PREPARED STATEMENT OF
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Hearing to Examine Issues Relating to the Census Bureau's
Risk Management of Key 2010 Information Technology Acquisitions

Before the Subcommittee on Information Policy, Census, and National Archives
U.S. House of Representatives

11 December 2007

Mr. Chairman, thank you for the opportunity to be here this afternoon to discuss the key information technology (IT) systems under development for the reengineered short form 2010 Census. Throughout the decade we have entered into a series of major IT acquisitions that constitute the foundation of our 2010 Census operations. Taken together, these systems are central to meeting our goals to improve accuracy, contain cost and mitigate risk.

Today, I am going to discuss four major 2010 Census IT systems that illustrate the extent to which automation lies at the heart of our 2010 operations.

- The MAF/TIGER Accuracy Improvement Project (MTAIP) is providing corrected coordinates on a county-by-county basis for all features of the Topologically Integrated Geographic Encoding and Referencing (TIGER) geographic database underlying our Master Address File (MAF).

- The Field Data Collection Automation (FDCA) program, which includes the handheld computers and related systems, and the IT infrastructure for the Regional Census Centers and Local Census Offices, will allow census enumerators using hand held computers to capture and transmit information from the interviews they conduct with households that do not return their forms. The FDCA program also is designed to transmit and update enumerator assignments, and to support address list updating activities.

- The Decennial Response Integration System (DRIS) will capture and process census responses from all sources, including returned questionnaires, telephone interviews, and the handheld computers.

- The Data Access and Dissemination System II (DADS II) will replace and improve upon our existing systems for tabulating and disseminating the data and products we produce.

Timing is critical to the success of these systems. I cannot emphasize too strongly that not only do we need adequate funding, we need it in time to make use of it. Our deadlines are not randomly selected; they all have to be in line with our fixed legal deadline of delivering the population count to the President and Congress for apportionment. Our new technology must be field tested prior to the 2010 Census if we are to assure Congress and the American people that the Census Bureau is indeed ready to implement the anticipated technological innovations. Delays, even of a few weeks, add risks to our operation that could compromise our effectiveness and the quality of our data.

We cannot buy back time. As you know, the recent six-week delay in funding Census programs resulting from the "clean" Continuing Resolution (CR) passed at the beginning of FY 2008 forced us to delay and reduce the scope of our Dress Rehearsal, which will now begin on May 1, 2008. (A full list of operations in the reduced scope Dress Rehearsal is available upon request.)

I want to thank the Committee for your help in getting us the funding in October that minimized the effect of this delay, and in making sure that the subsequent CR includes the funding we need. While we will not be able to test all systems we originally wanted to in 2008, we will be able to test the most critical, including handheld computers used for the Non-Response Follow-up operation. Over the next three years, delays in funding are the biggest risk for the 2010 Census. Time is precious and we cannot afford to lose more.

Before I review our major systems, I think it's worth taking a moment to touch on the Census Bureau's long tradition of advancing technological innovations to improve our accuracy and efficiency. At the end of the 19th century, it was the Census Bureau that introduced Herman Hollerith's automatic tabulating machine into productive use – a machine that led to the foundation of IBM. In the 1940s and 1950s we used the early electronic computing machines, precursors to modern computers, to more effectively tabulate information. In fact, UNIVAC I, the world's first commercial computer, was designed for the U.S. Census Bureau to help process the 1950 Census. UNIVAC was the first electronic computer used by a civilian government agency. From the 1950s through the 1980s, we worked with the National Institute of Standards and Technology to develop FOSDIC (Film Optical Sensing Device for Input to Computers), which was capable of "reading" information from a negative microfilm copy of census questionnaires and transferring responses to magnetic tape for processing. The continuing adaptation of the system to emerging computer technologies increased the efficiency of data tabulation operations and the accuracy of census data.

In the 1980s, we developed for the first time a single, integrated, automated geographic database that covers the entire United States. We call this the Topologically Integrated Geographic Encoding and Referencing (TIGER) database. This is a computer-readable, seamless map of the United States that we use to geographically place addresses and produce the maps we need for census operations and products. TIGER jump-started the entire Geographic Information Systems industry in the United States. In effect, TIGER opened the door for the development of

MapQuest and Google Maps, and for the navigation systems we commonly find in many of today's automobiles.

By the 1990s, we recognized that we needed to move away from Census home-grown technologies. The capabilities of a robust, nascent IT industry had by then exceeded our internal abilities. Private sector involvement in Census 2000 technical systems was unprecedented. The most important example is the enormously successful data capture system developed by Lockheed-Martin Corporation that captured information from more than 120 million census questionnaires.

So there is nothing new about the Census Bureau's use of technology. In fact, we've been on the cutting edge of technological innovation in census and survey taking for over 100 years. For the 2010 Census, the use of hand held computers represents the most fundamental change in census operations, and they are the key to leveraging technology to improve accuracy and control costs.

I can report that the FDCA contractor, Harris Corporation, has provided a hand held computer that is functioning well in the initial Dress Rehearsal address canvassing operations. During Address Canvassing, where census enumerators verify and update the census address list, the devices have proven to be reliable, with a hardware failure rate of less than 1%. That is well below industry standards. The devices are also secure – they require a fingerprint and password to operate, and the data are fully encrypted in the device and during transmission. And the devices are proving to be functional. We have successfully collected precise GPS coordinates for housing units and map features; data has been transmitted effectively via both landline and wireless transmissions; and our workers are increasingly comfortable with the device. We were also able to identify software problems and apply solutions simultaneously and uniformly to all devices via electronic transmission to each device upon start-up.

These successes in the Dress Rehearsal build on our experience in the census tests we conducted in 2004 and 2006, where both users and technical observers identified issues relating to mobile computing device reliability, mapping applications, and GPS collection. The Census Bureau structured the FDCA acquisition strategy to provide a technical solution for the 2010 Census that mitigated risks in the development of the system, and the results to date indicate that improvements to the hand held computer design provide a sound platform for delivering a 'production' automation solution for the 2010 Census field operations.

As with any operation of this magnitude, the Dress Rehearsal is also identifying challenges. This is not unexpected. In fact, meeting these challenges is a fundamental step in the development of the 2010 systems and the very reason we conduct the Dress Rehearsal. During the test, Census stakeholders, Census Bureau officials, and Harris Corporation personnel interacted daily to review problems and other concerns noted by field employees. Harris deployed software patches during the operation that substantially reduced average transmission time.

Following the Address Canvassing operation for the Dress Rehearsal, Census Bureau and Harris Corporation staff identified problems and analyzed their causes to learn from this operation. Teams conducted more detailed analyses of the transmission component of the design and performance during Address Canvassing. These analyses included data on average transmission

time, the average size of transmissions, the type of data being transmitted, and the number of transmissions. Harris also analyzed the end-to-end transmission workflow, problems documented in help desk tickets, and assignment area size. These analyses led to a number of corrective measures that are now being taken to improve performance of the hand held computer and of the transmission process, for example:

- The initial hand held computer software design inhibited efficient transmission to and from the hand held computer, resulting in enumerator downtime. We resolved this by making improvements to the database design and implementing hardware and software upgrades.

- The hand held computers did not function well if the data files were too large. They worked most efficiently with assignment areas of up to 720 addresses. However, approximately 3% of the assignment areas had more than that. We are addressing this issue by limiting the size of the assignment areas and the amount of data that must be downloaded and processed on the hand held computer to maximize efficiency.

Looking toward the Non-response Follow-up Dress Rehearsal operational test early next year, we will continue to monitor user problems. We will work through Harris Corporation to capture, and summarize on a regular basis, information that will enable us to document hand held computer performance improvements upon the Address Canvassing baseline, or to identify areas in need of further study. More broadly, as with other components of the overall Census design, we also will continue to assess hand held computer performance in terms of the fundamental objectives for the 2010 Census: reduce operational risk, improve the accuracy of census coverage, and contain costs.

I want to emphasize to the Committee that this is a new program for us. Consequently, there are significant risks. These risks are exacerbated by the strict timeline that I stressed earlier in this testimony. It is possible that we will not have enough time to incorporate all of the functionality in the FDCA system that we initially planned. This is the only way that we can mitigate the risks associated with completing development of this new system under the intense time constraints we now face.

The Decennial Response Integration System will work hand-in-hand with FDCA. That system currently is on time, on budget, and meeting all performance metrics. DRIS will capture and integrate census responses from all sources, including the mailed in questionnaires, telephone interviews, and the handheld computers. We have a lot of experience working with Lockheed Martin Corporation, our contractor for DRIS, on data capture and integration, and we are confident that efforts will be successful. It is imperative, though, that we test all of the interfaces between DRIS and FDCA, and this, after proving the hand held computer functionality for Non-Response Follow-up, is the highest priority for our Dress Rehearsal. Development and testing for all DRIS systems is underway, and we are working closely with Lockheed Martin to evaluate the cost, schedule and technical baselines at a very detailed level. Again, the DRIS contract is on schedule and on budget.

The MAF/TIGER Accuracy Improvement Project is ahead of schedule and under budget. The realigned geographic database has functioned well in the Dress Rehearsal, and we will complete the project nation-wide by Spring of next year.

The contract for the replacement of our Data Access and Dissemination System was recently awarded, and initial planning is underway.

In closing, I want to stress again the reality of our schedule constraints. The next decennial census will be the largest peacetime mobilization in history. The Census Bureau, in the last half of 2009, will have to process 3 million job applications, and hire and train 800,000, workers who will conduct the Constitutionally mandated 2010 Census. The systems we are using will need to be fully developed, tested and put in place.

We have weathered the storm caused by the first CR, but just barely. The recent Government Accountability Office (GAO) report on the status of Census IT systems emphasized the need for an end-to-end systems test, both for systems supplied by contractors and developed by the government. Because of the elimination of most of the smaller paper-based operations originally planned for the Dress Rehearsal, all of which are controlled through automated systems in the local census offices, (including update-leave, Group Quarters enumeration, service based enumeration and the Be Counted program) there is increased risk in the interfaces between these paper-based systems and our automated systems. Because we have done these operations before, we were willing to operate with this level of potential new risk. To mitigate potential interface problems, the bureau is considering additional testing of system interfaces in 2009.

We need and appreciate your continued support as we proceed with the development of the IT systems fundamental to a successful Census in 2010.

Thank you again for this opportunity to address these issues with you. I look forward to your questions.