicate that offering an Internet response option would improve overall response rates or save any money. According to Bureau officials, if the Internet response option is included in the design, it will be developed in-house by Bureau staff. Bureau officials emphasized that they only have one chance every 10 years to collect this information; moreover, any public perception of an unsecured Internet Web site could result in residents not responding to the census, and in the long term could cost more than if the Internet had not been used. It should be noted that there are security techniques to address Internet attacks, and other federal agencies use the Internet to successfully meet many missions. According to a Bureau official, the Bureau believes it made a sound business decision by removing the Internet from the DRIS contract requirements. Further, the official told us that the Bureau did not develop a formal business case document on this decision.

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<sup>16</sup> [GAO-06-444T](#).



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## Address and Mapping Challenges Pose a Risk to a Cost-Effective Census

To contain decennial costs, long-standing and emerging issues related to the Bureau's address lists and maps need to be addressed. A complete and accurate address list is the cornerstone of a successful census because it identifies all households that are to receive a census questionnaire and serves as the control mechanism for following up with households that fail to respond. Although the Bureau went to great lengths to build a complete and accurate MAF for the 2000 Census, of the 116 million housing units contained in the database, the Bureau estimates it incorrectly included 2.3 million housing units and missed another 2.7 million housing units. In light of these and other problems, the Bureau concluded that enhancements to MAF/TIGER were necessary to make census data more complete and accurate.

The Bureau has conducted research and testing to help resolve each of the problems experienced in the 2000 Census, including addresses that were duplicated, missed, deleted, and incorrectly located on a map (a problem known as "geocoding error"). For example, the Bureau is researching ways to capture missed addresses for housing units that were hard to find—often associated with apartments in small multiunit structures. However, some deadlines for completing research are not firm, while other deadlines that have been set continue to slip. As a result, it is not known whether the research and evaluation efforts underway will be completed in sufficient time to allow the Bureau to develop new methodologies and procedures for improving the MAF by June 2007—the Bureau's announced deadline for determining the baseline for all program requirements.

In addition, one major research effort using software to identify duplicate addresses (an estimated 1.4 million duplicate addresses were removed during the 2000 Census) did not work and will not be used in 2010. As a result, duplicate addresses may still be a problem for the 2010 MAF, and if not detected, can result in increased cost when nonresponse enumerators attempt to collect data from a duplicate address incorrectly listed in the MAF.

New issues surrounding the schedule of address activities have emerged. One such issue revolves around the planning and development of the 2010 Census amid tight and overlapping schedules for updating addresses and map files. For example, Bureau officials estimate that TIGER maps for 600 to 700 counties of 3,232 counties in the United States will not be updated in time to be part of local update of census address (LUCA)—the Bureau's program to give local, state, and tribal government officials the

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opportunity to review the address lists and maps and suggest corrections.<sup>17</sup> LUCA participation is important because local knowledge contributes to a more complete and accurate address file. Not having the most current TIGER maps could affect the quality of a local government's review and could potentially increase the cost of conducting the census. For example, to the extent LUCA participants are not able to use the maps to identify duplicate and nonexistent addresses, and if subsequent address operations also fail to identify those same addresses, then nonresponse follow-up enumerators would make unnecessary and costly attempts to locate these incorrectly included addresses.

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### Bureau Does Not Have a Plan to Assess Resources Needed to Update Address and Map Files in Areas Affected by Hurricanes Katrina and Rita

The Bureau does not have a plan to assess additional resources that may be needed to update the address and map file for areas affected by hurricanes Katrina and Rita. The task of updating Census address files to reflect the changes caused by the hurricanes will be formidable and possibly costly, as much has changed to the landscape since the 2000 Census. On August 29, 2005, hurricane Katrina devastated the coastal communities of Louisiana, Mississippi, and Alabama. A few weeks later, hurricane Rita hit the border areas of Texas and Louisiana. Damage was widespread. For example, the Red Cross estimated that nearly 525,000 people were displaced as a result of hurricane Katrina and approximately 90,000 square miles were affected. In some places, entire communities were obliterated. Homes were declared uninhabitable, and streets, bridges, and other landmarks were destroyed.

For the 2010 Census, locating housing units and the people who reside in them will be critical to accurate population counts of places hit by the hurricanes, especially since it is estimated that hundreds of thousands of people have—either temporarily or permanently—migrated to other areas of the country. The Bureau anticipates that by 2009, residents will have decided whether to return to the region. However, Bureau officials have not provided information regarding the basis of this conclusion. Given the magnitude of the area, population, and infrastructure affected, it would be prudent for the Bureau to begin assessing whether new procedures will be necessary, determining whether additional resources may be needed, and identifying whether local partners will be available to assist the Bureau in

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<sup>17</sup>In the Census Address List Improvement Act (Pub. L. No. 103-430, Oct. 31, 1994), Congress required the Bureau to develop a local address review program giving local governments and tribal governments greater input into the Bureau's address list development process.

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its effort to update address and map data, as well as other census-taking activities. Without having done a resource analysis, the Bureau remains uncertain about whether additional funds will be needed to help locate and count residents affected by the hurricanes.

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In summary, the 2010 Census is an expensive but vitally important undertaking, the success of which is needed to meet the information requirements of policymakers at all levels of government, as well as business interests, and academic researchers. The Bureau responded to concerns about the accuracy, completeness, and cost-effectiveness of the 2000 Census by reengineering the heretofore paper-based processes used in all previous censuses.

At the same time, the projected life-cycle cost of \$11.3 billion makes the next decennial census the most expensive in our history, and many factors can cause the 2010 Census to be more expensive. It is important to consider that some factors that may increase the costs of the census—such as counting more people than ever who do not speak English or who live in alternative, hard-to-find housing—are inherent in the characteristics of the population that needs to be counted. Largely, demographically related cost factors will continue to exist, regardless of actions taken by the Bureau, and must be treated as givens by Bureau planners. Still, other factors that can cause cost increases can and should be mitigated. While needed, the reengineering introduced by the Bureau presents new challenges and increased risks. The Bureau needs to ensure that its new MCDs work as designed, and that contractors perform according to requirements, on schedule, and at cost. Moreover, the Bureau still needs to fully resolve preexisting issues related to the accuracy and completeness of the address list.

Overall, we have long recognized that redesigning massive enterprises entail risks and uncertainties. Such risks and uncertainties need to be managed through the use of adequate planning and risk management by Bureau management. Such tools also serve the oversight requirements of external stakeholders—most notably Congress, which is being asked to authorize and appropriate more funds than ever to pay for the census.

In January 2004, recognizing the cost escalation risks of the 2010 Census, we concluded that the Bureau's plans for 2010 lacked the needed budgetary supporting detail, supporting analysis, and other information, making it difficult for Congress and us to oversee the Bureau's operations and assess the feasibility of the Bureau's design and the extent to which it

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would lead to greater cost-effectiveness. While the Bureau has made progress in planning and designing the 2010 Census, the Bureau will need to continue to take steps to manage and mitigate risks for a comprehensive, accurate, and cost-effective population count in 2010.

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That concludes my statement, Mr. Chairman. I would be pleased to respond to any questions you or other members of the Subcommittee may have.

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## Contacts and Acknowledgements

For questions regarding this testimony, please contact Brenda S. Farrell, on (202) 512-6806, or by email at [farrellb@gao.gov](mailto:farrellb@gao.gov). Individuals making contributions to this testimony include Betty Clark, Robert Goldenkoff, Ernie Hazera, Shirley Hwang, Krista Loose, Lisa Pearson, Scott Purdy, Cynthia Scott, and Tim Wexler.

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# Appendix I: Related Products by GAO

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## GAO Products

*2010 Census: Census Bureau Generally Follows Selected Leading Acquisition Planning Practices, but Continued Management Attentions Is Needed to Help Ensure Success.* [GAO-06-277](#). Washington, D.C.: May 18, 2006.

*Census Bureau: Important Activities for Improving Management of Key 2010 Decennial Acquisitions Remain to Be Done.* [GAO-06-444T](#). Washington, D.C.: March 1, 2006.

*2010 Census: Planning and Testing Activities Are Making Progress.* [GAO-06-465T](#). Washington D.C.: March 1, 2006.

*Information Technology Management: Census Bureau Has Implemented Many Key Practices, but Additional Actions Are Needed.* [GAO-05-661](#). Washington, D.C.: June 16, 2005.

*2010 Census: Basic Design Has Potential, but Remaining Challenges Need Prompt Resolution.* [GAO-05-09](#). Washington, D.C.: January 12, 2005.

*Data Quality: Census Bureau Needs to Accelerate Efforts to Develop and Implement Data Quality Review Standards.* [GAO-05-86](#). Washington, D.C.: November 17, 2004.

*Census 2000: Design Choices Contributed to Inaccuracies in Coverage Evaluation Estimates.* [GAO-05-71](#). Washington, D.C.: November 12, 2004.

*American Community Survey: Key Unresolved Issues.* [GAO-05-82](#). Washington, D.C.: October 8, 2004.

*2010 Census: Counting Americans Overseas as Part of the Decennial Census Would Not Be Cost-Effective.* [GAO-04-898](#). Washington, D.C.: August 19, 2004.

*2010 Census: Overseas Enumeration Test Raises Need for Clear Policy Direction.* [GAO-04-470](#). Washington, D.C.: May 21, 2004.

*2010 Census: Cost and Design Issues Need to Be Addressed Soon.* [GAO-04-37](#). Washington, D.C.: January 15, 2004.

*Decennial Census: Lessons Learned for Locating and Counting Migrant and Seasonal Farm Workers.* [GAO-03-605](#). Washington, D.C.: July 3, 2003.

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*Decennial Census: Methods for Collecting and Reporting Hispanic Subgroup Data Need Refinement.* [GAO-03-228](#). Washington, D.C.: January 17, 2003.

*Decennial Census: Methods for Collecting and Reporting Data on the Homeless and Others Without Conventional Housing Need Refinement.* [GAO-03-227](#). Washington, D.C.: January 17, 2003.

*2000 Census: Lessons Learned for Planning a More Cost-Effective 2010 Census.* [GAO-03-40](#). Washington, D.C.: October 31, 2002.

*The American Community Survey: Accuracy and Timeliness Issues.* [GAO-02-956R](#). Washington, D.C.: September 30, 2002.

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